

SHUTE, MIHALY & WEINBERGER LLP
ATTORNEYS AT LAW

E. CLEMENT SHUTE, JR.
MARK I. WEINBERGER
MARC B. MIHALY, P.C.
FRAN M. LAYTON
RACHEL B. HOOPER
ELLEN J. GARBER
CHRISTY H. TAYLOR
TAMARA S. GALANTER
ELLISON FOLK
RICHARD S. TAYLOR
WILLIAM J. WHITE
ROBERT S. PERLMUTTER
OSA L. ARMI
BRIAN J. JOHNSON
JANETTE E. SCHUE
MATTHEW D. ZINN

396 HAYES STREET
SAN FRANCISCO, CALIFORNIA 94102
TELEPHONE: (415) 552-7272
FACSIMILE: (415) 552-5816
WWW.SMWLAW.COM

CATHERINE C. ENGBERG
ERIN RYAN
MATTHEW D. VESPA
ROBIN A. SALSBERG

LAUREL L. IMPETT, AICP
CARMEN J. BORG
URBAN PLANNERS

ELIZABETH M. DODD
DAVID NAWI
OF COUNSEL

November 4, 2003

Mr. David Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Re: Comments Submitted on Behalf of the City of El Segundo
on the Supplement to the Draft EIS/EIR for the Proposed
LAX Master Plan Improvements

Dear Mr. Kessler and Mr. Ritchie:

Please accept the following comments on the July 2003 Federal Aviation Administration ("FAA") and Los Angeles World Airports ("LAWA") Supplement to the Draft Environmental Impact Statement/Environmental Impact Report ("Supplement") for the proposed Los Angeles International Airport ("LAX") Master Plan. These comments are submitted on behalf of the City of El Segundo. They consist of this letter, the attached reports prepared by expert technical consultants who have provided specialized analysis of certain areas of particular concern, and other attached documents referenced herein. The attachments submitted herewith provide additional relevant material which should be

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carefully considered by you and the decisionmakers before taking any action on the proposed Master Plan. In addition, for convenience, appended to this letter are a table of contents and lists of attachments.

I. LAWA and the FAA Cannot Proceed Based on the 2003 Draft Master Plan Addendum and the Supplement to the Draft EIS/EIR Because the Documents are Legally Inadequate and Perpetuate Serious Flaws Previously Identified with Regard to the 2001 Master Plan and the Draft EIS/EIR.

Our review and the analysis by our expert consultants has identified errors, miscalculations, flawed methodology, and incorrect assumptions which, taken together, render the Supplement and the Draft EIS/EIR as a whole, inadequate under the California Environmental Quality Act ("CEQA") and National Environmental Policy Act ("NEPA"). Our comments cover the 2003 Draft Master Plan Addendum ("Addendum"), the Supplement, and the associated Appendices and Technical Reports. These documents fail to disclose the extent of the adverse environmental impacts of the Master Plan alternatives and, in particular Alternative D.

A fundamental issue, as set forth in Section II below, is the capacity of Alternative D. The capacity of the airport, in particular the number of passengers served, directly affects the levels of the environmental impacts of the airport, the most obvious being traffic congestion, air pollution, and noise. In asserting that Alternative D would serve no more than 78 million annual passengers ("MAP"), however, LAWA never conducted the gate capacity analysis necessary to determine the physical capacity of the airport configuration being proposed in Alternative D. Based on our own expert evaluation, a gate capacity analysis clearly demonstrates that the capacity of Alternative D significantly exceeds 78 MAP. The entire environmental analysis of the Supplement therefore hinges on an erroneous assumption regarding the number of passengers to be served under Alternative D, resulting in a serious understatement of the level of adverse impacts.

As set forth below in Section III, the analysis of adverse impacts continues to be inadequate in numerous other regards, which we discuss following the organization of the Supplement. As a preliminary matter, we have the following general comments regarding the analysis throughout the documents:

- The impacts discussions are improperly cut off at the year 2015, a mere twelve

years away. LAX causes significant regional environmental impacts on traffic, air quality, and noise in particular, and with the passage of time those areas continue to worsen. Cutting the analysis off at 2015 artificially reduces the full scope of impacts, resulting in a failure to disclose the true environmental impacts over the life of this project.

- The Supplement's descriptions of the particular elements of Alternative D and the No Action/No Project Alternative contain a number of inaccuracies, fail to provide key information and directly conflict with information in other LAWA documents. These problems are particularly pronounced with regard to the description of existing and proposed LAX cargo facilities.
- The Supplement relies on a problematic baseline for its analysis. As we explained in our comments on the Draft EIS/EIR, the 1996/97 baseline utilized in that document was improper because it ignored substantial development that took place at LAX after 1996/97. The Supplement properly acknowledges some of that development, including: Southern Airfield Complex taxiway improvements, terminal expansion/improvement projects, a new remote commuter terminal, remote aircraft parking and boarding facilities near the west end of LAX, and a new 989-stall parking structure. The Supplement improperly discounts those changes as "minor" modifications having no real impact on the airport's capacity. The document takes the position that the projects can therefore be added to the baseline without changing the results of the analysis in the EIS/EIR. This is incorrect. The projects at issue were undertaken as part of an overall effort by LAWA to increase the capacity of LAX, they were undertaken outside of the Master Plan process and without any of the necessary environmental review. As a result, there has been no public acknowledgment, much less mitigation, of the environmental impacts associated with those projects. This is unacceptable under CEQA and NEPA. LAWA and the FAA cannot, therefore, simply include the projects in the baseline. They must evaluate, acknowledge and mitigate for the impacts of those projects.
- The analysis fails to update information regarding cumulative impacts. In the years that have passed since the drafting of the Draft EIS/EIR, there have been changes in the cumulative and regional situation, in such areas as air quality, traffic congestion, etc., and new information is available and should be utilized regarding proposed projects and other cumulative conditions, which will have

impacts on local and regional environmental resources.

- Mitigation measures included in the Supplement are inadequate, as pointed out below and in our technical reports. In many instances mitigation is assumed or stated to be adequate without sufficient assurance of future funding. Unfunded improvements, especially of expensive roadway infrastructure, cannot be assumed to mitigate impacts. In other instances, mitigation measures suggested are unenforceable. Reliance by the Supplement on unfunded infrastructure and unenforceable mitigation results in a failure to disclose the true scope of the environmental impacts.
- With regard to the Southern Airfield, we are concerned that LAWA is improperly pursuing development of improvements outside of and segmented from the Master Plan process. The Southern Airfield improvements are a key component of the Alternative D proposal advanced as a means of addressing the problem of runway incursions on Runways 25L-8R and 25R-8L. LAWA's own documents indicate, however, that the agency has, in fact, already committed to undertaking the project. *See Attachment 11.* LAWA's significant and irrevocable commitment of resources to the southern runway complex modifications is wholly inappropriate. CEQA and NEPA require analysis, disclosure, and mitigation of impacts before such decisions.
- Similarly, we note that Los Angeles has already initiated the process to procure detailed airport engineering and design work for Alternative D, at a cost of millions of dollars in addition to the millions already spent. *See Attachment 17.* This raises two separate legal issues.
 - In much of the Supplement, there is an insufficient level of detail provided to fully disclose the environmental impacts and to design appropriate mitigation measures. The detailed subsequent planning must be carefully reviewed to ascertain whether it raises the need for additional environmental analysis.
 - The devotion by Los Angeles of significant sums of money to push forward Alternative D with detailed design review prior to completion of the CEQA/NEPA process would violate the requirement that a lead agency take no action that commits it to a course of action before the completion and

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consideration of the final environmental analysis. Such funding would increase the momentum toward plan approval, and make it more difficult for decision makers, following a careful review of the environmental and other issues, to make changes in the plan or vote against its approval.

II. Master Plan Alternative D As Currently Proposed Would Expand LAX's Capacity Significantly Over 78 Million Annual Passengers.

One of LAWA's primary stated purposes in designing Master Plan Alternative D, as explained in the Addendum and the Supplement, was to address environmental concerns by developing an alternative with a capacity to serve no more than 78 million annual passengers (MAP), the capacity of the current airport (and therefore the No Action/No Project Alternative). The analysis in the Addendum and Supplement indicates that the capacity of Alternative D is 78.9 MAP, and the impacts analyses discussing the impacts of Alternative D rely on that basic assumption.

The issue of retaining the 78 MAP capacity of the airport is of such paramount importance that El Segundo retained an eminent expert in airport design and capacity to study the LAWA materials and provide an independent evaluation of the capacity of Alternative D. The report of Professor Adib Kanafani, *Capacity Analysis of Aircraft Gate Positions, Los Angeles International Airport Master Plan Alternative D*, is included as Appendix A to Attachment 7 to this letter.

Professor Kanafani concluded, after extensive review of LAWA's documents and personal communications with LAWA and its professional consultants, that LAWA did not conduct a capacity analysis of the proposed terminal and gate configuration. LAWA's assertion that Alternative D would serve no more than 78 MAP was based not on the physical ability of the gate configuration to serve passengers, but on market assumptions regarding the reactions of airlines and of the air transportation market to the configuration proposed in Alternative D. This analysis fails to reveal the actual physical capacity of the airport, and cannot be used as a representation of the capacity of Alternative D.

In fact, as LAWA's own documents show, Alternative D was designed to handle about the same number of aircraft operations in 2015 as Alternative C, which according to LAWA would serve 89 MAP (Table S3-1). The difference in the annual passenger projections calculated by LAWA for Alternatives C and D is based on

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LAWA's assumptions that under Alternative D, the airlines would essentially fly smaller planes with fewer seats and fewer passengers. LAWA's conclusion that Alternative D would serve only 78 MAP is also the result of several inconsistent assumptions and erroneous calculations, which are identified in Professor Kanafani's report.

For example, LAWA's stated assumptions include a reduction in commuter flights under Alternative D (Addendum, section 3.3.3) as more of the demand for commuter service is met by other airports. However, in deriving its passenger projections, LAWA assumes *larger* numbers of small commuter planes under Alternative D. Addendum Table 3.3-1. Elsewhere LAWA uses an incorrect conversion factor to convert peak day operations to annual operations, a factor which is at odds with both current reality and LAWA's assumptions regarding future trends. LAWA's analysis also assumes the use of outdated aircraft and old seating configurations, rather than projecting the future use of aircraft currently on order by airlines.

In the absence of any actual gate capacity analysis by LAWA, Professor Kanafani undertook what LAWA did not provide, i.e. a calculation of the number of passengers that could be served at LAX under Alternative D, based on the proposed number and mix of types of gates. His analysis, set forth in full at Appendix A to Attachment 7, concludes that the true gate capacity of Alternative D exceeds the stated 78 MAP, and is conservatively estimated at about 87 MAP.

Professor Kanafani also analyzed the airfield improvements that are proposed under Alternative D, and concluded that based on those improvements alone the capacity of Alternative D was as high as, or higher than, that of Alternative C. As set forth more fully in Attachment 7, the extensions of the runways and other improvements to the airfield design all tend to enhance capacity by improving operations and reducing delays. Further, other aspects of the design of Alternative D, such as the terminal area and the parking provided, appear to be excessive for 78 million annual passengers and would accommodate more. Moreover, a review of LAWA's own tables regarding reductions in delays under Alternative D supports the conclusion that Alternative D would have a capacity similar to that of Alternative C.

In addition, as described in the Addendum and Supplement, the sequencing of airport improvements under Alternative D contains no assurances that current gate positions and other facilities would be decommissioned before new facilities come on line. This omission leaves the door open for the total number of usable gates to greatly

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increase beyond what is analyzed in the Supplement. For example, the West Satellite Concourse is proposed for construction in Phase II, while the demolition of TBIT and conversion of the north terminal to linear facilities is in Phase III. In the period between completion of Phase II and the demolition called for in Phase III, the airport's capacity would substantially exceed the reported 2015 capacity.

In order for Alternative D to fulfill its stated purpose of retaining capacity at 78 MAP, significant revisions, including a reduction in the number of gates, would be required. LAWA should develop very specific phasing provisions to assure that actual capacity does not exceed 78 MAP, such as eliminating old gate positions before new gates become operational. Reduction of other facilities such as terminal space and excess parking should also be considered. Unless such revisions are incorporated into the airport plan, its capacity will far exceed the stated 78 MAP. Meanwhile, the environmental analysis of Alternative D, which is based on the stated capacity of 78 MAP, is inadequate under CEQA and NEPA in that it fails to provide public disclosure of the impacts of the actual capacity of the plan.

III. The Supplement to the Draft EIS/EIR Understates the Adverse Environmental Impacts of LAX Master Plan Alternative D and Fails In Numerous Other Ways to Satisfy Legal Requirements for Environmental Review.

On behalf of El Segundo, this firm previously submitted extensive comments on the Draft Master Plan and EIS/EIR circulated by LAWA and the FAA in 2001. *See* September 18, 2001 Comment Letter prepared by Shute, Mihaly & Weinberger LLP ("September 2001 Comment Letter"). Those comprehensive comments identified numerous fundamental flaws in both the plan and the environmental document. LAWA and the FAA have not yet released any response to those comments, and for the most part, the Supplement and Addendum ignore them.

The principle purpose of the Addendum and the Supplement appears to be the introduction and analysis of a new preferred Master Plan option: Alternative D. Additionally, the Addendum and the Supplement contain some additions and changes to the information and analysis in the 2001 Draft Master Plan and EIS/EIR. The Addendum and the Supplement do not, however, eliminate the problems identified in public comments on the 2001 Draft Master Plan and EIS/EIR. In fact, the Supplement's analysis generally perpetuates the same problems seen in the 2001 analysis. The comments

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presented in our September 2001 Comment Letter regarding flaws in the environmental analysis of Alternatives A, B, C and the No Action/No Project Alternative, remain salient and apply to the Supplement's analysis of Alternative D. Therefore we incorporate those prior comments, as applicable to Alternative D, by this reference. We do not repeat prior comments in full here.

Simply stated, the Addendum and the Supplement, like the 2001 Draft EIS/EIR and Master Plan, fail to satisfy the legal requirement that LAWA and the FAA disclose the impacts of the proposed development. As detailed below, the documents are flawed in their basic design, methodology, analysis of impacts, and approach to mitigation. They misstate impacts, inflate project benefits and generally appear to be intended as advocacy documents in support of Alternative D. In short, they do not meet the requirements of CEQA and NEPA.

A. The Project Description is Fundamentally Flawed.

1. The Supplement to the Draft EIS/EIR Relies on a Problematic Baseline for its Analysis.

Our comments on the 2001 Draft EIS/EIR noted that the 1996/97 baseline utilized by LAWA and the FAA was inaccurate in that it did not include substantial development and changes that have taken place at LAX since 1996/97. *See* our September 2001 Comment Letter at 34-39. Apparently recognizing this problem, LAWA and the FAA have included some revised baseline information in the Supplement. *See* Supplement at 3-5, Appendix S-B. This new baseline discussion acknowledges that LAWA has undertaken and completed a significant number of airport modification projects outside of the Master Plan process, since 1996/97. While this is clearly an improvement over LAWA's earlier refusal to acknowledge the existence of those projects in its environmental review document, it does not resolve the basic legal problem.

Specifically, the projects at issue were approved and undertaken without any of the necessary environmental review. As a result, there has been no public acknowledgment, much less mitigation, of the environmental impacts associated with those projects. This is unacceptable under CEQA and NEPA. LAWA and the FAA cannot include in the Master Plan baseline projects recently completed in disregard of NEPA and CEQA. They must instead evaluate, acknowledge and mitigate for the impacts of those projects.

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The Supplement attempts to downplay the seriousness of the above-described baseline problem by characterizing the post-1996/97 projects as minor. *See* Supplement at 3-5 through 3-6 and Appendix S-B at 42. In fact, as illustrated below, these recent changes at LAX have been significant and have resulted in significant environmental impacts.

LAWA acknowledges that seven South Airfield Complex taxiway improvements have been put into operation since 1996/97. *See* Appendix S-B at 42. According to the Supplement, those improvements consist of five new taxiways (A4, C3, WF, WG and T), the widening/repaving of high-speed exit taxiway T and a seventh undisclosed project. Appendix S-B at 42. These taxiway projects improved the operational efficiency and capacity of the Southside Airfield Complex and therefore increased the overall airside capacity of LAX. *See* Exhibit 4.20(B) to September 2001 Comment Letter. This increased capacity resulted in potentially significant environmental impacts in areas such as noise, traffic and air quality. Nothing in the Supplement acknowledges or evaluates those impacts as it should. To the contrary, the Supplement simply concludes, without support, that the projects were “modest.” Appendix S-B at 42. This is not the case. LAWA’s own documents acknowledge that the taxiway WG, WF and T project were very costly and were undertaken in order to increase the efficiency and capacity of the Southern Airfield Complex. *See* Exhibit 4.20(B) to September 2001 Comment Letter.

The Supplement acknowledges that a number of terminal expansion/improvement projects have been completed since 1996/97 and purports to adjust the project baseline to include these projects for CEQA purposes. *See* Supplement Appendix SB at 42-45. For example, LAWA acknowledges that it allowed American Airlines to construct a new remote commuter terminal with 13 new aircraft parking spaces, and that this project freed up a key position in Terminal 4. *Id.* at 45. LAWA approved this capacity-enhancing project without the necessary environmental review. *See* our September 2001 Comment Letter at 38-39. The 2001 Draft EIS/EIR treated this remote commuter terminal project not as part of the baseline, but rather as part of the No Action/No Project Alternative (and not part of any of the build alternatives). This treatment of the remote commuter terminal project and LAWA’s current effort to include that project in the environmental baseline after the fact are both improper under CEQA and NEPA. LAWA and the FAA must instead evaluate, disclose, and mitigate the environmental impacts of this capacity-enhancing project. The other terminal expansion/improvement projects described in the Supplement should also be treated in

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this way.

Figure S9 in Appendix S-B to the Supplement indicates that in 1997, boarding facilities were completed for the remote aircraft gates located near the west end of LAX. This addition of new gates is a significant example of how LAWA has increased the capacity of LAX facilities recently, outside of the Master Plan process and without the necessary environmental review. The Supplement acknowledges this substantial expansion project but does so only in Figure S9 to Appendix S-B. The project is not described anywhere in the text of the Supplement. As such, the Supplement does not indicate how many remote aircraft gates were added, how many are now located near the west end of LAX, or how these gates have impacted the overall capacity of LAX. In light of these deficiencies, the Supplement does not provide information required under CEQA and NEPA and necessary to inform the public and decision-makers. *See* CEQA Guidelines § 15002(a); 40 CFR 1500.1(b) (NEPA Regulations).

Appendix S-B to the Supplement acknowledges that LAWA has recently added 686 new parking spaces in the Central Terminal Area by constructing a new 989-stall parking structure in place of an existing 295-stall surface parking lot. Supplement Appendix S-B at 45. As the documents attached hereto as Attachment 10 demonstrate, this major new \$18 million parking structure (Parking Structure 6) was improperly approved and constructed by LAWA without any environmental review. In the Draft EIR/EIS, the Parking Structure 6 project was treated as an element of the No Action/No Project Alternative, but not part of any of the build alternatives. Supplement Appendix S-B at 45. This contributed to one of the Draft EIR/EIS's pervasive and most serious flaws: overstating the capacity increase and environmental impacts associated with the No Action/No Project Alternative relative to the build alternatives, in violation of CEQA and NEPA. The Supplement's acknowledgment of the Parking Structure 6 project and inclusion of that project in the year 2000 baseline discussion does not correct this fundamental problem in the Draft EIR/EIS's project description, description of the No Action/No Project Alternative, and definition of the build alternatives.¹

¹ In addition to the Parking Structure 6 project and the other examples described above, Appendix S-B provides other examples of recently-completed projects improperly included in the description of the No Action/No Project Alternative, and not the build alternatives. Such examples include cargo facilities (Singapore, Mercury Air Cargo, FedEx and Cargo Building A); major land acquisitions (Manchester Square and Belford

The Supplement's baseline update is also incomplete as it relates to airport facility modifications because it stops at the year 2000. The document claims that the year 2000 is the most recent "normal" year for which complete data is available for airport operations and that subsequent years are "abnormal" due to the events of September 11, 2001. Even assuming that this logic is correct for airport operations because the demand for air travel dropped off after September 11, 2001, the logic does not hold for physical airport facilities. LAWA has continued with airport facility modification and expansion projects since 2000. Those projects are not, however, adequately acknowledged or evaluated in the Supplement. The airport projects completed since 2000 should all be described and acknowledged in the Supplement so that LAWA and the FAA can properly evaluate and mitigate for the environmental impacts of those projects.

2. The Description of Alternative D in the Supplement to the Draft EIS/EIR is Plagued by Serious Flaws.

a. Remote Gates

The Master Plan Addendum and Supplement imply and indicate at various points that under Alternative D, remote aircraft parking and gate positions now existing at the west end of LAX (i.e., the Remote West Pad Gates) would no longer be considered or counted as available for purposes of Alternative D. See Master Plan Addendum at D-6, Table 2.2-3, 2-27, 2-32. This decision not to count those parking and gate positions would be appropriate if and only if those remote gates and aircraft parking positions are to be permanently eliminated under Alternative D. Unfortunately, although the Master Plan description of Alternative D speaks of "replacing" the remote gates, it does not contain any concrete commitment or plan for the removal and elimination of the parking and gate positions. See Master Plan Addendum at 2-28. To the contrary, the Master Plan indicates that those remote gates will remain in use until at least 2013. See Master Plan Addendum at D-6. Moreover, Supplement Figure ES-5, which depicts Alternative D in 2015, continues to show the remote gates at LAX's west end. See Attachment 7, pp. 11-12.

In order to be consistent with the Supplement's capacity assumptions (and

areas); and airfield improvements (southside taxiway projects).

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all of the environmental analyses conducted for Alternative D based on that assumed capacity), LAWA would have to abandon and demolish the remote parking area and gates. To do so, the Master Plan and Supplement should include provisions requiring that abandonment and demolition. The Master Plan and Supplement should also describe and analyze the potential impacts of any intended uses for the land now used for the remote gate area following decommissioning of the remote gates. For example, the remote gate area would apparently be an ideal location for development of the proposed new employee parking structure at LAX's west end, given that it is an already disturbed area. If LAWA were to develop the proposed employee parking structure at the location currently occupied by the remote gates, it could avoid the environmental problems (e.g., wetlands impacts, endangered species impacts) associated with the currently-proposed site for the employee parking structure.

b. Century Cargo Complex

Table 2.5-2 in the Master Plan Addendum, which describes the cargo facilities proposed as part of Alternative D, contains a number of serious problems that must be addressed. Table 2.5-2 lists an existing cargo building in the Century Cargo Complex as having a square footage of zero. Is this an error? What building is this referring to? Table 2.5-2 also includes two blank lines in its listing of existing cargo facilities in the Century Cargo Complex. These blank lines give the impression that information regarding existing facilities has been deleted or inadvertently excluded from the table. Is this case? Table 2.5-2 and Figure 2.5-1 in the LAX Master Plan Addendum show only one (55,000 square-foot) proposed new cargo facility in the Century Cargo Complex as part of Alternative D. Is this proposed building the cargo facility referred to elsewhere in LAWA documents as Cargo Building B?

Table 2.5-2 and Figure 2.5-1 in the LAX Master Plan Addendum show the 153,000 square foot cargo facility in the Century Cargo Complex as an "existing" cargo facility, despite the fact that the building does not appear in the description of facilities existing at the 1996/97 baseline. See 2001 DEIS/EIR at Figure 3-4. The explanation for this is apparently that LAWA built the 153,000 square foot facility (known as Cargo Building A) in the years since 1997. According to the Supplement Appendix S-B (Existing Baseline Comparison Issues - 1996 to 2000), the structure opened in 1999. Appendix S-B at 46. That Appendix also notes that construction of Cargo Building A was "accounted for in the 2001 DEIS/EIR as part of the future No Action/No Project Alternative." This approach is wholly improper. First, because LAWA was in the middle

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of the Master Plan process when it constructed Cargo Building A, it should have included the project in one or more of the build alternatives in the Master Plan, so that it could be considered as part of LAWA's overall scheme to modify the airport. CEQA Guidelines §§ 15003(h), 15378. At the very least, construction of Cargo Building A should have been subjected to environmental review outside of the Master Plan process, which it was not.

Figure 2.5-1 in the LAX Master Plan Addendum is somewhat unclear regarding the status of and plans for several cargo facilities within the Century Cargo Complex. The approximately 80,000 square foot building known as the TWA Building is shown on Figure 2.5-1 using black outlines, but is not colored like the other existing facilities. The 25,000 square foot Air New Zealand Building is similarly shown on Figure 2.5-1 with black outlines and without coloring like the other existing facilities. Does LAWA commit as part of Alternative D to demolish these cargo facilities? If so, when? If not, the buildings should be shown and analyzed as existing facilities in the Master Plan Addendum and Supplement.

Figure 2.5-1 in the LAX Master Plan Addendum indicates that the approximately 57,000 square-foot facility in the Century Cargo Complex known as Air Freight Building 8 is an existing cargo building that will continue to exist under Master Plan Alternative D. LAWA's Capital Improvement Program for fiscal years 2001 to 2003 indicated that Air Freight Building 8 would be demolished. *See Attachment 8 hereto.* This is particularly important because LAWA appears to have previously relied on this demolition (and the associated reduction in cargo facility square footage) as an offset to the construction of new cargo facilities, by arguing that there would be no resulting net increase in cargo capacity. *See Exhibit 3(M) to our September 2001 Comment Letter.* As such, it would be improper for LAWA to retain Air Freight Building 8 under Alternative D or any other alternative.

Figure 2.5-1 in the LAX Master Plan Addendum also shows the approximately 52,000 square-foot building in the Century Cargo Complex known as Air Freight Building 3 (or the American International Building) as an existing structure. LAWA has previously committed to demolish the structure as part of its Century Cargo Complex redevelopment project. *See Exhibit 3(M) to our September 2001 Comment Letter.* Retention under Alternative D would, again, be inconsistent with LAWA's prior commitment. This reversal is particularly inappropriate because LAWA has relied on the demolition to support its argument that the Century Cargo Complex redevelopment

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project involved no net increase in square footage.

Figure 2.5-1 in the LAX Master Plan Addendum shows just one new cargo facility in the Century Cargo Complex under Master Plan Alternative D: a 55,000 square foot structure. This facility would be located on the same site previously slated by LAWA for development as part of the Century Cargo Complex redevelopment project. Under that plan, LAWA was to build a much larger 150,000 square foot cargo building referred to as Cargo Building B. See Exhibit 3(M) to our September 2001 Comment Letter. Does LAWA propose, as part of Master Plan Alternative D, to abandon its prior plans for construction of the larger facility?

As the above comments make clear, LAWA and the FAA have not clearly or adequately explained the relationship between the new preferred Master Plan Alternative D, existing cargo conditions, and various previously proposed cargo projects (e.g., the Century Cargo Complex redevelopment project). In order to provide full and adequate disclosure, LAWA and the FAA must explain the following: (1) What are/were all of the distinct elements of the Century Cargo Complex redevelopment project? (2) Which of the elements of the Century Cargo Complex or development project have already been implemented? (3) what elements of the project are now incorporated into Alternative D? and (4) what elements of the project would be abandoned under Alternative D?

c. Southern Cargo Complex

Fig. 2.5-1 to the Addendum to the Master Plan indicates that under proposed Master Plan Alternative D, a 39,000 square-foot cargo building would be built in the Southern Cargo Complex - West on a site just west of Sepulveda Boulevard. This is inconsistent with another proposal for development of the same site for which LAWA recently released a draft negative declaration entitled "Mercury Air Group FBO Negative Declaration (April 2003)." That Negative Declaration is attached hereto as Attachment 9. It describes the proposed relocation of Mercury Air Group's operations to the Southern Cargo Complex - West site, including the area the Master Plan proposes to develop with a new 39,000 square foot cargo building. The proposed Mercury Air Group development would include demolition of existing buildings on that site (B-4 Hanger and Air Freight Building 12) and construction of a new building. This inconsistency must be explained or eliminated.

Figure 2.6-1 in the Addendum to the Master Plan depicts proposed ancillary facilities under Alternative D and shows a 121,000 square-foot General Aviation facility located along Imperial Highway at the eastern end of the Southern Cargo Complex - West. This General Aviation use proposal is inconsistent with the Mercury Air Group proposal to use the same site for aircraft parking and a potential fuel farm. See Attachment 9 at Figure 4. This inconsistency must be explained or eliminated.

d. LAX Northside Development

As part of Alternative D, LAWA proposes to proceed with development of the so-called LAX Northside Development Project subject to a daily vehicle "trip cap" of 3,152 a.m. and 3,040 p.m. trips. Master Plan Addendum at 2-117. This daily trip cap is significantly lower than the traffic levels projected for the original LAX Northside Development. *Id.* The square footage of development proposed for the LAX Northside under Alternative D is, however, identical to that of the original LAX Northside Development. *Id.* at 2-117 to 2-118. Neither the Supplement nor the Master Plan Addendum adequately explains how a development of the same size can stay within a much reduced trip cap. In fact, that basic assumption is wholly unsupported by evidence and undermines the validity of the environmental impacts analysis (e.g., traffic, air quality). (For further discussion see report of Tom Brohard & Associates, Attachment 2 hereto, pp. 3-4, 9 [noting in addition an apparent error with respect to the direction of the a.m. cap]).

Moreover, the fact that the Supplement includes traffic generation levels in its analysis of the No Action/No Project Alternative that are higher than those included in its analysis of Alternative D underscores the document's bias against the No Action/No Project Alternative. LAWA's decision to assume lower traffic generation numbers for Alternative D is not supported by evidence in the documentation, and improperly makes the impacts of the No Action/No Project Alternative appear more significant by comparison.

3. The Supplement to the Draft EIS/EIR Relies on a Flawed Description and Analysis of the No Project Alternative.

a. LAX Northside Development

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perpetuate a serious problem regarding the so-called LAX Northside Development. As we explained in our 2001 comments on the Draft EIS/EIR, it was improper to assume development of the massive LAX Northside Development as part of the No Action/No Project Alternative, and doing so artificially inflated the apparent intensity of development under the No Action/No Project Alternative. See September 2001 Comment Letter at 32-34. The additional information and analysis provided in the Supplement illustrates that the document suffers from this same flaw as the Draft EIS/EIR. See Supplement at 3-6. The problems associated with inclusion of the LAX Northside Development in the No Action/No Project Alternative are further exacerbated by the fact that the build alternatives analyzed in the DEIS/EIR assume development less intensive than the LAX Northside Development. Alternative D, for example, assumes that the LAX Northside Development would not proceed as originally approved, but would instead proceed at a less intensive level. See Supplement at 3-47 through 3-48 (assuming that development would produce approximately 50% less traffic than under the LAX Northside Development). The clear result is a strong tendency in the EIS/EIR to overstate the impacts of the No Action/No Project Alternative relative to the build alternatives including Alternative D. This is improper under CEQA and NEPA.

The Master Plan Addendum also states that "Alternative D of the LAX Master Plan identifies the LAX Northside Development as the *baseline* for additional development north of the airport." See Addendum at 2-114 (emphasis added). This is inconsistent with the approach of the Supplement. As explained above, the Draft EIS/EIR and the Supplement both treat development of the LAX Northside as part of the No Action/No Project Alternative, not the baseline. The baseline described in the Supplement does not include any development of the LAX Northside because that area is not developed. The fact that the Master Plan Addendum incorrectly refers to LAX Northside Development as part of the baseline betrays a pervasive problem with the environmental review documents: their repeated efforts to downplay the apparent intensity and severity of the proposed build alternatives by inflating and overstating the intensity and impacts of the No Action/No Project Alternative, so that the build alternatives will look less problematic by comparison.

b. Imperial Terminal

Figure ES-1 in the Supplement (depicting the No Action/No Project Alternative, 2015) shows the Imperial Terminal, an existing passenger terminal located along the Imperial Highway, as an existing cargo building. This is incorrect. As the

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April 2003 negative declaration for the Mercury Air Group FBO shows, the Imperial Terminal is a passenger terminal supporting passenger charter flights. *See* Attachment 9 at A-9, Fig. 3.

c. Southern Cargo Complex

Figure ES-1 in the Supplement indicates that LAWA and the FAA are assuming that under the No Action/No Project Alternative, the existing B-4 Hanger and Air Freight Building 12 in the South Cargo Complex - West would be demolished and replaced by substantial new cargo buildings. This assumption is inconsistent with information contained in the Mercury Air Group FBO Negative Declaration (April 2003), attached hereto as Attachment 9. That document indicates that much more modest development is actually proposed for the site of the existing B-4 Hanger and Air Freight Building 12 in the Southern Cargo Complex - West. LAWA and the FAA make the contrary assumption in the Supplement that more intense and substantial development will occur in the South Cargo Complex - West, even if none of the Master Plan alternatives is approved (i.e., in the No Action/No Project Alternative). This assumption is unreasonable and again artificially inflates the apparent intensity of, and environmental impacts associated with, the No Action/No Project Alternative.

Figure ES-1 in the Supplement, which depicts the No Action/No Project Alternative in 2015, is not clear in its representation of cargo facilities. First, the shades of brown chosen for existing terminal buildings, existing cargo buildings and proposed cargo buildings are so similar as to be essentially the same. As a result, it is impossible to discern what category various buildings fall into (i.e., existing terminal buildings, existing cargo buildings or proposed cargo buildings). Moreover, unlike Figures ES-2, 3, 4 and 5, which show the Master Plan build alternatives, ES-1 does not use the abbreviations "EC" and "PC" to label proposed cargo (PC) buildings and existing cargo (EC) buildings. Together, these problems with Figure ES-1 in the Supplement make it inadequate and misleading.

4. LAWA is Improperly Pursuing Development of Southside Airfield Improvements Outside of and Segmented from the Master Plan Process and Draft EIS/EIR.

According to the Supplement, a central component of Alternative D would be the modification of the southern runway complex (Runways 25L-8R and 25R-8L) to

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address the problem of runway incursions. Supplement at ES-17; Draft Master Plan Addendum at 2-10 to 2-11. These modifications would include relocation of Runway 25L-8R to the south and construction of a new center taxiway between Runways 25L-8R and 25R-8L. *Id.* The documents attached hereto as Attachment 11 demonstrate that LAWA is already committed to undertaking these modifications outside of and separate from the Master Plan. LAWA's July 2003 Quarterly Project Status Report notes, for example, that LAWA has already commenced detailed design work for the project and expects to complete that design work in January 2004. LAWA then proposes to commence construction, which is scheduled to be complete in December 2005.

This significant and irrevocable commitment of resources to the southern runway complex modifications demonstrates that LAWA has already decided to pursue that project regardless of the outcome of the Master Plan process. This constitutes an improper precommitment and/or improper segmentation of the southern runway complex modifications from the rest of the Master Plan. *See* CEQA Guidelines § 15004(b)(2) (prohibiting taking actions that commit agency to course of action, foreclose alternatives or mitigation measures prior to completion of environmental review); CEQA Guidelines § 15378(a) (definition of "Project" includes the "whole of an action"); 40 C.F.R. 1501.2 (NEPA Regulations). Moreover, as illustrated by the analysis in Attachment 7 hereto, the Supplement does not provide the necessary information and analysis of the design options and environmental impacts of the southern runway complex proposal. LAWA and the FAA could not legally approve that project based on the Supplement.

5. The Analysis in the Draft EIS/EIR Improperly Ceases at 2015.

The Draft EIS/EIR is also fundamentally flawed because it fails to look far enough into the future and therefore fails to acknowledge significant and foreseeable environmental impacts. The analysis in the Draft EIS/EIR abruptly stops in the year 2015. No information, analysis or mitigation is provided for impacts occurring in years beyond 2015. This is improper because it is reasonably foreseeable that the proposed Master Plan would have specific environmental impacts in years after 2015 (i.e., more than twelve (12) years in the future). *See* CEQA Guidelines § 15064(d) (requiring consideration of all project-related impacts that are "reasonably foreseeable"). The EIS/EIR fails to take these impacts into account.

This problem has arisen in part because of the delay since LAWA and the FAA released the Draft EIS/EIR. In an apparent recognition of this delay, the

Supplement drops all year 2005 analysis provided in the Draft EIS/EIR. It nonetheless retains 2015 as the horizon for analysis. Instead, LAWA and FAA should have shifted the entire analysis out into the future, looking at at least two study years that are approximately ten years apart to better illustrate the impacts of the project during and after construction (e.g., 2015 and 2025). The short-sighted nature of the analysis is particularly obvious when one considers that the 2001 Southern California Association of Governments ("SCAG") Regional Transportation Plan ("RTP") has a horizon year of 2025, ten years beyond that considered in the Supplement. *See* Supplement at 4-86.

B. The Impacts Analysis in Chapter 4 of the Supplement Is Inadequate in Numerous Respects.

1. Noise

The noise generated by the operations at LAX greatly affect the residents of El Segundo. Parts of El Segundo lie within the 70 dB CNEL, and even the 75 dB CNEL, noise contours around LAX. Supplement, Fig. S4.1-2. Although the Supplement contains new information regarding all Master Plan alternatives in response to prior comments, the noise analysis remains insufficient to disclose the extent of the impacts on El Segundo residents and to formulate adequate mitigation measures. Attachment 1 to this letter, a detailed technical report by Aviation Systems, Inc., describes numerous errors, discrepancies, and flaws in the Supplement's noise analysis. Among those of greatest concern are the following:

- We previously commented that the use of 1996 noise levels as a baseline was improper because noise levels have dropped somewhat since 1996 as a result of newer and quieter aircraft. The Supplement provides information about noise levels in 2000 that confirms that average noise contours in El Segundo were smaller in 2000 than 1996. *See e.g.*, Supplement p. 4-16 ["in the areas north and south of the airport, which are more influenced by takeoff noise than approach noise, the contours are substantially reduced from 1996 baseline conditions . . ."]; graphically portrayed in Figure 4.1-2. Yet the Supplement continues to use 1996 as the baseline year. This results in understating the significance of noise impacts in El Segundo, because the worsening of noise levels in 2015 is being compared to a baseline that is worse than the currently existing conditions. This is exacerbated by the further reduction in noise, due to reduced operations, in later 2001 and 2002. The Supplement uses average noise levels and reports the combined totals

(within the entire airport noise impact area) of the numbers of homes and other properties “newly exposed” to significant adverse noise impacts. *E.g.*, Tables S4.1-25, S4.1-26. The use of these gross numbers in combination with the outdated baseline, which showed noise levels in El Segundo worse than the 2000 levels, results in understating the future adverse noise impacts of the planned airport operations on El Segundo. As such this approach is deceptive and a violation of CEQA’s and NEPA’s requirement that impacts be fully disclosed.

- In response to previous comments, the Supplement provides some information addressing the noise impacts of “single events.” However, the information in the Supplement fails to satisfy the requirements of *Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners*, 91 Cal.App.4th 1344 (2001). The Court of Appeal in that case stressed the need to provide information in a form that is useful to residents surrounding an airport in helping to evaluate the impact of future increased air traffic on their daily lives, in particular the interference with sleep and conversation, by individual “single events” of aircraft takeoffs and landings. *Id.* at 1372-83. “Single event” noise is defined as the noise associated with one and only one event. The methodology of the Supplement, however, continues to use only an averaging technique, rather than disclosing individual “single events.” The Supplement should have provided noise contours for each individual takeoff and landing, giving residents important information about the noise impact, frequency, and timing of those “single events,” enabling them to evaluate the significance of those impacts on sleep, conversation, and quality of life. *See e.g.* September 2003 Draft Supplemental Environmental Impact Report, SCH No. 1994113039, for Oakland International Airport ADP, pp. 3.3-28 to 3.3-37, discussing and mapping noise footprints for individual aircraft types and flight paths. The Oakland SEIR, prepared in response to court judgment, is available at www.oaklandairport.com/seir. Such information would also enable LAWA to evaluate appropriate mitigation measures, such as noise abatement departure procedures like those in place today at John Wayne Airport. Instead, the Supplement subsumes all the single events into an “average” contour (the so-called 94 dB SEL contour). This meaningless device perpetuates the time-averaged noise impact methodology used earlier in the Draft EIS/EIR. The environmental analysis for this project should include single event noise contours for each aircraft type on each flight track and their frequency and times of occurrence. Without such information, the analysis remains insufficient and the level of disclosure of impacts does not satisfy legal requirements.

- LAWA formulates a significance threshold of 10 percent of residents being awakened from sleep once every 10 days. There is no documentation justifying the selection of either 10 percent or 10 days. Very loud noise events below this threshold, while treated by LAWA as insignificant, may nonetheless be highly significant to residents awakened from sleep. For this and other reasons use of this threshold results in failure to disclose significant impacts. The Draft SEIR for Oakland Airport's ADP recognized that the significance of sleep disturbance varied among individuals and noise events, and considered, reported and analyzed noise events at 90, 85, and 80 SEL.
- The Supplement, like the Draft EIS/EIR, completely fails to address the impacts of airport noise on speech interference, which is one of the most noticeable aspects of extremely loud aircraft takeoffs and landings. *See Berkeley Keep Jets Over the Bay*, 91 Cal.App.4th at 1375-76.
- The Supplement fails to take into account the noise standards set forth in El Segundo's noise ordinance. Under the CEQA Guidelines, Appendix G, Section XI, a project proponent should consider whether a proposed project would generate noise, or expose persons to noise, in excess of local standards set forth in general plans and ordinances. El Segundo's general noise standards are set forth in its Noise Ordinance, section 7-2-4. For residential property, a noise exceeding five (5) dBA above the ambient noise level is prohibited; for commercial property, noise exceeding eight (8) dBA above ambient noise levels is prohibited. This standard is ignored by the Master Plan analysis. In addition, the single event noise data on which the ordinance is based is, as explained above, not made available in the Supplement. This is a further indication that the data that would be most helpful to residents most affected by airport noise (regarding individual takeoffs and landings) has still not been provided to them.
- The Supplement fails to provide an adequate analysis of the noise impacts on El Segundo of the proposed reconfiguration of the southern runway complex including shifting Runway 25L about 50 feet farther south towards the residences of El Segundo. This is important because El Segundo has urged a serious consideration of the alternative design of an "end-around" taxiway rather than the centerline taxiway that is proposed. Details of the proposed plan must be clarified for adequate analysis. In order to evaluate the comparative noise impacts, a single

event noise analysis of individual takeoffs and landings under each design must be done. In addition, the Supplement fails to provide enough information to develop adequate mitigation measures to lessen the significant adverse noise impacts of this aspect of the plan. *See Attachment 7.*

- There are numerical discrepancies between the different tables used in the Master Plan and Supplement to list the assumed fleet mix. The fleet mix used for noise analysis must be clarified. The discrepancies in assumptions may result in understating noise impacts. *See Attachment 7, p.10.*
- Because, as detailed elsewhere in these comments, the Supplement incorrectly analyzes the capacity of Alternative D, it consequently also fails to disclose the full noise impacts of implementation of that plan. The greater number of passengers that could actually be served by the airport under Alternative D translates directly into increased traffic, leading to increased noise.

2. Land Use

The Supplement's analysis of land use impacts repeats many of the same problems we identified in our comments on the Draft EIS/EIR. As such, the comments presented in our September 2001 letter remain salient and apply to the Supplement's analysis of Alternative D. In addition, we note that the Supplement's land use analysis is largely based on the conclusions reached in the noise impacts analysis section. *See, e.g., Supplement at 4-85.* A complete analysis and critique of the Supplement's noise impacts analysis section is presented in the preceding section of this letter and Attachment 1, and will not be repeated here. We note, however, that the significant issues identified with regard to noise impacts undermine the Supplement's analysis of land use impacts.

Additionally, we have identified the following problems and issues raised by the Supplement's analysis of land use impacts.

- The Supplement properly acknowledges that Alternative C would be inconsistent with the 2001 SCAG RTP, which provides for no expansion at LAX. *See Supplement Technical Report S-1 at 68; Supplement at 4-151.* The same would be true for Alternative D if it is not modified to reduce its capacity, which, as designed, exceeds 78 MAP. The Supplement fails to acknowledge, however, that this inconsistency translates into a potentially significant environmental impact.

Some of the physical manifestations of this impact would include greater noise, traffic, and air quality impacts. The Supplement should acknowledge the fact that Alternative D, as well as C, conflicts with the RTP, and that RTP inconsistency constitutes a significant impact. It should propose mitigation and/or alternatives to address that impact.

- The Supplement correctly acknowledges that development of the Intermodal Transportation Center (“ITC”) on the vacant land previously slated for development as Continental City would preclude development of that land as provided in the Los Angeles General Plan. Supplement at 4-195 to 4-196. Specifically, the Continental City site is designated as a “Regional Center” development site in the Los Angeles General Plan Framework Element (excerpt attached hereto as Attachment 12). Regional centers are intended to contain a diversity of uses (office, retail, health facilities, entertainment, etc.) and to “serve as a focal point of regional commerce, identity and activity.” Attachment 12. The Supplement concludes that the proposal to develop the Continental City site as an ITC rather than a regional center is not significantly inconsistent with the General Plan and would not require a general plan amendment. As support for this conclusion, the Supplement points to two aspects of the proposed ITC: (1) its focus on multi-modal transportation and (2) its promotion of day and night activities on the site. While it is certainly true that these are secondary characteristics of a regional center, they are not the sole, most important or defining characteristics. *See* Attachment 12. As such, they do not, in and of themselves, render the ITC (an aviation serving use) consistent with the “Regional Center” general plan designation. The Supplement should therefore acknowledge that the ITC is inconsistent with the general plan.
- The Supplement deletes from consideration those land use/noise mitigation measures now being evaluated as part of the Community Noise Roundtable Program (14 C.F.R. Part 150 and 161 flight procedures). Supplement at 4-198. The deletion is improper. LAWA and the FAA have a legal obligation to include those potentially feasible mitigation measures in the EIS/EIR for the Master Plan.
- The Supplement includes mitigation measures that would require LAWA to conduct research regarding the impact of aircraft noise at various levels on learning by schoolchildren. Supplement at 4-210 (MM-LU-3). Another mitigation measure would require LAWA to provide sound insulation to schools found to

exceed a threshold of significance developed based on the results of that study. Supplement at 4-210 (MM-LU-4). These mitigation measures lack legally required specificity and enforceability. It is not clear, for example, what kinds of "industry experts" would, under the mitigation measures, be called on to conduct a "peer review" of and "accept" the study results. Would those experts be specialists in learning or aviation noise? How would the experts be selected? What would the time frame be for completion of the study? Would elements of the Master Plan be stayed pending results of the study? It is also unclear what LAWA would be obligated to do regarding noise in schools if the experts conducting the peer review of the study cannot agree regarding what the threshold of significance should be. The mitigation measures should be revised to answer the above questions and include a mechanism for resolving such potential disagreement among experts. That mechanism should be conservative and err on the side of caution and reducing noise impacts in the affected schools.

- The Supplement indicates that the 1988 ANMP is "currently" being updated and "is scheduled for completion in the second quarter of 2003." Supplement at 4-87. Given that the second quarter of 2003 has now passed, this information appears to be out of date. The Supplement should have provided more complete information regarding the 2003 ANMP and should have analyzed the extent to which the ANMP comports with the requirements outlined in the mitigation measures described in the Supplement.

3. Surface Transportation

The Supplement fails to disclose the severity of the impacts of the Master Plan alternatives, and Alternative D in particular, on increased traffic, as well as the noise and air pollution generated by that traffic. The traffic analysis contains numerous analytical errors, omissions and flawed assumptions, which are documented in detail in Attachment 2 to this letter. Among those problems are the following:

- The Supplement continues the use of 1996 traffic data as the baseline for purposes of evaluating the severity of traffic impacts, and fails to respond to numerous previous comments pointing out flaws in the baseline calculations. The Supplement fails to adequately document why the use of 7-year-old traffic data as the environmental baseline suffices under CEQA and NEPA.

- The Supplement substantially understates the traffic impacts of Alternative D due to its reliance on the artificially low figure of 78.9 million annual passengers (MAP), which is based on unrealistic and unsupportable assumptions and is, based on our independent analysis, substantially lower than the actual gate capacity of Alternative D. Each additional passenger served translates to an increase in the number of airport-related trips and the resultant environmental impacts.
- There are substantial numerical errors and inconsistencies in the Supplement. For example, the traffic analysis uses 5,953 daily construction employee trips (Supplement Table 4.3.2-9), while based on the 5,992 total construction personnel disclosed in Chapter 4.20 of the Supplement, more than twice that number of trips (11, 273) would be generated.
- The analysis of construction traffic fails to take into account the impacts of construction trips during many high volume traffic hours during the day, limiting its discussion to a single peak morning and afternoon hour and therefore failing to disclose significant impacts during other times. Many other impacts of construction activity are similarly not disclosed and therefore inadequately mitigated.
- The analysis of freeway impacts fails to take into account the existing levels of congestion on the I-105 and I-405 freeway mainlines. The Supplement fails to analyze numerous constricted and congested segments on these freeways. The ramp improvements recommended as mitigation will fail to improve the freeway congestion caused by this project unless capacity is increased on the segments of the freeway that are already operating at or above capacity. The Supplement's failure to acknowledge this results in its erroneous conclusion that freeway impacts are less than significant.
- Errors in the analysis of intersections located in El Segundo (including, for example, incorrect assumptions regarding existing turn lanes, omission of a driveway into LAX, incorrect signal phasing, and arbitrary volume adjustments) result in an inaccurate disclosure of traffic impacts and inadequate discussion of mitigation measures for many of those intersections.
- The Supplement does not provide an adequate analysis of the phasing of construction of the improvements contemplated in Alternative D and the

mitigation measures proposed, so that in several cases it appears that mitigation measures will not be in place until years after the components of Alternative D that make the mitigation necessary. In addition, no traffic analysis was provided for 2005, making it doubly difficult to understand the impacts during interim years and to coordinate mitigation. This results in further failures to disclose the extent of the impacts during buildout of the project.

- The Supplement fails to remedy problems previously identified regarding calculations of future cumulative traffic conditions. It also fails to use current lists of pending local projects in its analysis of cumulative traffic impacts, apparently relying on the now outdated list that was utilized in the 2001 Draft EIS/EIR. As a result, the analysis of cumulative traffic impacts is not accurate and may omit significant effects.

4. Social Impacts

a. The Supplement's Analysis of Employment and Socio-Economics Perpetuates the Same Flaws and Misconceptions as the Draft EIS/EIR.

The Supplement, like the Draft EIS/EIR, continues to imply that the economic growth of the Los Angeles region under the No Action/No Project Alternative would fall far short of the growth projected under Alternatives A, B, or C due to the fact that growth would be constrained at LAX itself under the No Action/No Project Alternative. Additionally, the Supplement now draws the same conclusion with regard to Alternative D, based on the assumption that Alternative D would limit growth at LAX to nearly the same extent as the No Action/No Project Alternative. As discussed in our prior comments, (September 2001 Comment Letter at 67-68), this conclusion is not sound because it fails to consider the regional growth that would be generated at other airports due to the growth constraints placed on LAX. The environmental analysis presented considers only the jobs and economic growth directly generated by LAX itself, rather than taking a region-wide approach that would consider jobs and other economic benefits generated at other regional airports under the regional airport approach. *See CEQA Guidelines § 15064(d)* (requiring that all reasonably foreseeable impacts receive consideration).

Moreover, the analysis of Alternative D, as well as the analysis of the other

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alternatives, does not take into account the post-September 11, 2001 security requirements at airports, which have added and will continue to add a substantial number of jobs in law enforcement and security at LAX and other airports. Supplement at 4-298, fn. 71. See Attachment 13 (news reports of substantial recent and proposed increases in security personnel at LAX). This, combined with the failure to consider regional growth due to constraints placed on LAX growth, indicates that the Supplement, like the Draft EIS/EIR, underestimates the growth that will occur under both the No Action/No Project Alternative and Alternative D, and renders the inter-alternatives analysis inaccurate.

b. The Supplement's Analysis of Relocation of Residences and Businesses Is Inadequate.

Although the Supplement's discussion of impacts due to the relocation of residences and businesses purports to consider demographic and economic changes that have occurred in the LAX region since the 1996 baseline year, its consideration of those changes is dismissive at best. The Supplement states that "in general, the differences between the 1990 and 2000 U.S. Census data do not reflect substantial demographic changes that would alter the analysis presented in the Draft EIS/EIR." Supplement at 4-303.

However, Table S2 of Appendix S-D reveals that not only has the minority population within the study area as a whole increased from 78% to 84% between 1990 and 2000, but the percentage of the population within the study area living below the poverty level has also increased from 18% to 23% in those ten years. Supplement Appendix S-D at 5. Under Alternative D, residential acquisition would generally occur in the Manchester Square area. In that census tract, CT 2774, the minority population was 90.29% of the total population in year 2000, with 27.11% of the total population living below the poverty level. Supplement at Appendix S-D, Table S3. Meanwhile, the Los Angeles Times recently reported that the median price for a home in Los Angeles County rose 23.3% between July 2002 and July 2003 from \$266,000 to \$328,000. "Home Sales Stay on Fire, Especially in Inland Empire" by Bonnie Harris, *Los Angeles Times*, August 21, 2003, attached as Attachment 14.

Although the acquisition of residential properties within the Manchester Square neighborhood is an ongoing program, under Alternative D, the City of Los Angeles would accelerate this acquisition once the Master Plan has been approved in order to comply with the Master Plan's Construction Sequencing Plan. Supplement at 4-

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304. Accordingly, a largely minority population, nearly a third of whom are impoverished, would be forced into one of Los Angeles County's worst housing markets in decades. Although the Master Plan purports to address this potential affordable housing crisis through Master Plan Commitment RBR-1, this "commitment" merely defers mitigation. *Id.* at 4-305. Commitment RBR-1 states that LAWA will prepare a Residential and Business Relocation Plan and expand its current relocation program at some unspecified point in the future. *Id.* Given that the City of Los Angeles is supposed to move forward with acquisition and/or condemnation of the Manchester Square neighborhood as soon as the Master Plan is approved (Supplement at 4-304), it is obvious that the "Residential and Business Relocation Plan" should have been prepared as a part of this Draft EIR/EIS and absolutely must be prepared prior to the approval of the Master Plan. Deferral of this important mitigation defeats the purpose of the CEQA planning process which requires that all impacts and options for mitigation be evaluated prior to project approval. *See* CEQA Guidelines §§ 15002(a)(3), 15004(a), 15003(h).

Finally, although the Supplement attempts to address the acknowledged shortfall in real estate suitable for light industrial uses, the attempt relies upon too many vague and uncertain conditions. The Supplement identifies relocation impacts to light industrial uses as significant. *Id.* at 4-314. Through Mitigation Measure MM-RBR-2, the Supplement attempts to address these impacts by stating that LAWA will coordinate with the City of Inglewood and the County of Los Angeles to identify residential properties that could be acquired and converted for light industrial uses. *Id.* at 4-312. Not only has no such program yet been developed—thus continuing the EIS/EIR's trend of deferred mitigation—but such a program would rely on: (1) the existence of suitable residential properties; (2) the financial and practical ability to acquire them; (3) the ability to relocate residents, many of whom are low-income; (4) approval from the local jurisdictions to rezone residential properties for light industrial uses; and (5) the financial ability to construct light industrial facilities. None of these contingencies are provided for in the documents; they are not even discussed in detail. Such vague and uncertain mitigation does not support the Supplement's conclusion that project-level and cumulative relocation impacts would be less than significant with mitigation.

c. The Supplement's Analysis of Environmental Justice Is Inadequate and Continues to Rely On Much of the Same Flawed Reasoning and Meager Factual Support As the Draft EIS/EIR.

Comments we presented in our September 2001 Comment Letter on the Draft EIS/EIR regarding environmental justice remain in force with regard to this Supplement. For example, there continues to be a lack on information regarding certain health risks associated with living so close to a major airport, especially concerning chronic respiratory illnesses such as asthma, which are more prevalent among populations disproportionately affected by LAX, such as minority and low-income communities. Additionally, this section of the Supplement relies too heavily on the purported "benefits" that will be provided by the Master Plan, without offering any commitments or mitigation measures to make those benefits an enforceable reality. Supplement at 4-339 to 4-341.

Moreover, although the Supplement acknowledges that Alternative D will expose three schools that are located within minority and/or low-income communities to greatly increased noise, (Supplement at 4-324), rather than providing mitigation to directly address that identified impact, the Supplement merely proposes to "study" whether such exposure is a bad thing. *Id.* at 4-338 (MM-LU-3). Studies regarding the impact of noise on learning already exist, and indeed the Supplement states that LAWA has evaluated recent research literature. Supplement at 4-11. *See, in addition, "A Prospective Study of Some Effects of Aircraft Noise on Cognitive Performance in Schoolchildren," Psychological Science, September 2002 (Vol. 13, No. 5), by Staffan Hygge, Gary W. Evans, and Monika Bullinger, attached as Attachment 15; see also Exhibits 4.1(A) and 4.1(B) to our September 2001 Comment Letter.* There is no reason for LAWA to defer mitigation and reinvent the wheel by conducting its own studies when the information on impacts of severe noise on the learning of school children already exists. Instead, LAWA should commit to providing actual mitigation—at a minimum, sound insulation—to the impacted schools without delay. Without adequate mitigation to address this identified significant impact, the EIS/EIR cannot lawfully be approved. CEQA Guidelines § 15091(a)(1).

5. Induced Socio-Economic (a.k.a. Growth-Inducing) Impacts.

The Supplement's analysis of induced socio-economic (growth-inducing) impacts continues the inaccurate logic of the Draft EIS/EIR: despite the fact that

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Alternative D will involve massive construction and provide numerous economic benefits to the LAX region, it will not induce any growth. Instead, according to the Supplement, Alternative D will actually lead to a decrease in jobs and population due to "productivity increases" in the manufacturing sector. For the reasons set forth in our September 2001 Comment Letter, we reject to this conclusion. See September 2001 Comment Letter at 74-5.

Additionally, although the Supplement notes that through property acquisition, Alternative D will "deplete the total supply of industrial space in the LAX vicinity by approximately 17 acres . . ." and that there is currently only 500,000 square feet of vacant industrial space in the vicinity, the Supplement nevertheless concludes that this will not be a significant growth-inducing impact. Supplement at 4-353 to 4-354. The Supplement bases this conclusion on reasoning that is not only faulty, but defies established legal principles of environmental review. To wit: because the shortfall in available industrial space will likely lead other jurisdictions to rezone land for industrial uses and because those rezones will trigger discretionary approval, and thus environmental review, by the local jurisdictions, there is no significant impact here. Supplement at 4-354 ("To the extent that induced demand in other jurisdictions would exceed available supply within industrially designated and zoned land, proposed industrial development in those instances would be subject to discretionary approval by these jurisdictions and, therefore, would require environmental review. The potential for project-induced demand for industrial development to result in impacts is, therefore, considered to be less than significant.").

This is not how CEQA and NEPA work. If this Project will trigger growth, whether directly or indirectly, then the impacts of that growth must be analyzed now, not at some later date in some later environmental review. See e.g., Pub. Res. Code § 21100(b)(5); *City of Antioch v. City Council of Pittsburg*, 187 Cal.App.3d 1325, 1337 (1986). It does not matter, for the purposes of the environmental review for the Master Plan, whether the specific future projects induced by this Project will be subject to later environmental review; the impacts of such growth inducement must be identified and analyzed here. CEQA mandates that environmental impacts be identified and analyzed in the EIR, not at a later date. See *Sundstrom v. County of Mendocino*, 202 Cal.App.3d 296, 307 (1988) (holding a negative declaration invalid where a county approved a project while postponing the resolution of uncertainties regarding environmental impacts to a later date).

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Furthermore, although the Supplement states that "Alternative D could result in greater intensification of existing industrial properties in the area or a greater potential for the conversion or recycling of other land uses," (Supplement at 4-354) this is not identified as a significant impact and no further analysis is provided. This conclusion is simply left hanging. This lack of follow-through is not acceptable for the purposes of environmental review. For all of these reasons, the Supplement's analysis of induced socio-economic impacts is as inadequate and flawed as the Draft EIS/EIR's.

6. Air Quality

The Supplement provides some new analysis of air quality impacts, apparently in response to prior comments. However, it still fails to address many of the inadequacies identified in prior comments, fails to include adequate mitigation measures, and fails to disclose the severity of the air emissions impacts of the construction and operations of the Master Plan alternatives. The air quality analysis contains numerous analytical errors, omissions, inconsistencies, and flawed assumptions. These are documented in detail in the technical comments prepared by Dr. J. Phyllis Fox and Petra Pless, included as Attachment 3 to this letter. As these reports indicate:

- The Supplement fails altogether to analyze PM 2.5 emissions, the major component of particulate emissions from airport operations, despite currently applicable CARB standards.
- The Supplement utilizes an outdated PM 10 standard, rather than the currently applicable and more stringent CARB standard; this results in understatement of significant impacts.
- The Supplement substantially understates background ambient concentrations of air pollutants by deviating from regulatory guidelines and standard practice, resulting in failure to disclose violations of ambient air quality standards.
- Without providing any explanation in the text, the Supplement provides a completely new analysis of the air quality impacts of construction activities for the airport improvements under consideration. The new construction emissions calculations result in substantially lower conclusions regarding emissions. They are not adequately supported in the documents, and appear to utilize invalid methodology and numerous incorrect assumptions which result in understating the

construction impacts.

- The Supplement utilizes an updated model (EDMS 4.11) to develop projected air pollutant emissions for the baseline and all Master Plan alternatives. It fails to use a consistent approach however. Instead, it calculates the emissions for Alternative D using the updated model but then, rather than calculating emissions for all alternatives under the new model, uses a ratio to “adjust” the emissions projections for other alternatives. This approach is scientifically flawed and makes comparisons between the emissions of the alternatives meaningless.
- The Supplement fails to provide a meaningful analysis of total air emissions impacts. Instead, it improperly piecemeals the analysis by reporting separately the on-airport, construction, and off-airport impacts.
- The Supplement uses unrealistic and unsupported projections regarding the effectiveness of mitigation measures, resulting in further understatement of impacts.
- The proposed air quality mitigation measures are inadequate because the proposed measures are of dubious value in reducing air emissions, many are impermissibly vague and not adequately enforceable, numerous feasible mitigation measures are omitted and the measures provided are not enforceable. Please see the lists of proposed mitigation measures (which have been adopted elsewhere) provided in Attachment 3. Particularly given the nonattainment status of the South Coast Air Basin with regard to ozone, CO and PM10, LAWA must act more aggressively in utilizing effective and enforceable air quality mitigation measures.
- The Supplement, like the Draft EIS/EIR before it, fails to provide sufficient data for the technical consultants to check the calculations. We have submitted formal records requests for the necessary data (Attachment 16), and have been assured that the information will be provided, but have not received the materials in time to utilize them for these comments. As soon as possible after receiving the requested documents, we will submit supplemental comments on the Supplement analysis, as appropriate.
- The Supplement also gives short shrift to analysis of public health impacts, in substantial disregard of the comments we submitted in 2001. The evaluation of

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human health risks caused by toxic air pollutant emissions associated with LAX operations under the various alternatives, including Alternative D, uses outdated databases and underestimates emissions from various airport sources. The Supplement continues to use an inappropriate threshold of significance for both chronic noncancer health risks, and cancer risks. And it makes no attempt to formulate effective mitigation measures for human health impacts. These analytical deficiencies and others are detailed in Attachment 5 to this letter, at pp. 34-40.

7. Hydrology and Water Quality

Our comments regarding the Supplement's hydrology and water quality analysis were prepared by Phyllis Fox, Ph.D. and Petra Pless, D.Env. Those comments are attached hereto as Attachment 5. Resumes for these experts are provided as Attachment 4.

The comments prepared by our experts indicate that the EIS/EIR's treatment of water quality impacts remains inadequate and inaccurate. The Supplement raises new issues and does not adequately address the serious problems previously identified in our comments on the Draft EIS/EIR, including reliance on outdated data and understated pollutant loads. The EIS/EIR excludes numerous important pollutants and fails to provide for mitigation measures that are well developed and specific enough to allow for an objective evaluation of effectiveness, much less enforcement. Accordingly, the Draft EIS/EIR underestimates impacts to water quality and sets forth insufficient mitigation measures.

8. Section 4(f) Resources

As discussed in our September 18, 2003 Letter (page 77), section 4(f) of the Department of Transportation Act of 1966 requires federal agencies to identify and avoid impacts to parklands, recreation areas, historic resources, and wildlife and waterfowl refuges. 49 U.S.C. § 303(c). Under section 4(f), codified at 49 U.S.C. § 303, the Secretary of Transportation may approve a transportation project requiring the "use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site)" *only if* no "prudent and feasible" alternative to using

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the resource exists, and the project includes “all possible” planning to minimize harm to the resource resulting from the use. *Id.* Like the Draft EIS/EIR before it, the Supplement has not only failed to fully examine the section 4(f) resources impacted by the Master Plan Alternatives, including Alternative D, but it has also failed to fully develop alternatives to the use of these resources and to provide “all possible” mitigation measures to minimize harm.

First, the Supplement fails to identify all the section 4(f) resources that may be impacted by the Master Plan Alternatives, including Alternative D. *See also* September 2001 Comment Letter at 77. Specifically, although resources subject to section 4(f)’s protection specifically include historic resources of national, *State, or local* significance, (*see* 49 U.S.C. § 303(c); Supplement, Appendix S-F at 1), both the main text of the Supplement and Appendix S-F to the Supplement fail to consider impacts to historic resources of State and local significance. For example, the Intermediate Terminal Complex, the International Airport Industrial District and the Morningside Park Neighborhood are not included in the documents’ list of section 4(f) resources, despite the FAA’s own determination that these resources are eligible for listing as State and/or local historic resources. *See* Supplement at 4-436, Table S4.9.1-1.

Regardless of whether these resources are ultimately determined to be eligible for listing on the federal National Register of Historic Places—a process which is still ongoing—the mere fact that these resources are eligible for State and/or local listing triggers section 4(f). The omission of any discussion of these resources under section 4(f) must be corrected for this document to comply with federal law. Under Alternative D, at least one of these section 4(f) resources--the International Airport Industrial District--will be partially demolished, destroying the entire district’s integrity. Supplement at 4-437. Without full consideration of these identified section 4(f) resources, including exploration of all “prudent and feasible” alternatives to their use and “all possible” planning to minimize harm to these resources, this project simply can not comply with section 4(f).

Second, as discussed in the Supplement and Appendix S-F, the FAA’s determinations of eligibility for both the National Register of Historic Places and the California Register, are subject to consultation and concurrence by the California State Historic Preservation Officer (“SHPO”). *See* 36 CFR § 800.2(c)(1); Supplement, Appendix S-G at 1. This consultation is currently ongoing and thus, not only has the SHPO not yet concurred with the FAA’s determinations regarding the above discussed

resources, the SHPO has also not concurred with the FAA's determinations regarding the ineligibility of the 1961 Air Traffic Control Tower for federal, State, or local listing. Even if this resource is ultimately determined to be ineligible for listing in the National Register of Historic Places, it may still be eligible for State or local listing, either of which would trigger the protections of section 4(f). Without consideration of impacts to this potentially significant historic resource, the Draft EIS/EIR is incomplete.

Third, even where the Supplement correctly identifies certain section 4(f) resources, it fails to fully consider and mitigate impacts to those resources. For example, although the document identifies Vista del Mar Park as a section 4(f) resource, it finds that a 3.3 dB CNEL increase from Year 2000 conditions under Alternative D will not constitute a constructive use of the park. Supplement at 4-427. Through flawed reasoning, the Supplement determines that because the noise level at the park was at one time almost as bad as it will be under Alternative D, normal use of the park will not be disrupted by bringing the noise level back up again. *Id.* The document ignores the relevant fact that noise levels at the park have been much lower recently than they would be under Alternative D. Specifically, the Supplement concludes that, although the park had a noise level of 75.7 dB CNEL in Year 2000, no constructive use will occur under Alternative D's 79.1 dB CNEL, because once upon a time in 1996, the park had a 79 dB CNEL. *Id.* Simply put, the Supplement concludes that the increase in noise will not impact normal use of the park because the park is already noisy and was historically even noisier. *Id.* No support for this conclusion is cited in the Supplement and similarly unsupported conclusions are made with regard to Dockweiler Beach State Park. *Id.* Without further support for these findings, the Supplement is inadequate under section 4(f).

9. Historic Resources, Including Architectural, Archeological, Cultural, and Paleontological Resources

Like the Draft EIS/EIR, the Supplement's identification of Historic/Architectural and Archeological/Cultural Resources and analysis of impacts to those resources is legally inadequate. As discussed in our September 2001 Comment Letter, the Draft EIS/EIR downplayed LAWA's responsibility for the alteration and destruction of certain resources, including CA-LAN-1118 and the 1961 Air Traffic Control Tower; the Supplement suffers from the same flaw. Additionally, a number of other flaws are revealed in the Supplement, including the failure to: identify resources; determine their eligibility for listing on federal, State, or local registers; adequately

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describe and document those resources within the EIS/EIR; and identify alternatives and/or mitigation measures that would avoid or lessen impacts to these resources.

For example, despite the passage of almost two years since the circulation of the Draft EIS/EIR, no final determination has been made regarding many resources' eligibility for the National Register of Historic Places, the California Register of Historical Resources, or local registers. See Supplement, Appendix S-F at 4. Under Section 106 of the National Historic Preservation Act of 1966, 16 U.S.C. § 470 *et seq.*, the federal government must make determinations of eligibility for the National Register of Historic Places in consultation with the State Historic Preservation Officer ("SHPO"). See 36 CFR § 800.2(c)(1). According to the Supplement, the SHPO has yet to concur with the FAA's determinations that the Intermediate Terminal Complex, the International Airport Industrial District and the Morningside Park Neighborhood are not eligible for the National Register of Historic Places. Likewise, as noted above, the SHPO has not yet concurred with the FAA's determination that the 1961 Air Traffic Control Tower is not eligible for federal, State, or local listing due to recent modifications made to the exterior of this historic structure by LAWA.

Without a final determination regarding whether the impacted resources are eligible for listing on the National Register of Historic Places, there can be no compliance with Section 106 of the National Historic Preservation Act of 1966, 16 U.S.C. § 470 *et seq.* Moreover, with regard to the 1961 Air Traffic Control Tower: even if this resource is not eligible for listing on the National Register of Historic Places, eligibility for listing on State or local registers would implicate not only section 4(f), discussed above, but also CEQA. Without such a determination, impacts to this potentially historic structure cannot be fully understood, let alone avoided or mitigated.

Additionally, despite the Supplement's recognition that Alternative D would adversely impact the International Airport Industrial District—determined by the FAA to be eligible for both State and local listing—little information is provided regarding this important resource. Not only would Alternative D demolish eleven buildings contributing to this historic district, it would also “compromise the overall integrity and configuration of the district resulting in a significant impact at the state and local levels.” Supplement at 4-436. Despite the acknowledged direct and cumulative significant impacts resulting from demolition of these historic resources, almost no information is provided in the Supplement or Appendices regarding the International Airport Industrial District and what buildings in particular will be demolished.

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As the Supplement recognizes, Alternative D's partial demolition of the International Airport Industrial District is a significant direct and cumulative impact under CEQA. Supplement at 4-436. The District is a "significant exception[]" to the utilitarian appearance of the majority of the industrial architecture within the Area of Potential Effects ("APE"). Supplement, Appendix S-G at 39. Designed by "national[ly] acclaim[ed]" architect S. Charles Lee, many of the buildings of the District have "distinctive entries with canopies, supports and fenestration derived from both the Streamline and the Modern architectural vocabularies." *Id.* Despite this, only one photograph of the District is provided in the Supplement. *Id.* at Figure S14; *see also id.* at Attachment 2, DPR 523 Form (same photograph). This photograph is taken at a distance from almost a bird's eye view and reveals a view of rooftops and blacktop; the facade of one building can be seen. *Id.* This single photograph of an acknowledged historic district is totally inadequate for the purposes of environmental review. At the very least, individual photographs of the facades of buildings contributing to the District, with particular care given to buildings proposed for demolition, should be included in the EIS/EIR. Without more visual representations of the resources to be impacted and without the identification of the specific buildings to be demolished, this document fails to meet the minimum standards of for environmental review that we have identified under federal and State law.

Like the Draft EIS/EIR, the Supplement fails to provide adequate—or rather *any*—analysis of the feasibility of rehabilitating, remodeling, and reusing historic structures, including the buildings within the International Airport Industrial District. The EIS/EIR must address the option of adaptively reusing the buildings the FAA and LAWA propose for demolition according to the standards established by the Secretary of the Interior and the California Office of Historic Preservation.

Finally, although the Supplement recognizes that a significant impact will occur to the region's paleontological resources due to the grading and excavations involved in Alternative D, as well as the other build alternatives, the document continues to defer important mitigation—in violation of federal and state law—that could potentially mitigate some of the significant impacts to these resources. Specifically, Mitigation Measure MM-PA-1, a mitigation for Alternatives A, B, C, and D, defers development of a monitoring and fossil remains treatment plan for construction-related activities until after Project approval. Supplement at 4-446. Such a plan should have been developed and made available for comment as part of the Draft EIS/EIR. There is no reasonable justification for postponing the development of this plan until after the

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Project is approved, and the document does not attempt to offer any. An acceptable monitoring and fossil remains treatment plan for construction-related activities should be developed and circulated for public comment and should be included in any final version of the EIS/EIR for this Project. Failure to do so constitutes impermissible deferral of mitigation designed to address identified significant direct and cumulative impacts.

10. Biotic Communities

The Supplement's analysis of impacts to biological resources employs the same faulty methodology as the Draft EIS/EIR's analysis of biological impacts, and, thus, its conclusions regarding impacts and mitigation are likewise fundamentally flawed and misleading. Like the Draft EIS/EIR, the Supplement relies on the quantification of "habitat units" to analyze the impacts the Project will have on biological resources. Although the technique has been renamed the "Mitigation Land Evaluation Procedure" ("MLEP") and is no longer called the "Habitat Evaluation Procedure" ("HEP"), the methodology remains the same. As discussed in our September 2001 Comment Letter, the MLEP contradicts accepted methodology for assessing impacts to biological resources, including habitat. By examining factors that are not relevant to the needs of sensitive species and relying on the fiction of the "habitat unit" that is at odds with the reality of sensitive species' habitat needs, the MLEP greatly underestimates the impacts the Project will have due to the destruction of hundreds of acres of existing habitat. See September 2001 Comment Letter at 84.

Because the Supplement relies on the same flawed methodology as the Draft EIS/EIR, our comments provided in our prior comments remain entirely applicable to this Supplement and to the analysis of Alternative D. Additionally, despite the inclusion of new information and new mitigation measures, the Supplement not only subjects itself to the same failures as the Draft EIS/EIR, it compounds these failures by providing new information and mitigation that is misleading and inadequate.

For example, several times in its analysis of impacts to biological resources, the Supplement appears to compare the impacts of Alternative D to the impacts that would result from the other build alternatives, instead of conducting a comparison to baseline conditions or even to the No Action/No Project Alternative. See e.g., Supplement at 4-466 ("Potential impacts to flora and fauna resulting from increased concentrations of air pollutants [under Alternative D] would be the same as other build alternatives."). This kind of comparison is misleading and serves to minimize the

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apparent impacts of each build alternative.

Additionally, although the Supplement identifies numerous significant impacts to biological resources—including loss of state-designated habitat and impacts to Lewis’s evening primrose, sensitive arthropods, the silvery legless lizard, the San Diego horned lizard, the burrowing owl, the western spadefoot toad, the San Diego black-tailed jackrabbit, the loggerhead shrike, and 300 mature trees (*id.* at 4-465 to 466)—the Supplement nevertheless concludes that there will be no significant impacts with mitigation (*id.* at 4-479). The Supplement reaches this result by purporting to require habitat replacement. However, much of this habitat replacement is proposed for land that is already designated and protected habitat—i.e. land within the El Segundo Blue Butterfly Habitat Preserve. *See e.g.*, MM-BC-13, Supplement at 4-478 (“Opportunities for restoration include . . . 36.11 acres from removal and restoration of 50 percent of the existing roadways to Southern Fore-dune . . .”). By relying on the flawed methodology of “habitat units,” the Supplement announces that it is creating new habitat to replace habitat that will be destroyed by the Project by merely improving the “habitat value” of already existing designated habitat. In reality, no new habitat is created; at best, existing protected habitat is merely improved. The result is that impacts to biological resources are grossly underestimated and not truly mitigated.

Another example of the Supplement’s inadequate mitigation of biological impacts is the mitigation it proposes for the removal of over 300 mature trees. Although the Supplement acknowledges that this significant impact will occur as a result of the proposed LAX Northside/Westchester Southside project and that the destruction of these mature trees will have a significant impact on the nesting activities of certain sensitive species, including raptors, the proposed mitigation is thoroughly inadequate. First, the mitigation fails to minimize the significance of the impact involved. The replacement trees will not be mature, and, thus, at a minimum, there will be significant short term impacts until the replacement trees reach maturity (which could take decades). Moreover, the Supplement leaves the determination of the species of replacement trees to the discretion of LAWA. *Id.* at 4-471. As discussed in our previous comment, LAWA has a documented history of using inappropriate, non-native, and invasive landscaping both within and near sensitive habitats. September 2001 Comment Letter at 84-85. Any mitigation for the destruction of these 300 mature trees should require LAWA to plant native species, or, where the use of native species is infeasible, native-compatible species.

A final example of the Supplement’s inadequate attempts to mitigate

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impacts to biological resources is its deferral of the development of relocation and monitoring plans to an entirely undefined later date. Supplement at 4-475 to 4-477 (MM-BC-9). Rather than develop relocation and monitoring programs for inclusion in the Supplement, the Supplement has instead impermissibly deferred development of these important mitigation measures. The formulation of mitigation measures can not be deferred until after project approval; rather, “[m]itigation measures must be fully enforceable through permit conditions, agreements, or legally binding instruments.” 14 CCR § 15126.4 (a)(2).

11. Endangered and Threatened Species of Flora and Fauna

As discussed above, the flaws inherent to the methodology employed by the Supplement (and the Draft EIS/EIR before it) to quantify loss of habitat poisons the entire analysis of impacts to biological resources and mitigation measures. These flaws overlap with and carry over to the Supplement’s analysis of impacts to endangered and threatened species and result in a great underestimation of impacts. Additionally, as discussed in our earlier comments, the methods employed by the Draft EIS/EIR, and now the Supplement, to determine the current population of certain endangered species results in overestimation of current populations, and thus, again, an underestimation of impact. September 2001 Comment Letter at 85.

Although the Supplement recognizes that existing wetland habitat for the Riverside Fairy Shrimp will be entirely destroyed by the Project, (Supplement at 4-485 and 4-486 to 4-487), it nevertheless both downplays the significance of this impact and also concludes that this impact will be fully mitigated by the creation of new habitat for the transplanted shrimp cysts off-site. *Id.* at 4-489 to 4-493 and 4-494. First, the Supplement fails to recognize that the current “degraded” nature of the Riverside Fairy Shrimp’s habitat is due to its own ongoing actions--grading and mowing the vernal pools the shrimp occupy. LAWA asserts that this destruction of habitat is necessary for maintenance purposes. Rather than recognize that this constitutes a “take” under the Endangered Species Act, the Supplement uses LAWA’s own improper actions to downplay the value of the habitat. Second, the Supplement and Appendix S-H offer little support for their assumptions that: (1) appropriate off-site habitat or land suitable for habitat construction will be found; (2) this land will be available for purchase; (3) money will be available for the purchase; and (4) the removal of the shrimp cysts from the Project site to this off-site location will be successful. Third, there is no discussion in the Supplement or the Draft EIS/EIR of the impacts that building this habitat off-site might

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have to whatever environment is chosen for this new habitat. Given these problems and the lack of support for the document's underlying assumptions, the Supplement's conclusion that impacts to the Riverside Fairy Shrimp will be reduced to a level of insignificance is likewise unsupported.

Moreover, the Supplement fails to justify the decision to build an employee parking garage directly over the habitat for the Riverside Fairy Shrimp in the first instance. No explanation is given for why this structure could not be constructed on land that has already been disturbed for building. For example, the employee parking garage could be constructed nearby in the LAX west end where LAWA proposes to remove the existing remote aircraft gates. This option has not been explored, but should be, as a means of mitigation impacts to wetlands and endangered species.

Finally, as discussed in Section (10) above, because the Supplement employs a flawed methodology to quantify impacts to habitat, impacts to the El Segundo Blue Butterfly are greatly underestimated. Despite the construction of a number of new navigational aids and the loss of significant habitat for the butterfly, the Supplement concludes that the Project will not result in any significant impacts. *Id.* at 4-494. This conclusion is unsupported and premature.

12. Wetlands

The Supplement's analysis of impacts to wetlands and the mitigation proposed to deal with those impacts are inadequate for all alternatives. For further discussion of this issue, please see Section 11, above, (discussing impacts to vernal pools due to LAWA's ongoing "maintenance" procedures, impacts to the protected Riverside Fairy Shrimp, and the infeasibility of mitigating these impacts through off-site creation of replacement habitat), and our September 2001 Comment Letter (at 86).

13. Coastal Resources

Like the Draft EIS/EIR, the Supplement relies on the analysis and conclusions of earlier chapters, specifically, Sections 4.10 Biotic Communities and 4.11 Endangered and Threatened Species of Flora and Fauna, for its discussion regarding coastal resources. For the reasons set forth above in Sections 10 and 11, above, these analyses and conclusions are ill-supported and inadequate. The analysis of impacts to biological resources, including coastal resources, underplays and ignores significant

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impacts to the coastal dunes ecosystem, including the habitat for the endangered El Segundo Blue Butterfly. Additionally, like the Draft EIS/EIR, the Supplement contains no discussion of impacts to marine life. Moreover, the build alternatives of the EIS/EIR, including Alternative D, remain inconsistent with the California Coastal Act, which requires that development projects protect, and where feasible, enhance the quality of the coastal zone environment. Pub. Res. Code § 30000 et seq.

14. Energy Supply and Natural Resources

As with other sections, the Supplement's analysis of energy supply and natural resources perpetuates the same problems seen in the analysis earlier presented in the 2001 Draft EIS/EIR. As such, the comments presented in our September 2001 Comment Letter remain salient and apply to the Supplement's analysis of Alternative D. In addition to those comments, we have identified the following problems with and notable issues raised by the Supplement's analysis of energy supply and natural resources:

- A significant portion of the numbers contained in Supplement Table S4.17.1-3 are marked with indicators explaining that those numbers have been modified from the numbers included in the 2001 Draft EIS/EIR in order to correct "errors" and "mathematical errors." The Supplement does not, however, provide any information regarding the nature or extent of those errors, does not explain why some changes are attributed to "mathematical errors" while others are simply called "errors," and does not provide any indication of why the errors occurred.
- The Supplement concludes that the impact of the Master Plan build alternatives (Alternatives A, B, C & D) on electricity and natural gas supplies would be less than significant because "a sufficient supply of electricity and natural gas is *expected* to be available." Supplement at 4-516 (emphasis added). In other words, the Supplement's analysis is based on an assumption that sufficient gas and electricity will be available to support the increased demand protected under Alternative D and the other Master Plan build alternatives. The Supplement cites no support for this assumption. As such, the conclusion that the Master Plan build alternatives' impacts on electricity and natural gas supplies would be less than significant is not based on substantial evidence. Project approval is therefore precluded under CEQA. Pub. Res. Code § 15091(a)-(b).
- The Supplement acknowledges that the increased demand for electricity projected

under Alternative D may result in the need to upgrade the electrical power transmission system. Supplement at 4-516. The document does not, however, identify any of those reasonably foreseeable transmission upgrade projects, much less evaluate the environmental impacts associated with their construction and operation.

- The Supplement notes that under Alternative D, “some” GSE and on-airport vehicles would be converted from gas/diesel to LNG, CNG or propane power. The Supplement must provide greater specificity with regard to this conversion. Such specificity is necessary in order to: (1) ensure the conversion program is actually carried out and enforceable; (2) accurately calculate the project’s energy supply impacts; and (3) accurately calculate the project’s air quality impacts (*see* Attachment 3).
- The Supplement concludes that Alternative D would entail a 412 percent increase in the consumption of LNG, CNG and propane over existing conditions. Supplement at 4-517. This is a major increase which, as even the Supplement acknowledges, would require construction of significant new distribution infrastructure. *Id.* The Supplement concludes, however, that the dramatic increase in the consumption of LNG, CNG and propane will not result in any significant environmental impacts. *Id.* This conclusion is not supported by substantial evidence because neither LAWA nor the FAA has adequately considered the environmental impacts of constructing and operating the new infrastructure necessitated by that increased consumption.

15. Solid Waste

The Supplement’s analysis of solid waste perpetuates the same problems seen in the analysis earlier presented in the Draft EIS/EIR. As such, the comments presented in our September 2001 Comment Letter remain salient and apply to the Supplement’s analysis of Alternative D. *See* September 2001 Comment Letter at 94.

In addition, one of the most obvious problems with the solid waste analysis in the Supplement is its reliance on an inaccurate solid waste generation factor. Specifically, the Supplement assumes a solid waste generation rate of 387 tons per million annual passengers (“tons/MAP”) despite the fact that this rate has previously proved to be overly optimistic (i.e., too low). *See* Supplement Technical Report S-7 at 2;

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Supplement at 4-531. Year 2000 data shows, for example, that the actual generation rate was 431 tons/MAP rather than the 387 tons/MAP projected by LAWA for 2000 and future years. *Id.*

The only justification provided for the Supplement's reliance on this generation factor is the hopeful statement that "solid waste generation rates are expected to continually decrease and diversion is expected to increase at LAX." Supplement Technical Report S-7 at 2. This optimism is unfounded, however, in light of actual year 2000 data showing a higher generation rate and in light of the fact that LAWA, which is ultimately responsible for the amount of solid waste generated at LAX, has made inadequate "commitments" to reducing solid waste generation. As we noted in our 2001 comment letter, LAWA's various solid waste "commitments" lack the specificity and detail necessary to be enforceable, real and adequate. *See* September 2001 Comment Letter at 94. Commitment SW-1 described in the Supplement, for example, indicates that LAWA would implement a "more aggressive recycling program" but provides few details regarding the program and does not assess the likelihood of the program resulting in the significant solid waste generation factor reductions assumed by the Supplement. Supplement at 4-534.

16. Construction Impacts

The Supplement contains some new analysis of construction impacts, although the new information is not always easily identified. It continues to posit an overly optimistic construction schedule, rely on badly designed and unenforceable mitigation measures, and omit certain impacts of anticipated construction activity. As laid out above in our discussion of traffic impacts and in Attachment 2, the Supplement includes serious discrepancies regarding size of the workforce and the number of trips those workers would generate. As explained in our discussion of air quality impacts and in Attachment 3, the construction emissions analysis is significantly flawed and fails to disclose impacts on air quality from construction equipment and activity. In addition, the Supplement lacks an adequate analysis of construction noise. *See* Attachment 1.

Though the Supplement emphasizes that construction impacts are temporary, the proposed project would impose construction impacts on El Segundo and other neighboring jurisdictions for 10 years or more. These impacts will be severe, and LAWA and FAA must do a great deal more than they have in the documents to date to assure adequate mitigation of the noise, air pollution, traffic congestion, and other

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impacts of the construction contemplated by this plan.

17. Art and Architecture

The analysis of impacts to design, art, and architecture found in the Supplement suffers from many of the same inadequacies as the previous discussion in the Draft EIS/EIR and is, thus, likewise inadequate. For our comments on the Draft EIS/EIR, which remain relevant here, please see our September 2001 Comment Letter at 100-102.

Additionally, the Supplement fails to describe any concrete or defined aesthetic and architectural standards to which the Project will be held. No discussion is provided regarding how architects and designers for the numerous individual building and landscaping projects will be chosen. Given the fact that this Project is one of the primary entrance points to California and the region for international and domestic travelers, and considering the significance and creativity of contemporary architecture in Los Angeles, standards should be established to ensure that talented and competent architects and designers will be chosen to design attractive, efficient, and highly functional buildings and environments.

Likewise, no building standards are described for the individual building and landscaping projects that will comprise the Project as a whole. For example, in order to mitigate some of the resource impacts this Project will likely entail, the Supplement and the Master Plan itself should require the incorporation of green building methods, practices, and materials. Such a commitment to green building, and a commitment to follow one of the recognized certification programs for green building, would show a commitment to the environment and improving the aesthetic and architectural character of LAX and its vicinity.

18. Earth/Geology

Because the Supplement relies on much of the same information and analysis found in the Draft EIS/EIR, our comments on the prior document remain relevant here, and apply to the analysis of Alternative D. September 2001 Comment Letter at 102-103.

Additionally, although the Supplement notes that the potential impacts due to earthquake fault surface rupture are higher for Alternative D as compared to the other

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build alternatives, (Supplement at 4-584), little analysis of this condition is provided and no additional mitigation measures are offered. Instead, the Supplement concludes that, despite this increased risk, there remains no significant impact. This conclusion is not supported by fact or analysis. At the very least, additional analysis should be provided and further mitigation proposed to address the increased risk of fault surface rupture under Alternative D.

19. Hazardous Materials

The Supplement's analysis of hazardous materials perpetuates the problems pointed out in our September 2001 comments. Those comments remain salient and apply to the Supplement's hazardous materials discussion with regard to Alternative D as well. *See* Attachment 6 for our expert consultants' report on hazardous materials. As set forth in that report, the impacts of toxic contamination of soils and groundwaters on the LAX site on the health and safety of construction workers is a matter of grave concern. These impacts have still not been adequately analyzed; instead LAWA assumes, without analysis, that any such impacts will be mitigated. As explained in Attachment 6 and in Attachment F to our September 2001 Comment Letter, this approach is improper and the mitigation measures as proposed are legally deficient.

20. Public Utilities

Our comments on the Draft EIS/EIR pointed out numerous problems with the analysis of the impacts of the Master Plan alternatives on public services, particularly water and wastewater. *See* 2001 Comment Letter at 105-109. Although the Supplement claims to have corrected certain errors, many of the numerical discrepancies we noted previously (e.g., a water usage figure for Continental City that is at odds with the Draft EIR for that project) are repeated in the Supplement. Also evident in the Supplement is that by assuming that Alternative D would use water conservation methods and reclaimed water (without providing enforceable conditions to ensure this) the Supplement concludes that Alternative D would result in lower water usage than No Action/No Project Alternative. Supplement Table S4.25.1-1. This is not adequately documented, and there is no reason to assume that water conservation measures cannot be incorporated into the current airport without a new Master Plan. The analytical approach of the Draft EIS/EIR and the Supplement is flawed from a CEQA/NEPA perspective because it causes Alternative D to appear to have less severe water supply impacts than No Action/No Project Alternative by assuming that No Action/No Project Alternative will not comply

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with conservation measures that are generally utilized in major public facilities; the result is a misleading comparison.

In this impact area as in others, LAWA's and the FAA's analytical assumption that Alternative D would serve a maximum of 78 MAP, when its gate capacity actually exceeds that and its terminal facilities and airfield capacity will be greatly expanded, leads to an erroneously low projection of water usage, and a resulting understatement of the impacts on water supply. Although the Supplement asserts that there will be adequate water supply for this project, the Los Angeles basin faces a chronic and severe water shortage, and the Master Plan alternatives' water supply impacts must be fully analyzed in the context of the cumulative water supply problems in the area. *See e.g., Stanislaus Natural Heritage Project v. County of Stanislaus*, 48 Cal.App.4th 182 (1996) (rejecting EIR for failure to analyze water supply aspects of development project).

Conclusion

The environmental impacts of LAX and the proposed airport improvement plans are massive. The plans for the airport's future should undergo detailed and accurate review, including full disclosure to the public and decisionmakers and an opportunity for the public to comment and be heard. For the reasons detailed in this letter and the attachments, and in our September 2001 Comment Letter and the associated attachments, the Draft EIS/EIR and Supplement still fail to provide adequate disclosure and mitigation of significant environmental impacts. Many of the problems identified in previous comments have still not been remedied. Additional analysis must be prepared to meet legal standards and adequate documents must be circulated to the public for review and comment.

LAWA and FAA may understandably be impatient to conclude this Master Plan process after many years of planning and review. The fact that this process has been a slow one, however, is not a justification for skimping on the necessary analysis and public disclosure. The Draft EIS/EIR should be corrected and recirculated to assure compliance with the legal requirements of CEQA and NEPA.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP



CHRISTY H. TAYLOR

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LIST OF ATTACHMENTS

1. Noise Report
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Aviation Systems Inc.
2. Transportation Report
Tom Brohard, PE
Tom Brohard and Associates
3. Air Quality and Health Risk Assessment Report
Phyllis Fox, Ph.D., P.E., DEE, QEP, REA I/II and Petra Pless, D. Env.
4. Resumes
Phyllis Fox, Ph.D., P.E., DEE, QEP, REA I/II and Petra Pless, D. Env.
5. Hydrology and Water Quality Report
Phyllis Fox, Ph.D., P.E., DEE, QEP, REA I/II and Petra Pless, D. Env.
6. Hazardous Materials Report
Phyllis Fox, Ph.D., P.E., DEE, QEP, REA I/II and Petra Pless, D. Env.
7. Report on Airport Capacity and Design
Professor Adib Kanafani
8. Air Freight Building 8 information from LAWA 2001-2003 CIP
9. Mercury Air Group FBO negative declaration (April 2003)
10. Parking Structure 6 documents
11. Southern Airfield Project information from LAWA July 2003 QPRS
12. Los Angeles General Plan description of "Regional Centers"
13. News reports regarding security personnel needs
14. News reports regarding home prices in Los Angeles area
15. Study regarding impact of aircraft noise on learning
16. Correspondence between Shute, Mihaly & Weinberger LLP, LAWA and the FAA
17. Documents related to RFP for detailed design work on Alternative D.

Gary Mikel Allen, PhD, Esq.

23430 Hawthorne Blvd, Suite 200

Torrance, CA 90505

(310) 378-3299

Fax: (310) 791-1546

e-mail: gary@aviationsystems.com

DIRECTOR OF REGULATORY AFFAIRS

GENERAL QUALIFICATIONS

Dr. Allen has over 28 years of technical and legal experience in aviation, engineering, environmental planning/analysis and document review. A substantial part of his career has been devoted to airport environmental studies, airport compatibility planning and analysis such as noise/land use, airspace modeling, aircraft accident potential, land use risk assessment and electromagnetic interference (EMI) studies. In recent years, Dr. Allen has also been involved in evaluating airspace issues and regulatory compliance under FAR Part 77 for telecommunications projects around the United States.

PROFESSIONAL EXPERIENCE

The following are specific areas of Dr. Allen's experience, including a few representative projects in each area:

Environmental Review and Analysis

Reviewed the Supplement to the Draft EIS/EIR on Airport Master Plan alternatives for Los Angeles International Airport on behalf of the cities of El Segundo and Inglewood. This Supplement principally addressed a new alternative proposed by Los Angeles Mayor James Hahn and augmented technical analyses on other alternatives requested by commenters on the Draft. This Supplement is subject to, and therefore reviewed for compliance with, both Federal (NEPA) and California (CEQA) requirements.

Reviewed the Draft EIS on the Airport Master Plan for Cleveland Hopkins International Airport on behalf of the City of Olmsted Falls which was concerned about the impact of the airport's expansion plans on their city.

Reviewed the environmental analyses and documentation developed by proponents of an international cargo use of Brown Field in San Diego on behalf of the City of Chula Vista. Major flaws were discovered in the document's disclosure of airspace and environmental implications of the proposal which ultimately resulted in the City Council of San Diego rejecting the proposal.

Reviewed and commented on the environmental documentation on noise-mitigating aircraft departure procedures at SEATAC Airport.

Directed the preparation of EISs pursuant to NEPA requirements for Airport Master Plans at Salt Lake City International Airport, Houston Intercontinental Airport, Los Angeles International Airport, Sacramento Metro, and Sacramento Executive Airports. In addition to NEPA requirements, the California Airports also are required to conform to the requirements of CEQA.

Prepared EIRs under CEQA for the introduction of new airline service at San Diego International and the introduction of MD-80 service at John Wayne Airport.

Prepared the EIS/EIR for "over the ocean" approach procedures at Los Angeles International Airport.

Prepared EIRs and impact assessments for wind energy conversion projects in California and Hawaii.

Regulatory Compliance

Reviewed approximately 5,000 telecommunications, broadcast and other development projects over the last 10 years for compliance with FAR Part 77, FAA Order 8360.2B, FAA Order 7400.2E and FAA Advisory Circular

70/7460-1K. Coordinated with both project proponents and the various FAA technical branches involved in the process.

Land Use Compatibility Studies

Analyzed the regulatory and legal issues involved with a major development project adjacent to Camarillo Airport. The principal issues involved FAR Part 77 compliance and the implications of an aviation easement still on the books from the days when Camarillo Airport was a U.S. Air Force Base.

Analyzed compliance of development projects adjacent to Chino Airport, Hemet-Ryan Airport and Bermuda Dunes Airport with the Airport Land Use Compatibility Plans prepared under California Law and also with a recent publication on the current thinking on Airport Land Use Compatibility Planning by the California Department of Transportation.

Directed and conducted land-use compatibility plans at airports across the nation, including Salt Lake City, Reno, Houston, Oklahoma City, San Diego, Milwaukee, and Hartford. These plans were developed pursuant to the FAA's pilot program called Airport Noise and Land Use Compatibility (or ANCLUC) and its successor FAR Part 150.

Conducted EIRs and land-use assessments pursuant to California law for heliport projects at Brea, Huntington Beach, and Anaheim, and for helicopter airline service at John Wayne, Los Angeles International, Ontario, and Burbank-Glendale-Pasadena Airports.

Developed land-use compatibility guidelines for the general plans of 2 counties and 16 cities in California.

Noise Studies

Conducted computerized noise studies using the FAA's Integrated Noise Model (INM) or the DOD's NoiseMap Model at hundreds of airports across the United States, including Los Angeles International, Houston Intercontinental, John Wayne (Orange County), San Diego, Jacksonville, Norton Air Force Base (Civilian Re-use), NAS Agana Guam (Civilian Re-use), Kalamazoo, Santa Maria, Salem, Ontario, Tacoma, Fort Worth, Gainesville, Salt Lake City, Milwaukee, Bellingham, Port Angeles, Rialto, Banning, Shelton, Sacramento, Oklahoma City and Burbank-Glendale-Pasadena Airport.

Designed and conducted field noise monitoring surveys to validate the accuracy of computer modeling or to confirm noise complaints at Houston, Salt lake City, Palomar, and Aspen.

Conducted noise assessments, including substantial field noise monitoring, for proposed new heliports at Victorville, San Bernardino, Sarasota, Baldwin Park, Brea, Huntington Beach, and Anaheim, California, and for new helicopter service at John Wayne, Los Angeles International, Ontario, and Burbank-Glendale-Pasadena Airports.

Developed the noise assessment portion of the "Planning Guidelines for Helicopter Facilities in the San Diego Region," which was used by the local association of governments (SANDAG) to assess heliport proposals in the region.

Directed or conducted airport noise abatement plans at airports across the nation, including Salt Lake City, Reno, Houston, Oklahoma City, San Diego, Milwaukee, and Hartford.

Developed noise contours for the DOD using NoiseMap as part of Air Installation Compatible Use Zone (AICUZ) studies at MCAS Kaneohe Bay, NAS Barbers Point, NAS Agana, NAS Alameda, NALF San Clemente Island, OLF Imperial Beach, USCGS Elizabeth City.

Analyzed noise effects from institution of new noise abatement takeoff procedures at John Wayne Airport on behalf of Newport Beach.

Directed acquisition of aircraft operations data for noise studies at Marine Corps Air Station El Toro and Naval Air Station Pt. Mugu.

Reconstructed noise environment on west-end of Ontario International in the 1970-1976 era for purposes of litigating a malpractice complaint.

Air Quality Studies

Managed air quality studies for airport EIRs at Los Angeles International, John Wayne, Ontario, Santa Maria, Oxnard, Camarillo, Houston Intercontinental, Rialto, and various other airports. Under contract with the FAA, directed microscale analysis of second level roadway at Los Angeles International Airport.

Managed over 100 air quality assessments for general plan amendments, highway projects, airport expansion projects and private residential and commercial development projects throughout California and Nevada.

Directed air quality assessments for supplemental EIRs for the City of Los Angeles General Plan/Zoning Consistency Program. Directed air quality studies for hotel expansion and the residential projects in the Truckee Meadows airshed.

Conducted analysis of obstruction of sea breeze windflow by proposed residential project in Dana Point. Analyzed air quality implications of Irvine General Plan Update. Analyzed air quality implications of alternative land-use concepts in Aliso Water Management Agency territory.

OTHER PROFESSIONAL EXPERIENCE

Successfully litigated (as second chair) a contractual dispute between a Mexican Air Line and an aircraft leasor.

Was a pioneer in the development of airport noise/land-use compatibility plans and has been heavily involved over the years in the development of noise elements for community general plans.

Was instrumental in the development of wind turbine noise assessment and authored several papers and over 200 project reports on wind farm noise impacts.

Authored book on Environmental Evaluation of Airport Site Selection Alternatives.

Conducted FAA-approved computer modeling studies on the electromagnetic interference potential of FM stations on airport navigational aids at dozens of airports across the nation.

Conducted aircraft accident potential studies on development proposals adjacent to John Wayne, Camarillo, Riverside, Bermuda Dunes and French Valley Airport.

Conducted airspace modeling of civilian re-use of Norton Air Force using SIMMOD

Served as expert witness in airport noise/land use compatibility litigation.

EDUCATION

J.D. Law, Western State University College of Law.

PhD Environmental Science (Aviation emphasis), California Western University.

M.S. Environmental Studies (Aviation emphasis), California State University, Dominguez Hills.

M.S. Environmental Systems Management, West Coast University.

B.S. Engineering, Northrop University.

Certificate in Urban Planning, University of California, Irvine.

Certificate in Environmental Impact Reporting and Evaluation, University of California, Irvine.

Coursework in Airport Planning, University of California, Berkeley.

PROFESSIONAL AFFILIATIONS

California State Bar (Number 159878)

American Bar Association

Lawyer – Pilots Bar Association

National Association of Environmental Professionals

Member, Federal Bar Association.

Member of ABA Committee on Environmental Controls

Member of ABA Subcommittee on Air Quality

PUBLICATIONS

"Protecting the Navigable Airspace: FAR Part 77," Aviation and Space Law Symposium Proceedings (April 1998).

"Windfarm Noise Issues: Windpower '85 Proceedings (July 1985)

"Environmental Noise Issues," Renewable Energies symposium Proceedings (June 1985)

"Wind Energy Development Noise Considerations," American Wind Energy Association Conference Proceedings (July 1984)

"Environmental Evaluation of Airport Site Selection Alternatives," Cal Western University (Dec. 1981)

"Consultant's Role in Processing of Airport Environmental Actions," Perspectives on Airport Environmental Compatibility, Airport Operators Council Int'l Proceedings (March 1978)

RELEVANT EMPLOYMENT HISTORY (LAST 28 YEARS)

Chevalier, Allen & Lichman (1992--). Partner - law practice in aviation-related matters.

Aviation Systems, Inc. (1988--). Vice President and Director of Regulatory Affairs-- responsible for the firm's consulting services related to state and Federal regulatory compliance, aircraft noise, airport compatibility, accident probability studies, electromagnetic interference studies.

Bolt Beranek & Newman (1987--1988). Supervisory Consultant -- responsible for aircraft noise studies and airport noise/landuse compatibility studies in the western U.S.

Foresite Group (1986-1987). Regional Manager for the firm's southwestern U.S. region -- managerial responsibility for airport planning and environmental consulting and technical responsibility for aircraft noise studies.

Michael Brandman Associates (1983-1986). Principal in Charge of general noise consulting and airport planning/environmental activities.

CH2M Hill (1975-1983). Manager of Airport Environmental Services -- responsibilities included airport noise and air quality studies, airport environmental studies and landuse compatibility studies. (Note: The Airport Environmental Services Group was originally part of Olson Laboratories and was acquired by CH2M Hill in 1979).

Environmental Analysis Foundation (1972-1975). Project manager for noise and air quality studies.



**Review of Supplement to The
LAX Draft EIS/EIR**

Submitted by:

**Aviation Systems, Inc.
Torrance, California
October 13, 2003**

Acoustical Review of the Supplement to the Draft EIS/EIR for the LAX Master Plan

Introduction

We have reviewed portions of the *Supplement to the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR)* for the LAX Master Plan to identify acoustical issues that may be of concern to adjacent communities to the east and south of LAX. These portions of the Supplement include Chapter 4.1, *Noise*, and Appendix S-C1, *Supplemental Aircraft Noise Technical Report*.

General Comments

The Supplement does address some of the deficiencies in the Draft EIS/EIR; in particular, it adds information about the Year 2000 in addition to the Year 1996. That year (2000) is generally thought to be more appropriate for the environmental baseline than 1996 because using 1996 gives the Airport Master Plan the perception of more noise reduction than it should be credited with. The Federally mandated phase-out of Stage 2 aircraft, which is unrelated to the Master Plan, is actually the cause of a significant noise reduction between 1996 and 2000. However, the Supplement, while revealing that noise levels in 2000 were lower than 1996, still uses 1996 as the baseline for evaluating impacts.

The Supplement also adds information that purports to comply with the California Court of Appeals decision in Berkeley Keep Jets over the Bay Committee v. Board of Port Commissioners, to document single event noise effects on the surrounding communities. The problem is that the single event noise information in the Supplement is presented in ways that obfuscate rather than clarify the impact. Rather than provide SEL contours for each of the aircraft types operating at LAX and their frequencies of occurrence, which would provide meaningful information to the lay reader, the Supplement provides an artificial contrivance (the so-called 94 dB SEL contour) which is based on an arbitrary assumption of what a significant percentage of nighttime awakenings is. While this method of correlating SELs and awakenings is interesting it doesn't really answer the questions residents continually want to have answered, i.e., how noisy will the overflights be and how many times am I going to hear them? Outside the airport and the mathematical world of noise analysis, the communities and their residents have a perceived severe annoyance with overly intrusive aircraft noise. And, the annoyance is not just awakenings but also interference with speech and other activities, both indoor and outdoor.

Speech Interference

The Supplement does not address speech interference associated with aircraft noise although, like sleep disturbance, it is a primary cause of annoyance to individuals on the ground. It disrupts routine activities such as radio or television listening, telephone use, and family conversation giving rise to frustration and aggravation. According to both the U.S. Environmental Protection Agency in its seminal "Levels Document" Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety EPA 1974 (Figure D-3, pg D-7) and the Federal Interagency Committee on Noise (FICON) document Federal Agency Review of Selected Airport Noise Analysis Issues FICON Federal Inter Agency Committee on Noise Aug 1992 (pg 3-7) "wherever intrusive noise exceeds approximately 60 dB indoors, there will be interference with speech communication." It can be reasonably concluded that outdoor noise exceeding (roughly 75 dB) will also cause this intrusive interference. The Supplement like its predecessor Draft EIS/EIR is silent on this issue despite the fact that residents of El Segundo and other communities surrounding LAX are affected daily by this annoyance factor. To provide meaningful information on all aspects of annoyance, the Supplement should utilize and disclose a 75 dB SEL contour like the one developed for the awakenings aspect of annoyance. Likewise, assuming 60 dB events will also affect outdoor communication, a 60 dB SEL contour should be provided to the communities around LAX.

Flights Above 3000 Feet

On another but related vein, the Supplement continues to ignore flight operations above an altitude of 3,000 feet Above Ground Level (AGL), relying on FAA Rules that categorically exclude such flight operations from environmental review under NEPA. However, FAA Order 1050.1D prescribes that "extraordinary circumstances" such as actions which are likely to have a significant impact on noise levels over noise sensitive areas, or a significant impact on coastal zones, "shall be the subject of an environmental assessment." The Supplement, as did the Draft EIS/EIR, appears to be based on the faulty premise that noise in the South Bay communities which lies outside the parameters established for the noise analysis, does not exist. The noise analysis is, obviously, deficient with respect to its treatment of these areas. There are, in fact, several points that will be discussed later that will have a material impact on residential areas and coastal zones and the "extraordinary circumstances" exception should be applied. As stated above, FAA Order 1050.1D calls for at least an assessment of changes in operations above 3,000 feet AGL. Nevertheless, the Supplement and its predecessor Draft EIS/EIR simply dismiss this requirement categorically stating that "no further noise review" above 3,000 feet is necessary since the noise associated with jet aircraft weighing more than 75,000 pounds will not change more than five decibels CNEL. The rationale for this five dB CNEL standard is apparently derived from FAA Notice 7210.360 which states that below 60 dB DNL an increase of 5 dB is only a "marginal" impact. Other than that there appears to be no basis for it.

Furthermore, the Supplement and the Draft EIS/EIR misconstrue the FAA's benchmark for the measure of overflight as "Above the Airport" when actually it is "Above Ground Level" (AGL). Obviously, the Supplement's use of "3,000 feet above an airport's elevation," as the criterion places communities in the South Bay and elsewhere which are located well above

the airport's elevation at a severe disadvantage. For instance, Palos Verdes is at approximately 1,480 feet elevation, while the Airport is located at 126 feet. Due to the difference in elevation between Palos Verdes and the Airport, an aircraft may be 3,001 feet "above the airport", and its noise not subject to environmental review under LAWA's theory, while it is only 1,521 feet above Palos Verdes. Thus, while the noise impact may not meet the "above airport" criterion, the noise over Palos Verdes would be significantly greater than assumed, but remain unaccounted for in the model. There is no doubt about this since the Supplemental Aircraft Noise Technical Report on page 33 states that for purposes of consistency with the Draft EIS/EIR the Supplement relied upon the FAA's Air Traffic Noise Screening Model (ATNS) described in FAA Notice 7210.360 to "assess the effects noise level changes associated with air traffic procedure changes at altitudes greater than 3,000 feet above an *airport's elevation* [clearly misconstruing the FAA's intent]. This methodology requires that changes in aircraft noise be evaluated if the noise associated with jet aircraft weighing more than 75,000 pounds changes by more than five decibels of DNL (CNEL in California) over residential areas and the aircraft is in flight at an altitude between 3,000 and 18,000 feet *above the airport*." Whether or not the preparers of the Draft EIS/EIR actually used the current computerized version of FAA Notice 7210.360 was called into question during the comment period for the Draft and the Supplement does not provide any evidence of an update. In fact, it appears that use of the outdated and obsolete checklist from the former FAA Notice 7210.360 was continued, leading to the Supplement's reaffirmation on page 33 of the Draft EIS/EIR assertion that "since the flight tracks of the new and relocated runways will be located within close proximity to the present flight tracks of the existing runways, and the aircraft activity on these tracks will not result in an increase of 5 decibels of DNL (CNEL) over any residential area when the aircraft are above 3,000 feet, [*the checklist*] indicates that no further noise review under this guideline is required." Without doubt the Supplement perpetuates the Draft EIS/EIR's misleading the public into believing that an actual, scientific analysis was conducted to determine whether noise would increase above 3,000 feet when it was not.

Single Event Noise Analysis

The remedy for many of the Supplement's shortcomings is a complete, accurate and understandable SEL analysis. However, the Supplement, as earlier the Draft EIS/EIR, emphasizes the cumulative time-averaged aircraft noise impacts created by aircraft approaching LAX from the east and from start-of-takeoff roll for west departures. Despite the contrived 94 dB SEL that appears in the Supplement, the Supplement simply doesn't provide any meaningful information either. It still fails to depict and analyze the SELs from potential routes over areas not previously over-flown, from missed approaches and it still does not address a potential increase in lateral separation of aircraft which could lead to an increase in overflight noise. It cavalierly dismisses this concern alleging the flight tracks will not significantly change (Aircraft Noise Technical Report, page 20). However, the Airport Master Plan on pages 11-2.36 and 2.37 indicates that when LAX is operating on a west flow, turbo-prop aircraft turn at the VOR (or Visual Omni Range) navigational aid despite the policy statement and noise abatement procedures which require aircraft to proceed past the shoreline before starting a turn. If the turbo-prop aircraft do turn early, as the Master Plan indicates and as South Bay communities continue to insist, they will obviously fly over noise

sensitive areas such as parts of El Segundo, thus falling under the “extraordinary circumstances” exception mentioned above and requiring further analysis. The Supplement weakly addresses this issue with some well-hidden Lmax data that falls well short of providing any meaningful information (id, Table S15, pages 78-88). The Supplement should provide SEL contours for each aircraft type on each flight track and their frequency of occurrence.

Other General Comments

Although Alternative D, which is the Preferred Alternative in the Supplement, does not postulate an increase in air traffic operations above the baseline or the No Action/No Project Alternatives, the other study Alternatives still forecast an increase in operations. As the Draft EIS/EIR before it, the Supplement does not clarify how these increased operations will be integrated into the existing Airport air traffic flows nor that they have a real-world potential for increased overflights of South Bay communities.

To accommodate this increase in air traffic, more airspace will probably be required to maintain adequate separation between aircraft during climb out. Air traffic controllers separate aircraft in two ways, laterally and vertically. Generally speaking, heavy departing aircraft are dispersed laterally. As lateral separation between departing aircraft must be maintained, a greater number of offshore aircraft may come closer and over the shoreline, which may also lead to premature easterly turns from the initial southerly headings of departing flights. These premature turns will potentially lead to an increase in overflight noise over South Bay Communities and should be addressed in the Supplement’s coverage of the other Alternatives.

The South Bay Coastal Zones are a resource of not only local significance but also state and national significance. Relying on the Extraordinary Circumstances exception the Supplement should provide a meaningful analysis of impacts on South Bay coastal zones.

The noise standards for El Segundo and other surrounding communities were not considered when establishing significance criteria for the impact analysis which seems an extraordinary omission since these communities are undisputedly affected by whichever action is ultimately taken by LAWA.

No attempt appears to have been made to check the accuracy of the input data to the INM noise model or to correlate it to actual operational conditions at LAX and not even to calibrate it to noise measurements in the area. As a result, the aircraft noise levels cited in the Supplement may be in error as much as 3 dB. This may not seem like much but it actually represents up to twice the noise energy and should not be trivialized.

The significance criteria developed by LAWA for nighttime awakenings are not only arbitrary but also may not have been properly analyzed or assessed.

The impact of single event aircraft noise levels at schools in the airport environs may not have been properly defined, analyzed or assessed.

The impact of roadway noise levels may not have been properly analyzed or assessed.

Specific Comments on Chapter 4.1 of the Supplement, Noise

The discussion of aircraft noise and its impacts in Chapter 4.1 of the Supplement are presumably based on the analysis provided in Technical Appendix S-C1, *Supplemental Aircraft Noise Technical Report*. Any concerns with the analysis and assessment of aircraft noise are, therefore, discussed in our review of the technical appendix in the next section of this report. The following comments on Chapter 4.1 are limited to issues other than aircraft noise, except in those cases where the text of Chapter 4.1 differs from the analysis provided in the technical appendix.

1. The community standards for noise, as established in the noise ordinances and noise elements of El Segundo and other cities surrounding LAX, were not considered when establishing significance criteria for the project. One would think that if you are proposing an action that will affect surrounding communities that you would consider what they perceive as an impact.
2. There is no discussion regarding mechanical equipment or activity noise levels that may occur at the new buildings on the south side of LAX, and their potential impact on noise-sensitive communities in El Segundo.
3. In Section 4.1.2.1.2, the text states that the peak hour of airport operations during school hours was used to assess the impact of aircraft noise on schools. While this is the proper approach (based on the thresholds of significance established for the project), it is clear in Technical Appendix S-C1 that an *average* of eight school hours was used in the analysis, not the *peak* hour (id, page 150 and Table S31).
4. In Section 4.1.2.1.2, the text states that a “Time Above” threshold was used to evaluate noise impacts at schools. This was not identified as a significance criterion in the technical appendix.
5. In Section 4.1.2.1.3, the text states that peak *noise* hour data (i.e., data for the noisiest one-hour period of the day) were used in the analysis of traffic noise. However, based on our review of Technical Appendix S-C2, *Roadway Noise Data*, it appears that either peak AM or PM traffic data were used. These traffic peak hours are not typically the noisiest hours of the day since traffic slows due to congestion, and slower traffic is not as loud. So the analysis understates traffic noise. It appears that the data in Technical Appendix S-C2 also reduces traffic speeds for future years, which could also result in understating noise impacts.
6. In Section 4.1.2.1.3, it isn’t clear why traffic and aircraft noise were converted to a 24-hour Leq metric for combining, rather than simply converting the traffic noise to a CNEL

metric for combining with the already computed aircraft CNEL. This convoluted manipulation is an unnecessary step and further adds to the confusing nature of the impact data presentation.

7. In Section 4.1.3.1.2.1, the analysis of nighttime awakenings may be incorrect. Refer to the review of Technical Appendix S-C1 in the following section of this report.
8. In Section 4.1.3.1.2.2, the text states that the peak hour of airport operations during school hours was used to assess the impact of aircraft noise on schools. While this is the proper approach (based on the thresholds of significance established for the project), it is clear in Technical Appendix S-C1 that an *average* of eight school hours was used in the analysis, not the *peak* hour.
9. In Section 4.1.3.2, again, it isn't clear why traffic and aircraft noise were converted to a 24-hour Leq metric for combining, rather than simply converting the traffic noise to a CNEL metric for combining with the already computed aircraft CNEL.
10. In Section 4.1.3.2, no methodology or calculations are provided to indicate how a one-hour Leq for traffic noise was converted to a 24-hour Leq.
11. In Section 4.1.4.1, the Lmax thresholds for assessing aircraft noise impacts in schools can be related to existing studies, but the 3-second "Time Above" criterion appears to be arbitrary and isn't even mentioned in the Aircraft Noise Technical Report. It isn't clear whether the criterion is cumulative for a school day or for the peak hour, or whether it applies to each individual aircraft event.
12. In the significance criteria for roadway noise used in the Supplement (i.e., a peak hour 5 dBA Leq(h) increase over existing conditions and 67 dBA Leq(h) for new facilities resulting from this project as compared to existing conditions) are inconsistent with the CNEL standard used in the Supplement and Draft EIS/EIR to assess aircraft noise, and are inconsistent with the local community standards for addressing traffic noise impacts.
13. In Section 4.1.6.1.5.4.1 regarding nighttime awakenings, the analysis is flawed. Refer to the our comments on the Technical Appendix S-C1 in the following section of this report.

Specific Comments on the Technical Appendix S-C1, Supplemental Aircraft Noise Technical Reports

1. In Section 1.3, the text states that the Draft EIS/EIR was prepared with INM 6.0 model and that the Supplement to the Draft EIS/EIR was prepared with the INM 6.0c model. However, the Draft EIS/EIR, Appendix D, page 6, discusses Version 5.1a...so, which is it? In any case, since the versions use slightly different databases for aircraft noise, it is important to either use the same version of the model, or to ensure that both versions

produce the same results for LAX. Furthermore, in neither case, the Draft using INM 5.1a or 6.0 nor the Supplement using INM 6.0c was the INM's topographic module used in conjunction with the basic noise computation function. In other words, the topography of the area overflown by LAX flights was not considered at all in determining CNEL or SEL values. In the flatter areas under the approaches and along the South Bay beach communities, that omission is of minor consequence but it significantly underestimates the noise predicted for higher terrain in the South Bay such as the Palos Verdes Peninsula. That is why the residents of the Peninsula consistently dispute the noise impacting their communities. The Supplement and the earlier Draft dismiss this as an irrelevant concern because the aircraft are higher than 3,000 feet above the airport reference point as they overfly those areas. However, FAA Order 1050.1D mandates that "extra ordinary circumstances" such as actions likely to have a significant impact on noise sensitive areas or coastal zones "shall be the subject of an environmental assessment." The Palos Verdes Peninsula seems to fit easily within that requirement. Overflights of Palos Verdes, for example, which is approximately 1,480 feet elevation may well be within 3,000 feet above ground level (which is the proper basis for analysis rather than the airport reference point) and should be considered in the impact analysis. Using the topographic module and enlarging the study area to include the Peninsula should remedy this glaring analytical problem. At the very least, the FAA's Air Traffic Noise Screening Model should be applied to the Palos Verdes Peninsula rather than cavalierly dismissing the residents' concerns although this model only addresses one specific part of the problem, i.e., aircraft over 75,000 pounds.

2. In Section 2.1, the text states that the LAWA software automatically assigns an aircraft to a flight track and to an INM aircraft type. It isn't clear that there is any radar tracking to verify the flight tracks, nor is it clear that the aircraft types are being assigned properly (e.g., "light" vs. "heavy" aircraft). Residents of the communities south of LAX have been consistently claiming that many aircraft turn south before crossing the shoreline as is required by the Airport's FAR Part 150 Noise Control Plan.
3. In Section 2.1.4, the text states that a 3° glide path has been assumed for all approaches. While that may be what appears in the Jeppeson charts, it isn't clear in this section that this is consistent with actual operations at LAX.
4. In Section 2.1.5, the average number of aircraft operations by aircraft type and time of day were estimated on a proportional basis using the 85% of operations that were actually monitored by the LAWA software. No attempt appears to have been made to determine if this approach yields data that is consistent with actual operations at the airport.
5. In Section 2.1.7, the text admits that the INM under-predicts the CNEL by 0-3 dB based on noise monitoring around LAX. Therefore, it may be reasonably concluded that the CNEL, SEL and Leq analyses for Alternative D are also under-predicted by the same 0-3 dB. (The INM model uses SEL values to calculate CNEL, so an under-prediction of one reflects an under-prediction of the other. Leq is likewise related to SEL and CNEL). A deviation of 3 dB is significant, as alluded to in the significance criteria used for

assessing airport noise impacts. In fact, it represents an enormous difference in the noise energy impacting on the airport's environs. While the Supplement to the Draft EIS/EIR cannot ethically alter the contours to account for the measurements, apparently no attempt was made in the Supplement to ensure the accuracy of the myriad input data (e.g., flight track definitions, flight profiles, operations distributions on the various flight tracks, etc.) for the INM model to help calibrate the model to the actual conditions and obtain more consistency with the measurements. Moreover, the INM's basic noise curves are based on noise certification measurements taken under specific atmospheric conditions (temperature and humidity) that are not consistent with those existing at the near-sea level LAX and its environs. The model supposedly adjusts for local conditions but uses an annual average for temperature and, according to this section, uses default humidity. It is no wonder that the model contours and the measurements are not consistent.

6. In Section 3.1.5, the text states that during the construction of Runway 7R/25L, the noise contours near the south set of runways will be shifted about 1/8 mile to the North for a period of one year. As a result, noise-sensitive locations that were outside the 65 dB contour line will be exposed to a CNEL that is up to 5 dB higher. No mitigation measures are identified for the construction phase aircraft noise impacts.
7. In Section 3.1.6, the text states that the extension of Runway 24L to the East will create a bulge in the contours, exposing noise-sensitive locations in east-lying communities that would not otherwise be exposed to a CNEL of 65 dB. No mitigation is identified for this impact.
8. In Section 3.1.6, the text states that Alternative D will shift the northern portion of the noise contours by 100 feet to 500 feet to the South and will shift the southern portion of the contours 50 feet closer to El Segundo. No mitigation is identified for this impact. Section 3.1.3 alleges that there would be no appreciable difference in the CNEL in El Segundo in comparison to the No Action/No Project Alternative. Of course, the report does not indicate the effect on SELs which would logically be slightly higher.
9. Table S14 provides the aircraft noise analysis results in terms of DNL, not CNEL. Therefore, the CNEL impacts identified in Table S20 cannot be corroborated.
10. Table S15 identifies the anticipated Lmax noise levels generated by aircraft operations. No comparison with the results from noise monitoring stations surrounding LAX appears to have been made to determine the accuracy of the INM model in predicting Lmax levels.
11. In Section 5.0, there is no identification of impacts on residential properties.
12. In Section 6.1.1, the significance threshold established by LAWA for nighttime awakenings is 10% of the population being awakened no more than once every ten days. The report claims that this is statistically equivalent to 1% of the population being awakened every night. However, this is not only completely arbitrary but also incorrect.

A threshold of 1% of the population being awakened every night is far more stringent than 10% of the population being awakened no more than once every ten days.

13. In Section 6.1.2, the description of the methodology used to calculate the location of the 94 dB SEL noise contour is unclear. Using the 94 dB SEL criterion, itself, is completely arbitrary since it is merely correlates to a point on a noise data trend line where the 1997 FICAN report states that 10% of the population exposed to this level will be awakened. Why 10% is selected as the benchmark is unknown. To establish a noise contour for operations that would occur once every ten days, it appears that the methodology only considered aircraft operations that occur at least 0.1 times per day (or once every ten days). If this is a correct understanding of the methodology, then the methodology is in error. The fact that the methodology includes only aircraft that have at least 0.1 operations per day means that some operations have been *excluded* from the analysis. This could mean that infrequent takeoffs to the east under Santa Ana conditions were not considered in the analysis. This would have a significant effect on the residents in eastern communities including Inglewood. In effect, what is plotted in the Supplement is the 94 dB SEL contour (i.e., the contour for 10% awakenings) for a subset of the total operations occurring at the airport. Thus, the analysis is incorrect for two reasons: (1) it plots the contour for 10% awakenings, not 1%; and (2) it under-predicts the contour because it does not include all of the flight operations at the airport. It should also be noted that, as indicated in Comment #5, above, the model under-predicts SEL values by 0-3 dB. This was not considered in the analysis or assessment of impact. Furthermore, the technical report concludes that 10% of the people living on the 94 dB SEL contour line will be awakened once every 10 days ignoring the fact that the people living "inside" that 94 dB SEL contour line will be exposed to even higher SELs and the actual total percentage of awakenings will be substantially higher.
14. In Section 6.1.2, it isn't clear that the analysis of nighttime awakenings only included nighttime aircraft operations. It also isn't clear that ground run-up operations were included in the analysis.
15. The analyses and findings discussed in Sections 6.1.2.1 and 6.1.2.2 may be incorrect based on Comments #12 and #13, above.
16. In Section 6.1.3, the mitigation for nighttime awakenings is filing a 14 CFR Part 161 application. However, as the text states in Section 3.1.6, this application will only eliminate a pilot's discretion for nighttime takeoffs to the east. For safety reasons, takeoffs to the east will still occur during Santa Ana conditions or when coastal fog limits visibility. Since these safety reasons account for the great majority of takeoffs to the east (as stated in Section 3.1.6), the 14 CFR Part 161 application will provide little mitigation to the residents of communities east of the airport.
17. In Section 6.1.3, the text states that the 14 CFR Part 161 application will only apply to eastbound takeoffs between midnight and 6:30 a.m. However, Section 6.1 states that the analysis of nighttime awakenings applies to the hours between 10:00 p.m. and 7:00 a.m.

Therefore, the proposed mitigation measure will not be effective for a period of 2-1/2 hours each night.

18. Because of Comments #12, #13, and #15 through #17, the sound insulation program identified in Section 6.1.3 may be inadequate in terms of the area covered by the program.
19. In Table S33, the average Leq for the 8-hour school day is obtained by adding $10\log(3)$ to the 24-hour Leq calculated by the INM model. The basis for this calculation appears to be that the 8-hour school day is 1/3 of a 24-hour day. However, this methodology is incorrect since flights are not evenly distributed throughout the day. The result of the analysis is an average Leq that is too low because most flights at LAX occur during the daytime. It should be noted that, as indicated in Comment #5, above, the model under-predicts Leq values by 0-3 dB. This was not considered in the analysis or assessment of impact. It should be further noted that, as indicated in Chapter 4.1 of the Supplement, the analysis should have been based on the *peak*, not *average*, hour.
20. In Section 6.2.3, the text states that the current eligibility for school mitigation is based on CNEL. But this is unrelated to Section 6.2 which is an analysis and assessment of single event noise levels, not CNEL, at schools. An appropriate mitigation measure would be to revise the eligibility requirements to include the new single event criteria.
21. In Section 6.2.3, the only mitigation proposed for the single event criteria at schools is an additional study to determine whether the criteria used are appropriate. This is not reasonable. LAWA has identified what it considers to be appropriate significance criteria based on several existing studies on the issue of classroom disruption. Therefore, concrete mitigation measures should be identified to mitigate the significant impacts identified in the report.

Tom Brohard and Associates

October 28, 2003

Ms. Christy H. Taylor, Attorney at Law
Shute, Mihaly, & Weinberger LLP
396 Hayes Street
San Francisco, California 94102

SUBJECT: Review of the Traffic Impacts of the Los Angeles International Airport Master Plan "Alternative D – Enhanced Safety and Security Plan"

Dear Ms. Taylor:

Tom Brohard, PE, has reviewed various reports and documents associated with the Los Angeles International Airport (LAX) Master Plan prepared for Los Angeles World Airports (LAWA) and the Federal Aviation Administration (FAA.) These include, but are not limited to, the June 2003 LAX Master Plan Addendum and the July 2003 Supplement to the Draft Environmental Impact Statement/Environmental Impact Report (Supplement.) Our review focused on the traffic impacts of Alternative D upon the City of El Segundo as identified in various documents and reports, particularly in S-2b, the Supplemental Off-Airport Surface Transportation Technical Report prepared by Parsons Transportation Group in June 2003. The comments in this letter are in addition to our July 16, 2001 report prepared for the City of El Segundo regarding the traffic impacts of LAX Master Plan Alternatives A, B, and C. LAWA and FAA have not yet responded to those earlier comments, and many of the problems with the analysis previously identified have not been addressed.

In summary, LAWA has not conducted an adequate traffic and circulation analysis of Alternative D. Without further study to address the inadequate analysis and substantial evidence of significant traffic impacts, as discussed below, it is not legally permissible to conclude, as the Supplement does, that most of the proposed project's traffic impacts have a less than significant effect on the environment with mitigation. A corrected traffic analysis for Alternative D must be prepared, and the Supplement for the Los Angeles International Airport Master Plan must be revised and recirculated, to address these critical issues.

Education and Experience

Since receiving a Bachelor of Science in Engineering from Duke University in Durham, North Carolina in 1969, I have gained over 33 years of professional engineering experience, all of which has occurred in California. I am licensed as both a Professional Civil Engineer and as a Professional Traffic Engineer in California. I formed Tom Brohard and Associates in 2000 and now serve "on call" as Consulting Transportation Engineer for the City of Huntington Beach.

*8346 Delgany Avenue, Playa Del Rey, CA 90293
(310) 301-7720 Fax (310) 301-7740
Email tbrohard@earthlink.net*

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I have extensive experience in traffic engineering and transportation planning. During my career in both the public and private sectors, I served as City Traffic Engineer for the Cities of Bellflower, Bell Gardens, Huntington Beach, Lawndale, Los Alamitos, Oceanside, Paramount, Rancho Palos Verdes, Rolling Hills, Rolling Hills Estates, San Marcos, Santa Ana, and Westlake Village. While serving these communities, I personally conducted many investigations of citizen requests for the installation of various traffic control devices. During these assignments, I successfully presented hundreds of traffic engineering reports at City Council and Traffic Commission meetings. During my career, I have also reviewed numerous environmental documents and traffic studies for various projects. My most recent work is highlighted in the enclosed resume.

Brief Summary of the Project

According to the Project Description on Page 3-2 of the Supplement, Alternative D is proposed to include facilities designed to serve 78.9 million annual passengers (MAP) and 3.1 million annual tons (MAT) of air cargo activity. The Supplement indicates "this level of aviation activity is also equivalent to the No Action/No Project activity level, which is projected to accommodate approximately 78.7 MAP and 3.1 MAT of air cargo." Page 3-57 of the Supplement indicates Alternative D is now the preferred alternative.

Page 3-43 of the Supplement describes the facilities in Alternative D as follows:

"Alternative D retains the existing four runway configuration at LAX. Major project elements include airfield modifications, the development of new terminals with the removal of public parking structures in the existing CTA and elimination of private vehicle access to the CTA. It also includes a Ground Transportation Center (GTC), Consolidated Rental Car Facility (RAC), Intermodal Transportation Center (ITC), and an Automated People Mover (APM) system."

LAX Master Plan Addendum Traffic Related Issues

The following concerns, omissions, and deficiencies relate to the traffic impacts associated with Alternative D upon the City of El Segundo. These comments were developed during our detailed review of the traffic related portions of the LAX Master Plan Addendum.

1. LAX Will Continue to Experience Pressure to Grow – Page 2-1 indicates "Alternative D would be designed to serve approximately 78 MAP" and "The Alternative D design would encourage other airports in the region to develop facilities to accommodate regional demand beyond the level served at LAX." Table 1.3-2 indicates LAX could be expected to attract about 98 million annual passengers with the other regional airports serving about 48 million annual passengers. With the removal of El Toro as a potential secondary

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airport for the region and with various constraints associated with each of the other existing secondary airports, LAX will continue to experience significant pressure to expand beyond the 78 million annual passengers. Serving more than 78 million annual passengers will result in additional traffic impacts to the freeways and street intersections above those identified in the Supplement.

2. Larger Aircraft in 2015 Results in Significant Passenger Increases – Table 2.2-2 compares the type of gate positions for various aircraft in 2002 with those proposed in 2015. The trend in this table clearly indicates larger planes with more passengers per plane will serve LAX in 2015. Page 2-9 indicates the design aircraft include the Boeing 747-400 for Group V and the Airbus A380 as a representative aircraft for Group VI, also known as New Large Aircraft. Larger aircraft with 500 to 600 or more passengers per plane result in more vehicle trips and additional traffic impacts to freeways and streets above those identified in the Supplement.
3. Number of Gates Is Not Legally Constrained – Table 2.2-3 compares the number of gates by aircraft group type between Alternative D and the No Action/No Project. While the text on Page 2-32 indicates Alternative D would discontinue the use of remote gate positions, there is nothing presented in the Master Plan which would guarantee the elimination of these gates or that would prevent the establishment of other remote gates at LAX. An increase in the number of gates beyond the 153 that have been assumed in Alternative D would result in more passengers, more vehicle trips and additional traffic impacts to freeways and streets above those identified in the Supplement.
4. Unsupported Passenger Assumptions Significantly Understate the Impacts – Page 3-5 indicates “The ability to increase aircraft size, thereby increasing passenger levels, was limited by the number and types of gates available under the Alternative D terminal design.” As indicated in comments above, more gates serving larger aircraft will be available under Alternative D. In sharp contrast to this, comparing the No Action/No Project to Alternative D in Table 3.3-1 indicates there will be a decrease in the number of annual passengers served in 2015 by domestic air carriers from 42 million annual passengers to 40 million annual passengers, with an increase in passengers served by smaller commuter planes. These assumptions do not appear to be supported, and a detailed explanation and justification of the reduction in trips provided by air carriers must be provided to ensure that the impacts of Alternative D are not understated.
5. Collateral Development Trip Cap Is Incorrect – Page 2-117 indicates there will be a cap associated with the LAX Northside Development to limit trips to a level comparable to the Westchester Southside Development shown with Alternatives A, B, and C. Page 2-117 indicates “The total development of the subject property shall not generate more than 3,152 project related outbound

vehicle trips in the a.m. peak hour and 3,040 project related outbound vehicle trips in the p.m. peak hour." With the LAX Northside Development including a business park with up to 4.5 million square feet of office, retail, and hotel space on 340 acres, it cannot possibly generate 3,152 outbound a.m. peak hour trips. Instead, a.m. peak hour trips will be predominately inbound as employees drive to the proposed business park. The collateral development must have an a.m. peak hour trip cap for inbound trips, not for the outbound trips which will be nominal in comparison.

6. Reduced Trip Cap for Collateral Development May Not Be Possible – Page 2-117 indicates "The original LAX Northside Development provided entitlements for 4.5 million square feet of development, subject to a limitation on the total number of daily vehicle trips (a 'trip cap.') Alternative D includes a proposed reduction in the existing trip cap included in the original LAX Northside Development." While the LAX Northside Development is proposed to occur on about 340 acres of airport owned land, it may not be possible to commit to a reduced trip cap as the LAX Northside Development has already been entitled at a much higher density that would have generated considerably more vehicle trips. Furthermore, the conversion from the approved daily trip cap associated with the larger entitled development to the proposed peak hour trip caps for the collateral development has not been documented in the Master Plan or in the Supplement. Supporting calculations must be provided to ensure the reductions of 50 percent in the a.m. peak hour and 57 percent in the p.m. peak hour claimed on Page 2-117 will be achieved.

LAX Master Plan Supplement Traffic Comments

The following concerns, omissions, and deficiencies relate to traffic impacts associated with Alternative D upon the City of El Segundo. These comments were developed during our detailed review of the traffic related portions of the Supplement as well as the S2b June 2003 Supplemental Off Airport Surface Transportation Technical Report prepared by Parsons Transportation Group.

1. Interim Year Analyses Are Required for Alternative D – Page 4-5 of the Supplement indicates that no interim year analysis in 2005 was prepared for Alternative D. The primary reason for this cited the major project features common to Alternatives A, B, and C that are not included in Alternative D. However, with the three separate phases shown on Pages 3-50 through 3-56 of the Supplement, analyses must be conducted for each phase of Alternative D so the timely mitigation of associated traffic impacts will occur.

Each phase of Alternative D contains major components that will significantly alter traffic patterns and impacts. As examples, the 12,400 space employee parking structure will consolidate many scattered employee parking lots into one facility, increasing employee vehicle trips along the south side of LAX.

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Construction of the Intermodal Transportation Center with its replacement parking for the structures in the Central Terminal Area will shift traffic volumes and associated impacts to areas southeast of LAX. The Ground Transportation Center will shift traffic volumes and impacts to areas northeast of LAX. The traffic impacts after completion of each phase must be identified, together with the timely implementation of necessary mitigation measures.

While the Supplement does examine traffic impacts in 2008 during the peak of construction activity for Alternative D, this is insufficient given the three major components in Alternative D. Demolition of the parking structures in the Central Terminal Area and construction of the Intermodal Transportation Center and Ground Transportation Center will each cause significant vehicle traffic shifts that require timely implementation of mitigation measures. Further study is required to ensure this occurs and impacts are mitigated.

2. Inappropriate Baseline Traffic Counts Have Been Used – Page 4-218 of the Supplement indicates the airport peak hour traffic data were collected in the Central Terminal Area in August 1996 while the traffic count data for morning and evening commuter peak hours were collected in March 1997. Additional traffic counts were also made in the Central Terminal Area on three Fridays in August 2000 for the airport peak hour and on two Fridays in March 2000 for the a.m. and p.m. peak commuter traffic hours. Table S4.3.1-1 shows the comparison in trips between 1997 and 2000 in the Central Terminal Area. The 1.8 percent increase per year in the airport peak hour trips, 7.2 percent over the four years, is significant. Similarly, the 0.6 percent increase per year in the p.m. peak hour trips, 1.9 percent over 3 years, is also significant.

We disagree with the Supplement statement that “The results of the surveys completed for Year 2000 conditions showed no material or consistent change in traffic growth or reduction in on airport traffic since August 1996/March 1997.” The increases of 1.8 percent per year for the airport peak hour trips as well as the increases of 0.6 percent per year in the p.m. peak hour trips are both significant. Annual growth rate adjustments must be made to the future baseline background traffic to properly reflect the increasing peak hour traffic volumes associated with activities at LAX.

Our July 16, 2001 comments on the LAX Draft EIS/EIR for Alternatives A, B, and C, questioned the use of summer airport peak hour traffic volumes to evaluate a worst case scenario. We believe traffic during holiday periods, and in particular Thanksgiving and Christmas, may be significantly higher than the traffic levels during August or during March. The Supplement must provide the factual basis for relying on August and March traffic volumes for the airport peak hour and for the a.m. and p.m. peak hours respectively instead of higher holiday traffic volumes.

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Regarding baseline traffic volumes at intersections, Page 4-244 of the Supplement indicates data was provided by LADOT for 38 intersections near the airport, with traffic counts made in 1994, 1995, and 1997. The Supplement indicates traffic counts were made at the intersections on June 1, 2001, and "A comparison of the data showed that the average annual growth for the combined intersections was approximately 1.5 percent and 1.0 percent per year for the a.m. and p.m. peak hours respectively." Page 2-244 concludes "It is a small growth rate and indicates that 1996 conditions are still applicable as an environmental baseline condition."

No data has been provided in the Supplement or in Technical Report S-2b to support the conclusion that 1996 conditions are the appropriate baseline. The 38 intersections counted and compared represent less than half of the 85 intersections evaluated in the Supplement. Each of these 38 intersections are in the City of Los Angeles, but traffic volume trends at these intersections may not be representative of traffic growth in the other adjacent jurisdictions such as the City of El Segundo or the County of Los Angeles. Further, there was no comparison of traffic volume increases on any of the 30 street segments or at any of the 39 ramps or four freeway segments included in Technical Report S-2b. Without further comparison, the Supplement cannot conclude "that 1996 conditions are still applicable as an environmental baseline condition."

According to counts provided by the City of El Segundo, traffic volumes on arterial segments have increased significantly between 1998 and 2003, particularly on Sepulveda Boulevard. The 1998 daily traffic volumes south of Imperial Highway of 64,700 increased to 69,800 in 2003, nearly 8 percent over the five years. South of El Segundo Boulevard, the 1998 daily traffic volumes of 57,500 increased to 61,800 in 2003, also nearly 8 percent over the five years. These increases in traffic on Sepulveda Boulevard require the Supplement to compare traffic growth in the area and to thoroughly document "1996 conditions are still applicable as an environmental baseline condition."

The preferred practice in conducting environmental analyses requires evaluation of reasonably expected worse case conditions. There was no attempt to factor or update the old traffic counts to include seasonal adjustments reflecting higher holiday traffic volumes. The Supplement does not indicate if an annual growth rate was applied or what percentage annual growth rate was used to establish conditions in 2015. The use of outdated baseline traffic counts results in an inaccurate analysis of existing conditions and traffic impacts of Alternative D. New traffic counts must be made at all intersections studied. The calculations and subsequent analysis must also be redone as outlined in this report to properly analyze the traffic impacts.

3. Caltrans Traffic Study Guidelines Were Not Followed - The traffic analysis of Alternative D should have been prepared in accordance with the California

Department of Transportation's "Guide for the Preparation of Traffic Impact Studies." A number of freeway ramps as well as mainline sections of the adjacent I-405 and I-105 Freeways will be significantly impacted by Alternative D. Adding even a single trip to freeway segments operating at Level of Service E or F requires detailed study according to these Guidelines.

4. Primary Mitigation Measures May Not Be Built Together As One Project - The primary mitigation of traffic impacts associated with Alternative D relies heavily on both a new interchange with I-405 at Lennox Boulevard as well as new connector ramps to and from I-105. These significant improvements have been analyzed together in the Supplement as a single project rather than as two separate improvements. There is no indication in the Supplement that the State will support either or both of these projects. The traffic impacts of Alternative D must be evaluated separately with only the Lennox Boulevard Interchange in place as mitigation and with only the I-105 connectors in place as mitigation. This additional evaluation is necessary given the complex nature of these improvements and the many uncertainties that will be faced in the lengthy State process. This will also complement the analyses already performed in the Supplement for future conditions without both of these significant improvements. The Supplement must also address the cost, financing, scheduling, and responsibility for implementation of these mitigation measures as required in the Caltrans Traffic Study Guidelines.
5. Public Parking Provided in Year 2015 May Be Insufficient - Table S4.3.1-7 on Page 4-235 of the Supplement indicates Alternative D creates a daily demand of 35,636 public parking spaces, and that this daily demand will exceed the planned public parking capacity by 634 parking spaces. The Supplement should indicate this is a significant environmental impact, but it does not recommend any measures to mitigate impacts of inadequate public parking.

Table S4.3.1-7 also indicates that the daily public parking demand for each of the four build alternatives (A, B, C, and D) is precisely identical at 35,636 public parking spaces. At the same time, the number of originating daily passengers ranges from 95,026 for Alternative D to 108,355 for Alternatives A and B. This significant range of over 13,000 originating daily passengers cannot possibly produce precisely identical public parking demands.

It is also unclear why the No Action/No Project alternative serving 87,280 originating daily passengers, 8,000 per day less than Alternative D, would require 1,000 more public parking spaces than any of the other four alternatives. Page 4-235 indicates "There would be fewer connecting passengers in Alternative D than in the No Action/No Project Alternative" but this contradicts the significant increase in commuter flights shown in Table S3-3 (160,400 annual in 2015 for the No Action/No Project vs. 182,800 annual in 2015 for Alternative D.)

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More originating daily passengers for Alternative D will either produce more vehicle trips or more significant transit impacts, neither of which has been identified or adequately addressed in the Supplement. These various discrepancies associated with public parking spaces, vehicle trips, and transit impacts must be corrected and appropriate mitigation measures developed.

6. Excessive Employee Parking Is Being Proposed – Page 4-235 indicates a new 12,400 stall garage would be built on the west side of the airport and there are also 1,200 employee parking spaces available in the existing Century Cargo Complex. In combination, 13,600 employee parking spaces are proposed with Alternative D. However, the demand for employee parking is shown as 12,400 parking spaces in Table S4.3.1-8 on Page 4-236 under each of the four build alternatives as well as under the No Action/No Project alternative. Providing an additional 1,200 employee parking spaces above what is needed to accommodate the forecast employee parking demand in a new, expensive parking structure is unnecessary and a further indication that the Master Plan contemplates greater growth than is being disclosed under Alternative D. The Master Plan and Supplement must be revised to reduce employee parking to match forecast demand and provide additional public parking to address the forecast shortage discussed above.

7. Discrepancies in the Peak Hour Trip Forecasts Must Be Corrected – Table S4.3.2-1 on Page 4-251 provides estimates of peak hour trips in 2015 for the No Action/No Project alternative but the numbers in this table do not match the sum of the inbound and outbound trips presented earlier in Table S4.3.1-3 on Page 4-227 as follows:

No Action/No Project Peak Hour Trips in 2015

Peak Hour	Table S4.3.1-3	Table S4.3.2-1
a.m.	13,096	13,105
Airport	17,602	18,296
p.m.	14,314	14,270

Similar discrepancies occur for peak hour trips in 2015 forecast for Alternative D between Table S4.3.2-1 on Page 4-252 and the sum of the inbound and outbound trips shown in Table S4.3.1-4 on Page 4-228 as follows:

Alternative D Peak Hour Trips in 2015

Peak Hour	Table S4.3.1-4	Table S4.3.2-1
a.m.	11,447	11,891
Airport	20,594	21,107
p.m.	12,602	13,072

These discrepancies in peak hour trips indicate that the analysis of the Supplement may be fundamentally flawed. The data must be reviewed and these discrepancies reconciled and corrected.

8. Trip Cap for LAX Northside Collateral Development Is Incorrect – Page 3-50 of the Supplement indicates the LAX Northside Development “would include a mix of office park, hotel, retail/restaurant, and research/development business park uses.” When describing the proposed trip cap associated with the LAX Northside Development, Page 3-50 of the Supplement indicates “The total development of the subject property shall not generate more than 3,152 project related outbound trips in the a.m. peak hour.”

The “outbound” trip cap is nonsensical. It is not clear whether any meaningful cap is included in Alternative D. Table S8 on Page 22 of Technical Report S2-b and Table S4.3.2-1 on Page 4-252 of the Supplement indicate the collateral trips associated with Alternative D, LAX Northside, would total 4,134 in the a.m. peak hour with the trip cap in place. The table does not specify the direction of these trips. However, the predominance of a.m. trips associated with the uses proposed in LAX Northside would be inbound in the a.m. peak hour, not outbound. Application of a very high a.m. peak hour outbound trip cap is meaningless. Further, the trip distribution in the Supplement analysis must correlate with the appropriate number of inbound and outbound peak hour trips associated with the LAX Northside Development.

9. Reduced Trip Cap for Collateral Development May Not Be Possible – Page 3-50 of the Supplement indicates “The original LAX Northside Development provided entitlements for 4.5 million square feet of development, subject to a limitation on the total number of daily vehicle trips (a ‘trip cap.’) Alternative D includes a proposed reduction in the existing trip cap included in the original LAX Northside Development.” While the LAX Northside Development is proposed to occur on about 340 acres of airport owned land, it may not be possible to commit to a reduced trip cap as the LAX Northside Development has already been entitled at a much higher density that would have generated considerably more vehicle trips. Furthermore, the conversion from the approved daily trip cap associated with the larger entitled development to the proposed peak hour trip caps for the collateral development has not been documented in the Supplement. Supporting calculations must be provided to ensure the reductions of 50 percent in the a.m. peak hour and 57 percent in the p.m. peak hour claimed on Page 3-50 of the Supplement will be achieved.
10. Inconsistencies in Alternative D Construction Schedule Must Be Corrected – The Supplement indicates substantial shifts in airport traffic patterns will occur as the major components of Alternative D are constructed. Page 4-264 indicates “When the ITC comes on line, there is expected to be a substantial shift in airport traffic patterns, as much of the CTA traffic shifts to the ITC. This

traffic shift would result in significant impacts to various roadway intersections and ramps. As much as possible, it is important that the mitigation of these impacts be in place prior to opening the ITC, so that the corresponding traffic shifts can be adequately accommodated." We agree. However, several contradictions to this idealized construction schedule appear in Table S3-15 including the following :

- a) Intermodal Transportation Center Construction – This project is shown as a design build project beginning in the 4th quarter of 2003, completion of construction at the end of the 4th quarter in 2005, and testing in the 1st quarter of 2006.
- b) Central Terminal Area Parking Structure Demolition – This project is scheduled to begin in the 4th quarter of 2005 and to be completed at the end of the second quarter of 2006. If this schedule is followed, there would be no short term parking in the Central Terminal Area or at the Intermodal Transportation Center for at least six months, creating chaos.
- c) Off Site Roadway Improvements – These projects are scheduled to begin during the 1st quarter of 2006, with completion at the end of the 2nd quarter of 2008. If this schedule is followed, there would be no mitigation measures in place at impacted intersections for over two years following completion and opening of the Intermodal Transportation Center at the end of the 1st quarter of 2006.

Construction of the off site roadway improvements, which are assumed in the analysis in the Supplement, must be accelerated so they are in place prior to opening of the Intermodal Transportation Center, not more than two years after as shown in the project schedule. The construction of the major components of Alternative D must also be rescheduled to retain short term public parking in the Central Terminal Area until the Intermodal Transportation Center is ready for use. There will be significant impacts if the construction schedule is not modified to address these concerns.

11. Construction Worker and Truck Trip Estimates Are Inconsistent – Table 4.3.2-9 provides estimates of construction employee and truck traffic in 2008, the peak year of construction activity according to the Supplement. This table indicates there will be 5,953 daily construction employee trips and 5,326 passenger car equivalent truck trips, but the sum of these trips (11,279) does not equal the total construction trips of 11,273 shown in the table.

Page 4-544 of the Supplement provides a significantly higher estimate of construction workers during the peak construction years in 2007 and 2008, indicating "the workforce would equate to 5,992 personnel." Assuming that each construction employee would drive alone to and from LAX, this

workforce would generate 11,984 daily construction employee trips. This is a huge difference, more than double the number of employee trips shown in Table S4.3.2-9 which was used as the basis for analysis of construction trips throughout the Supplement. The number of employees in the workforce and the subsequent evaluation of traffic impacts in Section 4.3.2 of the Supplement were based on less than 50 percent of the workforce estimated in Section 4.20 on Page 4-544, significantly understating the traffic impacts associated with construction employee trips. These significant and unexplained discrepancies must be addressed and resolved, and appropriate mitigation measures for construction traffic developed.

When describing the highest construction workforce and truck demand in 2008, Page 4-556 of the Supplement provides yet a different estimate by indicating "During the peak construction year, there will be an average daily employment of 5,125 and an average of 1,064 truck trips per day." Assuming that each construction employee would drive alone to and from LAX, this workforce would generate 10,250 daily construction employee trips. This is another huge discrepancy, nearly double the number of employee trips shown in Table S4.3.2-9 which was used as the basis for analysis of construction trips throughout the Supplement. The number of employees in the workforce and the subsequent evaluation of traffic impacts in Section 4.3.2 of the Supplement were based on 60 percent of the workforce estimated on Page 4-556, significantly understating the traffic impacts associated with construction employee trips. These discrepancies must be addressed and resolved, and appropriate mitigation measures developed.

The Supplement fails to adequately evaluate the traffic impacts associated with construction employees and truck traffic. As noted above, Table S4.3.2-9 is based upon the lowest estimate of the number of construction employees found in the Supplement, a number that is less than half of that disclosed in Chapter 4.20 of the Supplement. Thus, the traffic analysis shows less than half of the traffic that should have been analyzed, and must be redone using the corrected construction employee and truck trip data.

12. Peak Hours at Intersections and Central Terminal Area May Be Different - Page 4-269 indicates "no construction related trips between LAX construction sites and off airport locations occur during the peak commute hours of 8:00 to 9:00 a.m. and 5:00 to 6:00 p.m. Also, very few vehicle trips occur during the airport peak hour of 11:00 a.m. to noon."

The peak hours used throughout the Supplement were defined by reviewing data at the Central Terminal Area for LAX operations. According to Page 4-556 and footnotes in Table S4.3.1-1 on Page 4-221, the morning peak hour occurs from 8:00 to 9:00 a.m., the airport peak hour occurs from 11:00 a.m. to 12:00 noon, and the afternoon peak hour occurs from 5:00 to 6:00 p.m.

However, these hours may not actually correspond to the highest 60 minutes of traffic during the morning and the afternoon peak periods at the various intersections and freeway segments studied. Intersections experience their highest peak hour volumes during the four consecutive 15 minute periods such as from 7:15 to 8:15 a.m. rather than corresponding exactly to even hours such as from 8:00 to 9:00 a.m. The Supplement must document the highest 60 minute period in both the morning and evening peak periods at each of the intersections and roadway segments and then analyze the traffic impacts of Alternative D in these true peak hours.

13. Analysis of Construction Related Traffic During Additional High Volume Hours Must Also Be Made - Both of the statements on Page 4-269 regarding no construction related trips during peak hours are also misleading for the additional reason that the morning and afternoon peak traffic periods extend well beyond a single hour. Traffic at intersections and on various freeway segments near LAX approaches or exceeds capacity for several hours in the morning and for the majority of the afternoon and evening hours, and the traffic impacts associated with Alternative D upon these facilities must be analyzed and mitigated as discussed below.

Table S4.3.2-10 provides a comparison of hourly traffic volumes on various freeway and arterial roadway segments, both without construction traffic and then with construction traffic added. However, this table fails to assess the freeway and arterial roadway segment capacities and the levels of service associated with these construction traffic increases. The Supplement must properly evaluate the impacts of construction related traffic by direction on the freeway and arterial street segments shown in Table S4.3.2-10 as well as upon freeway segments adjacent to LAX.

As one example, Table S4.3.2-10 fails to properly quantify the amount of construction traffic that will impact Sepulveda Boulevard south of El Segundo Boulevard. Between 11:00 a.m. and 12:00 noon, this table indicates there will be 1,016 airport related trips in 2008 on this roadway segment without any construction traffic. Between 11:00 a.m. and 12:00 noon, this table also indicates there will be exactly 1,016 airport related trips in 2008 on this roadway segment with construction traffic. However, Table S4.3.2-9 indicates there will be 975 passenger car equivalent construction trips in 2008 between 11:00 a.m. and 12:00 noon. Airport related traffic forecast on Sepulveda Boulevard south of El Segundo Boulevard cannot possibly be identical with and without construction traffic between 11:00 a.m. and 12:00 noon with 975 trips related to construction forecast to occur during this hour.

As another example, the eight mixed flow lanes on the mainline of I-405 south of Rosecrans Avenue have a total capacity of 16,000 vehicles per hour. Using the volumes shown in Table S4.3.2-10, the freeway mainline operates at

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Level of Service E between 3:00 and 4:00 p.m. without any LAX construction traffic. Without construction traffic, this table indicates there will be 5,406 airport trips on I-405 south of Rosecrans Avenue during this hour. With construction traffic, this table indicates there will be 6,162 airport trips on I-405 south of Rosecrans Avenue during this hour. Subtracting the airport traffic without construction vehicles from the airport traffic with construction traffic indicates 756 LAX construction related vehicles will use I-405 south of Rosecrans Avenue between 3:00 and 4:00 p.m. These construction vehicles bring the total volume between 3:00 and 4:00 p.m. on I-405 south of Rosecrans Avenue to 16,459 as shown in Table S4.3.2-10. This exceeds the 16,000 vehicles per hour mainline freeway capacity and causes the level of service to degrade from LOS E to LOS F. This is a significant traffic impact which is not disclosed in the Supplement.

The Supplement's failure to disclose this significant adverse effect on I-405 south of Rosecrans Avenue is a significant flaw. The Supplement must be substantially revised to reflect the correct number of construction workers, disclose their associated traffic impacts and provide measures to mitigate construction traffic impacts upon intersections, street segments, and freeway facilities that will be impacted during high traffic hours.

14. The Full Impacts of Construction Traffic Are Not Fully Disclosed and Require Additional Mitigation at Intersections - According to Table S4.3.2-8, eight of the nine intersections studied in the City of El Segundo will be impacted by Alternative D in 2008 prior to mitigation. According to this table, significant traffic impacts will occur as follows:

- ❖ Aviation Boulevard at El Segundo Boulevard (LOS E in all peak hours)
- ❖ Aviation Boulevard at Imperial Highway (LOS E in the a.m. peak hour)
- ❖ Aviation Boulevard at Rosecrans Avenue (LOS F in the airport peak hour)
- ❖ Imperial Highway at Douglas Street (LOS C in the p.m. peak hour)
- ❖ Sepulveda Boulevard at El Segundo Boulevard (LOS F in the a.m. and LOS E in the airport peak hours)
- ❖ Sepulveda Boulevard at Imperial Highway (LOS D in the a.m. and LOS F in the airport and p.m. peak hours)
- ❖ Sepulveda Boulevard at Mariposa Avenue (LOS D in the a.m. and LOS F in the airport and p.m. peak hours)
- ❖ Sepulveda Boulevard at Rosecrans Avenue (LOS F in the a.m. and p.m. peak hours)

However, Table S4.3.2-8 does not adequately identify conditions that will occur during the airport peak hour in 2008 as it omits the additional impacts of construction traffic upon these intersections. Pages 4-264 and 4-265 indicate the procedures used to calculate intersection capacity "do not account for construction traffic for the three primary peak hours" and "the project would be

managed to ensure that there would not be any notable construction related traffic generated by the project during those critical hours." For the airport peak hour from 11:00 a.m. to 12 noon, these statements directly contradict the Summary of 2008 Airport Construction Trip Generation in Table S4.3.2-9 on Page 4-270 which shows 975 passenger car equivalents for truck trips between 11:00 a.m. and 12:00 noon. The analysis of the airport peak hour in the Supplement must be modified to include these passenger car equivalent truck trips. The volume/capacity ratios and LOS shown in Table S4.3.2-8 must be corrected and further measures must be developed to mitigate these additional construction traffic impacts in the airport peak hour.

It is extremely unreasonable to assume there will be no construction trips occurring in 2008 between 8:00 a.m. and 11:00 a.m. as well as between 5:00 and 7:00 p.m. as has been shown in Table S4.3.2-9. Certainly, some of the 11,273 daily construction trips that are forecast in 2008 in this table will occur during the hours when absolutely no activity has been shown, particularly during the a.m. and p.m. peak hours. The Supplement's statement that "the project would be managed to ensure that there would not be any notable construction related traffic generated by the project during those critical hours" is unsupported by any definitive plans or measures to ensure that there will be zero construction traffic during the a.m. and p.m. peak hours. Table S4.3.2-9 must be revised to properly forecast construction trips. The volume/capacity ratios and LOS shown in Table S4.3.2-8 must be corrected and further measures must be developed to mitigate these additional construction traffic impacts in the a.m. and p.m. peak hours.

15. Century Boulevard Lane Closures Are Not Adequately Analyzed – Page 4-547 of the Supplement indicates lanes on Century Boulevard will be closed as a result of the construction of various components of Alternative D as follows: "The traffic to and from the airport may be rerouted to southbound Sepulveda Boulevard for I-105 and Imperial Highway access, and to northbound Sepulveda Boulevard on to La Tijera Boulevard for I-405 access. These alternative routes may stay in effect for over two years." The Supplement has not assessed or properly evaluated the traffic impacts of the Century Boulevard long term lane closures on Sepulveda Boulevard south or north of LAX. Further study and disclosure of the impacts is required, together with the formulation and adoption of mitigation measures.

16. Construction Staging Area Traffic Impacts Are Not Adequately Analyzed – Pages 4-548 and 4-549 indicate six construction staging areas have been identified. These include Staging Area 4 at the west end of the south runways north of Imperial Highway and east of Pershing Drive and Staging Area 5 at the west end of the south runways just east of Staging Area 4. The Supplement fails to provide any details regarding how or when the various staging areas may be used. Important issues relating to each staging area

including when it will be used, how long it will be used, where access will be provided, and how many trips will occur, must be addressed and disclosed. The impacts must be analyzed and disclosed, and mitigation measures must be formulated and included in the Supplement.

17. Improved Mitigation for Construction Traffic Must Be Formulated– Page 4-568 of the Supplement indicates “Although surface transportation commitments would reduce the impacts to on and off airport transportation facilities during construction, these impacts would remain significant and temporarily unavoidable.” As pointed out in this letter, there are many inconsistencies and errors in the estimates of construction traffic shown in the Supplement. The subsequent analysis based upon only a fraction of the projected construction traffic is inadequate, and the resulting traffic impacts have been grossly understated. These errors and inconsistencies must be rectified and appropriate mitigation measures must be developed and adopted for Alternative D.

18. Lennox Interchange and I-105 Connectors Are Not Adequately Analyzed - The Lennox Boulevard interchange with I-405 as well as the new connector ramps to and from the east on I-105 are very important components of the overall mitigation for Alternative D. Page 36 of Technical Report S2-b indicates “There are four on ramps to southbound I-405 and four off ramps from southbound I-405. One or two of these on ramps and up to two of these off ramps may need to be eliminated. Other ramps may be realigned” with the proposed mitigation. Closing of existing ramps must be evaluated in much more detail to assess whether the ramps remaining open such as at El Segundo Boulevard would become overloaded with diverted traffic associated with the proposed mitigation, and the project designed to avoid such impacts. The total of 5,750 CMP credits shown on Page 53 of Technical Report S-2b, 1,150 for each of the five new freeway ramps, must also be adjusted to reflect the final net change in on and off ramps.

The Supplement and Technical Report S-2b do not adequately address the role of the State Department of Transportation in the proposed Lennox Boulevard Interchange with I-405 and in the proposed eastbound I-105 connectors. Caltrans must review and approve all changes involving the I-405 and I-105 Freeways. These two significant mitigation measures must also be evaluated separately and independently rather than together as a single project as has been done in the Supplement. While alternate mitigation to both projects together has been developed, the Supplement must also develop alternate mitigation for the Lennox Boulevard Interchange and for the I-105 eastbound connectors separately.

19. Traffic Impacts to Freeway Mainlines Not Adequately Analyzed or Mitigated – Page 4-253 describes “poor traffic conditions that already exist on the I-405

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and I-105 mainlines." To address this critical problem, Page 4-254 of the Supplement indicates "It is important that Alternative D include a mitigation strategy that would help to alleviate this issue. Effective methods of encouraging airport traffic to stay on the freeway rather than off load would include provision of direct and non stop access ramps to and from I-405 and I-105..... Analysis shows that these two important mitigation components would be effective in encouraging airport traffic to stay on the freeway system and avoid off loading onto surface streets."

As indicated previously, the proposed mitigation involving the Lennox Boulevard interchange at I-405 together with the new connector ramps to and from the east on I-105 are important components of the overall mitigation for Alternative D. However, without significant improvement to both the I-405 and I-105 mainlines, airport traffic will still divert off both freeways onto surface streets upstream of LAX, even with the new interchange and the connectors.

Existing traffic volumes during the a.m., Airport, and p.m. peak hours as well as during most of the afternoon already approach capacity on both I-405 and on I-105. Various tables such as the Levels of Service for Freeway Mainline Segments in Attachment C to Technical Report S-2b show traffic forecasts exceeding the mainline freeway capacity. These volume projections indicate the demand to use the freeway but this is a theoretical number because these volumes exceed the actual capacity of the freeway segments. When the number of vehicles exceeds the mainline freeway capacity, vehicles will either divert to surface streets, causing additional adverse impacts on those streets, or they will be severely delayed, significantly extending peak hours.

I-405 south of Rosecrans Avenue provides four through lanes and one HOV lane in each direction with a corresponding directional capacity of 10,000 vehicles per hour. Unfortunately, a comparison of total freeway directional demand on I-405 cannot be made as the various tables in Attachment C for 2015 contain numerous errors regarding projections for the HOV lanes. (E.g., HOV volumes for 2015, shown to be only half of the 2008 HOV projections, must be corrected.)

Comparing the traffic volume forecasts in the four through mainline lanes with their associated capacity of 8,000 vehicles per hour indicates significantly more demand than these lanes can actually accommodate. According to the table in Attachment C for I-405 south of Rosecrans Avenue in 2008, the northbound a.m. peak hour demand will be 8,698 vehicles, 698 more than can be served on the mainline. During the Airport peak hour, the northbound demand will be 8,953 vehicles, 953 more than can be served. During the Airport peak hour, the southbound demand will be 8,408 vehicles, 408 more than can be served. During the p.m. peak hour, the southbound demand will be 9,271 vehicles, 1,271 more than can be served. To retain the traffic on the

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freeway, mainline improvements are needed to accommodate the number of vehicles exceeding the current freeway capacity. LAWA must pay its "fair share" of the required freeway widening.

Conditions in 2015 on the mainline of I-405 south of Rosecrans Avenue will be worse than those in 2008. According to the table in Attachment C for I-405 with the Lennox Boulevard Interchange, the northbound a.m. peak hour demand will be 9,054 vehicles, 1,054 more than can be served. During the Airport peak hour, the northbound demand will be 9,973 vehicles, 1,973 more than can be served. During the Airport peak hour, the southbound demand will be 9,668 vehicles, 1,668 more vehicles than can be served. During the p.m. peak hour, the northbound demand will be 8,632 vehicles, 632 more than can be served. During the Airport peak hour, the southbound demand will be 10,027 vehicles, 2,027 more vehicles than can be served. Again, in order to retain on I-405 the vehicles exceeding the freeway capacity, mainline improvements are required, and LAWA must pay its "fair share" of the required freeway widening.

A significant portion of the evaluation of traffic impacts of freeway mainlines contained in the Supplement in Table S4.3.2-5 includes remote freeway facilities far removed from LAX such as I-5 and I-405 over 25 miles north of LAX in the San Fernando Valley. The Supplement must examine the Alternative D traffic impacts on the I-405 and I-105 mainline freeway segments in the vicinity of LAX, where the impacts will be obvious and severe, in far more detail. This analysis will require special attention to the I-105 as freeway segments at I-405, Prairie Avenue, at Crenshaw Boulevard, and at I-110 provide only three through lanes and one HOV lane in each direction. These constrictions act as bottlenecks along I-105, and provide significantly less capacity than the wider four through lane and one HOV lane segment east of Crenshaw Boulevard mentioned in the Supplement. The traffic impacts of Alternative D on the constricted sections of I-105 must be evaluated and properly analyzed, with measures developed and added to the Supplement as necessary to mitigate these traffic impacts and avoid off loading of excess traffic volumes onto local surface streets.

The proposed freeway mainline mitigation shown in Attachment G to Technical Report S-2b includes only three improvement projects to freeway mainlines. All are located on I-405, with one at Santa Fe Avenue near I-710 in the City of Long Beach, one east of I-110 in the City of Carson, and one north of Inglewood Avenue in the City of Redondo Beach. No details whatsoever are provided regarding the scope or the costs of these proposed "future freeway improvements." No back up calculations have been provided to verify the "fair share" of proposed Alternative D participation of 7.7 percent, 10.0 percent, 75.0 percent, respectively, in these three projects. These flaws in the

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Supplement must be remedied in order to provide full disclosure of traffic impacts and potential mitigation.

20. Erroneous Calculations and Flawed Mitigation Measures For City of El Segundo Intersections Must Be Corrected – Each of the capacity calculations for intersections in the City of El Segundo in Attachment I to the S-2b Supplemental Off Airport Transportation Technical Report has been reviewed. These calculations contain numerous errors which have then been carried throughout Technical Report S-2b as well as in the Supplement. Each of the following comments must be addressed by correcting the intersection capacity calculations and modifying the recommended mitigation measures appropriately as follows:

a) Aviation Boulevard and El Segundo Boulevard

- i) Los Angeles County Widening Project Benefits Alternative D – The capacity calculations assume a Los Angeles County project will add a third through lane in each direction on Aviation Boulevard prior to 2008. These additional lanes result in significantly improved capacity and level of service over what will actually occur if the County project is not constructed by 2008. Alternative D obtains a significant increase in capacity at this intersection from a project being implemented by another jurisdiction. LAWA should contribute its “fair share” to the cost of the County improvement project as mitigation of Alternative D.
- ii) Southbound Aviation Boulevard Restriping Is Not Included – The a.m. peak hour calculations for 2015 with the Lennox Boulevard Interchange match the recommended mitigation. However, for both the airport and p.m. peak hours, calculations do not reflect restriping southbound Aviation Boulevard to two left turn lanes, 2 through lanes, and 1 through/right lane as recommended in the mitigation of impacts at this intersection.
- iii) ATSAC/ATCS System Is Now Being Designed – Calculations in 2015 include capacity benefits with implementation of ATSAC/ATCS signal control. The County of Los Angeles is currently designing an ITS traffic signal system improvement project throughout the City of El Segundo. The Supplement incorrectly credits Alternative D for traffic signal system mitigation that will already be in place long before 2015. LAWA should contribute its “fair share” to the cost of the County improvement project as mitigation of Alternative D. The Supplement must also develop other measures to mitigate the traffic impacts of Alternative D at this intersection.

iv) Mitigation Measures Are Incorrect – Dual left turn lanes for only southbound traffic have been recommended as mitigation in 2015. Dual left turn lanes are generally beneficial to intersection capacity when left turning traffic volumes exceed 300 in a peak hour. At this intersection, southbound left turn volumes are considerably less than this accepted threshold in all scenarios. While northbound left turn volumes exceed this threshold significantly in the Airport peak hour, northbound dual left turn lanes were not recommended as mitigation. In addition, dual left turn lanes in only one direction on Aviation Boulevard would create an adverse and potentially unsafe offset for through traffic as it passes through the intersection. These mitigation measures must be reviewed and redesigned to ensure that they serve their purpose without endangering public safety.

b) Aviation Boulevard and Imperial Highway

i) Southbound Aviation Boulevard Through Lanes Are Incorrect – Currently there is only one dedicated southbound through lane. All calculations for 2008 and 2015 include a second dedicated through lane but the project that will provide this second southbound through lane has not been identified.

ii) Southbound Aviation Boulevard Right Turn Lanes Are Incorrect – Currently there is a dedicated southbound right turn lane as well as a southbound shared through/right turn lane. A southbound right turn arrow is also displayed by the traffic signal. All calculations for 2008 and 2015 include these lanes but do not correctly calculate the capacity of the shared through/right turn lane green arrow. The calculations must be adjusted to reflect blockage of the shared lane by a through motorist while the right turn green arrow is displayed.

iii) Arbitrary Volume Adjustments Were Made For 2015 – Calculations for the a.m. peak hour in 2015 for unmitigated and for mitigated conditions without the Lennox Boulevard Interchange include an increase of 300 northbound through vehicles and a decrease of 100 southbound left turn vehicles for the "Project." Many adjustments are made during the Airport peak hour in 2015 for "Ambient" including 175 more northbound right turns, 200 more southbound left turns, 50 fewer southbound through vehicles, 200 more westbound right turns, 300 fewer eastbound left turns, 300 more eastbound through, and 100 fewer eastbound right turns. In the p.m. peak hour, these "Ambient" adjustments include 200 fewer northbound left turns and 200 more southbound left turns. The Supplement must provide technical support for each of these arbitrary "Project" and "Ambient" peak hour volume adjustments as well as the rationale for making adjustments in seven

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movements during the Airport peak hour and in only two movements in the a.m. and p.m. peak hours.

c) Aviation Boulevard and Rosecrans Avenue

- i) Hawthorne Widening of Aviation Boulevard Benefits Alternative D – The capacity calculations assume a City of Hawthorne project will add a second northbound left turn lane, a dedicated northbound right turn lane, a second southbound left turn lane, two additional southbound through lanes, and a dedicated southbound right turn lane prior to 2008. These additional lanes result in significantly improved capacity and level of service over what will actually occur if the City of Hawthorne project is not constructed by 2008. Alternative D obtains a significant increase in capacity at this intersection from a project being implemented by another jurisdiction. LAWA should contribute its “fair share” to the cost of these improvements as mitigation of Alternative D.
- ii) Hawthorne Widening of Rosecrans Avenue Benefits Alternative D – The capacity calculations assume a City of Hawthorne project will add an additional westbound through lane, a second eastbound left turn lane, and an additional eastbound through lane prior to 2008. These additional lanes result in significantly improved capacity and level of service over what will actually occur if the City of Hawthorne project is not constructed by 2008. Alternative D obtains a significant increase in capacity at this intersection from a project being implemented by another jurisdiction. LAWA should contribute its “fair share” to the cost of these improvements as mitigation of Alternative D.

d) Imperial Highway and Douglas Street

- i) Traffic Signal Phasing Is Incorrect – Douglas Street and the access into the cargo area at LAX operate on separate or split phases at this time and in the calculations for conditions in 2008. However, all calculations for 2015 incorrectly assume removal of the split phasing and show northbound and southbound traffic entering Imperial Highway simultaneously. The 2015 calculations are incorrect as the split phasing operation must be retained with the multiple and shared turning lanes for northbound and southbound traffic. These errors result in incorrect conclusions about levels of congestion at this intersection and the analysis for 2015 understates the impacts of Alternative D upon this intersection.
- ii) Arbitrary Volume Adjustments Were Made For 2015 – Calculations for the p.m. peak hour in 2015 for unmitigated and for mitigated conditions without the Lennox Boulevard Interchange include an increase of 200

northbound left turn vehicles for "Ambient." The Supplement must provide technical support for these arbitrary "Ambient" p.m. peak hour volume adjustments, as well as the rationale for making no adjustments during the a.m. and Airport peak hours.

- iii) 2015 Traffic Analysis Assumes Incorrect Mitigation Measures – Recommended mitigation involves elimination of the third eastbound through lane on Imperial Highway to create a northbound free right turn from Douglas Street. However, the Supplement's calculations for 2015 with the Lennox Boulevard Interchange in the a.m. peak hour still show three eastbound through lanes on Imperial Highway together with the northbound free right turn lane. In addition, each of the peak hour calculations for conditions in 2015 with the Lennox Boulevard Interchange incorrectly show a dual northbound free right turn whereas only a single northbound free right turn has been recommended. Each of these calculations must be corrected before the appropriate measures to mitigate this impacted intersection can be developed.
 - iv) Impacts on Bicycle Lane Must Be Analyzed - The impacts of the proposed free right turn lane upon the existing striped eastbound bicycle lane on Imperial Highway must be evaluated.
 - v) Further Analysis of Two Way Operation Is Required – Douglas Street and Nash Street presently operate as a one way couplet south of Imperial Highway. Nash Street now carries only southbound traffic and Douglas Street now carries only northbound traffic. The City of El Segundo is considering converting this one way couplet to two way traffic flow on both streets. In addition to correcting the analysis of the Imperial Highway/Douglas Street intersection to address the comments above, the Supplement should also analyze the traffic impacts of Alternative D upon this intersection if Douglas Street is converted to two way traffic. The Supplement should also analyze the traffic impacts of Alternative D at the Imperial Highway/Nash Street intersection if Nash Street is converted to two way traffic.
- e) Sepulveda Boulevard and El Segundo Boulevard
- i) Eastbound Lanes on El Segundo Boulevard Are Incorrect – All of the calculations for conditions in 2008 and 2015 incorrectly show one eastbound shared left turn/through lane on El Segundo Boulevard. This lane is a dedicated eastbound through lane and left turns cannot be legally made from this through lane.
 - ii) Split Phasing East/West Was Not Evaluated Correctly – Eastbound and westbound traffic on El Segundo Boulevard now operates on

separate, or split, phases. During the traffic signal cycle, all westbound traffic proceeds on El Segundo Boulevard, followed by all eastbound traffic during a separate traffic signal phase. However, all calculations for 2008 and 2015 incorrectly assume removal of the split phasing and show eastbound and westbound traffic entering Sepulveda Boulevard simultaneously. The 2008 and 2015 calculations are incorrect as the split phasing operation must be retained with the multiple and shared turning lanes for eastbound and westbound traffic. These errors result in incorrect conclusions about levels of congestion at this intersection and the analyses for 2008 and 2015 understate the impacts of Alternative D upon this intersection.

- iii) Arbitrary Volume Adjustments Were Made For 2015 – Calculations for the a.m. peak hour in 2015 for unmitigated and for mitigated conditions without the Lennox Boulevard Interchange include a decrease of 100 northbound through vehicles and an increase of 100 westbound right turn vehicles for the "Project." No other adjustments were made during either the Airport peak hour in 2015 or in the p.m. peak hour in 2015. The Supplement must provide technical support for both of these arbitrary "Project" a.m. peak hour volume adjustments as well as the rationale for making no adjustments in any of the movements during the Airport or p.m. peak hours.
 - iv) ATSAC/ATCS System Is Now Being Designed – Calculations in 2015 include capacity benefits with implementation of ATSAC/ATCS signal control. The County of Los Angeles is currently designing an ITS traffic signal system improvement project throughout the City of El Segundo. The Supplement incorrectly credits Alternative D for traffic signal system mitigation that will already be in place long before 2015. LAWA should contribute its "fair share" to the cost of the County improvement project as mitigation of Alternative D. The Supplement must also develop other measures to mitigate the traffic impacts of Alternative D at this intersection.
- f) Imperial Highway and Main Street
- i) Northbound Main Street Lanes Are Incorrect – Northbound right turns are controlled by a YIELD sign outside of the traffic signal operation. In the Supplement, the northbound right turns have been incorrectly analyzed as a part of the traffic signal operation in all calculations for conditions in 2008 and 2015.
 - ii) Driveway Opposite Main Street Was Excluded – There is an existing driveway serving LAX directly opposite Main Street on the north side of Imperial Highway. This driveway has been erroneously omitted from

the calculations of capacity at this intersection and no traffic volumes have been assigned in to or out of this existing driveway serving LAX.

- iii) Eastbound Imperial Highway Lanes Are Incorrect – The separate eastbound right turn lane is controlled by a STOP sign outside the traffic signal operation. In the Supplement, the eastbound right turns have been incorrectly analyzed as a part of the traffic signal operation in all calculations for conditions in 2008 and 2015. Peak hour queuing in the eastbound through lanes which now blocks access to this right turn lane should also be analyzed and measures developed to mitigate additional impacts of Alternative D upon this condition at this location.
- iv) Mitigation Measures Are Flawed and Inadequately Analyzed – Mitigation proposed in 2015 includes a second westbound left turn lane. Installation of this lane will require roadway widening and modification of the median to preserve the existing bicycle lane, not simple restriping as proposed. Secondly, a northbound right turn green arrow has been incorrectly proposed as mitigation when this movement is free and it now occurs outside the traffic signal operation. Thirdly, the calculations for mitigation in 2015 include ATSAC/ATSC benefits even though improvements at this intersection do not list or identify this as a mitigation measure. Finally, all mitigation at this intersection must be reevaluated to address traffic signal coordination with the existing traffic signal on Main Street at Imperial Avenue only 100 feet south of Imperial Highway.

g) Sepulveda Boulevard and Imperial Highway

- i) Arbitrary Volume Adjustments Were Made For 2015 – Calculations for the a.m. peak hour in 2015 for unmitigated and for mitigated conditions without the Lennox Boulevard Interchange include a decrease of 200 northbound right turn vehicles, a decrease of 300 southbound left turn vehicles, an increase of 150 southbound through vehicles, a decrease of 100 southbound right turn vehicles, and an increase of 175 westbound left turn vehicles for the "Project." Many adjustments were also made during the Airport peak hour in the 2015 unmitigated analysis for "Ambient" including 175 more southbound right turns, 175 fewer southbound through vehicles, 25 more westbound left turns, and 175 more westbound right turns. These same adjustments were also made during the Airport peak hour for alternate mitigation without the Lennox Boulevard Interchange and a deduction of 300 southbound right turns was made under "Related." In the p.m. peak hour, no adjustments were made. The Supplement must provide technical support for each of these arbitrary "Project," "Ambient," and "Related" peak hour volume adjustments as well as the rationale for making

adjustments in five movements during the a.m. and Airport peak hours and none during the p.m. peak hours.

- ii) MTA Mitigation Measures Are Not Properly Analyzed – For conditions in 2015 without the Lennox Boulevard Interchange, the Supplement indicates 15 vehicles must be reduced from the intersection in the Airport peak hour and 5 vehicles must be reduced from the intersection in the p.m. peak hour. For conditions in 2015 with the Lennox Boulevard Interchange, the Supplement indicates 330 vehicles must be reduced from the intersection in the “critical” peak hour but does not define which peak hour is “critical.” None of the calculations in the Appendix to S-2b show these reductions to support the effectiveness of the proposed mitigation. Further, there is absolutely no assurance or guarantee that providing funding to MTA for improved Rapid Bus or other transit services would actually mitigate Alternative D traffic impacts at the intersection of Sepulveda Boulevard and Imperial Highway. Reducing demand by 330 vehicles in the “critical” peak hour would require at least seven buses, and providing this as a mitigation measure is absurd.

h) Sepulveda Boulevard and Mariposa Avenue

- i) Arbitrary Volume Adjustments Were Made For 2015 – Calculations for the a.m. peak hour in 2015 for unmitigated conditions without the Lennox Boulevard Interchange include a decrease of 200 northbound through vehicles, an increase of 200 northbound right turn vehicles, and an increase of 325 southbound left turn vehicles for the “Project.” Calculations for the a.m. peak hour in 2015 for alternate mitigation conditions without the Lennox Boulevard Interchange also include a decrease of 200 northbound through vehicles, an increase of 200 northbound right turn vehicles, and an increase of 325 southbound left turn vehicles for “Ambient.” No other adjustments were made during either the Airport peak hour in 2015 or in the p.m. peak hour in 2015. The Supplement must provide technical support for both of these arbitrary “Project” and “Ambient” a.m. peak hour volume adjustments as well as the rationale for making no adjustments in any of the movements during the Airport or p.m. peak hours.
- ii) ATSAC/ATCS System Is Now Being Designed – Calculations in 2015 include capacity benefits with implementation of ATSAC/ATCS signal control. The County of Los Angeles is currently designing an ITS traffic signal system improvement project throughout the City of El Segundo. The Supplement incorrectly credits Alternative D for traffic signal system mitigation that will already be in place long before 2015. LAWA should contribute its “fair share” to the cost of the County improvement

project as mitigation of Alternative D. The Supplement must also develop other measures to mitigate the traffic impacts of Alternative D at this intersection.

iii) MTA Mitigation Measures Are Not Properly Analyzed – For 2015 conditions without the Lennox Boulevard Interchange, the Supplement indicates 76 vehicles must be reduced from the intersection in the a.m. peak hour. For conditions in 2015 with the Lennox Boulevard Interchange, the Supplement indicates 52 vehicles must be reduced from the intersection in the a.m. peak hour. None of the calculations in the Appendix to S-2b show these reductions to support the proposed mitigation. Further, there is absolutely no assurance or guarantee that providing funding to MTA for improved Rapid Bus or other transit services would actually mitigate Alternative D traffic impacts at the intersection of Sepulveda Boulevard and Mariposa Avenue. Reducing demand by 76 vehicles or by 52 vehicles in the a.m. peak hour would require at least two buses. Providing this as a mitigation measure is absurd.

i) Sepulveda Boulevard and Rosecrans Avenue

i) Right Turn On Red Prohibitions Have Been Omitted – While the intersection geometry does reflect the recent widening of Sepulveda Boulevard, all calculations for conditions in 2008 and 2015 erroneously ignore the existing right turn on red prohibitions currently posted at this intersection. Westbound traffic on Rosecrans Avenue is prohibited from turning right on a red light on Monday through Friday from 6:00 to 9:00 a.m. and from 3:00 to 7:00 p.m. Eastbound traffic on Rosecrans Avenue is prohibited from turning right on a red light on Monday through Friday from 3:00 to 7:00 p.m. Northbound traffic on Sepulveda Boulevard is prohibited from turning right on a red light at any time.

ii) ATSAC/ATCS System Is Now Being Designed – Calculations in 2015 include capacity benefits with implementation of ATSAC/ATCS signal control. The County of Los Angeles is currently designing an ITS traffic signal system improvement project throughout the City of El Segundo. The Supplement incorrectly credits Alternative D for traffic signal system mitigation that will already be in place long before 2015. LAWA should contribute its “fair share” to the cost of the County improvement project as mitigation of Alternative D. The Supplement must also develop other measures to mitigate the traffic impacts of Alternative D at this intersection.

j) Eastbound I-105 On Ramp from Atwood Way Omitted – The Supplement failed to examine the impacts of Alternative D at the eastbound I-105 on

ramp on Atwood Way between Nash Street and Douglas Street. This two-lane on ramp includes ramp meters and the traffic impacts associated with Alternative D at this signalized intersection must be evaluated and mitigated as necessary.

- k) Eastbound I-105 On Ramp from Atwood Way Omitted – The Supplement failed to examine the impacts of Alternative D at the eastbound I-105 on ramp from Imperial Highway just east of Nash Street. This single lane on ramp includes ramp meters and the traffic impacts associated with Alternative D must be evaluated and mitigated as may be necessary.

21. Neighborhood Traffic Management Is Inadequately Analyzed and Unfunded – Page 35 of Technical Report S-2b indicates “Protecting neighborhoods is one of the four principles guiding the design of this alternative and its transportation analysis.” Neighborhood traffic management is then discussed in very broad and general terms but no specifics are identified. No funding for neighborhood protection is identified in either Technical Report S-2b or the Supplement, a very serious omission for “one of the four principles guiding” Alternative D.

Page 36 indicates “It is important to note that any Neighborhood Traffic Management Plan must have final approval by LADOT prior to implementation.” The Supplement must be corrected to indicate the responsible local agency such as the City of El Segundo or the County of Los Angeles will have responsibility for neighborhood traffic management plans within their respective jurisdictions.

22. Listing of Mitigation Measures Is Incomplete – Attachment E to Technical Report S-2b provides a listing of “Proposed Final Mitigations” for Alternative D. This listing omits the recommended new Lennox Boulevard Interchange with I-405 as well as the I-105 eastbound connections. It also omits freeway mainline widenings shown in Attachment G to Technical Report S-2b. It adds a “fair share” contribution toward a future widening of the southbound I-405 Freeway on ramp at El Segundo Boulevard but does not identify the scope of this proposed project. This listing also does not include any participation in neighborhood traffic management plans and it fails to provide “fair share” cost estimates for any of the proposed intersection or segment improvements. Attachment F to Technical Report S-2b, the Alternative Mitigation Plan for Alternative D without the Lennox Interchange and I-105 Ramps, contains many of the same errors and omissions identified above for Attachment E. As a result, the Supplement fails to incorporate all of the feasible mitigation measures to reduce significant traffic impacts of Alternative D.

23. Mitigation Measure Completion Not Coordinated With Alternative D Phasing – Table S4.3.2-11 beginning on Page 4-275 of the Supplement provides a

Ms. Christy H. Taylor
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October 28, 2003

listing of the various mitigation measures to be implemented in 2008. Table S4.3.2-12 beginning on Page 4-279 of the Supplement provides a listing of the various mitigation measures to be implemented in 2015. However, comparison of these tables to the proposed schedule for Alternative D as shown on Page 3-54 indicates several discrepancies in the proposed timing of the mitigation. As one example, mitigation measures at Imperial Highway and Main Street must be constructed prior to the scheduled completion of the proposed west employee parking structure in 2006, not in 2015 long after increased LAX employee traffic occurs along Imperial Highway. The timing of the construction of all of the proposed mitigation measures must be reevaluated to insure they will be operational prior to opening of the various major components in Alternative D.

24. Supplement Fails to Incorporate All Feasible Mitigation – LAWA must mitigate project traffic impacts at the locations that will be identified as part of the revisions in response to the numerous comments in this letter. Cost estimates for the necessary mitigation measures must be developed and the proportionate “fair share” contributions calculated for Alternative D. The Caltrans study guidelines require that mitigation measures include “financing, scheduling, implementation responsibilities, and lead agency monitoring” and these items must be added to the Supplement. Without addressing these numerous significant issues, the Supplement fails to incorporate all feasible mitigation measures to reduce significant traffic impacts.

Based on the numerous errors and omissions in the Supplement and Technical Report S2-b pointed out in this letter, the necessary reevaluation of Alternative D will likely disclose many additional significant traffic impacts. The various issues outlined in this letter must be carefully studied and evaluated before reaching any conclusion about the significance of traffic impacts, and the design of appropriate mitigation measures. The Supplement’s current conclusion, that most of the project impacts from Alternative D would be reduced to insignificance in the areas of transportation and circulation by implementation of the mitigation measures as proposed, is questionable in light of the myriad of technical problems in the analysis.

Respectfully submitted,

Tom Brohard and Associates



Tom Brohard, PE
Principal

Enclosure



Tom Brohard, PE

Licenses: 1976 / Professional Engineer / California – Civil, No. 24577
1977 / Professional Engineer / California – Traffic, No. 724

Education: BS / Civil Engineering / Duke University / 1969

Experience: 33 Years

Memberships: Institute of Transportation Engineers - Member
Orange County Traffic Engineers Council - Chair 1979-1980
American Public Works Association - Member

Expertise: Tom is a recognized expert in the field of traffic engineering. His background also includes responsibility for leading and managing the successful delivery of a variety of municipal contract services to numerous cities throughout Southern California for over 15 years.

Tom has extensive experience in providing transportation planning and traffic engineering services across Southern California. From 1972 through 1978, he conducted all traffic engineering investigations in the Second Supervisorial District in Los Angeles County. He has served as City Traffic Engineer/Transportation Manager/Engineer as follows:

- Bellflower 1997-1998
- Bell Gardens 1982-1995
- Huntington Beach 1998-present
- Lawndale 1973-1978
- Los Alamitos 1981-1982
- Oceanside 1981-1982
- Paramount 1982-1988
- Rancho Palos Verdes 1973-1978
- Rolling Hills 1973-1978, 1985-1993
- Rolling Hills Estates 1973-1978, 1984-1991
- San Marcos 1981
- Santa Ana 1978-1981
- Westlake Village 1983-1994

Since March 1998, Tom has served the City of Huntington Beach. As Interim Transportation Manager for the first 3 ½ years, he oversaw a staff of 20 including traffic engineers and transportation planners, traffic signal and street lighting personnel, and the signing, striping, and marking crews. Tom secured over \$3.5 million in grant funding for the City and managed the initial West Orange County Rail Feasibility Study. He recently completed a detailed review of the Circulation Element of the General Plan and prepared a Request for Proposal for the City's new traffic model. Other selected accomplishments during his previous regular office hours at City Hall included the following:

Tom Brohard and Associates

SAL00015 V

Consulting Transportation Engineer, Huntington Beach (10/2001 to 7/2002)

Primary duties in the capacity of consulting transportation engineer included:

- Identified study scope and reviewed traffic impact analysis reports prepared for development projects estimated to generate more than 100 peak hour vehicle trips.
- Established conditions of approval for proposed development projects and reviewed all related improvement plans.
- Established and approved truck haul routes associated with grading operations.
- Administered the City's Fair Share Traffic Impact Fee Program.
- Conducted traffic engineering investigations of citizen requests for traffic control device installation, modification, or removal.
- Prepared reports, correspondence, and work orders for traffic control devices.
- Prepared grant applications and obtained funding approval for various traffic safety improvements through Caltrans under the Hazard Elimination Safety Program (\$225,000) and from the California Energy Commission for battery back up units for traffic signals (\$300,000).
- As requested, attended meetings of the Public Works Commission and City Council to present reports involving traffic engineering and transportation planning items.
- As requested, represented the City in regional transportation planning studies including the Orange County Transportation Authority's Santa Ana River Crossings Study and the West Orange County Transit Needs Project Definition Study.

Interim Transportation Manager, Huntington Beach (3/1998 to 10/2001)

Served as a Division Head in the City's Department of Public Works, with primary responsibilities and accomplishments including:

- Active representation of the City in various regional transportation assignments including the Orange County Transportation Authority's Santa Ana River Crossings Study and the West Orange County Transit Needs Project Definition Study.
- Coordinated enhancements of the traffic signal master system involving 10 different projects totaling \$4.26 million, while only using \$360,000 of City matching funds.
- Provided advice and assistance regarding transportation matters to the Public Works Department, other departments, various commissions, and City Council.
- Presented transportation reports at meetings of the Public Works Commission, Planning Commission, and City Council.
- Assessed the traffic impacts of proposed development projects and recommended conditions of approval to mitigate traffic impacts.
- Provided technical advice, guidance, and assistance to the City's Transportation Division staff as well as others involved in project design and plan preparation for traffic engineering projects.
- Directed studies and investigations of installation, modification, or removal of traffic control devices including traffic signals; regulatory, warning, construction, and guide signs; crosswalks; school area controls; speed zoning; and pavement and curb markings.
- Developed the City's Fair Share Traffic Impact Fee Program with the supporting technical nexus study.

Other Key Projects During the Last Three Years Include the Following Assignments:

Critiques of Traffic Impacts in the Draft EIR and the Final EIR for the Proposed Wal-Mart in the City of Fremont in Alameda County; Prepared for Mark R. Wolfe & Associates (7/2002 to 3/2003)

Reviewed the traffic analysis in the June 2002 Draft Environmental Impact Report and related technical studies for the Fremont Wal-Mart, a project proposed to contain a 156,000 square foot Wal-Mart building with garden center and a tire and lube express station plus 45,000 square feet of business park development. Services included a detailed field review of the existing roadways and the surrounding area to document lane configurations and observe critical intersections during the afternoon peak hour. Numerous flaws and many errors were documented including omission of analysis of Saturday and construction traffic impacts, incomplete evaluation of the main project access and traffic impacts on the adjacent I680 Freeway Interchange, faulty methodology including low trip generation rates and skewed trip distribution, insufficient analysis of queuing traffic back from the adjacent major intersection, and mitigation measures which cannot be constructed without additional right of way and relocation of high voltage electrical transmission towers at the adjacent major intersection.

Subsequently, review of the responses to these comments in the November 2002 Final EIR and the December 2002 Recirculated Portions of the EIR for the project disclosed a number of the previous concerns had not been properly addressed, and a rebuttal was prepared. Review of the responses to these comments contained in the March 2003 Final EIR disclosed continuing errors and inconsistencies, and another rebuttal was prepared.

Critiques of Traffic Impacts Identified in the Draft EIR and the Final EIR for the Alpine Village Center in the Community of Alpine in San Diego County; Prepared for Shute, Mihaly, and Weinberger (6/2002 to 3/2003)

Reviewed the traffic analysis in the May 2002 Draft Environmental Impact Report and related technical studies for the Alpine Village Center in San Diego County. This project is proposed to contain a 58,000 square foot supermarket with pharmacy, 9,000 square feet of retail shops, eight fueling stations with mini-market, and a 3,000 square foot fast food restaurant with drive thru. Services included a detailed field review of the existing roadways and surrounding area to document lane configurations at critical intersections. Numerous flaws and many errors were documented including inconsistencies with Caltrans guidelines, faulty methodology involving excessive pass by trip reductions, insufficient analysis of diverted linked trips from the adjacent I8 Freeway, and inadequate mitigation measures regarding the loss of on street parking.

The responses to these comments in the January 2003 Final EIR were reviewed and many of the previous concerns had not been properly addressed. A rebuttal to the Final EIR was prepared and testimony was given at the March 28, 2003 San Diego County Planning Commission public hearing regarding the continuing inadequacies of the traffic analyses.

Critiques of Traffic Impacts Identified in the Draft EIR and the Final EIR for the 2000 Avenue of the Stars Project in Century City in the City of Los Angeles; Prepared for Tract No. 7260 Association, Inc. (9/2002 to 2/2003)

Reviewed the traffic analysis in the August 2002 Draft EIR for the 2000 Avenue of the Stars Project encompassing replacement of 680,000 square feet of office, theater, restaurant, retail, and health club uses with 780,000 square feet of office, restaurant, retail, and cultural uses a 9.2 acre site. Major findings of this review disclosed the following:

- Faulty methodology used independent, unrealistically high peak hour trip generation rates for the existing high turnover restaurants and other commercial uses by not properly considering internal walking trips, high parking rates, and business hours.
- An unrealistic Transportation Demand Management (TDM) Program was assumed to reduce peak trips from the proposed project, together with nominal penalties.
- General office trip rates consistent with a recently approved EIR for a nearby 791,000 square foot building should have been used for 2000 Avenue of the Stars.
- To generate the same number of trips as the existing uses, the 2000 Avenue of the Stars Project would have to be reduced by 200,000 square feet.

The responses to these comments in the November 2002 Final EIR for the project were reviewed and several previous concerns had not been properly addressed. This was documented and subsequently presented at public hearings on December 9, 2002 before a City Hearing Officer and on February 13, 2003 to the City Planning Commission.

Critique of Traffic Impacts Identified in the Draft EIR for the Vallejo Waterfront Project; Prepared for Adams Broadwell Joseph & Cardozo (2/2003)

Reviewed the traffic portions of the December 2002 Draft EIR for the redevelopment of 400 acres in the downtown area including a multimodal waterfront transportation facility, ferry parking, 1,560 residential units, 1,015,000 square feet of commercial/office, 33 acres of public park, and a 1,200 seat performing arts center were reviewed. Many flaws and errors were documented including the use of inappropriate baseline traffic count data, failure to document the assumption that traffic volumes have remained constant in recent years, arbitrary dismissal of potential seasonal traffic volume variations, no analysis of AM weekday peak traffic flow, inadequate replacement parking during construction of a large parking structure, failure to address traffic impacts on opening day for each of the three development phases, and failure to quantify, address, and mitigate construction traffic impacts.

Expert Witness Evaluation of Traffic Impacts Caused By Simultaneous Construction of Alameda Corridor Transportation Authority Projects; Prepared for Sullivan, Workman, & Dee (12/2002 to 2/2003)

Reviewed over 4,000 pages of various studies, plans, depositions, and other documents relating to construction of Alameda Corridor Transportation Authority projects adjacent to a software distribution business in the City of Vernon. The sequence of traffic lane and street closures was verified for multiple phases of construction associated with significant projects including the railroad trench in Alameda Street, the Santa Fe Avenue viaduct, the Washington Boulevard grade separation, the Soto Street bridge project, and the Downey Road bridge project. Traffic impacts of the simultaneous construction of these multiple

major projects were quantified by calculating volume/capacity ratios and determining the associated Level of Service for each construction phase at over 20 intersections in the surrounding area.

Urban Street Design Fundamentals Training, City of Torrance (11/2001 to 4/2002 and 10/2002 to 12/2002)

Provided 12 four-hour training sessions for the Engineering staff in the fundamentals of urban street design, focused on traffic/transportation engineering, covering these topics:

- Highway and driver characteristics
- Operational data and problem solving
- Design guidelines and standards
- Roadway studies
- Geometric design of streets
- Geometric design of intersections
- Data, problem solving, reports, and presentations
- Urban roadway fundamentals
- Intersection design principles
- Intersection capacity calculations/simulations
- Traffic impact reports
- Traffic signal guidelines and operations

Critique of Traffic Impacts Identified in the Transportation Impact Study for the Western Research Campus in the City of Richmond in Contra Costa County; Prepared for Adams Broadwell Joseph & Cardozo (11/2002)

Reviewed the transportation impact study for the redevelopment and expansion of research and development facilities totaling 473,000 square feet. Several flaws and errors were documented including the use of low trip generation rates, incomplete analysis of several critical nearby intersections, failure to properly address and mitigate increased vehicle trips on nearby I80 and I580 Freeway mainlines and interchanges, and failure to identify the developer's fair share contributions to intersection widening and to identify the schedule for the necessary improvements.

Evaluation of the Proposed Intersection of Mulholland Highway and Hazel Nut Court in Los Angeles County; Prepared for Seminole Springs Mobile Home Park (11/2002)

Conducted an evaluation of sight distance at the proposed intersection of Hazel Nut Court with Mulholland Highway adjacent to the Seminole Springs Mobile Home Park in the Santa Monica Mountains. This assignment involved field measurements and observations, review of improvement plans and conditions of approval for the approved subdivision, and meeting with Department of Public Works staff to discuss alternatives and accepted standards. Our concise report indicated the County's conditions of approval to provide a separate left turn lane for the eight home subdivision as well as sight lines for 50 mph traffic were both unnecessary. Testimony at the November 26, 2002 Los Angeles County Board of Supervisors hearing resulted in the Board rescinding both conditions of approval and the County dropping its plans to condemn a portion of adjacent mobile home park property.

Critique of Traffic Impacts Identified in the Draft EIR for North Yorba Linda Estates in the City of Yorba Linda in Orange County; Prepared for Shute, Mihaly, and Weinberger (9/2002)

Reviewed the traffic analysis contained in the July 2002 Draft Environmental Impact Report for North Yorba Linda Estates in the City of Yorba Linda in Orange County. The project encompassed three sites proposed to contain up to 688 single family residences and 383 senior housing residential units. Services included a detailed field review of the existing roadways and surrounding area to document lane configurations and observe critical intersections. Numerous flaws and many errors were documented including various omissions from the traffic study to analyze traffic impacts from an alternate land use involving a 2,000 student high school, to properly identify impacts associated with extension of Bastanchury Road as an arterial highway, and to identify construction impacts. The review also identified faulty methodology including the use of unrealistically low trip generation rates for both the single family residences and for the proposed senior housing units. Insufficient analysis involving neighborhood traffic intrusion and inadequate mitigation measures at impacted intersections as well as failures to provide fair share cost estimates and a timely implementation plan were also identified in the review.

Hacienda Road Traffic Calming Study, City of La Habra Heights (12/2001 to 9/2002)

Alternatives were developed to slow traffic speeds on Hacienda Road, a two-lane rural highway carrying over 17,000 vehicles per day. Services during this study included:

- Conducted a locally televised public meeting to gather community input.
- Reviewed traffic speeds at various locations along Hacienda Road.
- Analyzed all accident reports taken on Hacienda Road over the last six years.
- Conducted field observations to quantify specific areas where current traffic speeds and recent traffic accident history were higher than expected and desired.
- Developed traffic calming alternatives to slow traffic and presented them at locally televised meetings of the City's Public Works Advisory Committee and City Council.
- Prepared a grant application for \$360,000 of funding under the Federal Hazard Elimination Safety Program to install a mile of raised medians on Hacienda Road.

Critique of Traffic Impacts Identified in the Draft EIR for the Central Larkspur Specific Plan in the City of Larkspur in Marin County; Prepared for Shute, Mihaly, and Weinberger (7/2002 to 8/2002)

Reviewed the traffic analysis in the June 2002 Draft Environmental Impact Report and related technical studies for the Central Larkspur Specific Plan in the City of Larkspur in Marin County. The Specific Plan encompassed an area proposed to contain up to 126,000 square feet of floor space for commercial uses and between 86 and 106 residential units on seven parcels. Services included a detailed field review of the existing roadways and surrounding area to document lane configurations and observe critical intersections. Numerous flaws and many errors were documented including various omissions from the traffic study, faulty methodology, insufficient analysis, and inadequate mitigation measures. This critique, together with other significant errors throughout the Draft EIR, caused the City to retract this document.

Critique of Traffic Impacts Identified in Various Environmental Documents for Three Residential Subdivisions in the City of Pittsburg in Contra Costa County; Prepared for Adams Broadwell Joseph & Cardozo (8/2002)

Conducted a preliminary review of the environmental documents and associated traffic studies for three proposed residential subdivisions in the City of Pittsburg in Contra Costa County including San Marco Meadows (779 single family homes on a 231 acre site), Sky Ranch II (386 single family homes on a 167 acre site), and Heritage Pointe (125 single family homes and a small park on 22 acres). Many flaws and errors were documented including failures to:

- Properly address and mitigate increased vehicle trips on local residential streets, arterial intersections, and adjacent freeway segments and interchanges.
- Use higher trip generation rates for larger homes.
- Apply different trip distribution patterns for AM and PM peak hours.
- Fund necessary mitigation measures in a timely manner.

Traffic Safety Study, City of Rolling Hills Estates (4/2001 to 5/2002)

Conducted Phase I of the City's Traffic Safety Study including:

- Review of city wide traffic accident data for five years for 1996 thru 2000.
- Identified intersections and midblock segments exceeding expected thresholds.
- Calculated accident rates for collision prone locations.
- Reviewed candidate locations and identified five for detailed analysis.
- Performed detailed studies of the top five locations.
- Recommended various low cost and capital improvements for consideration.

Critique of Traffic Impacts Identified in the Proposed Extension of Corona and Valley View Avenues Draft EIR in the City of Norco; Prepared for C. Robert Ferguson (1/2002 to 4/2002)

Reviewed the Draft Environmental Impact Report and supporting traffic studies for the proposed extension of Corona and Valley View Avenues in the City of Norco. The work included preparation of a detailed report identifying many comments and concerns regarding the adequacy of the information contained in the documents as well as a detailed rebuttal to the City's response to these comments. Testimony was also provided at a Public Hearing of the Norco City Council on the documents and the proposed project to connect the two local streets to a major arterial highway, Hidden Valley Parkway.

Critique of Traffic Impacts Identified in the Proposed LAX Expansion Draft EIR; Prepared for Shute, Mihaly, and Weinberger/City of El Segundo (2/2001 to 3/2002)

Conducted a detailed review of the Draft Environmental Impact Statement/Environmental Impact Report for the expansion of Los Angeles International Airport as the documents related to traffic impacts in the City of El Segundo. Many comments and concerns were documented regarding the adequacy of the information provided in the Draft EIR and in the Technical Report for the Off-Airport Ground Access Impacts and Mitigation Measures developed for the three different airport expansion strategies in 2005 and in 2015.

Critique of Traffic Impacts Identified in Caltrans Route 118 at Donlon Road/Somis Road Intersection Improvements Initial Study/Environmental Assessment; Prepared for Shute, Mihaly, and Weinberger (12/2000 to 10/2001)

Conducted a detailed review of the Initial Study/Environmental Assessment and other documents prepared by Caltrans for improvements to the intersection of State Route 118 at Donlon Road/Somis Road (State Route 34) in the Community of Somis in Ventura County. The work included preparation of detailed reports and the development of alternative intersection improvements to reduce congestion at the intersection and to mitigate impacts to the community. Testimony was presented to the Ventura County Board of Supervisors at public hearings and assistance was provided to the community during mediation.

Key Projects Completed Over Three Years Ago Include the Following Assignments:

Public Works/Traffic Engineer, City of Bellflower

Served as the City's Public Works/Traffic Engineer, with principal accomplishments and assignments including:

- Preparation of the City's Five-Year Capital Improvement Plan.
- Obtained \$4.7 million to eliminate 28 at grade railroad crossings.
- Management of the Traffic Signal Master Plan Study.
- Performed development review and set conditions for 40 projects.
- Updated the signing and pavement markings at all 18 schools.
- Developed the Bellflower Boulevard Congestion Relief Project.
- Developed various ordinances and policies for consideration.

Traffic Impact Studies, Various Cities

Prepared traffic engineering studies and reports for various projects including a 90 home development in the City of Rancho Palos Verdes and a 110,000 square foot mixed use commercial project in the City of San Gabriel.

Lindero Canyon Road Extension Study, City of Westlake Village

Evaluated the traffic impacts associated with extension of a major arterial highway into Ventura County and prepared a detailed report for consideration.

Development Review of Various Projects, City of Westlake Village

Oversight of traffic impact studies with various development projects, including: Westlake North Specific Plan and Draft EIR (500 residential units, 40 acres of commercial and light industrial development and a 400-room hotel); the Westlake Spectrum Specific Plan and Draft EIR (750,000 square feet of light industrial/commercial development); the Trails Residential Development (40 custom single family homes); and the Three Springs Planned Development Permit (400 single family homes).

City-Wide Bicycle Master Plan, City of Westlake Village

Prepared and implemented the City's initial Bicycle Master Plan.

Euclid Street Corridor Study, County of Orange

Prepared an inventory of all traffic control devices on this highway and developed recommendations to improve traffic safety in the corridor.

School Zones, City of Bell Gardens

Prepared safe walking route to school maps for each of the 10 elementary schools in the City. Implemented signing and pavement marking improvements at each school and prepared city-wide evaluations of the need for adult crossing guards.

Engineering and Traffic Surveys for Speed Zoning, Various Cities

Conducted engineering and traffic surveys to establish enforceable speed limits in the Cities of Alhambra, Baldwin Park, Bell Gardens, Dana Point, Hidden Hills, Huntington Beach, La Habra Heights, Palos Verdes Estates, Paramount, and Westlake Village.

City-Wide Traffic Control Device Inventory, City of Torrance

Using aerial photography and ground level video, inventoried all traffic control devices including traffic signals, signing, striping, pavement markings, and curb markings. Developed recommendations for maintenance and removal of non-standard devices.

Federal Hazard Elimination Safety Projects, Various Cities

Obtained funding, designed, inspected, and administered construction contracts for traffic signal modifications for the Cities of Alhambra (65 intersections), Bell Gardens (15 intersections), Buena Park (30 intersections), Huntington Beach (10 intersections), Paramount (20 intersections), Rosemead (15 intersections), Santa Ana (60 intersections), and Westlake Village (3 intersections).

Traffic Signal Installations, Various Cities

Designed and administered various traffic signal projects for the Cities of Bell Gardens, Huntington Beach, Paramount, Rosemead, and Westlake Village.

Raised Pavement Marking Projects, Various Cities

Obtained funding and prepared specifications for installation of non reflective and reflective raised pavement markers on all arterials in the Cities of Alhambra, Bell Gardens, Buena Park, Huntington Beach, Irvine, La Habra Heights, Norwalk, Paramount, Rosemead, and Whittier.

Comments

On

AIR QUALITY

AND

HUMAN HEALTH AND SAFETY

**LAX Master Plan Supplement To The
Draft Environmental Impact Statement/
Draft Environmental Impact Report**

Prepared by

**J. Phyllis Fox, Ph.D., P.E., DEE, QEP, REA I/II
Consulting Engineer
Berkeley, CA**

**Petra Pless, D.Env.
Environmental Engineer
Kensington, CA**

November 2003

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COMMENTS

Los Angeles World Airports ("LAWA" or "the Applicant"), the operator of the Los Angeles International Airport ("LAX"), has published a Draft Master Plan Addendum¹ ("DMPA"), a Supplement to the Draft Environmental Impact Statement/Environmental Impact Report² ("Supplement"), and Airport Layout Plans Package on the modernization of LAX ("Project"). These documents supplement the Draft Environmental Impact Statement/Environmental Impact Report³ ("Draft EIS/EIR") and add discussion of Alternative D to the previously discussed Master Plan alternatives.

The comments below provide an analysis of the Supplement's failure to meet the requirements of CEQA and NEPA. These comments expand upon our previous comments on the Draft EIS/EIR and address new issues raised by the Supplement. (Comments on Air Quality and Human Health and Safety, LAX Master Plan Draft EIS/EIR (July 13, 2001) by J. Phyllis Fox, Ph.D., Attachment C to September 18, 2001 Comments Submitted on Behalf of the City of El Segundo by Shute, Mihaly & Weinberger ("2001 Fox Comments").)

The documents do not supply the data required for us to verify the calculations and modeling used to determine air quality impacts. El Segundo submitted requests to LAWA and the Federal Aviation Administration ("FAA") under the California Public Records Act and the Federal Freedom of Information Act in October 2003, seeking this important information. Although we have been informed that some or all of the information will be provided, we have not received it in time to prepare these comments. After receiving the requested data, we intend to review them and reserve the right to submit additional comments based on this review.

AIR QUALITY

I. THE BASELINE IS UNSUPPORTED AND FLAWED

The environmental baseline is the heart of a CEQA or NEPA analysis because the significance of environmental impacts is measured by the change

¹ LAX Master Plan Addendum, July 2003.

² LAX Master Plan, Supplement to the Draft Environmental Impact Statement/Environmental Impact Report, July 2003.

³ LAX Master Plan, Draft Environmental Impact Statement/Environmental Impact Report, January 2001.

from the baseline. Neither the Draft EIS/EIR nor the Supplement contains sufficient information to allow a subject matter expert to evaluate the accuracy of the air quality data for the 1996/1997, 2000, or No Action/No Project ("NA/NP") baseline conditions used in these documents. Supporting calculations are not included in the Draft EIS/EIR, the Supplement, or technical reports and appendices. Further, our requests to LAWA and FAA to produce the data necessary for a review of these calculations have not been responded to in time. However, a number of factors suggest, based on our careful review, that the baseline is flawed.

We previously pointed out discrepancies between the baseline emissions in the Draft EIS/EIR and the supporting technical appendices. (2001 Fox Comments, II.A, pp. 7-8.) The Supplement does not resolve these discrepancies. We previously commented that it is improper to evaluate off-airport emissions against future baselines. (2001 Fox Comments, II.B, pp. 8-9.) The Supplement continues to evaluate off-airport emissions against future baselines. (Supplement Table S4.6-10.) We previously commented that the NA/NP alternative does not fairly reflect future conditions because it assumes the airport can grow nearly unrestrained. The Supplement is silent on this issue. We previously noted that it was not possible to evaluate the projected NA/NP emissions because supporting calculations were not provided. The Supplement does not contain the supporting calculations. In addition to failing to address our previous comments on the baseline, the Supplement introduces a new problem by using an invalid ratio method to adjust baseline emissions.

I.A The Ratio Method Is Invalid

The on-site Project impacts for CEQA purposes are evaluated relative to the 1996 baseline emission inventory, which is stated to represent activity levels at LAX in 1996 and facilities as of 1997. (Draft EIS/EIR, p. 4-462.) The Supplement updated this baseline using ratios between emission model results from EDSM 3.2 and 4.11 for Alternative D.

Since publication of the Draft EIS/EIR in January 2001, the FAA has released an updated version of the Emissions and Dispersion Modeling System ("EDMS") used to develop airport emission inventories. The Supplement calculated emissions and concentrations resulting from Alternative D with both the old model version, EDMS 3.2, and with the new version, EDMS 4.11, for the year 2015. From these model runs for Alternative D, the Supplement developed ratios between the predicted emissions for each criteria pollutant. Rather than running the updated model version for the baseline, the Supplement used these ratios to develop revised baseline (1997) emissions and to quantify year 2000 emissions. The Supplement also applied this ratio method to estimate impacts

for Alternatives A through C and the NA/NP Alternative, previously analyzed using EDMS 3.2 in the Draft EIS/EIR. (Supplement, pp. 4-357/358 and Supplement Appx. S-E⁴, p. 4.)

As discussed in the following, this approach is scientifically flawed, does not yield comparable emissions data for the alternatives, and is therefore unacceptable. Compared to the old version, EDSM 3.2, the updated version EDSM 4.11 incorporates several technical changes that affect modeled emissions inventories including an updated emission factor database for aircraft; updated ground support equipment emission factors based on model year, power output, and fuel type; additional assessment of emissions from aircraft landing roll time-in-mode; inclusion of aircraft flight profile to model dispersion after takeoff and on approach; use of the most current dispersion modeling methods; and an improved characterization of aircraft plume dispersion behavior. (Supplement Appx. S-E, pp. 3/4 and 15/16.)

Obviously, differences among the alternatives in the annual number of aircraft, the fleet-mix, etc., will affect the results of modeled emissions and ambient concentrations. The evaluated alternatives are based on greatly differing airport capacities and/or regional distributions and, thus, the corresponding annual number of aircraft and fleet mix are substantially different. For example, the modeling for the NA/NP alternative and Alternative D assume a much lower number of annual aircraft operations (~780,000 flights/year) than either Alternatives A and B (~935,000 flights/year). (Supplement, p. 3-14.) Thus, using a constant ratio to adjust emissions for all alternatives would result in errors in emissions and invalidate the inter-alternative comparisons using this methodology. Consequently, emissions from all alternatives need to be remodeled using EDSM 4.11.

Further, while the Supplement states that ratios were developed for each criteria pollutant in year 2015 for Alternative D, these ratios are nowhere to be found in either the Supplement, the Supplement's extensive Technical Report⁵ ("TRS-4"), or its appendices. (Supplement, pp. 4-357/358 and Supplement Appx. S-E, pp. 3/4.) The Supplement also does not provide the modeling input/output files from the two EDSM versions, which supposedly form the basis for the calculation of these ratios. Clearly, the information provided in the Supplement is deficient and inadequate to verify any calculations.

⁴ LAX Master Plan Supplement to the Draft Environmental Impact Statement/Environmental Impact Report, Appendix S-E: Supplemental Air Quality Impact Analysis, June 2003.

⁵ LAX Master Plan Supplement to the Draft Environmental Impact Statement/Environmental Impact Report, Technical Report S-4: Air Quality, Attachment N: Incremental Emissions by Alternative and Year, July 2003.

Finally, the ratios between unmitigated operational emissions in the Draft EIS/EIR, Table 4.6-8 and the Supplement, Table S4.6-9, are not constant, nor even nearly so. For example, the ratios for VOC, SO₂, and PM₁₀ between the baseline and the NA/N Alternative, the baseline and Alternatives A through C, are drastically different. For VOC and SO₂ they are further different between the horizon years for each alternative. The ratios for PM₁₀ between the horizon years remain constant, however, they are different for the baseline, the NA/NP alternative and the Alternatives A through C. (See Table 1, attached to this document.) In a word, with the exception of the CO and NO_x ratio, it appears that none of the ratios for the other pollutants was applied consistently to derive operational emissions for the alternatives and year combinations. The Supplement has not fully disclosed the procedure that it used to revise the emissions calculations. In addition, it appears that errors were made in revising the emissions with the ratio method. We are unable to check the Supplement's calculations because adequate information was not provided.

I.B Underlying Data Set Questionable

In addition to the ratio method being scientifically flawed, it is unclear from the description provided in the Supplement, Section 4.6.3.4, which dataset was used to update calculations. As we pointed out in our earlier comments on the Draft EIS/EIR, the 1996 environmental baseline emissions for all criteria pollutants reported in Tables 4.6-6 of the Draft EIS/EIR differ substantially from those reported in the corresponding Draft EIS/EIR Air Quality Technical Report ("TR4"), Attachment C, which supposedly provides the support for emission estimates. (2001 Fox Comments, II.A, pp. 7-8.) The emission estimates reported in the Draft EIS/EIR are 14% to 47% lower than those indicated in the TR4. The Supplement does not comment on these discrepancies, nor does it specify which dataset the updated calculations are based on.

The Supplement does not contain any information to resolve the noted discrepancies. Thus, there is no creditable support for the baseline emissions used to evaluate the significance of impacts under CEQA. These discrepancies should be resolved and the Supplement and supporting technical reports of the Draft EIS/EIR recirculated for public review.

II. AIR QUALITY IMPACT ANALYSIS IS INADEQUATE

II.A New PM₁₀ And PM_{2.5} Standards Not Acknowledged

The Supplement did not analyze PM_{2.5} impacts and evaluated PM₁₀ impacts against the existing PM₁₀ standard of 30 µg/m³. We previously

commented on the Draft EIS/EIR's failure to evaluate PM_{2.5} impacts. (2001 Fox Comment, III.D, pp. 18/19.) The Supplement declined to analyze PM_{2.5} impacts despite the fact that it was known during the preparation of this document that a PM_{2.5} standard would be established and a lower PM₁₀ standard of 20 µg/m³ would go in effect in summer 2003. In fact, the Supplement states in Footnote 5 to Table S4.6-3 and Footnote 9 to Table 4.6-12 that "[o]n June 20, 2002, CARB approved the recommendation to revise the PM₁₀ annual average standard to 20 µg/m³ and to establish an annual average standard for PM_{2.5} of 12 µg/m³" and continues "[t]hese standards will take effect upon final approval by the Office of Administrative Law, which is expected in summer 2003." (Supplement, pp. 4-363 and 4-374.)

In fact, the Office of Administrative Law ("OAL") approved the amendments to the regulations for the State Ambient Air Quality Standards ("CAAQS") for particulate matter ("PM") on Thursday, June 5, 2003, before the publication of the Supplement in July 2003. The new standards became effective on July 5, 2003.⁶ These new standards should have been used to determine the significance of impacts from the proposed Project alternatives. The Supplement, in the face of clearly acknowledged indications that the standards would become effective before an alternative would be selected, still declined to analyze PM_{2.5} impacts and continued to evaluate PM₁₀ impacts against the old standard.

The Supplement justifies this questionable approach by arguing that "[u]ntil USEPA issues guidance on the implementation of the PM_{2.5} ambient air quality standards, that agency has recommended that compliance with the PM₁₀ standards be considered as a surrogate for compliance with the PM_{2.5} standards, and the analysis in this document follows that guidance," citing 1997 U.S. Environmental Protection Agency ("U.S. EPA") guidance. (Supplement, p. 4-363 and footnote 116.) This guidance is irrelevant to the instant case for a large number of reasons.

First, the cited EPA guidance memo was intended as an interim guidance "for meeting new source review (NSR) requirements under the Clean Air Act (Act), including the permit programs for prevention of significant deterioration

⁶ California Air Resources Board, Ambient Air Quality Standards for Suspended Particulate Matter (PM) and Sulfates, Rulemaking To Consider Amendments To Regulations For The State Ambient Air Quality Standards For Suspended Particulate Matter (PM) And Sulfates, June 20, 2002 Hearing, <http://www.arb.ca.gov/regact/aaqspm/aaqspm.htm>; accessed October 27, 2003.

of air quality (PSD).” (U.S. EPA 10/97.)⁷ It was *not* intended to be used as guidance for CEQA or NEPA purposes.

Second, the guidance was intended to be valid until the “significant technical difficulties that now exist with respect to PM_{2.5} monitoring, emissions estimation, and modeling” were resolved. Some of these issues were never applicable to CEQA or NEPA review. Further, since publication of the guidance memo in 1997, most of these technical difficulties have been addressed. A large body of information has been developed, incorporated into methodologies, and tested in practice since publication of the guidance memo six years ago.⁸ For example, a nationwide monitoring network for PM_{2.5} has been implemented. As of 2001, a total of 82 twenty-four-hour mass monitors and 21 continuous mass monitors (“CMM”) had been deployed and 15 new CMM sites were planned.⁹

Third, there are two sets of standards, federal and state. The cited EPA guidance does not apply to state standards, which were adopted before the Supplement was released.

Fourth, PM₁₀ and PM_{2.5} are separate and distinguishable pollutants with separate and distinguishable effects, including serious health effects. To address this issue, the U.S. EPA in 1997 promulgated a new national ambient air quality standard for PM_{2.5} of 15 µg/m³ annual average. (62 FR 38652¹⁰.) The ambient air quality standards for PM_{2.5} are much lower than for PM₁₀. By using the higher PM₁₀ ambient air quality standards, the Supplement has substantially underestimated the impacts of all alternatives.

Finally, essentially 100% of the Project’s operational emissions originate from combustion sources, *e.g.*, aircraft, ground support equipment, passenger cars. The major fraction of the particulate matter emissions from combustion sources is typically smaller than 2.5 microns in size, *i.e.* PM_{2.5}, rather than PM₁₀. For example, the PM_{2.5} fraction of particulate matter emissions is 92% for diesel

⁷ U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Interim Implementation of New Source Review Requirements for PM_{2.5}, Memorandum from John S. Seitz, Director Office of Air Quality Planning and Standards, October 21, 1997.

⁸ See U.S. Environmental Protection Agency, Technology Transfer Network, Ambient Monitoring Technology Information Center, PM 2.5 Monitoring Information, <http://www.epa.gov/ttn/amtic/amticpm.html>, accessed October 28, 2003.

⁹ California Environmental Protection Agency, Air Resources Board, 2001 California PM_{2.5} Monitoring Network Description, August 2001; <http://www.arb.ca.gov/aqd/pm25/pmfnet01.htm>, accessed October 28, 2003.

¹⁰ National Ambient Air Quality Standards for Particulate Matter: Final Rule, Federal Register, v. 62, no. 138, July 18, 1997.

vehicle exhaust, 93% for gasoline vehicle with catalysts exhaust, and 99% for aircraft exhaust. The PM_{2.5} fraction of particulate matter emissions from stationary internal combustion engines firing gasoline or diesel, *e.g.*, heaters, typically range from 87% to 99%.¹¹ Thus, well over 90% of the operational particulate matter emissions from the Project are PM_{2.5}. PM₁₀ standards are therefore an inadequate substitute for evaluation of compliance with PM_{2.5} standards. PM_{2.5} must be properly analyzed, and standards appropriate to this more prevalent pollutant should be used, to assure that the adverse environmental and health impacts of PM_{2.5} emissions are properly disclosed.

II.B The Air Quality Analysis Is Piecemealed

The Supplement used EDMS to convert the emissions into projected ambient air quality concentrations. These were compared to ambient air quality standards to determine if the various alternatives would cause new violations of or significantly contribute to existing violations of ambient air quality standards. The resulting ambient concentrations for unmitigated emissions are included in Table S4.6-12 and their significance summarized in Tables S4.6-15 and S4.6-17. The resulting ambient concentrations for mitigated emissions are included in Table S4.6-22 and their significance summarized in Tables S4.6-24 and S4.6-26.

Inspection of these tables indicates that the Supplement, and the Draft EIS/EIR as a whole, has improperly piecemealed the air quality analysis. The tables that report significance report it separately for modeled ambient air concentrations resulting (a) from on-airport operational plus construction emissions and (b) from off-airport operational emissions. This is an impermissible approach. Pollutant concentrations and their significance should be reported for the Project as a whole, to disclose the cumulative effects of on-airport, off-airport, and construction emissions.

The Supplement, and the Draft EIS/EIR, should have evaluated ambient air concentrations resulting from the combined emissions of the Project, *i.e.* on-airport operations plus off-airport operations plus construction, for every single year for every alternative. In other words, emissions from on-airport and off-airport operations plus the construction emissions should have been modeled for every year of the Project. The off-airport emissions cannot be separately modeled from the operational emissions, as they occur simultaneously and affect the ambient air quality.

¹¹ California Air Resource Board (CARB), Determination of Particle Size Distribution and Chemical Composition of Particulate Matter from Selected Sources in California, NTIS Report PB89-232805, June 30, 1989, Figure 5.2-2.

By failing to do this, the Supplement, and Draft EIS/EIR have failed to disclose the full impacts of the Project. Further, had all parts of the Project been combined into a single analysis, the air quality impacts would have likely been much higher than disclosed in the Supplement.

II.C Future Background Concentrations Are Invalid

The standard approach to evaluating air quality impacts uses dispersion models to convert project emissions into increases in ambient concentrations of each pollutant. These incremental concentrations are then added to background ambient concentrations to estimate ambient concentrations after the project is built. These projections are then compared with ambient air quality standards to determine if the project would cause a significant air quality impact.

It is standard practice to use the maximum measured existing ambient concentration at the nearest monitoring station as the background in these calculations. The Draft EIS/EIR and Supplement, however, deviate substantially from the accepted approach and estimate future background concentrations using a linear rollback approach. This approach was used in the 1997 AQMP for a different purpose to determine if the proposed region-wide controls would bring the basin into compliance with standards. (Draft EIS/EIR, Appx. G¹², p. 45.) This approach assumes that changes in emissions will change ambient air concentrations proportionally. We previously commented on the inappropriate use of this methodology in the Draft EIS/EIR, noting that it resulted in very substantial reductions in future background concentrations that hide significant ambient air quality impacts. In particular, it reduces the background carbon monoxide ("CO") concentration by nearly a factor of two and hides what would otherwise, using a standard and more accurate analysis, be identified as violations of ambient air quality standards on CO. (2001 Fox Comments, II.B, pp. 8/9.)

In fact, the CEQA Guidelines published by the South Coast Air Quality Management District ("SCAQMD") contain a section on developing EIR baseline information, which clearly states that "[m]onitoring station data should be used to provide background concentration levels of criteria pollutants." (SCAQMD CEQA Guidelines 04/93¹³, p. 8-2) Also, SCAQMD recently published a methodology which is intended as assistance for other public agencies in using the mass daily significance thresholds for construction and operation published

¹² LAX Master Plan Supplement to the Draft Environmental Impact Statement/Environmental Impact Report, Appendix G: Air Quality Impact Analysis, June 2003.

¹³ South Coast Air Quality Management District, CEQA Air Quality Handbook, April 1993.

in the District's 1993 CEQA Air Quality Handbook. (SCAQMD 06/03¹⁴.) These significance thresholds are used to determine a project's significant adverse regional effects on air quality when preparing an air quality analysis for CEQA or NEPA analyses. The methodology is based on the use of the peak measured existing ambient concentration at the nearest monitoring station over a period of three years to determine whether or not construction activities create significant adverse localized air quality impacts. While this methodology is intended for projects smaller than 5 acres, it nonetheless demonstrates SCAQMD's standard practice of using the peak ambient concentration of a pollutant at the nearest monitoring station as the background concentration for modeling.

We further note that the future background concentrations of CO used in the Supplement are inconsistent with the SCAQMD estimate of average annual day CO emissions for the South Coast air basin and projected future 1-hour and 8-hour CO concentrations. (SCAQMD Table 1 through 3¹⁵.) SCAQMD Table 1 indicates that CO emissions are projected to decrease by 24% between the year 2000 and the year 2020. SCAQMD Table 2 indicates that 1-hour CO concentrations in Los Angeles are projected to decrease by 24%. SCAQMD Table 3 indicates that 8-hour CO concentrations in Los Angeles are projected to decrease by 22% to 24%. In comparison, the air quality analyses in the Supplement assume the year 2015 8-hour CO background concentration would decrease from 9.4 ppm in the year 2000 (Supplement, Table S4.6-5) to 3.4 ppm in the year 2015 (Supplement, Table S4.6-2) or by 64%. Similarly, the Supplement assumes the year 2000 1-hour CO background concentration would decrease from 11 ppm in the year 2000 to 4.2 ppm in the year 2015, or by 61%. Thus, the Supplement has underestimated ambient CO impacts by using an anomalously low future background concentration.

III. CONSTRUCTION EMISSIONS ESTIMATES ARE FLAWED

The Supplement presents a revised construction impact analysis, which results in substantially lower construction emissions and ambient impacts. The main text of the Supplement, Section 4.6, does not alert the reader to this substantial reduction. It must be discovered, for example, by comparing Table 4.6-10 in the Draft EIS/EIR with Table S4.6-11 in the Supplement. The Supplement provides no explanation or justification for the dramatic decrease in CO, volatile organic compounds ("VOC"), sulfur oxides ("SOx"), and PM10 and increase in nitrogen oxides ("NOx) emissions in the Supplement, compared to

¹⁴ South Coast Air Quality Management District, Draft Localized Significance Threshold Methodology, June 19, 2003; <http://www.scaqmd.gov/ceqa/hdbk.html>, accessed October 28, 2003.

¹⁵ See www.aqmd.gov/ceqa/hdbk.html, CO Concentrations, Tables 1-3, accessed October 28, 2003.

the Draft EIS/EIR. As detailed below, even though we have not yet received the data needed to review the modeling, there is ample reason to suspect that the construction emission estimates are flawed and fail to disclose the impacts of the proposed construction.

III.A Construction Emissions Estimates Are Unsupported

The Supplement contains no support for the new construction emission estimates beyond a few conclusory and summary paragraphs in Appendix S-E, Section 2.1.2. Hundreds of individual factors and assumptions go into a construction emission estimate. Construction exhaust emissions are estimated from an inventory of equipment that will be deployed as a function of time. This is referred to as activity data. For each piece of equipment, *e.g.*, loader or scraper, an emission factor in grams per brake horsepower hour (“bhp-hr”), equipment size in horsepower, a load factor, a usage factor, and fuel type must be specified. Construction fugitive dust emissions are typically estimated from disturbed area, control efficiencies, and emission factors in pounds per acre (“lb/acre”) disturbed per unit time. This information should be provided in a comprehensive and complete manner; it has not been.

The new analysis of the Supplement employs the same ratio method used in the Draft EIS/EIR to calculate emissions from construction equipment, and a new model, CARB’s OFFROAD Model, to estimate construction emissions. (Supplement, Appx. S-E, p. 3.) First, emission factors for off-road construction equipment were revised based on CARB’s OFFROAD model and emission factors for on-road equipment were revised based on CARB’s EMFAC 2002 model. Alternatives C and D were then analyzed using the updated emission factors. The ratio of old Alternative C emissions to new Alternative C emissions was then calculated and used to adjust old Alternatives A and B emissions to the new basis. (Supplement, Appx. S-E, p. 3.) Specifically, “[c]onstruction duration and activity levels were developed for Alternative C. Construction emission estimates for Alternatives A and B were based on ratios of construction areas for Alternatives A and B to those areas for Alternative C. (Draft EIS/EIR, Appx. G, p. 4.)

None of this information is provided in a comprehensive manner in the documents, and some critical information has been omitted. For example, nowhere in the air quality section can the above quoted “ratio of construction areas” or even the construction areas themselves be found. When information is provided, it is scattered throughout various documents, *i.e.* the Draft EIS/EIR, the Supplement, and their various technical appendices and technical reports. Because no comprehensive overview is provided regarding where the various pieces to the analysis can be found, the reader can only piece together the

information gleaned from the various documents with painstaking detective work. Some of the information is mislabeled and, consequently hard to find. For example, construction activity data used to develop the construction emissions inventory for Alternative D is presented in Attachment C to Technical Report S-4 of the Draft EIS/EIR instead of in Attachment D as claimed by the Supplement. (Supplement, Appx. S-E, p. 2.) Further, some of the information provided in appendices is illegible due to poor scanning and reproduction. See, for example, the "Resource Calculations (Truck Trips)" in Appendix E to TR4 of the Draft EIS/EIR.

This combination of errors, omissions, illegible documents, and the lack of a clear methodology description makes it impossible to comprehensively review and comment on the construction emissions and related air quality impact analysis. El Segundo has requested supporting calculations and data files from LAWA and FAA, but we have not received the necessary information in time to utilize them in our comments.

III.B Ultra-low Sulfur Diesel Not Required As Mitigation

The Supplement claims that SO_x emissions were estimated from sulfur limits set by SCAQMD Rule 431.2¹⁶, which requires that all liquid fuels sold in the SCAQMD district are low sulfur fuels that contain no more than 500 parts per million by weight ("ppmw") sulfur through June 1, 2006 and 15 ppmw thereafter. However, low sulfur fuel is more expensive than high sulfur fuel. Thus, there is an economic incentive for contractors to import less expensive high sulfur fuel from outside of the SCAQMD, *e.g.*, from Nevada, unless a mitigation measure for the Project specifically requires the use of low sulfur fuel with the sulfur contents assumed in the construction emission calculations. The proposed mitigation measures, however, do not require the use of low sulfur fuel in construction equipment. (Supplement, Table S4.6-18.) In fact, one of the construction mitigation measures contemplates the use of Lubrizol fuel (PuriNO_xTM), which is an alternative diesel formulation blended from 500 ppmw diesel. Thus, there is no assurance that low sulfur fuel would be used for Project construction.

Further, the Supplement quoted January 1, 2005 as the effective date for the reduction of fuel sulfur content to 15 ppmw sulfur. In fact, the effective date has been extended to match a later compliance date adopted by the California Air Resources Board, *i.e.* no later than June 1, 2006, which is also applicable to refiners and importers in the South Coast District. Thus, 500 ppmw sulfur diesel

¹⁶ South Coast Air Quality Management District, Rule 431.2. Sulfur Content of Liquid Fuels, Amended September 15, 2000.

will be locally available for another 18 months for construction activities. The DEIS/EIR and Supplement assume that construction emissions for Alternatives A through C and the NA/NP alternative would peak in 2004 and for Alternative D in 2005. Thus, by assuming the effective date for the reduction of diesel fuel sulfur content to 15 ppmw to be January 1, 2005, construction emissions for Alternative D will be substantially underestimated, because the use of ultra-low sulfur diesel will not be mandated for another 18 months beyond the assumed date. Only during the later phases of construction will ultra-low (15 ppmw) sulfur diesel be the only fuel available in California. However, this also does not preclude construction companies to import diesel with higher sulfur content from Nevada, which has no such regulation.

The construction SO_x emissions should be revised to use higher sulfur fuel, or the mitigation measures expanded to specifically require the use of ultra-low sulfur fuel, meeting the 500 ppmw and 15 ppmw limits assumed in the emission calculations.

We also note that ultra-low sulfur diesel fuel is currently available within the South Coast. SO_x emissions from Alternatives A, B, and C remain significant after mitigation. (Supplement, Table S4.6-23.) Thus, all feasible SO_x mitigation is required. It is feasible to use only ultra-low sulfur diesel (15 ppmw) for Project construction. Thus, the list of construction mitigation measures in Table S4.6-18 should be expanded to require the use of only ultra-low sulfur diesel fuel.

III.C Assumed Fugitive Dust Control Efficiency For Watering Not Revealed

The Draft EIS/EIR proposed watering as a mitigation measure for dust control. (Draft EIS/EIR, Table 4.6-16.) We previously commented that SCAQMD Rule 403 requires implementation of best available dust suppression control measures and thus the proposed project cannot claim credit for this measure as mitigation. (2001 Fox Comments, IV.A, pp. 21-22.) In response, the Supplement removed this measure from the list of required mitigation measures, listed it as an applicable requirement (Supplement, p. 4-364), and estimated fugitive dust PM₁₀ emissions assuming "water is applied to control dust, as required by SCAQMD Rule 403." (Supplement, Appx. S-E, p. 2.)

However, watering is not the only dust control measure required in SCAQMD Rule 403. It is unclear whether only watering is assumed in the emission calculations, or the complete list of mitigation measures required by SCAQMD Rule 403. We presume the former for purposes of these comments because other requirements of SCAQMD Rule 403, *e.g.*, use of soil stabilizers, are still listed as mitigation in Table S4.6-18. (*See* Comment V.B.4.)

The Draft EIS/EIR assumed that watering would reduce PM10 by 90% to 95%. (Draft EIR/EIS, Table 4.6-16, p. 4-516.) This control range is unrealistic. If the Supplement likewise assumed 90% to 95% control, it has substantially underestimated both unmitigated and mitigated fugitive PM10 emissions. Typical control efficiencies of watering at construction sites have been estimated at 50%.¹⁷ For example, the SCAQMD in its CEQA Guidelines for dust control during grading assumes control efficiency ranges for watering from 34 to 68% during grading and 45 to 85% for unpaved roads, parking areas, and staging areas. (SCAQMD 04/93,¹⁸ Table 11-4.)

The Supplement does not indicate how much water would be applied, or, alternatively, establish any criteria, such as opacity limits, to assure that dust is effectively controlled. Large amounts of water would be required for dust control. This would potentially result in significant water impacts that have not been identified or evaluated. Further, even if large amounts of water are applied, it is not possible to achieve high control efficiencies using only water on these types of soil.

Thus, it is not clear that the (undisclosed) assumption as to fugitive dust control efficiency would actually achieve the assumed control efficiency. The Supplement is silent on mitigation effectiveness and the methods that would be used to monitor the implementation and effectiveness of the assumed, but not disclosed, control effectiveness. The Supplement should be revised to include the fugitive dust calculations and all assumptions used in preparing them, most notably, the dust control efficiency, watering frequency, and amount of applied water. The assumptions that fugitive dust calculations were based on should be stated in the Supplement, required as conditions of Project approval, and noted directly on all final construction drawings.

III.D Emission Reductions Not Supported

The Supplement estimates reductions in construction emissions that would be achieved for the peak year. (Supplement, Table S4.6-18.) However, the Supplement is silent on how these reductions were estimated. They appear to be inconsistent with the mitigation measures that are proposed.

¹⁷ PEDCo Environmental Specialists, Investigations of Fugitive Dust Sources - Emissions and Control. Prepared for the Environmental Protection Agency, OAQPS, Contract No. 68-02-044, May 1977.

¹⁸ South Coast Air Quality Management District ("SCAQMD"), CEQA Air Quality Handbook, April 1993.

III.D.1 NOx Reductions

The Supplement assumes that the proposed mitigation measures would reduce 300 to 1,100 ton/yr of NOx. (Supplement, Table S4.6-18.) This amounts to 22% of the total NOx from construction activities.¹⁹ However, only one of the proposed mitigation measures, a requirement to specify a combination of construction equipment using “cleaner burning diesel” fuel and exhaust emission controls, would reliably reduce NOx emissions. The various controls included in this measure – catalytic oxidizers, particulate traps, exhaust gas circulation, alternate fuel – are not capable of achieving a fleet-wide 22% NOx reduction, even if every single measure were required on every single piece of construction equipment.

This is an important issue because the air quality analysis in Table S4.6-22 indicates that the mitigated, combined operational and construction air pollutant ambient concentrations for annual average NOx in 2015 are very close to the significance threshold of 0.053 ug/m³. If construction NOx emissions were substantially higher than claimed, and we believe they likely are, the Project would result in new, unidentified violations of the annual average NO₂ ambient air quality standard for all alternatives in 2015.

Catalytic oxidizers remove VOCs and CO, not NOx. Particulate traps remove PM10, not NOx. Lubrizol fuel, which is presumably PuriNOx™, the only alternative Lubrizol fuel we are aware of, does remove NOx. However, it was verified by CARB on January 31, 2001²⁰ as achieving only a 14% reduction in NOx compared to CARB diesel. Thus, even if it were used in 100% of the diesel-fueled construction equipment, it would remove less than 14% of the overall NOx emissions because a portion of the construction emissions are from gasoline-fueled construction vehicles, delivery trucks, and commuting workers who predominately drive gasoline-fueled vehicles.

Finally, the Supplement proposes the use of diesel engines with exhaust gas recirculation (“EGR”) for NOx control. (Supplement, Table S4.6-18.) However, EGR-equipped, diesel-fueled, off-road construction equipment is not commercially available. EGR retrofit systems are being introduced, but thus far, only for on-road trucks. Currently, a large number of diesel passenger cars use EGR under some operating conditions (low speeds and low loads).

¹⁹ Estimated as [(Table S4.6-21 emissions) - (Table S4.6-11 emissions)]/(Table S4.6-11 emissions).

²⁰ Letter from Dean C. Simeroth, Chief, Criteria Pollutants Branch, to Thomas J. Sheahan, Lubrizol, January 31, 2001.

(Guibet 1999²¹.) There are also several hundred systems operating on Volvo and Cummins on-road engines in Europe and Asia and several demonstrations are under way in the U.S. (MECA 01/03²².) EGR works well for highway trucks because they have a constant supply of air as they move down the road but off-road equipment does not. Thus, enhanced fuel delivery, *i.e.* electronic injection, is more feasible for off-road applications such as construction equipment, because of their duty cycle. We are not aware that this technology is commercially available for the type of equipment that would be used to construct the Project.

Further, EGR technology results in secondary impacts that were not addressed in the Supplement. EGR can cause increases in particulate emissions and is a potential source of deposits in the intake system and in the combustion chamber of diesel engines. Thus, the large-scale use of EGR for construction of this project cannot occur without the use of detergent additives. See, for example, discussion in Guibet 1999 at page 463.

The majority of the other mitigation measures in Table S4.6-18 would only reduce fugitive PM10, not construction NOx exhaust emissions. The only other mitigation measure that would reduce NOx is the use of electricity from power poles rather than diesel-powered generators. Emissions from these generators are a tiny fraction of construction NOx emissions, less than 1% of the total construction NOx emissions, and even so the Supplement concedes that it cannot succeed in eliminating these emissions ("cannot completely eliminate need for portable generators"). (Supplement, Table S4.6-18, p. 4-389.) The proposed mitigation fails to specify either a specific fraction of electrical demand that would be power pole versus diesel-generator or any specific percent reduction in NOx for the diesel-powered portion of the electrical demand.

Thus, it is not clear how the Supplement proposes to achieve the 22% reduction in NOx emissions assumed in the mitigated construction emission analysis in Section 4.6.8.5. The assumed 22% is unsupported and unrealistic and results in the understating of impacts.

²¹ J.C. Guibet and E. Faure-Birchem, *Fuels and Engines: Technology, Energy, Environment*, Editions TECHNIP, Paris, France, 1999.

²² Manufacturers of Emission Controls Association, *Retrofit Emission Control Technologies for On- and Off-Road Diesel Engines*, January 16-17, 2003.

III.D.2 CO and VOC Reductions

The mitigated construction emissions assume that only 2 to 3% of the CO and 2 to 6% of the VOCs emissions would be reduced by the proposed mitigation program.²³ This is inconsistent with the post-combustion control mitigation measure, which includes the use of catalytic oxidizers, unless the Supplement has assumed that catalytic oxidizers would only be used on a very few pieces of equipment.

Catalytic oxidizers can remove up to 90% of both the CO and VOC. (MECA 01/03.) Catalytic oxidizers can be used on virtually all equipment that will be used to construct the Project. However, the Supplement has apparently assumed that only about 2 to 3% of the equipment would use catalytic oxidizers. The Supplement should be revised to require the use of catalytic oxidizers on all equipment, where feasible. A registered professional engineer should be required to certify that the use of an oxidizer is infeasible, where claimed.

IV. OPERATIONAL EMISSIONS ESTIMATES ARE FLAWED

The operational air quality impact analysis suffers from a number of problems including the overestimate of the baseline (*see* Comment I.A), the use of the wrong baseline (*see* Comment II.C), overestimates of control efficiencies that can be achieved with implementation of mitigation measures (*see* Comments III.D, IV.A, and IV.B), and substantially underestimates off-airport emissions because traffic assumptions are seriously flawed (*see* Comment IV.C).

We suspect that the combination of these factors resulted in substantial underestimates of mitigated incremental emissions from on-and off-airport operations. The Supplement now concludes that in 2015 NO₂ and SO₂ ambient air quality concentrations for all alternatives and CO for Alternatives A, B, and C would be less-than-significant. (Supplement S4.6-26.) Had the Supplement used more realistic assumptions for traffic emissions and mitigation control efficiencies and compared the incremental operational emissions to the correct baseline emissions, more air quality impacts would likely be significant after implementation of the proposed mitigation.

IV.A Claimed Emissions Reductions Are Flawed And Unsupported

We previously commented that many of the estimated emissions reductions were unsupported in the record and demonstrated this lack of data

²³ Estimated as [(Table S4.6-21 emissions) - (Table S4.6-11 emissions)]/(Table S4.6-11 emissions).

for the conversion of ground support equipment ("GSE") to electric power. However, as we pointed out, all other mitigation measures had similar problems. (2001 Fox Comment, II.D, p. 11/12.) The Supplement contains very limited additional information to address these problems.

For example, the Supplement added two short paragraphs on the conversion of GSE and proposes "the virtual elimination of GSE emissions" beyond the "requirements of the memorandum of understanding ("MOU") with CARB" through "incentives and tenant lease requirements." (Supplement, TRS-4, Appx. SE, p. 40.) The Supplement does not specify what these incentives and lease requirements would be, when they would be implemented, and how many vehicles they would affect.

Presumably, the assumptions that went into estimating the emission reductions attributable to the conversion of GSE to electric power have not changed, yet the range of potential emission reductions has changed considerably for most pollutants. The Draft EIS/EIR previously reported ranges of potential emissions reductions in 2015 of 250–450 tons per year ("ton/year") for NO_x, 100–130 ton/year for VOC, and 2000–2500 ton/year for CO. The Supplement now reports 400–600 ton/year for NO_x, 1600–1900 ton/year for VOC, and 2300–2800 ton/year for CO. (Draft EIS/EIR, p. 4-514; Supplement, p. 4-389.) The Supplement fails to provide an explanation what caused these considerable differences or why the proportion of potential emission reduction between the pollutants has changed so drastically. Further, it is unclear which end of the control range was applied to calculate the mitigated emissions.

An EIR must be transparent enough to allow a subject matter expert to evaluate the accuracy of its estimates. The Supplement is silent on the assumptions that went into these calculations. Thus, the air quality analysis is entirely inadequate and must be revised.

IV.B ITC Emissions Reductions Are Overestimated For Alternative D And Not Applicable To Alternatives A Through C

The Supplement claims that substantial emission reductions can be achieved through the construction of five additional intermodal transportation centers ("ITCs"), so-called "flyaways." The Supplement further maintains that each of these ITCs would reduce traffic – and associated air emissions – by 750,000 vehicle round trips per year. (Supplement, TRS-4, Appx. S-E, p. 40.) The Supplement further claims that this mitigation measure is applicable to and proposed for all four alternatives and specifically lists the measure as "quantifiable." (TRS-4, Appx. S-E, p. 40.)

However, review of the description of alternatives shows that no such ITCs are planned for Alternatives A, B, and C and only one ITC is planned for Alternative D. (Draft Master Plan²⁴, Chapter 3 and DMPA, Section 2.2.) Obviously, the Supplement can only claim emission reduction credits for mitigation measures that will be implemented, not for some hypothetically feasible measures, yet it appears that the Supplement has applied the control efficiency of this measure to all four alternatives. (TRS-4, Appx. S-E, p. 44.)

The Supplement estimates potential emissions reductions from ITCs of 80-100 ton/year NO_x, 50-60 ton/year VOCs, 1000-1200 ton/year CO, 1-2 ton/year SO₂, and 15-20 ton/year PM₁₀. (Supplement, p. 4-392.) The Supplement does not provide information on how the annual reduction of 750,000 vehicle round trips per ITC was derived, nor how these round trips were converted to emissions.

Application of these potential emission reductions to unmitigated traffic emissions results in substantially underestimated mitigated emissions and resulting modeled ambient air quality concentrations from on-airport and off-airport traffic for all alternatives. The measure should not have been applied to Alternatives A through C at all, and only one fifth of these potential emissions reductions should have been applied to Alternative D, as only one ITC will be built and not five. This would have substantially increased emissions for all criteria pollutants and likely resulted in more significant ambient air quality impacts than were found by the Supplement.

IV.C Traffic Emissions Are Underestimated

The air quality analysis includes estimates of on-airport and off-airport operational emissions associated with traffic based on the number of vehicle trips associated with airport operations. Review of both the Draft EIS/EIR's and the Supplement's traffic analyses reveals that LAWA substantially underestimated traffic associated with all alternatives. (See comments by Tom Brohard and Associates, Attachment B to September 18, 2001 El Segundo comment letter, and Attachment 2 to the current comment letter.) Thus, LAWA has also underestimated operational emissions associated with traffic.

V. PROPOSED MITIGATION PROGRAM IS INADEQUATE

The construction and operational air quality mitigation program proposed in the Supplement are inadequate because the measures are not enforceable, the

²⁴ LAX Draft Master Plan, November 10, 2000.

proposed measures would reduce very little of the emissions, and all feasible mitigation measures have not been identified. The descriptions of the mitigation measures in the Supplement are too general to assure that they will actually be implemented. Enforceability is normally achieved by including mitigation measures in the requests for bids and resulting construction contracts, posting bonds, drawing up legal agreements, or recording conditions of approval on property titles or in agency permits. None of the proposed mitigation measures include any legally binding commitments or methods to ensure implementation and enforcement.

The study area is classified as nonattainment for three National Ambient Air Quality Standards ("NAAQS"): ozone, CO, and PM10. Further, the study area is classified by EPA as "extreme" nonattainment for ozone under the Federal Clean Air Act. Because of the air basin's nonattainment status, it is particularly important to reduce emissions of these nonattainment pollutants to the greatest extent feasible. The Draft EIS/EIR and the Supplement do not reduce operational or construction emissions to the greatest extent feasible.

V.A Mitigation Measures Are Not Enforceable

In our previous comments on the Draft EIS/EIR, we pointed out that several of the proposed mitigation measures were not enforceable. The same comment is valid for the numerous additional mitigation measures proposed by the Supplement.

First, many measures do not include specific performance standards that would allow these measures to be implemented, let alone allow their effectiveness to be evaluated. Three of the proposed operational mitigation measures would only "encourage" or "promote" participation, *viz.*, the LAWA telecommuting program, the LAWA carpool and rideshare program, and the promotion of alternative-fueled vehicles or SULEV/ZEV engines in commercial and rental vehicles.

Second, none of the proposed measures quantify the number of units that would be involved, the time frame over which the action would occur, nor describe the proposed measure with enough specificity to allow it to be implemented, let alone reviewed by the public or enforced if eventually adopted. The measures only require generic "acceleration," "promotion," "conversion," and "implementation." For example, the first operational measure proposes the conversion of GSE to electric power. The comment associated with this measure requires LAWA to [a]ccelerate full conversion, beyond the requirements of the GSE MOU" and to "provide incentives or tenant lease requirements." The range of potential emission reductions assumed for this measure is considerable yet the

Supplement fails to describe what kind of incentives or requirements should bring about these reductions that are not already included in CARB's GSE MOU, nor in what timeframe these incentives are supposed to be implemented, or what the term "acceleration" constitutes. (See Comment V.D.)

To be enforceable, the mitigation measures must be quantifiable. Thus, the description of a measure must specifically state what the performance goal is, when it would be provided, and how compliance would be verified.

V.B The Proposed Construction Mitigation Is Inadequate

The construction mitigation program has been expanded to include 18 mitigation measures. (Supplement, Table S4.6-18.) However, many of the measures that are listed are too general to review, let alone implement. Further, many of them are not enforceable as a practical matter as the measures as drafted do not include any emission reduction targets or any means of assuring compliance. Some of the more egregious examples are discussed below. However, all of the measures listed in the Supplement should be expanded to include emission reduction targets that can be quantified, compliance procedures, and recordkeeping and reporting provisions.

V.B.1 Construction Equipment Controls

The first listed construction mitigation measure in Table S4.6-18 would "[s]pecify combination of construction equipment using "cleaner burning diesel fuel" and exhaust emission controls." The comments to the table indicate that these mitigation measure "[o]ptions include: diesel engines with catalytic oxidizers (CO, VOC), diesel engines with particulate traps (PM), diesel engines with particulate traps (PM), diesel engines with exhaust gas circulation (NOx), diesel engine with Lubrizol fuel + catalytic oxidizer (PM, CO, VOC, NOx)."

This description is too general to evaluate. The construction activity data for Alternatives A through C in the Draft EIS/EIR in TR4 and for Alternative D in the Supplement, TRS-4 indicate that a large number of different types of equipment will be used. Efficacy of this mitigation measure and emission reductions that it can achieve can only be determined if one knows which specific measures from this list will actually be applied to which pieces of equipment in each alternative.

Clearly, the preparers of the Supplement made assumptions as to the particular mix of these controls that would be implemented for each option and control efficiencies for each in order to calculate emission reductions. The public cannot comment on the adequacy or efficacy of this measure without knowing

what particular mix of controls was assumed to derive the claimed emission reductions. Further, this measure cannot be implemented unless the specific mix of controls is clearly specified. The place to do this is in the Supplement. The total emission reductions for the entire construction mitigation program suggests that limited use is made of many of these options, while unrealistic control assumptions are made for others. (See Comment III.D.)

V.B.2 Generators

The second listed construction mitigation measure in Table S4.6-18 would “[s]pecify combination of electricity from power poles and portable diesel- or gasoline-fueled generators using ‘cleaner burning diesel’ fuel and exhaust emission controls.” The measure does not divulge the assumed mix of electric and diesel-fueled generators, specify any emission targets for the “cleaner burning diesel” fuel, identify the exhaust emission controls that would be used, or divulge the assumed emission reductions for the exhaust emission controls. Thus, the measure is not enforceable as a practical matter and cannot be reviewed by the public.

V.B.3 Off-Peak Hours

The third listed construction mitigation measure in Table S4.6-18 requires construction employees to “work” during off-peak hours. However, it is not clear what is meant by “off-peak hours.” This term is generally applied to traffic and emissions therefrom, not on-site construction “work” per se. Thus, this measure should be reworded to identify the peak hours and to require that construction workers travel to and from the site during off-peak traffic hours. If another meaning is intended, the measure should be expanded to clarify the intent and define “off-peak hours.”

V.A.4 Use Of Non-toxic Soil Stabilizers

The fourth and fifth listed construction mitigation measures in Table S4.6-18 require the use of non-toxic soil stabilizers in all inactive construction areas and on outdoor storage piles, respectively. (Supplement, p. 4-390.) A note to the table referring to these measures indicates that reductions in particulate emissions can be 90% to 95%. (Supplement, p. 4-392, note 4.) A comment applicable to this measure further states that an “[e]mission reduction credit for this measure would only account for control efficiency beyond that provided by watering required by SCAQMD Rule 403.” (Supplement, Table S4.6-18, p. 4-390, Comments column.)

However, the Supplement does not state what control efficiency was actually assumed in estimating emission reductions from this measure. It also does not state what baseline control efficiency was assumed from implementing SQAMD Rule 403. It further fails to mention to which portion of the construction emissions the emissions reduction is applied. Thus, it is impossible to evaluate the efficacy of this measure. The specific control efficiency assumed in the emission reduction calculations should be stated and required as part of the mitigation measure.

We note that 90% to 95% control for this measure is high and if assumed in the emission reduction calculations, reductions have been overestimated and actual air quality impacts understated. The SCAQMD CEQA Guidelines, for example, report a control range for the use of non-toxic soil stabilizers on inactive areas of 30 to 65% and on exposed storage piles with greater than 5% silt content of 30 to 74%. (SCAQMD 4/93, Table 11-4.)

V.B.5 SCAQMD Rule 403 Measures

The Project would qualify as a “large operation” under SCAQMD’s Rule 403. The requirements for large operations include implementation of mitigation measures in SQAMD Rule 403 Tables 1 and 2 for each source of fugitive dust *or* obtaining an approved fugitive dust emissions control plan. (SQAMD Rule 403(f).) The mitigation measures listed in the Supplement do not include obtaining a SQAMD Rule 403 Control Plan. Further, even if they did, the measures included in this plan should be set out in the Supplement for public review.

Two of the measures listed as mitigation measures in Supplement Table S4.6-18 are listed in SCAQMD Rule 403 Tables 1 and 2 and thus are regulatory requirements and cannot be treated as mitigation measures – applying dust suppression in sufficient quantity and frequency to maintain a stabilized surface to disturbed areas and active storage piles. These measures are comparable to SCAQMD Rule 403 measures 2a, 2b, and 2c in Table 2. Thus, they are not valid mitigation, but part of the baseline. We previously commented that SCAQMD Rule 403 requires implementation of best available dust suppression control measures and that soil stabilization and watering cannot be claimed as mitigation. (2001 Fox Comments, IV.A, pp. 21/22.) In response, the Supplement removed watering from the list of proposed mitigation measures but inexplicably left soil stabilization of inactive construction areas and of storage piles listed as mitigation measures. (Supplement, Appx. S-E, p. 2 and Supplement, p. 4-390.)

Further, SCAQMD Rule 403 requires certain additional mitigation that is not listed in Table S4.6-18 and was not mentioned as included in the unmitigated baseline calculations. These include the trackout provision of SCAQMD Rule 403(d)(5) and the best available control measures for high wind conditions in SCAQMD Rule 403, Table 1. The Supplement must be revised to clarify and documentation of the assumptions underlying the unmitigated baseline as well as the mitigated scenarios.

V.C All Feasible Construction Mitigation Not Required

The Supplement indicates that the revised mitigated construction emissions are significant for all alternatives and all pollutants in the interim year and in 2015, except for sulfur dioxide ("SO₂") in the interim year for Alternative D and SO₂ for all alternatives in 2015. (Supplement, Tables S4.6-23, S4.6-25.) The Supplement also indicates that these construction emissions would variously cause or contribute to violations of ambient air quality standards on CO, NO₂, and PM₁₀ in the interim and horizon year. (Supplement, Table S4.6-22.) Therefore, all feasible construction mitigation must be required for all pollutants. The Supplement has not required all feasible construction mitigation.

Mitigated construction emissions are substantially higher than significance thresholds, running into many hundreds of tons (for VOC, SO_x, PM₁₀) to many thousands of tons per year (NO_x) of pollutants. (Supplement, Table S4.6-21.) In spite of these huge emissions and the severe ozone and PM₁₀ nonattainment problems in the South Coast, this Project is proposing to mitigate only a small fraction of its emissions. The Supplement indicates that the proposed construction mitigation would reduce CO emissions by 2% to 3%; VOC emissions by 2% to 6%; NO_x emissions by 22%; SO_x emissions by 3%; and PM₁₀ emissions by 31%.²⁵ As discussed in Comment III.D.1, the claimed NO_x and PM₁₀ reductions appear to be unrealistic, given the proposed mitigation program.

These construction emissions for the Project are not included in the current State Implementation Plan ("SIP") and thus have not been considered by SCAQMD in its efforts to come into compliance with ambient air quality standards. (Draft EIS/EIR, pp. 4-476/478.) Because the South Coast is required by law to come into compliance with federal and state ambient air quality standards, these emissions must be reduced by somebody. Therefore, the Supplement by failing to propose adequate mitigation, in effect, has placed the burden on other parties to mitigate emissions from the expansion of LAX.

²⁵ Percentage reductions in emissions estimated from [(Table S4.6-21 emissions) - (Table S4.6-11 emissions)] / (Table S4.6-11 emissions).

We listed a large number of feasible construction mitigation measures in our comments on the Draft EIS/EIR. (2001 Fox Comments, IV.E, pp. 24-31.) Some of these were incorporated into the Supplement. However, many were not. The Supplement contains no explanation for its particular choice of construction mitigation measures from the list we proposed. Since our previous comments, a number of additional construction mitigation measures have been suggested and become feasible. Thus, we recommend that the Supplement be revised to require the additional feasible mitigation measures identified below. If these measures are not adopted, the Final EIS/EIR should explain with specificity why these measures are not feasible for this Project.

V.C.1 Fugitive Dust Mitigation Measures

The identification of the type and amount of construction mitigation for PM10 requires that the source of the emissions be separately calculated. However, the Supplement (and the Draft EIS/EIR) aggregate construction emissions, precluding meaningful analysis and evaluation. Thus, it is not possible to determine the amount of the total PM10 emissions that originate from fugitive dust sources (*e.g.*, wind blown dust, drop operations, earth moving) and the amount that originates from equipment exhaust. Hence, it is not possible to determine the amount of fugitive dust mitigation versus engine exhaust mitigation that is required.

However, typically, 80% to 90% of the PM10 emissions from a construction Project originate from fugitive sources. Thus, fugitive PM10 emissions remain highly significant after imposition of the mitigation measures in the Supplement. (Supplement, Table S4.6-21.) There are numerous additional feasible mitigation measures that should be required. We believe the implementation of the following measures could significantly reduce fugitive dust PM10 emissions and they should be required as mitigation for this project:²⁶

²⁶ The following acronyms are used in this listing of mitigation measures: ADEQ = Arizona Department of Environmental Quality; BCAQMD = Butte County Air Quality Management District; BAAQMD = Bay Area Air Quality Management District; CCHD = Clark County (Nevada) Health Department; MBUAPCD = Monterey Bay Unified Air Pollution Control District; SBCAPCD = Santa Barbara County Air Pollution Control District; SCAQMD = South Coast Air Quality Management District; SJVUAPCD = San Joaquin Valley Unified Air Pollution Control District; SLOCAPCD = San Luis Obispo County Air Pollution Control District; VCAPCD = Ventura County Air Pollution Control District. The mitigation measures from air pollution control agencies are taken from their respective CEQA guidelines. The references to these guidelines were provided in our previous comments. (*See* 2001 Fox Comments, IV.E.1, pp. 25 *ff.*)

- For backfilling during earthmoving operations, water backfill material or apply dust palliative to maintain material moisture or to form crust when not actively handling; cover or enclose backfill material when not actively handling; mix backfill soil with water prior to moving; dedicate water truck or large hose to backfilling equipment and apply water as needed; water to form crust on soil immediately following backfilling; and empty loader bucket slowly; minimize drop height from loader bucket. (CCHD)²⁷
- During clearing and grubbing, prewet surface soils where equipment will be operated; for areas without continuing construction, maintain live perennial vegetation and desert pavement; stabilize surface soil with dust palliative unless immediate construction is to continue; and use water or dust palliative to form crust on soil immediately following clearing/grubbing. (CCHD)
- While clearing forms, use single stage pours where allowed; use water spray to clear forms; use sweeping and water spray to clear forms; use industrial shop vacuum to clear forms; and avoid use of high pressure air to blow soil and debris from the form. (CCHD)
- During cut and fill activities, prewater with sprinklers or wobblers to allow time for penetration; prewater with water trucks or water pulls to allow time for penetration; dig a test hole to depth of cut to determine if soils are moist at depth and continue to prewater if not moist to depth of cut; use water truck/pull to water soils to depth of cut prior to subsequent cuts; and apply water or dust palliative to form crust on soil following fill and compaction. (CCHD)
- For large tracts of disturbed land, prevent access by fencing, ditches, vegetation, berms, or other barrier; install perimeter wind barriers 3 to 5 feet high with low porosity; plant perimeter vegetation early; and for long-term stabilization, stabilize disturbed soil with dust palliative or vegetation or pave or apply surface rock. (CCHD)
- In staging areas, limit size of area; apply water to surface soils where support equipment and vehicles are operated; limit vehicle speeds to 15 mph; and limit ingress and egress points. (CCHD)
- For stockpiles, maintain at optimum moisture content; remove material from downwind side; avoid steep sides or faces; and stabilize material following stockpile-related activity. (CCHD)

²⁷ Clark County [Nevada] District Board of Health, Construction Activities Notebook Including the Section 94 Handbook, August 24, 2000.

- To prevent trackout, pave construction roadways as early as possible; install gravel pads; install wheel shakers or wheel washers, and limit site access. (CCHD)
- When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six inches of freeboard space from the top of the container shall be maintained (BAAQMD, SJVUAPCD, SCAQMD Rule 403 Handbook,²⁸ ADEQ²⁹).
- Trucks transporting fill material to and from the site shall be tarped from the point of origin. (SBCAPCD, SCAQMD Rule 403 Handbook)
- Where feasible, use bedliners in bottom-dumping haul vehicles. (SCAQMD Rule 403 Handbook)
- Install wind breaks at windward side(s) of construction areas (BAAQMD, SJVUAPCD).
- Grade each phase separately, timed to coincide with construction phase or grade entire project, but apply chemical stabilizers or ground cover to graded areas where construction phase begins more than 60 days after grading phase ends (SCAQMD Rule 403 Handbook).
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. (BAAQMD) The SJVUAPCD adds: The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden. (SJVUAPCD).
- Cover inactive storage piles. (BAAQMD, BCAQMD, SBCAPCD, MBUAPCD)
- Cover active storage piles. (SCAQMD Rule 403 Handbook)
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than 1% (BAAQMD, SJVUAPCD).
- Limit areas subject to excavation, grading, and other construction activity at any one time (BAAQMD, SJVUAPCD).

²⁸ South Coast Air Quality Management District (SCAQMD), Rule 403 Implementation Handbook, January 1999.

²⁹ Arizona Department of Environmental Quality ("ADEQ"), Air Quality Exceptional and Natural Events Policy PM10 Best Available Control Measures, June 5, 2001.

- During initial grading, earth moving, or site preparation, projects 5 acres or greater may be required to construct a paved (or dust palliative treated) apron, at least 100 ft in length, onto the project site from the adjacent site if applicable. (BCAQMD)
- Replant vegetation in disturbed areas as quickly as possible. (BAAQMD)
- Gravel pads must be installed at all access points to prevent tracking of mud on to public roads. (SBCAPCD)
- The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. (SBCAPCD, SLOCAPCD)
- Prior to land use clearance, the applicant shall include, as a note on a separate informational sheet to be recorded with map, these dust control requirements. All requirements shall be shown on grading and building plans. (SBCAPCD, SLOCAPCD)
- Use 3- to 5-foot barriers with 50% or less porosity located adjacent to roadways or urban areas to reduce windblown material leaving site (SCAQMD Rule 403 Handbook).
- Barriers with 50% or less porosity located adjacent to roadways to reduce windblown material leaving a site. (SCAQMD Rule 403 Handbook)
- During high wind conditions, cease all land clearing and earth moving operations or apply water within 15 minutes to any soil surface that is being moved or otherwise disturbed. (SCAQMD Rule 403 Handbook, CCHD)
- Limit fugitive dust sources to 20% opacity. (ADEQ)
- Require a dust control plan for earthmoving operations. (ADEQ)
- Limit speed on unpaved roads. (SCAQMD, ADEQ)
- All demolition materials shall be wet crushed. (El Toro FEIR)³⁰
- Increase watering from twice a day to four times daily during initial storage pile placement and maximize application of non-toxic soil binders according to manufacturer's specification to exposed stock

³⁰ County of Orange, Final Environmental Impact Report No. 573 for the Civilian Reuse of MCAS El Toro and the Airport System Master Plan for John Wayne Airport and Proposed Orange County International Airport, SCH No. 98101053, August 2001.

piles (*i.e.* gravel, sand, dirt) with 5% or greater silt content. (El Toro FEIR)

- All grading equipment will be mounted with TrueFog dust suppression technology or comparable technology. This technology sprays a very fine mist of water around the construction equipment. This combines with the fugitive dust in the air causing it to fall back to the ground. (El Toro FEIR)
- All locations where scrapers, dozers and compactors will be traveling on exposed earth shall be watered four times per day and soil binders shall be used daily as necessary, consistent with manufacturers' directions. (El Toro FEIR)
- All demolition materials shall be wet crushed. (El Toro FEIR)

These measures have been widely used and required as CEQA mitigation in numerous EIRs. See, for example, the fugitive dust control program for the Big Dig (Kasprak and Stakutis 2000³¹), for the El Toro Reuse Final EIR, and for the Padres Ballpark Final EIR³².

V.C.2 Construction Exhaust Mitigation Measures.

The CO, VOC, NO_x, and SO_x construction emissions originate solely from the combustion of fuel in engines of construction equipment. About 10% to 20% of the PM₁₀ emissions also originate from engine exhaust. The mitigated construction emissions as disclosed in the Supplement and Draft EIS/EIR exceed the significance thresholds by substantial amounts in all years and for all alternatives for CO, VOC, and NO_x and in 2004 for alternatives A through C. Nonetheless, the Supplement only proposes three measures with the potential to significantly reduce these emissions – the use of “cleaner burning fuels,” the use of post-combustion controls and/or exhaust gas recirculation, and the use of electricity from power poles, where available. However, the emission reductions assumed in the mitigated air quality analyses suggest that these measures would not be used to the extent feasible. (*See* Comment III.D.) Further, there are

³¹ A. Kasprak and P.A. Stakutis, A Comprehensive Air Quality Control Program for a Large Roadway Tunnel Project, Proceedings of the Air & Waste Management Association's 93rd Annual Conference 7 Exhibition, June 18-22, 2000.

³² City of San Diego, Final Subsequent Environmental Impact Report to the Final Master Environmental Impact Report for the Centre City Redevelopment Project and Addressing the Centre City Community Plan and Related Documents for the Proposed Ballpark and Ancillary Development Projects, and Associated Plan Amendments, V. IV. Responses to Comments, September 13, 1999, pp. IV-254 to IV-256.

additional feasible mitigation measures that could be implemented to further reduce exhaust emissions. These include:

- Configure construction parking to minimize traffic interference. (SCAQMD)
- Provide temporary traffic control during all phase of construction activities to improve traffic flow (*e.g.*, flagperson). (SCAQMD)
- Develop a construction management plan that includes but is not limited to rerouting construction of congested streets, consolidating truck deliveries, providing dedicated turn lanes for movement of construction trucks and equipment on-site and off-site, and minimizing use of construction vehicles and equipment. (SCAQMD)
- Use alternative fueled (*e.g.*, LNG, natural gas) construction equipment. (SJVUAPCD)
- Limit the idling time to 2 minutes (SCAQMD), instead of the proposed 10 minutes.
- Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use. (SJVUAPCD)
- Implement activity management (*e.g.*, rescheduling activities to reduce short-term impacts). (SJVUAPCD)
- Construction equipment operating onsite shall be equipped with two to four degree engine timing retard or pre-combustion chamber engines. (SBCAPCD, SLOCAPCD)
- Install high pressure injectors on diesel construction equipment. (SLOCAPCD)
- Install catalytic converters on gasoline-powered equipment, where feasible. (SBCAPCD, SLOCAPCD)
- Minimize construction worker trips by requiring carpooling or use of public transit. (SBCAPCD)
- During smog season (May through October), the construction period should be lengthened so as to minimize the number of vehicles and equipment operating at the same time. (VCAPCD)
- Construction would take place over an extended period of time, from 2004 through 2015. Thus, require the use of new technologies to control emissions as they become available and feasible. (VCAPCD)

- Require the use of catalytic oxidizers and particulate traps on all equipment where feasible, rather than the rather low percentage usage assumed in the Supplement. *See* Comment III.D.
- Require the recalibration (reflash) of engine software on applicable 1993 to 1998 electronically controlled engines to reduce NOx emissions.
- Require the use of ultra-low sulfur diesel (5 to 15 ppmw) in all diesel-fueled on-site construction equipment and all delivery trucks.
- If PuriNOx™ or equivalent diesel formulation is used, require that it be formulated from ultra-low sulfur diesel.
- Replace fuel injectors.
- Use closed loop crankcase filtration.
- Use lean NOx catalysts (MECA)
- Use enhanced combustion modifications, *e.g.*, cams, coating, supercharger, engine rebuild kits (MECA)
- Use selective catalytic reduction ("SCR") and oxidation system combinations on construction equipment to control PM (20-50% reduction, CO and VOCs (up to 90% reduction), and NOx (50-90%) reduction. (MECA)
- For all emissions above the significance thresholds not otherwise reduced, require emission offsets. (SLOCAPCD).
- All off-road construction equipment shall comply with the requirements of 40 CFR (9, 86, 89) Tier 2 emission requirements, which provide for strict emission limits for construction vehicles. (El Toro FEIR)
- All off-road construction equipment shall comply with the requirements of AQMP Measures M9 and M10, limiting NOx emissions to 2.5 g/bhp-hr, beginning the first day of construction. (El Toro FEIR.)
- Set CO, VOC, NOx, PM10, and SOx emission reduction goals for the construction fleet that require a minimum overall 80% reduction in emissions.
- All on-site mechanic and foreman trucks and vehicles will be required to meet Super Ultra-low Emission Vehicle ("SULEV") or Zero Emission Vehicle ("ZEV") emission standards. (El Toro FEIR)
- To the maximum extent permitted by law and regulations, the County and its contractors shall require that construction workers be housed

(Monday through Friday) on-site in trailers/mobile homes/RVs or reused military housing, and shall provide rail/bus/metro passes or clean vehicle shuttle service for those construction workers that will not be housed on-site. (El Toro FEIR)

- LAWA and its contractors shall provide clean-fleet shuttles to major transit stations and multi-modal centers during construction phases of the Project.
- The construction contractors shall use emulsified asphalts that do not contain volatile hydrocarbons in lieu of cutback asphalts to avoid VOC emissions associated with cutback asphalts. (El Toro FEIR)
- The amount of architectural coatings shall be minimized by using spray equipment that has high transfer efficiencies, such as the electrostatic spray gun and manual paint applicators. (El Toro FEIR)
- Pre-coated materials or materials that have natural surfaces shall be used to the maximum extent feasible to avoid the use of VOC emissions from architectural coatings. The building surface areas used for the project shall be at least 70 percent precoated or composed of natural surfaces. (El Toro FEIR)
- The county shall use low or zero VOC content paints wherever feasible to reduce VOC emissions from architectural coatings. (El Toro FEIR)

These measures have been widely used and required as CEQA mitigation in numerous EIRs. *See*, for example, the exhaust emissions reduction program for the El Toro Reuse Final EIR.

V.D Operational Mitigation Measures Are Inadequate

The operational mitigation program has also been revised and now includes 19 mitigation measures. (Supplement, Table S4.6-18.) Again, many of the proposed measures are too general to review or implement because they do not include any emission reduction targets, timeline for their implementation, or any means of assuring compliance. (*See* Comment V.A.)

As discussed earlier, the Supplement's analyses of operational emissions and resulting projected ambient air quality concentrations are seriously flawed. (*See* Comment IV.) However, even with the Supplement's flawed results, mitigated PM10 air quality impacts remain significant for all alternatives in both the interim year and in the year 2015. Consequently, all feasible mitigation must be implemented.

In our previous comments on the Draft EIS/EIR, we recommended a number of additional feasible mitigation measures, such as reduction of existing sources at LAX, reducing emissions from sources outside of LAX, and offsetting emissions with Reclaim credits. (2001 Fox Comment, IV.F.) The Supplement ignored most of these recommendations. Because air quality impacts remain significant after mitigation, LAWA must adopt all feasible mitigation.

V.D.1 Heat Island Effect And Energy Conservation Not Adequately Addressed

We previously commented on the fact that the Draft EIS/EIR ignored the urban heat island effect generated by the hot surfaces of dark pavements and roofs in its air quality analysis, and recommended the implementation of mitigation that requires the use of “cool surfaces” for paving and roofs. (2001 Fox Comments, III.E, p. 20.) We further commented on the lack of commitment to the measures described in the Master Plan’s energy conservation and efficiency program, the absence of specific measures and performance goals, and the fact that the plan is not applicable to existing structures. We recommended a long list of potential mitigation measures to address these issues, including the use of energy star roof products, energy-efficient air conditioners (*e.g.*, water-cooled, rather than air-cooled), high-efficiency lighting and glass, daylighting (*e.g.*, skylights), high-efficiency motors, automatic controls for lighting and equipment, photocell dimming, higher insulation levels than required by code, reflective roofs, and photovoltaics, among others. (2001 Fox Comments, IV.G, pp. 33 *ff.*)

The Supplement addressed our comments by including a single mitigation measure that appears to combine these issues, the “Energy Conservation” measure, which proposes to “[c]over any parking structures that receive direct sunlight to reduce volatile emissions from vehicle gasoline tanks and install solar panels on these roofs where feasible to supply electricity or hot water.” It adds that this measure would “potentially apply to surface lots and the top deck of parking garages” and that “[i]n installation of solar panels may only be feasible in decentralized structures.” (Supplement, p. 4-391.)

This measure does not contain a commitment to implement this measure, as it is only “potentially” applicable and “may only be feasible in decentralized structures.” In addition, the measure as drafted would apply only to parking structures and only marginally reduce the heat island effect by reducing VOC emissions from vehicle gasoline tanks. The Supplement does not provide an explanation how it intends to further address the heat island effect. It does not commit to installing “cool surfaces” on either the parking structures or any buildings. The use of solar panels on the numerous airport buildings was also

not required and there is no explanation of why none of the many other proposed energy conservation measures were adopted. Clearly, this measure is window-dressing at best and does not adequately address LAWA's obligation to implement energy conservation and efficiency measures to mitigate the significant impacts from its operation.

V.D.2 Establishment Of ITCs Not Valid Mitigation

The Supplement claims that substantial emission reductions can be achieved through the construction of five additional intermodal transportation centers ("ITCs"), so-called "flyaways." As discussed above in Comment IV.B above, only one such ITC is proposed in Alternative D and none for Alternatives A through C. Consequently, the potential emissions reductions need to be reduced to a fifth of their present values for the calculation of mitigated emissions from Alternative D. No emission reduction credits for ITCs can be applied to Alternatives A through C.

VI. DOCUMENTS UPDATED AFTER INITIAL PUBLICATION

The documents pertaining to the Supplement that were provided to us on a CD-ROM by LAWA are inconsistent with the documents presented on LAWA's LAX Master Plan internet homepage³³. For example, Attachments I and N to the Technical Report S-4, Air Quality, contained only headers on otherwise empty pages in the CD-ROM copy we were provided with. The document provided on the internet on the other hand contains complete tables with data. We have not been notified by LAWA that changes were made to the Supplement and its associated documents. The LAWA Master Plan homepage itself also does not contain any notification that documents have been updated nor do the documents themselves contain any note to alert the reader to the fact.

We were unable to verify whether the content of other documents had also been updated or changed from the version we were provided with by LAWA. LAWA and FAA have a legal obligation under CEQA and NEPA to make their environmental analysis readily accessible to the public. This was a problem with the publication of the Draft EIS/EIR as well as the Supplement. The publication of inconsistent, incomplete, and altered documents in different locations fails to satisfy the agencies' legal obligation, renders the documents confusing and difficult to understand, and requires an explanation of the discrepancies and publication of corrected documents.

³³ LAX Master Plan, <http://www.laxmasterplan.org>, accessed October 29, 2003.

HUMAN HEALTH AND SAFETY

VII. PUBLIC HEALTH IMPACTS ARE UNDERESTIMATED

We previously commented on the serious inadequacy of the Draft EIS/EIR's human health risk assessment ("HHRA"), which resulted from the use of inappropriate thresholds of significance, the lack of an assessment of non-cancer acute health risks, the underestimation of acrolein chronic health impacts, the inadequate assessment of lead, the lack of an assessment of health impacts from construction emissions, the inappropriate use of high instead of low load factors to estimate aircraft engine emissions, the lack of an assessment of health risk to terminal passengers, and the lack of a cumulative health risk assessment. Further, the proposed mitigation program, identical to the air quality mitigation program discussed in Comment IV, is inadequate for human health impacts for the same reasons discussed above. Additionally, the proposed mitigation program fails to recognize the differences in approaches that are required to mitigate air quality versus human health impacts. (2001 Fox Comments, V., pp. 40 *ff.*)

The Supplement addressed only a few of these issues. Consequently, our previous comments remain applicable, and are applicable to the evaluation of Alternative D as well. In addition, the Supplement has introduced some new problems, which are discussed below.

VII.A Health Risk Assessment Is Inadequate

The conclusions drawn in the Supplement's HHRA regarding the — mostly insignificant — impacts of proposed expansions of LAX, particularly with respect to Alternative D, are questionable. Neither the Draft EIS/EIR, nor the Supplement or their associated technical reports provide detailed enough information to comprehend or reproduce the steps taken in the HHRA to estimate acute and chronic noncancer health risks and cancer health risks from Project emissions. However, there are a number of indications that the HHRA is substantially flawed.

The methodology and data sets used by both the Draft EIS/EIR and Supplement results in substantial underestimates of the toxic air pollutant ("TAP") emissions inventories for the Project. This, in turn, results in considerable underestimates of ambient air TAP concentrations and, consequently, in erroneous conclusions regarding the significance of Project impacts. A number of reasons contribute to this substantial underestimate, as discussed in the following.

VII.A.1 TAP Emissions Estimates Unsupported

A HHRA, *i.e.* the assessment of acute and chronic noncancer health risks and cancer health risks, relies on modeled ambient air TAP concentrations due to a project, which are based on an accurate emissions inventory for TAPs. The Supplement, following the Draft EIS/EIR's general approach and methodology, follows the standard approach to estimate emissions of TAPs from mobile and stationary sources, calculated by multiplying the VOC or PM emissions by the percent mass composition of the exhaust gas, called a speciation profile: "[t]he toxic air pollutant emissions will be calculated by multiplying the appropriate criteria pollutant (VOC or particulate matter) emissions by the relative toxic pollutant emission factor." (Supplement, p. 4-616 and Draft EIS/EIR, TR14a, Attachment B, p. 10.)

The Draft EIS/EIR's Technical Report 14a³⁴ ("TR14a"), Attachment F, Air Quality Modeling Protocol for Toxic Air Pollutants, asserts that "[a]ll such references will be discussed and emission factors justified. In cases where different emission factors in different reference documents are found for the same emission source, the reference most appropriate for operations in Southern California will be used." (TR14a, Attachment F, p. 2.)

However, beyond disclosure of names of the databases used to determine TAP emission factors, neither the Draft EIS/EIR nor the Supplement or their associated technical reports and attachments contain a summary of those "relative toxic pollutant emission factors" that were selected to estimate TAP emissions from the myriad of stationary and mobile sources at LAX. The Supplement does not disclose which emission factors were chosen from which database for which source nor does it provide a justification for the selected factor.

Without this information it is impossible to verify whether the Draft EIS/EIR or the Supplement selected appropriate emission factors for the various sources. Further, other pertinent information in the Supplement is missing. For example, the associated Technical Report 9a³⁵ ("TR9a"), Attachment A, Risk Calculations for Maximally Exposed Resident and Child, only contains a header on an otherwise empty page. Thus it impossible to verify the Supplement's calculations of TAP emissions resulting from the Project alternatives, the

³⁴ LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report, Technical Report 14a: Human Health Risk Assessment, January 2001.

³⁵ LAX Master Plan Supplement to the Draft Environmental Impact Statement/Environmental Impact Report, Technical Report 9a: Supplemental Human Health Risk Assessment, June 2003.

incremental ambient air TAP concentrations, and in turn their associated health risks.

VII.A.2 TAP Emission Factors Are Inadequate

It appears that the Supplement relied on the same outdated sources listed in the Draft EIS/EIR for determining the TAP emission factors. The Supplement does not contain any indication that it used updated versions for any of these sources. The reader must therefore assume that the sources for speciation profiles or TAP emission factors are the same as those used in the Draft EIS/EIR. The Draft EIS/EIR's TR14a, Attachment B, Screening Level Human Health Risk Assessment, specifies that "TAP emissions were estimated using VOC and PM emission estimates and combined with speciation data from SPECIATE, FIRE, and XATEF, and USEPA Guidance on Mobile Source HAPs." (Draft EIS/EIR, TR14a, Attachment B, p. 14.)

Inspection of the respective references reveals that the Draft EIS/EIR used the 1993 version of FIRE and SPECIATE, and the 1992 version of XATEF to determine TAP emission factors. (Draft EIS/EIR, TR14a, Attachment B, p. 14.) The XATEF database has long been retired by U.S. EPA and some of its emission factors incorporated in its FIRE database.³⁶ The latest version of FIRE, version 6.23, was released in October, 2000, and, thus, would have been available for the Supplement's HHRA. The U.S. EPA's SPECIATE database has also been updated several times and is currently available as version 3.2. Release notes to the preceding version, released in October 1999 and thus available to both the Draft EIS/EIR and Supplement, state that "SPECIATE v3.0 contains 262 new TOC profiles and 13 new PM profiles."³⁷

While the Draft EIS/EIR claims that "[t]he HHRA used well-accepted methods and best available emission factor data to develop estimates of emissions, and estimates and assumptions are reasonable and appropriate," this is clearly not the case. (Draft EIS/EIR, p. 76.) The HHRA must be revised using the most recent available TAP speciation profiles or emission factors.

³⁶ United States Environmental Protection Agency, Technology Transfer Network, Clearinghouse for Inventories & Emission Factors, Factor Information Retrieval System (FIRE), Frequently Asked Questions, <http://www.epa.gov/ttn/chief/faq/firefaq.html>, accessed November 3, 2003.

³⁷ United States Environmental Protection Agency, Technology Transfer Network, Clearinghouse for Inventories & Emission Factors, SPECIATE Version 3.2; http://www.epa.gov/ttn/chief/software/speciate/spec32_rel_notes.txt, accessed November 3, 2003.

VII.A.3 TAP Emissions Are Underestimated

The Supplement's TAP emission estimates are based on emissions of VOCs and PM from mobile and stationary sources, calculated by multiplying the VOC or PM emissions by the TAP relative emission factor. As discussed above in the air quality section of this comment letter, the Supplement has substantially underestimated unmitigated VOC and PM emissions from the Project and substantially overestimated the control efficiency of its proposed mitigation program. Consequently, the estimated mitigated emissions from the Project are grossly underestimated and should be revised. Consequently, TAP emissions that are based on these underestimated VOC and PM emissions are also substantially underestimated.

The Supplement concludes that most health risks for Alternative D would be lower in both the interim year and the horizon year 2015 than they would be if no Master Plan improvements were undertaken, *i.e.* the NA/NP alternative. These conclusions are unsupported. We expect that an HHRA that evaluates TAP impacts from the Project based on current TAP relative emission factors and accurate estimates of air pollutant emissions will be significant for all alternatives including Alternative D. The HHRA must be revised and the Draft EIS/EIR recirculated for public review.

VII.B Significance Thresholds

VII.B.1 Chronic Hazard Index

We previously commented on the Draft EIS/EIR's inappropriate and unsupported significance thresholds for the incremental hazard index used in the HHRA to evaluate chronic and acute noncancer health impacts. (2001 Fox Comments, V.A, p. 41). The Draft EIS/EIR used a total incremental hazard index of "greater than 5 for any target organ system at any receptor location" as the significance threshold for both noncancer chronic and acute health impacts. (Draft EIS/EIR, p. 4-1009.)

We commented that the appropriate significance threshold for both the chronic and acute health hazard index is 1. This threshold was established in 1993 CARB guidelines,³⁸ is routinely used in HHRAs conducted for EIRs and by every air district in the State that has established significance thresholds for noncancer health risks for purposes of CEQA. We previously provided excerpts

³⁸ California Air Resources Control Board, Risk Management Guidelines for New and Modified Sources of Toxic Pollutants, July 1993.

from CEQA guidelines as well as excerpts from EIRs prepared for other projects in the SCAQMD. (2001 Fox Comments, Ex. 2 and 3.)

In response, the Supplement appropriately reduced the significance threshold for the total incremental *acute* hazard index from 5 to 1 “to conform to SCAQMD policies.” However, the Supplement left the significance threshold for the *chronic* hazard index at 5, citing SCAQMD Rule 1402 as a reference. (Supplement, p. 4-620.) This is inappropriate. While SCAQMD Rule 1402 in fact cites a chronic hazard index of 5, it is not applicable in the instant case, as explained below. Its mere existence, thus, does not provide justification for not using the lower significance threshold of 1, which is routinely used in HHRAs and recommended by most (all?) air districts in their CEQA Guidelines as well as SCAQMD guidance.

Further, SCAQMD Rule 1402 is intended to reduce the health risk associated with “existing facilities” to implement risk reduction plans as required by the Air Toxics Information and Assessment Act, the so-called “Hot Spots Act” of 1987. LAX in its present configuration is an already existing facility and SCAQMD Rule 1402 indeed applies. However, the modernization of LAX as proposed by the Draft EIS/EIR and Supplement is further subject to SCAQMD Rule 1401³⁹, which applies to new and modified sources. Modifications are defined as “any physical change in, change in method of operation, or addition to an existing permit unit that requires an application for a permit to construct and/or operate.” (SCAQMD Rule 1401, c(9).) Clearly, the modernization of LAX classifies as a modification. SCAQMD Rule 1401 specifies a chronic hazard index of 1. Consequently, if LAWA relies on SCAQMD guidance and rules to justify its choice of a hazard index, it must take all applicable regulations into consideration and consequently set the chronic hazard index significance threshold at 1, rather than 5.

Further, the Supplement claims that its CEQA thresholds of significance are “based on recent SCAQMD policies” and are “consistent with the SCAQMD CEQA Handbook for assessing impacts of new developments as well as recent, publicly available correspondence from SCAQMD.” The SCAQMD CEQA Guidelines themselves do not contain a significance threshold for the hazard index. However, the guidelines rely on “Rule 1401, with which the project proponent must comply before the project can be constructed and put into operation.” Clearly, SCAQMD Rule 1401 would be the applicable rule that the Supplement should have consulted, not SCAQMD Rule 1402.

³⁹ South Coast Air Quality Management District, Rule 1401 – New Source Review of Toxic Air Contaminants, amended May 2, 2003.

Although SCAQMD Rule 1401 does not apply to aircraft emissions at LAX because the SCAQMD does not have jurisdiction over mobile source emissions, the choices for significance thresholds in this rule reflect the general state-wide consensus on this issue. As a practical matter, the significance of health impacts does not depend on the source of the emissions – mobile sources versus stationary sources – only on the specific chemicals and their impacts on humans. Thus, jurisdiction is irrelevant for purposes of CEQA.

CARB issued risk management guidelines in 1993 recommending an even lower significance threshold of 0.2 for the non-cancer chronic hazard index. If the index exceeds 0.2, best available control technology for toxics (“TBACT”) is required. The Bay Area Air Quality Management District (“BAAQMD”) is currently in the process of lowering its recommended threshold for requiring T-BACT to 0.2.⁴⁰

Clearly, the choice of a chronic hazard index of 5 flies in the face of every relevant regulatory guidance as well as state-wide standard practice. At a minimum, the Supplement should have chosen a hazard index of 1, if not lower. By selecting the higher significance threshold of 5, the Supplement and Draft EIS/EIR have failed to find significant impacts that should have been mitigated.

VII.B.2 Cancer Risk

The Supplement, as the previous Draft EIS/EIR, uses a significance threshold of 10 in one million for the incremental cancer risk. The Supplement does not provide a reference for this threshold beyond its claim that its CEQA thresholds of significance are “based on recent SCAQMD policies” and are “consistent with the SCAQMD CEQA Handbook for assessing impacts of new developments as well as recent, publicly available correspondence from SCAQMD.” (Supplement, p. 4-620.) The cited recent correspondence is a comment letter from SCAQMD on the El Toro DEIR.⁴¹ This comment letter refers back to the SCAQMD CEQA Guidelines as being the applicable guidance for determining the significance threshold for incremental cancer risk.

⁴⁰ Bay Area Air Quality Management District, Workshop Notice, Re: Proposed Changes To District Air Toxics New Source Review Program, May 2, 2003, <http://www.baaqmd.gov/pln/ruledev/2-5/r0205ws1.htm>, accessed November 2, 2003; and Bay Area Air Quality Management District, Draft Staff Report, Appendix D, CEQA Initial Study, April 2003.

⁴¹ South Coast Air Quality Management District, Comments of the AQMD, Draft Environmental Impact Report No. 573, Civilian Reuse of MCAS El Toro and the Airport System Master Plan for John Wayne Airport and Proposed Orange County International Airport, Letter from Steve Smith, SCAQMD, to Bryan Speegle, County of Orange, Master Development Program, February 22, 2000.

The SCAQMD CEQA Guidelines specify the significance threshold for incremental cancer risk as follows:

“Any project involving the emission or threatened emission of a carcinogenic or toxic air contaminant identified in District Rule 1401 that exceeds the maximum individual cancer risk of *one in one million* or *10 in one million if the project is constructed with best available control technology for toxics (T-BACT)* using the procedures in District Rule 1401.” [Emphasis added.]

Considering the substantial emissions of air toxics from the Project and the absence of any proposed T-BACT measures, the HHRA should have used a cancer significance threshold of one in one million.

VIII. MITIGATION OF HEALTH IMPACTS IS INADEQUATE

As we discussed in our previous comments, The Draft EIS/EIR did not impose any mitigation specifically for health impacts, instead relying exclusively on air quality mitigation. (2001 Fox Comments, VI., pp. 46/47.) The Supplement failed to propose any additional mitigation measures that would substantially reduce VOC and PM emissions, the surrogates used for estimating TAP emissions. As discussed above in Comment V, the air quality mitigation program is entirely inadequate for mitigating air quality impacts. This program is likewise inadequate to mitigate health impacts, for the same reasons discussed in Comment V. The air quality mitigation program would only marginally reduce the emissions of VOCs and PM. Thus, TAP emissions, which are based on VOC and PM emissions, would likewise be high.

Further, the proposed mitigation program fails to recognize the differences in approaches that are required to mitigate air quality versus human health impacts. It is not sufficient to rely solely on air quality mitigation to mitigate public health impacts. Other types of mitigation measures should be considered to prevent exposure and thus protect public health. These might include measures such as upgrading the LAX ventilation system, installing efficient charcoal filters on the LAX intake air to remove TAPs, and improving the ventilation systems and treating the intake air of nearby sensitive receptors who would be most affected by TAP emissions from the Project.

**Table 1: Unmitigated Operational Emissions Inventories for On-airport Sources
(tons/year)**

Horizon Year 2005

Horizon Year 2015

Draft EIS/EIR, Table 4.6-8

Draft EIS/EIR, Table 4.6-8

	1996 Baseline	NA/NP 2005	A 2005	B 2005	C 2005
CO	16,589	16,446	12,835	12,739	12,858
VOC	2,069	1,968	1,756	1,750	1,754
NOX	5,175	6,100	5,728	5,727	5,767
SO ₂	183	233	223	223	223
PM10	159	164	140	138	144

	1996 Baseline	NA/NP 2015	A 2015	B 2015	C 2015
CO	16,589	14,530	11,014	11,500	11,140
VOC	2,069	1,789	1,638	1,769	1,711
NOX	5,175	6,308	7,175	7,270	6,767
SO ₂	183	252	286	297	283
PM10	159	173	172	175	166

Supplement, Table 4.6-9

Supplement, Table 4.6-9

	1996 Baseline	NA/NP 2005	A 2005	B 2005	C 2005
CO	19,325	19,438	14,806	14,712	14,836
VOC	5,317	6,063	5,068	5,062	5,077
NOX	5,601	6,816	6,064	6,063	5,767
SO ₂	382	503	426	426	426
PM10	204	243	160	158	169

	1996 Baseline	NA/NP 2015	A 2015	B 2015	C 2015
CO	19,325	17,269	11,904	12,375	11,880
VOC	5,317	5,748	3,419	3,514	3,194
NOX	5,601	7,039	7,136	7,225	6,695
SO ₂	382	770	526	544	522
PM10	204	256	176	179	170

Ratio Supplement/Draft EIS/EIR

Ratio Supplement/Draft EIS/EIR

	1996 Baseline	NA/NP 2005	A 2005	B 2005	C 2005
CO	1.2	1.2	1.2	1.2	1.2
VOC	2.6	3.1	2.9	2.9	2.9
NOX	1.1	1.1	1.1	1.1	1.0
SO ₂	2.1	2.2	1.9	1.9	1.9
PM10	1.3	1.5	1.1	1.1	1.2

	1996 Baseline	NA/NP 2015	A 2015	B 2015	C 2015
CO	1.2	1.2	1.1	1.1	1.1
VOC	2.6	3.2	2.1	2.0	1.9
NOX	1.1	1.1	1.0	1.0	1.0
SO ₂	2.1	3.1	1.8	1.8	1.8
PM10	1.3	1.5	1.0	1.0	1.0

SAL00015

J. Phyllis Fox, Ph.D., P.E., DEE, QEP, REA I/II
Environmental Management

2530 Etna Street
Berkeley, CA 94704
510-843-1126
510-845-0983 (fax)
Fox@AeroAquaTerra.Com

Dr. Fox has over 30 years of experience in the field of environmental engineering, including air quality management, water quality and water supply investigations, hazardous waste investigations, environmental permitting, nuisance investigations, environmental impact reports, CEQA/NEPA documentation, risk assessments, and litigation support.

EDUCATION

Ph.D. Environmental/Civil Engineering, University of California, Berkeley, 1980.
M.S. Environmental/Civil Engineering, University of California, Berkeley, 1975.
B.S. Physics (with high honors), University of Florida, Gainesville, 1971.

Post-Graduate:

S-Plus Data Analysis, MathSoft, 6/94.
Air Pollutant Emission Calculations, UC Berkeley Extension, 6-7/94
Assessment, Control and Remediation of LNAPL Contaminated Sites, API and USEPA, 9/94
Pesticides in the TIE Process, SETAC, 6/96
Sulfate Minerals: Geochemistry, Crystallography, and Environmental Significance,
Mineralogical Society of America/Geochemical Society, 11/00.
Design of Gas Turbine Combined Cycle and Cogeneration Systems, Thermoflow, 12/00
Air-Cooled Steam Condensers and Dry- and Hybrid-Cooling Towers, Power-Gen, 12/01
Combustion Turbine Power Augmentation with Inlet Cooling and Wet Compression,
Power-Gen, 12/01
CEQA Update, UC Berkeley Extension, 3/02
The Health Effects of Chemicals, Drugs, and Pollutants, UC Berkeley Extension, 4-5/02
Noise Exposure Assessment: Sampling Strategy and Data Acquisition, AIHA PDC 205, 6/02
Noise Exposure Measurement Instruments and Techniques, PDC 302, 6/02
Noise Control Engineering, AIHA PDC 432, 6/02
Optimizing Generation and Air Emissions, Power-Gen, 12/02
Utility Industry Issues, Power-Gen, 12/02

REGISTRATION

Class I Registered Environmental Assessor, California (REA-00704)
Class II Registered Environmental Assessor, California (REA-20040)
Qualified Environmental Professional, Institute of Professional Environmental
Practice (QEP #02-010007)
Registered Professional Engineer: Arizona, California, Florida, Georgia, Washington
Diplomate Environmental Engineer, American Academy of Environmental Engineers,

Certified in Air Pollution Control (DEE #01-20014)

PROFESSIONAL HISTORY

Environmental Management, Principal, 1981-present
Lawrence Berkeley Laboratory, Principal Investigator, 1977-1981
University of California, Berkeley, Program Manager, 1976-1977
Bechtel, Inc., Engineer, 1971-1976, 1964-1966

PROFESSIONAL AFFILIATIONS

Society of Environmental Toxicology and Chemistry
Association for the Environmental Health of Soils
American Society of Civil Engineers
American Industrial Hygiene Association
Air and Waste Management Association
American Chemical Society
Phi Beta Kappa
Sigma Pi Sigma

Who's Who Environmental Registry, PH Publishing, Fort Collins, CO, 1992.

Who's Who in the World, Marquis Who's Who, Inc., Chicago, IL, 11th Ed., p. 371, 1993-present.

Who's Who of American Women, Marquis Who's Who, Inc., Chicago, IL, 13th Ed., p. 264, 1984-present.

Who's Who in Science and Engineering, Marquis Who's Who, Inc., New Providence, NJ, 5th Ed., p. 414, 1999-present.

Guide to Specialists on Toxic Substances, World Environment Center, New York, NY, p. 80, 1980.

National Research Council Committee on Irrigation-Induced Water Quality Problems (Selenium), Subcommittee on Quality Control/Quality Assurance (1985-1990).

National Research Council Committee on Surface Mining and Reclamation, Subcommittee on Oil Shale (1978-80)

REPRESENTATIVE EXPERIENCE

Performed environmental investigations, as outlined below, for a wide range of industrial and commercial facilities including refineries, reformulated fuels projects, petroleum distribution terminals, conventional and thermally enhanced oil production, underground storage tanks, pipelines, gasoline stations, landfills, railyards, hazardous waste treatment facilities, power

plants, transmission lines, airports, hydrogen plants, petroleum coke calcining plants, asphalt plants, cement plants, incinerators, flares, manufacturing facilities (semiconductors, electronic assembly, aerospace components, printed circuit boards, amusement park rides), lanthanide processing plants, ammonia plants, urea plants, food processing plants, grain processing facilities, paint formulation plants, wastewater treatment plants, marine terminals, gas processing plants, steel mills, battery manufacturing plants, pesticide manufacturing and repackaging facilities, pulp and paper mills, redevelopment projects (e.g., Mission Bay, Southern Pacific Railyards, Moscone Center expansion, San Diego Padres Ballpark), residential developments, commercial office parks, campuses, and shopping centers, server farms, and a wide range of mines including sand and gravel, hard rock, limestone, nacholite, coal, molybdenum, gold, zinc, and oil shale.

EXPERT WITNESS/LITIGATION SUPPORT

- Assist citizens group and labor union challenge issuance of conditional use permit issued for at 317,000 ft² discount store in Honolulu without any environmental review. In support of a motion for preliminary injunction, prepared 7 page declaration addressing public health impacts of diesel exhaust from vehicles serving the Project. In preparation for trial, prepared 20-page preliminary expert report summarizing results of diesel exhaust and noise measurements at two big box retail stores in Honolulu, estimated diesel PM10 concentrations for Project using ISCST, prepared a cancer health risk assessment based on these analyses, and evaluated noise impacts. Case in progress.
- Assist environmental organizations to challenge the DOE Finding of No Significant Impact (FONSI) for the Baja California Power and Sempra Energy Resources Cross-Border Transmissions Lines in the U.S. and four associated power plants located in Mexico (DOE EA-1391). Prepared 20-page declaration in support of motion for summary judgement, addressing emissions, including CO₂ and NH₃, offsets, BACT, cumulative air quality impacts, alternative cooling systems, and water use and water quality impacts. Plaintiff's motion for summary judgment granted in part. U.S. District Court, Southern District decision concluded that the Environmental Assessment and FONSI violated NEPA and the APA due to their inadequate analysis of the potential controversy surrounding the project, water impacts, impacts from NH₃ and CO₂, alternatives, and cumulative impacts. Border Power Plant Working Group v. Department of Energy and Bureau of Land Management, Case No. 02-CV-513-IEG (POR) (May 2, 2003).

- Assist unions in appeal of Title V permit issued by BAAQMD to carbon plant that manufactured coke. Reviewed District files and prepared technical comments on Title V permit. Reviewed responses to comments and assisted counsel draft appeal to BAAQMD hearing board, opening brief, motion to strike, and rebuttal brief. Case settled.
- Assisted California Central Coast city obtain controls on a proposed new city that straddles the Ventura-Los Angeles County boundary. Reviewed several environmental impact reports, prepared an air quality analyses, a diesel exhaust health risk assessment, and detailed review comments.
- Assisted Central California city to obtain controls on large alluvial sand quarry and asphalt plant proposing a modernization. Prepared comments on Negative Declaration on air quality, public health, noise, and traffic. Evaluated process flow diagrams and engineering reports to determine whether proposed changes increased plant capacity or substantially modified plant operations. Prepared comments on application for categorical exemption from CEQA. Presented testimony to County Board of Supervisors. Developed controls to mitigate impacts. Assisted counsel draft Petition for Writ. Case settled June 2002. Substantial improvements in plant operations were obtained including cap on throughput, dust control measures, asphalt plant loadout enclosure, and restrictions on truck routes.
- Assisted oil companies on the California Central Coast in defending class action citizens lawsuit alleging health effects due to emissions from gas processing plant and leaking underground storage tanks. Reviewed regulatory and other files and advised counsel on merits of case. Case settled November 2001.
- Assist oil company on the California Central Coast in defending property damage claims arising out of a historic oil spill. Reviewed site investigation reports, pump tests, leachability studies, and health risk assessments, participated in design of additional site characterization studies to assess health impacts, and advised counsel on merits of case. Prepare health risk assessment.
- Assisted unions in appeal of Initial Study/Negative Declaration ("IS/ND") for an MTBE phaseout project at a Bay Area refinery. Reviewed IS/ND and supporting agency permitting files and prepared technical comments on air quality, groundwater, and public health impacts. Reviewed responses to comments and final IS/ND and ATC permits and assisted counsel to draft petitions and briefs appealing decision to Air District Hearing Board. Presented sworn direct and rebuttal testimony with cross examination on groundwater impacts of ethanol spills on hydrocarbon contamination at refinery. Hearing Board ruled 5 to 0 in favor of appellants, remanding ATC to district to prepare an EIR.
- Assist Florida cities in challenging the use of diesel and proposed BACT determinations in prevention of significant deterioration (PSD) permits issued to two 510-MW simple cycle peaking electric generating facilities and one 1,080-MW simple cycle/combined cycle facility. Reviewed permit applications, draft permits, and FDEP engineering evaluations,

assisted counsel in drafting petitions and responding to discovery. Participated in settlement discussions.

- Assisted large California city in federal lawsuit alleging peaker power plant is violating its federal permit. Reviewed permit file and applicant's engineering and cost feasibility study to reduce emissions through retrofit controls. Advised counsel on feasible and cost-effective NO_x, SO_x, and PM₁₀ controls for several 1960s diesel-fired Pratt and Whitney peaker turbines.
- Assist coalition of Georgia environmental groups in evaluating BACT determinations and permit conditions in PSD permits issued to several large natural gas-fired simple cycle and combined-cycle power plants. Prepare technical comments on draft PSD permits on BACT, enforceability of limits, and toxic emissions. Review responses to comments, advise counsel on merits of cases, participate in settlement discussions, present oral and written testimony in adjudicatory hearings, and provide technical assistance as required. Cases settled.
- Assist citizen's group in Massachusetts review, comment on, and participate in permitting of pollution control retrofits of coal-fired power plant.
- Assist construction unions in review of air quality permitting actions before the Indiana Department of Environmental Management ("IDEM") for several natural gas-fired simple cycle peakers and combined cycle power plants.
- Assist building trades in review of air quality permitting actions for 1000-MW coal-fired power plant before the Kentucky Department for Environmental Protection. Retained as expert on BACT, emissions, permit enforceability, and public health issues in appeal of final PSD permit by Sierra Club in *Sierra Club et al. v. Natural Resources & Environmental Protection Cabinet, Division of Air Quality and Thorough Generating Company et al.* Case in progress.
- Assist coalition of towns and environmental groups in challenging air permits issued to 523 MW dual fuel (natural gas and distillate) combined-cycle power plant in Connecticut. Prepared technical comments on draft permits and 60 pages of written testimony addressing emission estimates, startup/shutdown issues, BACT/LAER analyses, and toxic air emissions. Presented testimony in adjudicatory administrative hearings before the Connecticut Department of Environmental Protection in June 2001 and December 2001.
- Assist various coalitions of unions, citizens groups, cities, public agencies, and developers in licensing and permitting of over 20 large combined cycle, simple cycle, and peaker power plants in California, Arizona, Oklahoma, Oregon, and elsewhere. Prepare analyses of and comments on applications for certification, preliminary and final staff assessments, and permits issued by local agencies. Present written and oral testimony before California Energy Commission and Arizona Power Plant and Transmission Line Siting Committee on hazards of ammonia use and transportation, health effects of air emissions, contaminated

property issues, BACT/LAER issues related to SCR and SCONOx, criteria and toxic pollutant emission estimates, MACT analyses, air quality modeling, water supply and water quality issues, and methods to reduce water use, including dry cooling, parallel dry-wet cooling, hybrid cooling, and zero liquid discharge systems.

- Assist unions, cities, and neighborhood associations in challenging an EIR issued for the proposed expansion of the Oakland Airport. Reviewed two draft EIRs and prepared a health risk assessment and extensive technical comments on air quality and public health impacts. The California Court of Appeals, First Appellate District, ruled in favor of appellants and plaintiffs, concluding that the EIR "2) erred in using outdated information in assessing the emission of toxic air contaminants (TACs) from jet aircraft; 3) failed to support its decision not to evaluate the health risks associated with the emission of TACs with meaningful analysis," thus accepting my technical arguments and requiring the Port to prepare a new EIR. See *Berkeley Keep Jets Over the Bay Committee, City of San Leandro, and City of Alameda et al. v. Board of Port Commissioners* (August 30, 2001) 111 Cal.Rptr.2d 598.
- Assisted lessor of former gas station with leaking underground storage tanks and TCE contamination from adjacent property. Lessor held option to purchase, which was forfeited based on misrepresentation by remediation contractor as to nature and extent of contamination. Remediation contractor purchased property. Reviewed regulatory agency files and advised counsel on merits of case. Case not filed.
- Advised counsel on merits of several pending actions, including a Proposition 65 case involving groundwater contamination at an explosives manufacturing firm and two former gas stations with leaking underground storage tanks.
- Assisted defendant foundry in Oakland in a lawsuit brought by neighbors alleging property contamination, nuisance, trespass, smoke, and health effects from foundry operation. Inspected and sampled plaintiff's property. Advised counsel on merits of case. Case settled.
- Assisted business owner facing eminent domain eviction. Prepared technical comments on a negative declaration for soil contamination and public health risks from air emissions from a proposed redevelopment project in San Francisco in support of a CEQA lawsuit. Case settled.
- Assisted neighborhood association representing residents living downwind of a Berkeley asphalt plant in separate nuisance and CEQA lawsuits. Prepared technical comments on air quality, odor, and noise impacts, presented testimony at commission and council meetings, participated in community workshops, and participated in settlement discussions. Cases settled. Asphalt plant was upgraded to include air emission and noise controls, including vapor collection system at truck loading station, enclosures for noisy equipment, and improved housekeeping.

- Assisted a Fortune 500 residential home builder in claims alleging health effects from faulty installation of gas appliances. Conducted indoor air quality study, advised counsel on merits of case, and participated in discussions with plaintiffs. Case settled.
- Assisted property owners in Silicon Valley in lawsuit to recover remediation costs from insurer for large TCE plume originating from a manufacturing facility. Conducted investigations to demonstrate sudden and accidental release of TCE, including groundwater modeling, development of method to date spill, preparation of chemical inventory, investigation of historical waste disposal practices and standards, and on-site sewer and storm drainage inspections and sampling. Prepared declaration in opposition to motion for summary judgment. Case settled.
- Assisted residents in east Oakland downwind of a former battery plant in class action lawsuit alleging property contamination from lead emissions. Conducted historical research and dry deposition modeling that substantiated claim. Participated in mediation at JAMS. Case settled.
- Assisted property owners in West Oakland who purchased a former gas station that had leaking underground storage tanks and groundwater contamination. Reviewed agency files and advised counsel on merits of case. Prepared declaration in opposition to summary judgment. Prepared cost estimate to remediate site. Participated in settlement discussions. Case settled.
- Consultant to counsel representing plaintiffs in two Clean Water Act lawsuits involving selenium discharges into San Francisco Bay from refineries. Reviewed files and advised counsel on merits of case. Prepared interrogatory and discovery questions, assisted in deposing opposing experts, and reviewed and interpreted treatability and other technical studies. Judge ruled in favor of plaintiffs.
- Assisted an oil company in a complaint filed by a resident of a small beach community alleging that discharges of tank farm rinse water into the sanitary sewer system caused hydrogen sulfide gas to infiltrate residence, sending occupants to hospital. Inspected accident site, interviewed parties to the event, and reviewed extensive agency files related to incident. Used chemical analysis, field simulations, mass balance calculations, sewer hydraulic simulations with SWMM44, atmospheric dispersion modeling with SCREEN3, odor analyses, and risk assessment calculations to demonstrate that the incident was caused by a faulty drain trap and inadequate slope of sewer lateral on resident's property. Prepared a detailed technical report summarizing these studies. Case settled.
- Assisted large West Coast city in suit alleging that leaking underground storage tanks on city property had damaged the waterproofing on downgradient building, causing leaks in an underground parking structure. Reviewed subsurface hydrogeologic investigations and evaluated studies conducted by others documenting leakage from underground diesel and

gasoline tanks. Inspected, tested, and evaluated waterproofing on subsurface parking structure. Waterproofing was substandard. Case settled.

- Assisted residents downwind of gravel mine and asphalt plant in Siskiyou County, California, in suit to obtain CEQA review of air permitting action. Prepared two declarations analyzing air quality and public health impacts. Judge ruled in favor of plaintiffs, closing mine and asphalt plant.
- Assisted defendant oil company on the California Central Coast in class action lawsuit alleging property damage and health effects from subsurface petroleum contamination. Reviewed documents, prepared risk calculations, and advised counsel on merits of case. Participated in settlement discussions. Case settled.
- Assisted defendant oil company in class action lawsuit alleging health impacts from remediation of petroleum contaminated site on California Central Coast. Reviewed documents, designed and conducted monitoring program, and participated in settlement discussions. Case settled.
- Consultant to attorneys evaluating a potential challenge of USFWS actions under CVPIA section 3406(b)(2). Reviewed agency files and collected and analyzed hydrology, water quality, and fishery data. Advised counsel on merits of case. Case not filed.
- Assisted residents downwind of a Carson refinery in class action lawsuit involving soil and groundwater contamination, nuisance, property damage, and health effects from air emissions. Reviewed files and provided advise on contaminated soil and groundwater, toxic emissions, and health risks. Prepared declaration on refinery fugitive emissions. Prepared deposition questions and reviewed deposition transcripts on air quality, soil contamination, odors, and health impacts. Case settled.
- Assisted residents downwind of a Contra Costa refinery who were affected by an accidental release of naphtha. Characterized spilled naphtha, estimated emissions, and modeled ambient concentrations of hydrocarbons and sulfur compounds. Deposed. Presented testimony in binding arbitration at JAMS. Judge found in favor of plaintiffs.
- Assisted residents downwind of Contra Costa County refinery in class action lawsuit alleging property damage, nuisance, and health effects from several large accidents as well as routine operations. Reviewed files and prepared analyses of environmental impacts. Prepared declarations, deposed, and presented testimony before jury in one trial and judge in second. Case pending.
- Assisted business owner claiming damages from dust, noise, and vibration during a sewer construction project in San Francisco. Reviewed agency files and PM10 monitoring data and advised counsel on merits of case. Case settled.
- Assisted residents downwind of Contra Costa County refinery in class action lawsuit alleging property damage, nuisance, and health effects. Prepared declaration in opposition to

summary judgment, deposed, and presented expert testimony on accidental releases, odor, and nuisance before jury. Case thrown out by judge, but reversed on appeal and to be retried.

- Presented testimony in small claims court on behalf of residents claiming health effects from hydrogen sulfide from flaring emissions triggered by a power outage at a Contra Costa County refinery. Analyzed meteorological and air quality data and evaluated potential health risks of exposure to low concentrations of hydrogen sulfide. Judge awarded damages to plaintiffs.
- Assisted construction unions in challenging PSD permit for an Indiana steel mill. Prepared technical comments on draft PSD permit, drafted 70-page appeal of agency permit action to the Environmental Appeals Board challenging permit based on faulty BACT analysis for electric arc furnace and reheat furnace and faulty permit conditions, among others, and drafted briefs responding to four parties. EPA Region V and the EPA General Counsel intervened as amici, supporting petitioners. EAB ruled in favor of petitioners, remanding permit to IDEM on three key issues, including BACT for the reheat furnace and lead emissions from the EAF. Drafted motion to reconsider three issues. Prepared 69 pages of technical comments on revised draft PSD permit. Drafted second EAB appeal addressing lead emissions from the EAF and BACT for reheat furnace based on European experience with SCR/SNCR. Case settled. Permit was substantially improved. See *In re: Steel Dynamics, Inc.*, PSD Appeal Nos. 99-4 & 99-5 (EAB June 22, 2000).
- Assisted defendant urea manufacturer in Alaska in negotiations with USEPA to seek relief from penalties for alleged violations of the Clean Air Act. Reviewed and evaluated regulatory files and monitoring data, prepared technical analysis demonstrating that permit limits were not violated, and participated in negotiations with EPA to dismiss action. Fines were substantially reduced and case closed.
- Assisted construction unions in challenging PSD permitting action for an Indiana grain mill. Prepared technical comments on draft PSD permit and assisted counsel draft appeal of agency permit action to the Environmental Appeals Board challenging permit based on faulty BACT analyses for heaters and boilers and faulty permit conditions, among others. Case settled.
- As part of a consent decree settling a CEQA lawsuit, assisted neighbors of a large west coast port in negotiations with port authority to secure mitigation for air quality impacts. Prepared technical comments on mobile source air quality impacts and mitigation and negotiated a \$9 million CEQA mitigation package. Currently representing neighbors on technical advisory committee established by port to implement the air quality mitigation program.
- Assisted construction unions in challenging permitting action for a California hazardous waste incinerator. Prepared technical comments on draft permit, assisted counsel prepare appeal of EPA permit to the Environmental Appeals Board. Participated in settlement discussions on technical issues with applicant and EPA Region 9. Case settled.

- Assisted environmental group in challenging DTSC Negative Declaration on a hazardous waste treatment facility. Prepared technical comments on risk of upset, water, and health risks. Writ of mandamus issued.
- Assisted several neighborhood associations and cities impacted by quarries, asphalt plants, and cement plants in Alameda, Shasta, Sonoma, and Mendocino counties in obtaining mitigations for dust, air quality, public health, traffic, and noise impacts from facility operations and proposed expansions.
- For over 100 industrial facilities, commercial/campus, and redevelopment projects, developed the record in preparation for CEQA and NEPA lawsuits. Prepared technical comments on hazardous materials, solid wastes, public utilities, noise, worker safety, air quality, public health, water resources, water quality, traffic, and risk of upset sections of EIRs, EISs, initial studies, and negative declarations. Assisted counsel in drafting petitions and briefs and prepared declarations.
- For several large commercial development projects and airports, assisted applicant and counsel prepare defensible CEQA documents, respond to comments, and identify and evaluate "all feasible" mitigation to avoid CEQA challenges. This work included developing mitigation programs to reduce traffic-related air quality impacts based on energy conservation programs, solar, low-emission vehicles, alternative fuels, exhaust treatments, and transportation management associations.

SITE INVESTIGATION/REMEDATION/CLOSURE

- Technical manager and principal engineer for characterization, remediation, and closure of waste management units at former Colorado oil shale plant. Constituents of concern included BTEX, As, 1,1,1-TCA, and TPH. Completed groundwater monitoring programs, site assessments, work plans, and closure plans for seven process water holding ponds, a refinery sewer system, and processed shale disposal area. Managed design and construction of groundwater treatment system and removal actions and obtained clean closure.
- Principal engineer for characterization, remediation, and closure of process water ponds at a former lanthanide processing plant in Colorado. Designed and implemented groundwater monitoring program and site assessments and prepared closure plan.
- Advised the city of Sacramento on redevelopment of two former railyards. Reviewed work plans, site investigations, risk assessment, RAPS, RI/FSs, and CEQA documents. Participated in the development of mitigation strategies to protect construction and utility workers and the public during remediation, redevelopment, and use of the site, including buffer zones, subslab venting, rail berm containment structure, and an environmental oversight plan.

- Provided technical support for the investigation of a former sanitary landfill that was redeveloped as single family homes. Reviewed and/or prepared portions of numerous documents, including health risk assessments, preliminary endangerment assessments, site investigation reports, work plans, and RI/FSs. Historical research to identify historic waste disposal practices to prepare a preliminary endangerment assessment. Acquired, reviewed, and analyzed the files of 18 federal, state, and local agencies, three sets of construction field notes, analyzed 21 aerial photographs and interviewed 14 individuals associated with operation of former landfill. Assisted counsel in defending lawsuit brought by residents alleging health impacts and diminution of property value due to residual contamination. Prepared summary reports.
- Technical oversight of characterization and remediation of a nitrate plume at an explosives manufacturing facility in Lincoln, CA. Provided interface between owners and consultants. Reviewed site assessments, work plans, closure plans, and RI/FSs.
- Consultant to owner of large western molybdenum mine proposed for NPL listing. Participated in negotiations to scope out consent order and develop scope of work. Participated in studies to determine premining groundwater background to evaluate applicability of water quality standards. Served on technical committees to develop alternatives to mitigate impacts and close the facility, including resloping and grading, various thickness and types of covers, and reclamation. This work included developing and evaluating methods to control surface runoff and erosion, mitigate impacts of acid rock drainage on surface and ground waters, and stabilize nine waste rock piles containing 328 million tons of pyrite-rich, mixed volcanic waste rock (andesites, rhyolite, tuff). Evaluated stability of waste rock piles. Represented client in hearings and meetings with state and federal oversight agencies.

REGULATORY PERMITTING/NEGOTIATIONS

- Prepared Authority to Construct Permit for remediation of a large petroleum-contaminated site on the Central Coast. Negotiated conditions with agencies and secured permits.
- Prepared Authority to Construct Permit for remediation of a former oil field on the Central Coast. Participated in negotiations with agencies and secured permits.
- Prepared and/or reviewed hundreds of environmental permits, including NPDES, UIC, Stormwater, Authority to Construct, Prevention of Significant Deterioration, New Source Review, and RCRA, among others.
- Participated in the development of the CARB document, *Guidance for Power Plant Siting and Best Available Control Technology*, including attending public workshops and filing technical comments.

- Performed data analyses in support of adoption of emergency power restoration standards by the Public Utilities Commission for “major” power outages, where major is an outage that simultaneously affects 10% of the customer base.
- Drafted portions of the Good Neighbor Ordinance to grant Contra Costa County greater authority over safety of local industry, particularly chemical plants and refineries.
- Participated in drafting BAAQMD Regulation 8, Rule 28, Pressure Relief Devices, including participation in public workshops, review of staff reports, draft rules and other technical materials, preparation of technical comments on staff proposals, research on availability and costs of methods to control PRV releases, and negotiations with staff.
- Participated in amending BAAQMD Regulation 8, Rule 18, Valves and Connectors, including participation in public workshops, review of staff reports, proposed rules and other supporting technical material, preparation of technical comments on staff proposals, research on availability and cost of low-leak technology, and negotiations with staff.
- Participated in amending BAAQMD Regulation 8, Rule 25, Pumps and Compressors, including participation in public workshops, review of staff reports, proposed rules, and other supporting technical material, preparation of technical comments on staff proposals, research on availability and costs of low-leak and seal-less technology, and negotiations with staff.
- Participated in amending BAAQMD Regulation 8, Rule 5, Storage of Organic Liquids, including participation in public workshops, review of staff reports, proposed rules, and other supporting technical material, preparation of technical comments on staff proposals, research on availability and costs of controlling tank emissions, and presentation of testimony before the Board.
- Participated in amending BAAQMD Regulation 8, Rule 18, Valves and Connectors at Petroleum Refinery Complexes, including participation in public workshops, review of staff reports, proposed rules and other supporting technical material, preparation of technical comments on staff proposals, research on availability and costs of low-leak technology, and presentation of testimony before the Board.
- Participated in amending BAAQMD Regulation 8, Rule 22, Valves and Flanges at Chemical Plants, etc, including participation in public workshops, review of staff reports, proposed rules, and other supporting technical material, preparation of technical comments on staff proposals, research on availability and costs of low-leak technology, and presentation of testimony before the Board.
- Participated in amending BAAQMD Regulation 8, Rule 25, Pump and Compressor Seals, including participation in public workshops, review of staff reports, proposed rules, and other supporting technical material, preparation of technical comments on staff proposals, research on availability of low-leak technology, and presentation of testimony before the Board.

- Participated in the development of the BAAQMD Regulation 2, Rule 5, Toxics, including participation in public workshops, review of staff proposals, and preparation of technical comments.
- Participated in the development of SCAQMD Rule 1402, Control of Toxic Air Contaminants from Existing Sources, and proposed amendments to Rule 1401, New Source Review of Toxic Air Contaminants, in 1993, including review of staff proposals and preparation of technical comments on same.
- Participated in the development of the Sunnyvale Ordinance to Regulate the Storage, Use and Handling of Toxic Gas, which was designed to provide engineering controls for gases that are not otherwise regulated by the Uniform Fire Code.
- Participated in the drafting of the Statewide Water Quality Control Plans for Inland Surface Waters and Enclosed Bays and Estuaries, including participation in workshops, review of draft plans, preparation of technical comments on draft plans, and presentation of testimony before the SWRCB.
- Participated in developing Se permit effluent limitations for the five Bay Area refineries, including review of staff proposals, statistical analyses of Se effluent data, review of literature on aquatic toxicity of Se, preparation of technical comments on several staff proposals, and presentation of testimony before the Bay Area RWQCB.
- Represented the California Department of Water Resources in the 1991 Bay-Delta Hearings before the State Water Resources Control Board, presenting sworn expert testimony with cross examination and rebuttal on a striped bass model developed by the California Department of Fish and Game.
- Represented the State Water Contractors in the 1987 Bay-Delta Hearings before the State Water Resources Control Board, presenting sworn expert testimony with cross examination and rebuttal on natural flows, historical salinity trends in San Francisco Bay, Delta outflow, and hydrodynamics of the South Bay.
- Represented interveners in the licensing of over 20 natural-gas-fired power plants and one coal gasification plant at the California Energy Commission and elsewhere. Reviewed and prepared technical comments on applications for certification, preliminary staff assessments, final staff assessments, preliminary determinations of compliance, final determinations of compliance, and prevention of significant deterioration permits in the areas of air quality, water supply, water quality, biology, public health, worker safety, transportation, site contamination, cooling systems, and hazardous materials. Presented written and oral testimony in evidentiary hearings with cross examination and rebuttal. Participated in technical workshops.
- Represented several parties in the proposed merger of San Diego Gas & Electric and Southern California Edison. Prepared independent technical analyses on health risks, air

quality, and water quality. Presented written and oral testimony before the Public Utilities Commission administrative law judge with cross examination and rebuttal.

- Represented a PRP in negotiations with local health and other agencies to establish impact of subsurface contamination on overlying residential properties. Reviewed health studies prepared by agency consultants and worked with agencies and their consultants to evaluate health risks.

WATER QUALITY/RESOURCES

- Directed and participated in research on environmental impacts of energy development in the Colorado River Basin, including contamination of surface and subsurface waters and modeling of flow and chemical transport through fractured aquifers.
- Played a major role in Northern California water resource planning studies since the early 1970s. Prepared portions of the Basin Plans for the Sacramento, San Joaquin, and Delta basins including sections on water supply, water quality, beneficial uses, waste load allocation, and agricultural drainage. Developed water quality models for the Sacramento and San Joaquin Rivers.
- Conducted hundreds of studies over the past 30 years on Delta water supplies and the impacts of exports from the Delta on water quality and biological resources of the Central Valley, Sacramento-San Joaquin Delta, and San Francisco Bay. Typical examples include:
 1. Evaluate historical trends in salinity, temperature, and flow in San Francisco Bay and upstream rivers to determine impacts of water exports on the estuary;
 2. Evaluate the role of exports and natural factors on the food web by exploring the relationship between salinity and primary productivity in San Francisco Bay, upstream rivers, and ocean;
 3. Evaluate the effects of exports, other in-Delta, and upstream factors on the abundance of salmon and striped bass;
 4. Review and critique agency fishery models that link water exports with the abundance of striped bass and salmon;
 5. Develop a model based on GLMs to estimate the relative impact of exports, water facility operating variables, tidal phase, salinity, temperature, and other variables on the survival of salmon smolts as they migrate through the Delta;
 6. Reconstruct the natural hydrology of the Central Valley using water balances, vegetation mapping, reservoir operation models to simulate flood basins, precipitation records, tree ring research, and historical research;
 7. Evaluate the relationship between biological indicators of estuary health and down-estuary position of a salinity surrogate (X2);

8. Use real-time fisheries monitoring data to quantify impact of exports on fish migration;
 9. Refine/develop statistical theory of autocorrelation and use to assess strength of relationships between biological and flow variables;
 10. Collect, compile, and analyze water quality and toxicity data for surface waters in the Central Valley to assess the role of water quality in fishery declines;
 11. Assess mitigation measures, including habitat restoration and changes in water project operation, to minimize fishery impacts;
 12. Evaluate the impact of unscreened agricultural water diversions on abundance of larval fish;
 13. Prepare and present testimony on the impacts of water resources development on Bay hydrodynamics, salinity, and temperature in water rights hearings;
 14. Evaluate the impact of boat wakes on shallow water habitat, including interpretation of historical aerial photographs;
 15. Evaluate the hydrodynamic and water quality impacts of converting Delta islands into reservoirs;
 16. Use a hydrodynamic model to simulate the distribution of larval fish in a tidally influenced estuary;
 17. Identify and evaluate non-export factors that may have contributed to fishery declines, including predation, shifts in oceanic conditions, aquatic toxicity from pesticides and mining wastes, salinity intrusion from channel dredging, loss of riparian and marsh habitat, sedimentation from upstream land alternations, and changes in dissolved oxygen, flow, and temperature below dams.
- Developed, directed, and participated in a broad-based research program on environmental issues and control technology for energy industries including petroleum, oil shale, coal mining, and coal slurry transport. Research included evaluation of air and water pollution, development of novel, low-cost technology to treat and dispose of wastes, and development and application of geohydrologic models to evaluate subsurface contamination from in-situ retorting. The program consisted of government and industry contracts and employed 45 technical and administrative personnel.
 - Coordinated an industry task force established to investigate the occurrence, causes, and solutions for corrosion/erosion and mechanical/engineering failures in the waterside systems (e.g., condensers, steam generation equipment) of power plants. Corrosion/erosion failures caused by water and steam contamination that were investigated included waterside

corrosion caused by poor microbiological treatment of cooling water, steam-side corrosion caused by ammonia-oxygen attack of copper alloys, stress-corrosion cracking of copper alloys in the air cooling sections of condensers, tube sheet leaks, oxygen in-leakage through condensers, volatilization of silica in boilers and carry over and deposition on turbine blades, and iron corrosion on boiler tube walls. Mechanical/engineering failures investigated included: steam impingement attack on the steam side of condenser tubes, tube-to-tube-sheet joint leakage, flow-induced vibration, structural design problems, and mechanical failures due to stresses induced by shutdown, startup and cycling duty, among others. Worked with electric utility plant owners/operators, condenser and boiler vendors, and architect/engineers to collect data to document the occurrence of and causes for these problems, prepared reports summarizing the investigations, and presented the results and participated on a committee of industry experts tasked with identifying solutions to prevent condenser failures.

- Evaluated the cost effectiveness and technical feasibility of using dry cooling and parallel dry-wet cooling to reduce water demands of several large natural-gas fired power plants in California and Arizona.
- Designed and prepared cost estimates for several dry cooling systems (e.g., fin fan heat exchangers) used in chemical plants and refineries.
- Designed, evaluated, and costed several zero liquid discharge systems for power plants.
- Evaluated the impact of agricultural and mining practices on surface water quality of Central Valley streams. Represented municipal water agencies on several federal and state advisory committees tasked with gathering and assessing relevant technical information, developing work plans, and providing oversight of technical work to investigate toxicity issues in the watershed.

AIR QUALITY/PUBLIC HEALTH

- Prepared or reviewed the air quality and public health sections of hundreds of EIRs and EISs on a wide range of industrial, commercial and residential projects.
- Prepared or reviewed hundreds of NSR and PSD permits for a wide range of industrial facilities.
- Designed, implemented, and directed a 2-year-long community air quality monitoring program to assure that residents downwind of a petroleum-contaminated site were not impacted during remediation of petroleum-contaminated soils. The program included real-time monitoring of particulates, diesel exhaust, and BTEX and time integrated monitoring for over 100 chemicals.
- Designed, implemented, and directed a 5-year long source, industrial hygiene, and ambient monitoring program to characterize air emissions, employee exposure, and downwind environmental impacts of a first-generation shale oil plant. The program included stack monitoring of heaters, boilers, incinerators, sulfur recovery units, rock crushers, API

separator vents, and wastewater pond fugitives for arsenic, cadmium, chlorine, chromium, mercury, 15 organic indicators (e.g., quinoline, pyrrole, benzo(a)pyrene, thiophene, benzene), sulfur gases, hydrogen cyanide, and ammonia. In many cases, new methods had to be developed or existing methods modified to accommodate the complex matrices of shale plant gases.

- Conducted investigations on the impact of diesel exhaust from truck traffic from a wide range of facilities including mines, large retail centers, light industrial uses, and sports facilities. Conducted traffic surveys, continuously monitored diesel exhaust using an aethalometer, and prepared health risk assessments using resulting data.
- Conducted indoor air quality investigations to assess exposure to natural gas leaks, pesticides, molds and fungi, soil gas from subsurface contamination, and outgassing of carpets, drapes, furniture and construction materials. Prepared health risk assessments using collected data.
- Prepared health risk assessments, emission inventories, air quality analyses, and assisted in the permitting of over 70 1 to 2 MW emergency diesel generators.
- Prepare over 100 health risk assessments, endangerment assessments, and other health-based studies for a wide range of industrial facilities.
- Developed methods to monitor trace elements in gas streams, including a continuous real-time monitor based on the Zeeman atomic absorption spectrometer, to continuously measure mercury and other elements.
- Performed nuisance investigations (odor, noise, dust, smoke, indoor air quality, soil contamination) for businesses, industrial facilities, and residences located proximate to and downwind of pollution sources.

PUBLICATIONS AND PRESENTATIONS (Partial List - Representative Publications)

J.P. Fox, T.P. Rose, and T.L. Sawyer, Isotope Hydrology of a Spring-fed Waterfall in Fractured Volcanic Rock, Submitted to Journal of Hydrology, 2002.

C.E. Lambert, E.D. Winegar, and Phyllis Fox, Ambient and Human Sources of Hydrogen Sulfide: An Explosive Topic, Air & Waste Management Association, June 2000, Salt Lake City, UT.

San Luis Obispo County Air Pollution Control District and San Luis Obispo County Public Health Department, *Community Monitoring Program*, February 8, 1999.

The Bay Institute, *From the Sierra to the Sea. The Ecological History of the San Francisco Bay-Delta Watershed*, 1998.

- J. Phyllis Fox, *Well Interference Effects of HDPP's Proposed Wellfield in the Victor Valley Water District*, Prepared for the California Unions for Reliable Energy (CURE), October 12, 1998.
- J. Phyllis Fox, *Air Quality Impacts of Using CPVC Pipe in Indoor Residential Potable Water Systems*, Report Prepared for California Pipe Trades Council, California Firefighters Association, and other trade associations, August 29, 1998.
- J. Phyllis Fox and others, *Authority to Construct Avila Beach Remediation Project*, Prepared for Unocal Corporation and submitted to San Luis Obispo Air Pollution Control District, June 1998.
- J. Phyllis Fox and others, *Authority to Construct Former Guadalupe Oil Field Remediation Project*, Prepared for Unocal Corporation and submitted to San Luis Obispo Air Pollution Control District, May 1998.
- J. Phyllis Fox and Robert Sears, *Health Risk Assessment for the Metropolitan Oakland International Airport Proposed Airport Development Program*, Prepared for Plumbers & Steamfitters U.A. Local 342, December 15, 1997.
- Levine-Fricke-Recon (Phyllis Fox and others), *Preliminary Endangerment Assessment Work Plan for the Study Area Operable Unit, Former Solano County Sanitary Landfill, Benicia, California*, Prepared for Granite Management Co. for submittal to DTSC, September 26, 1997.
- Phyllis Fox and Jeff Miller, "Fathead Minnow Mortality in the Sacramento River," *IEP Newsletter*, v. 9, n. 3, 1996.
- Jud Monroe, Phyllis Fox, Karen Levy, Robert Nuzum, Randy Bailey, Rod Fujita, and Charles Hanson, *Habitat Restoration in Aquatic Ecosystems. A Review of the Scientific Literature Related to the Principles of Habitat Restoration*, Part Two, Metropolitan Water District of Southern California (MWD) Report, 1996.
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- Phyllis Fox and Alison Britton, *Predictive Ability of the Striped Bass Model*, WRINT DWR-206, 1992.
- J. Phyllis Fox, *An Historical Overview of Environmental Conditions at the North Canyon Area of the Former Solano County Sanitary Landfill*, Report Prepared for Solano County Department of Environmental Management, 1991.
- J. Phyllis Fox, *An Historical Overview of Environmental Conditions at the East Canyon Area of the Former Solano County Sanitary Landfill*, Report Prepared for Solano County Department of Environmental Management, 1991.

Phyllis Fox, *Trip 2 Report, Environmental Monitoring Plan, Parachute Creek Shale Oil Program*, Unocal Report, 1991.

J. P. Fox and others, "Long-Term Annual and Seasonal Trends in Surface Salinity of San Francisco Bay," *Journal of Hydrology*, v. 122, p. 93-117, 1991.

J. P. Fox and others, "Reply to Discussion by D.R. Helsel and E.D. Andrews on Trends in Freshwater Inflow to San Francisco Bay from the Sacramento-San Joaquin Delta," *Water Resources Bulletin*, v. 27, no. 2, 1991.

J. P. Fox and others, "Reply to Discussion by Philip B. Williams on Trends in Freshwater Inflow to San Francisco Bay from the Sacramento-San Joaquin Delta," *Water Resources Bulletin*, v. 27, no. 2, 1991.

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J. P. Fox, "Water Development Increases Freshwater Flow to San Francisco Bay," *SCWC Update*, v. 4, no. 2, 1988.

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J. P. Fox, "The Distribution of Mercury During Simulated In-Situ Oil Shale Retorting," *Environmental Science and Technology*, v. 19, no. 4, pp. 316-322, 1985.

J. P. Fox, "El Mercurio en el Medio Ambiente: Aspectos Referentes al Peru," (Mercury in the Environment: Factors Relevant to Peru) Proceedings of Simposio Los Pesticidas y el Medio Ambiente," ONERN-CONCYTEC, Lima, Peru, April 25-27, 1984. (Also presented at Instituto Tecnologico Pesquero and Instituto del Mar del Peru.)

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J. P. Fox, P. Persoff, A. Newton, and R. N. Heistand, "The Mobility of Organic Compounds in a Codisposal System," *Proceedings of the Seventeenth Oil Shale Symposium*, Colorado School of Mines Press, Golden, CO, 1984.

P. Persoff and J. P. Fox, "Evaluation of Control Technology for Modified In-Situ Oil Shale Retorts," *Proceedings of the Sixteenth Oil Shale Symposium*, Colorado School of Mines Press, Golden, CO, 1983.

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R. D. Giauque, J. P. Fox, J. W. Smith, and W. A. Robb, "Geochemical Studies of Two Cores from the Green River Oil Shale Formation," *Transactions*, American Geophysical Union, v. 61, no. 17, 1980.

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- J. P. Fox (ed.) "Oil Shale Research," Chapter from the *Energy and Environment Division Annual Report 1979*, Lawrence Berkeley Laboratory Report LBL-10486, 1980 (author or coauthor of eight articles).
- E. Ossio and J. P. Fox, *Anaerobic Biological Treatment of In-Situ Oil Shale Retort Water*, Lawrence Berkeley Laboratory Report LBL-10481, March 1980.
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- J. P. Fox, "Retort Water Particulates," *Proceedings of the Oil Shale Symposium: Sampling, Analysis and Quality Assurance*, U.S. EPA Report EPA-600/9-80-022, March 1979 (Lawrence Berkeley Laboratory Report LBL-8829).

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D. C. Girvin and J. P. Fox, *On-Line Zeeman Atomic Absorption Spectroscopy for Mercury Analysis in Oil Shale Gases*, Environmental Protection Agency Report EPA-600/7-80-130, 95 p., August 1979 (Lawrence Berkeley Laboratory Report LBL-9702).

J. P. Fox, *Water Quality Effects of Leachates from an In-Situ Oil Shale Industry*, Lawrence Berkeley Laboratory Report LBL-8997, 37 pp., April 1979.

J. P. Fox (ed.), "Oil Shale Research," Chapter from the *Energy and Environment Division Annual Report 1978*, Lawrence Berkeley Laboratory Report LBL-9857 August 1979 (author or coauthor of seven articles).

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Petra Pless, D. Env.

Environmental Scientist/Engineer

540 Kenyon Ave.
Kensington, CA 94704
office: (510) 558-9132
fax: (775) 254-5849
ppless@earthlink.net

Dr. Pless has over 10 years of experience in environmental engineering and science conducting and managing interdisciplinary environmental research projects and preparing and reviewing environmental permits and other documents for U.S. and European stakeholder groups. This broad-based experience includes air quality and pollution control; water quality, water supply, and water pollution control; noise studies; CEQA review; industrial ecology and risk assessment; and development and use of a wide range of environmental software.

EDUCATION

Doctorate in Environmental Science and Engineering, University of California, Los Angeles, 2001

M.S. Biology (Botany/Ecology), Technical University of Munich, Germany, 1991

PROFESSIONAL HISTORY

Leson Environmental Consulting, Berkeley, CA, Environmental Scientist, 1997-Present

University of California Los Angeles, Graduate Research Assistant/Teaching Assistant, 1994-96

ECON Research and Development, Environmental Scientist, Ingelheim, Germany, 1992-93

Biocontrol, Environmental Projects Manager, Ingelheim, Germany, 1991-92

REPRESENTATIVE EXPERIENCE

Air Quality and Pollution Control

Experience in all aspects of air quality and pollution control including attainment and non-attainment new source review, PSD and Title V permitting; BACT, LAER, RACT, BARCT, and MACT analyses; technology evaluations and cost-effectiveness analyses; criteria and toxic pollutant emission inventories; emission offsets; ambient and source monitoring. Some typical projects include:

- For an Indiana steel mill, evaluated technology to control NO_x and CO emissions from fired sources, including electric arc furnaces and reheat furnaces, to establish BACT. This required a comprehensive review of U.S. and European operating experience. The lowest emission levels were being achieved by steel mills using SCR and SNCR in Sweden and The Netherlands.

- For a California petroleum coke calciner, evaluated technology to control NO_x, CO, VOCs, and PM₁₀ emissions from the kiln and pyroscrubbers to establish BACT and LAER. This required a review of state and federal clearinghouses, working with regulatory agencies and pollution control vendors, and obtaining and reviewing permits and emissions data from other similar facilities. The best-controlled facilities were located in the SCAQMD.
- For a Kentucky coal-fired power plant, identified the lowest NO_x levels that had been permitted and demonstrated in practice to establish BACT. Reviewed operating experience of European, Japanese, and U.S. facilities and evaluated continuous emission monitoring data. The lowest NO_x levels had been permitted and achieved in Denmark and in the U.S. in Texas and New York.
- In support of efforts to lower the CO BACT level for power plant emissions, evaluated the contribution of CO emissions to tropospheric ozone formation and coauthored report on same.
- Critically reviewed and prepared technical comments on draft PSD permits for several natural-gas fired power plants in California, Indiana, and Oregon. The comments addressed emission inventories, BACT, case-by-case MACT, compliance monitoring, cost-effectiveness analyses, and enforceability of permit limits.
- For a California refinery, evaluated technology to control NO_x and CO emissions from CO Boilers to establish RACT/BARCT to comply with BAAQMD Rule 9-10. This required a review of BACT/RACT/LAER clearinghouses, working with regulatory agencies across the U.S., and reviewing federal and state regulations and State Implementation Plans. The lowest levels were required in a SCAQMD rule and in the Texas SIP.
- In conjunction with the permitting of several residential and commercial developments, conducted studies to determine baseline concentrations of diesel exhaust using an aethalometer.
- For several California refineries, evaluated compliance of fired sources with BAAQMD Rule 9-10. This required evaluation and review of hundreds of source tests to determine if refinery-wide emission caps and compliance monitoring provisions were being met.
- Critically reviewed and prepared technical comments on draft Title V permits for several refineries and other industrial facilities in California.
- Critically reviewed and prepared technical comments on the air quality, biology, noise, and public health sections of CEQA documents (EIRs, Initial Studies, Mitigated Negative Declarations) for several commercial, residential, and industrial projects in California.
- In support of several federal lawsuits filed under the Clean Air Act, prepared cost-effectiveness analyses for SCR and oxidation catalysts for simple cycle gas turbines and evaluated opacity data.
- Provided comprehensive environmental and regulatory services for an industrial laundry chain. Facilitated permit process with the South Coast Air Quality Management District. Developed test protocol for VOC emissions, conducted field tests, and used mass balance methods to estimate emissions. Reduced disposal costs for solvent-

containing waste streams by identifying alternative disposal options. Performed health risk screening for air toxics emissions. Provided permitting support with SCAQMD. Renegotiated sewer surcharges with wastewater treatment plant. Identified new customers for shop-towel recycling services.

- Designed computer model to predict performance of biological air pollution control as part of a collaborative technology assessment project, co-funded by several major chemical manufacturers.
- Experience using a wide range of environmental software, including air dispersion models, air emission software, and developing applications using database programs and GIS.

Water Quality and Pollution Control

Experience in all phases of water quality and pollution control, including surface water and ground water quality and supply studies, evaluating water and wastewater treatment technologies, and identifying, evaluating and implementing pollution controls. Some typical projects include:

- For a homeowner's association, reviewed a CA Coastal Commission staff report on the replacement of 12,000 linear feet of wooden bulkhead with PVC sheet pile armor. Researched and evaluated impact of proposed project on lagoon water quality, including sediment resuspension, leaching of additives and sealants, and long-term stability. Summarized results in letter report. This work is ongoing.
- Evaluated impact of on-shore oil drilling activities on large-scale coastal erosion in Nigeria. This work is ongoing.
- For a 500-MW combined-cycle power plant, prepared a study to evaluate the impact of proposed groundwater pumping on local water quality and supply, including a nearby stream, springs, and a spring-fed waterfall. The study was docketed with the California Energy Commission and summarized in a journal article.
- For a 500-MW combined-cycle power plant, identified and evaluated methods to reduce water use and water quality impacts. These included the use of zero liquid discharge systems and alternative cooling technologies, including dry and parallel wet-dry cooling. Prepared cost analyses and evaluated impact of options on water resources. This work led to a settlement in which parallel wet dry cooling and a crystallizer were selected, replacing 100% groundwater pumping and wastewater disposal to evaporation ponds.

Applied Ecology, Industrial Ecology and Risk Assessment

Experience in applied ecology, industrial ecology and risk assessment, including human and ecological risk assessments, life cycle assessment, evaluation and licensing of new chemicals, and fate and transport studies of contaminants. Experienced in botanical, phytoplankton, and intertidal species systematics and water chemistry analyses. Some typical projects include:

- Evaluated likelihood that measured organochlorine pesticide concentrations at a U.S. naval air station are residuals from past applications of these pesticides consistent with manufacturers' recommendations.
- For a 180-MW geothermal power plant, evaluated the impacts of plant construction and operation on the fragile desert ecosystem in the Salton Sea area. This work included baseline noise monitoring and assessing the impact of noise, brine handling and disposal, and air emissions on local biota, public health, and welfare.
- Evaluated the public health impacts of locating big box retail developments in densely populated areas in California and Hawaii. The impacts of diesel exhaust emissions and noise on surrounding residential communities were measured and evaluated. This work is continuing.
- Designed and managed toxicological study on potential interference of delta-9-tetrahydrocannabinol in food products with U.S. employee drug testing. Coauthored peer-reviewed publication.
- Conducted technical, ecological, and economic assessments of product lines from agricultural fiber crops for European equipment manufacturer. Coauthored proprietary client reports.
- Prepared human health risk assessments of air emissions from several industrial and commercial establishments, including power plants, refineries, and commercial laundries.
- Managed and conducted studies to license new pesticides. This work included the evaluation of the adequacy and identification of deficiencies in existing physicochemical and health effects data sets, initiating and supervising studies to fill the data gaps, conducting fate and transport studies, and QA/QC compliance at subcontractor laboratories. Prepared licensing applications and coordinated their progress with German registration agencies. This work led to regulatory approval of several pesticide applications in less than 6 months.
- Designed and implemented database on physico-chemical properties and environmental and health impacts of pesticides.
- Developed life cycle assessment methodology for industrial products, including agricultural fiber crops and mineral fibers. Analyzed technical feasibility and markets for thermal insulation materials from plant fibers and conducted comparative life cycle assessments.
- Designed research protocols for a coastal ecological inventory. Developed sampling methodologies, coordinated field sampling, identified species in intertidal zone, and analyzed data.
- Designed and conducted limnological study on effects of physico-chemical parameters on phytoplankton succession; performed water chemistry analyses and identified phytoplankton species. Co-authored two journal articles on results.
- Conducted and organized underwater surveying and mapping of macrophytes in many lakes and rivers in Sweden and Germany as ecological indicators for the health of limnological ecosystems.

- Provided pro-bono consulting for the Pine Ridge Reservation in South Dakota. Assessed environmental improvement and economic development projects and recommended methods to improve the quality of life.

PROFESSIONAL AFFILIATIONS

American Chemical Society
 American Institute of Chemical Engineers
 Association of Environmental Professionals

SELECTED PUBLICATIONS

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Comments

On

HYDROLOGY AND WATER QUALITY

**LAX Master Plan Supplement To The
Draft Environmental Impact Statement/
Draft Environmental Impact Report**

Prepared by

**J. Phyllis Fox, Ph.D., P.E., DEE, QEP, REA I/II
Consulting Engineer
Berkeley, CA**

**Petra Pless, D.Env.
Environmental Engineer
Kensington, CA**

November 2003

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COMMENTS

Los Angeles World Airports ("LAWA" or "the Applicant"), the operator of the Los Angeles International Airport ("LAX"), has published a Draft Master Plan Addendum, a Supplement to the Draft Environmental Impact Statement/Environmental Impact Report¹ ("Supplement"), and Airport Layout Plans Package on the modernization of LAX ("Project"). These documents supplement the Draft Environmental Impact Statement/Environmental Impact Report² ("Draft EIS/EIR") and add discussion of Alternative D to the previously discussed Master Plan alternatives.

We previously submitted comments on the Draft EIS/EIR that demonstrated the failure of the Draft EIS/EIR to meet the requirements of CEQA and NEPA. (Comments on Hydrology and Water Quality, LAX Master Plan Draft EIS/EIR (July 13, 2001) by J. Phyllis Fox, Ph.D., Attachment D to September 18, 2001 Comments Submitted on Behalf of the City of El Segundo by Shute, Mihaly & Weinberger ("2001 Fox Comments").)

The Draft EIS/EIR failed to analyze all impacts from the Project and the mitigation measure proposed to mitigate significant hydrology and water quality impacts from Project Alternatives A through C was inadequate. Further shortcomings consisted of a substantial underestimate of pollutant loads due to the use of a flawed methodology, the omission of pollutants, and the use of incorrect datasets and runoff coefficients.

With few exceptions, the Supplement ignored our comments and proceeded to use the same methodology and datasets for its revised runoff estimates and presents a virtually unchanged mitigation measure. Thus, the Supplement is inadequate and does not meet the requirements of CEQA and NEPA. The many areas in which the Draft EIR/EIS and the Supplement are deficient must be addressed, the impacts on hydrology and water quality reassessed, an acceptable mitigation measure(s) must be developed, and the documents must be recirculated for public review.

¹ LAX Master Plan, Supplement to the Draft Environmental Impact Statement/Environmental Impact Report, July 2003.

² LAX Master Plan, Draft Environmental Impact Statement/Environmental Impact Report, January 2001.

The following sections provide our comments on the changes made in the Supplement and offers additional commentary on the Project's hydrology and water quality impacts.

I. STORMWATER POLLUTANT LOAD ESTIMATES ARE FLAWED

In our previous comments on the Draft EIS/EIR, we demonstrated that the Project analysis substantially underestimated pollutant loads in stormwater runoff because a flawed methodology and incorrect data sets were used. (2001 Fox Comments, pp. 5-19.) With few exceptions, the Supplement ignored these comments and proceeded to use the same methodology and datasets described in the Draft EIS/EIR Technical Report 6, Hydrology and Water Quality ("TR6"). Consequently, the revised estimates for stormwater pollutant loads presented in the Supplement are also underestimated. Our previous comments on the methodology and data used to analyze stormwater runoff for the various Project alternatives remain applicable and the calculations should be revised accordingly. The following discussion relates to the few changes in the Supplement's methodology or data and provides additional comments regarding the environmental baseline against which Project impacts are evaluated.

I.A Pollutants Of Concern Not Properly Selected

In addition to the nine pollutants analyzed in the Draft EIS/EIR, pollutants – total suspended solids ("TSS"), total phosphorus ("TP"), total Kjeldahl nitrogen ("TKN"), 5-day biochemical oxygen demand ("BOD₅"), chemical oxygen demand ("COD"), oil and grease ("O&G"), and total copper, total lead, total zinc – the Supplement has expanded its list by four additional pollutants, *i.e.* ammonia, total coliform, fecal coliform, and fecal *Enterococcus* bacteria, for the estimation of average annual pollutant loads for all alternatives. However, as we previously pointed out in our comments on the Draft EIS/EIR, several other pollutants should have also been included in the analysis including cadmium, chromium, nickel, mercury, and silver as well as polycyclic aromatic hydrocarbons ("PAH"). (2001 Fox Comments, II.D, pp. 9/10.) The Supplement entirely ignored this recommendation and does not provide any additional information on why it chose to exclude these pollutants from its analysis.

I.B Toxicity Was Not Considered

As discussed in our previous comments, the Draft EIS/EIR should have evaluated the fact that stormwater runoff from the vicinity of the project is known to be toxic to marine organisms. Pollutants of concern include pathogens and viruses, dioxins, furans, and other chlorinated organics, polycyclic aromatic hydrocarbons, metals, and pesticides. (2001 Fox Comments, II.E, p. 10-18.) The

only mitigation proposed to reduce water quality impacts requires "no net increase in loads of pollutants of concern." (Draft EIS/EIR, p. 4-547.) However, if the pollutants responsible for the observed toxicity are not included in the analysis and hence not subject to control, this mitigation measure would do nothing to mitigate toxicity from increases in stormwater runoff caused by the Project. The Supplement continues to ignore this issue.

LC Event Mean Concentrations Underestimated

The analysis of the Project's water quality impacts is based on an estimate of pollutant loads discharged into Santa Monica Bay caused by changes in stormwater runoff volume as a result of changes in land use due to the Project. Both the Draft EIS/EIR and the Supplement estimated pollutant loads by multiplying the event mean concentrations ("EMCs") for stormwater runoff by the annual volume of stormwater runoff. (Draft EIS/EIR, TR6³, pp. 20-25; Supplement, TRS-5⁴, p. 2.)

The Draft EIS/EIR used 1994-1999 stormwater monitoring data reported by the Los Angeles County Department of Public Works ("LACDPW") for all land uses (industrial, commercial, residential, open space, transportation) except airport operations and airport open space. For land uses categorized as airport operations and airport open spaces, the DEIR relied on a joint study by the American Association of Airport Executives ("AAAE") and the Airport Research and Development Foundation ("ARDF"), the "Ostrom Study"⁵, which monitored the quality of stormwater runoff from 65 airports⁶ nationwide in preparation for the 1992 stormwater group permit. (Draft EIS/EIR, TR6, p. 21; Supplement, TRS-5, p. 2.) The Draft EIS/EIR used AA AE/ARDF data for total suspended solids ("TSS"), total phosphorus ("TP"), total Kjeldahl nitrogen ("TKN"), oil and grease ("O&G"), 5-day biochemical oxygen demand ("BOD₅"), and chemical oxygen demand ("COD"). Because the AA AE/ARDF study did not include data for total copper ("Cu"), total lead ("Pb"), and total zinc ("Zn"), the Draft EIS/EIR

³ LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report, Technical Report, 6. Hydrology and Water Quality January 2001.

⁴ LAX Master Plan Supplement to the Draft Environmental Impact Statement/Environmental Impact Report, Technical Report, S-5. Hydrology and Water Quality, July 2003.

⁵ Brenda Ostrom, Predicting Pollutant Loads in Airport Storm Water Runoff -- Advanced Spatial Statistics, May 12, 1994.

⁶ In contrast, Supplement TRS-5, p. 2, specifies that the storm water samples were collected at "over 605 airports." Neither the Draft EIS/EIR nor the Supplement provided a description of the methodology of the Ostrom study. It thus remains unclear how many airports were sampled, for how many years data were collected, how the data were analyzed, and so forth.

relied on LACDPW data developed for the transportation sector for these three pollutants. (Draft EIS/EIR, TR6, pp. 20-24.)

In our previous comments, we pointed out that a) the LACDPW EMC dataset used by the Draft EIS/EIR had been superceded and b) the use of the AAAE/ ARDF data is inappropriate for characterizing stormwater runoff pollutant loads at LAX. (2001 Fox Comments, II.A, pp. 5/6.) The AAAE/ ARDF data represent a nationwide average from airports with dissimilar levels of operational activities, located in varying climate zones with greatly differing precipitation volumes and patterns. These data are entirely unsuitable to characterize runoff from an airport as busy as LAX, located in a desert climate where precipitation during most of the year is non-existing and most runoff occurs during a few major storm events during the rainy season.

The Supplement updated the LACDPW data for the period 1999-2000 as recommended, however it continued to use the same AAAE/ ARDF data for land uses categorized as airport operations and airport open spaces for the above listed pollutants. As an explanation, the Supplement offers that "inquiries were made to AAAE and other sources to obtain the original AAAE raw data" and that "[t]he goal of these inquiries was to isolate the EMCs collected from the four airports located in what is referred to in the Ostrom Study as Rainfall Region 5, which includes portions of southwestern Colorado, southern Utah, southern Nevada, western New Mexico, Arizona, and southern California. However, the raw data could not be obtained from AAAE or from other sources to which inquiries were made. Therefore, no new airport EMCs or EMCs specific to LAX are used in this Supplement to the Draft EIS/EIR." (Supplement, TRS-5, p. 2.) Obviously, the Supplement recognized that the use of a nationwide average is inappropriate to characterize EMCs at LAX. However, it declined to provide any reasons why it still chose those inappropriate data when it did not succeed to obtain a regional data subset.

The EMCs based on local LACDPW data for the transportation sector are much higher (up to four times) for all pollutants than the AAAE/ ARDF data as shown in the inset table below. (See Supplement, TRS-5, p. 3, Table S1.)

Pollutant	Event Mean Concentration (mg/L)		(LACDPW EMC)/ (AAAE/ARDF EMC)
	LACDPW	AAAE/ARDF	
TSS	78	19.01	410%
TP	0.44	0.24	183%
TKN	1.9	1.07	178%
O&G	3.1	2.29	135%
BOD ₅	21	6.58	319%
COD	50	45.7	109%

Obviously, the use of AAAE/ARDF data instead of LACDPW data for the transportation sector leads to a substantial underestimate for pollutant loads from stormwater runoff from airport operations and airport open spaces for these pollutants. With few exceptions, the LACDPW's EMCs for most land uses are much higher than those reported by the AAAE/ARDF. (See Supplement, TRS-5 Table S-1, p. 3.)

Consequently, any change in land use to the airport operations/airport open space land use will result in a decrease of total pollutant loads in comparison with the baseline for most of the above mentioned pollutants. Not surprisingly, the Supplement's calculations for Alternatives A, B, and C, which are associated with much more extensive changes in land use than Alternative D, result in substantial decreases in total annual pollutant loads for most pollutants compared to either the baseline or the No Action/No Project ("NA/NP") alternative. Alternative D results in an increase compared to the baseline and only a slight decrease for most pollutants compared to the NA/NP alternative. (See Supplement, TRS-5, Tables S6 through S12, pp. 8-11.) It appears that the Supplement used those data that underestimate impacts rather than data that are more appropriate.

I.D Total Pollutant Loads Underestimated

The use of LACDPW's EMCs for the airport operations/airport open space land uses would have resulted in much less favorable data for the six pollutants for which the Supplement used the AAAE/ARDF EMCs, *i.e.* TSS, TP, TKN, O&G, BOD₅ and COD. We recalculated the total estimated pollutant loads for these six pollutants with LACDPW's EMCs for the airport operations/airport open space land uses for the baseline, the NA/NP Alternative and Alternatives A, B, C, and D for buildout year 2015. Pollutant loads for all other land uses were assumed to be unchanged since the Supplement's calculations for those were based on LACDPW's EMCs. (See Table 1.)

As expected, total pollutant loads (including the baseline and the NA/NP alternative) are substantially higher than those presented in the Supplement for

all pollutants. For example, the revised estimate for TSS for Alternative D in 2015 is 822,502 pounds per year ("lb/year") compared to the 434,041 lb/year calculated by the Supplement. (See Table 1 and Supplement, TRS-5, Table 12 through S12, p. 11.)

Further, where previously only five of the 24 values for pollutant loads (four Alternatives/six pollutants) exceeded the NA/NP alternative values, there are now 13 values that exceed these values. Compared to the baseline, previously only eight of the 24 pollutant load values exceeded the baseline values, now there are 16 values.

These much higher total pollutant loads have consequences for the mitigation measure. It must be demonstrated that a combination of source control, structural and treatment control best management practices ("BMPs") can reduce these pollutant loads sufficiently to result in a "no net gain" in discharged pollutant loads.

I.E Stormwater Runoff Coefficient Underestimated

The Supplement used stormwater runoff coefficients determined by a 1987 method advocated by the Federal Highway Administration ("FHWA"), the same method presented in the Draft EIS/EIR. (Supplement, p. 4, Draft EIS/EIR, pp. 24/25.) We had previously pointed out that a more recent method exists that more accurately captures local conditions, which is used by the Los Angeles County Department of Public Works ("LACDPW") and other local agencies. (2001 Fox Comments, II.G, pp. 18/19.) Use of this method results in considerably higher runoff coefficients and hence substantially greater runoff. The Supplement failed to provide an explanation on why it chose the FHWA method over the more applicable LACDPW method.

I.F Data For 1996 Baseline Year Are Inconsistent

The Supplement continues to use the year 1996 as its baseline for the hydrology and water quality analysis and maintains that hydrology results for baseline conditions remain unchanged from the Draft EIS/EIR, *i.e.* they are based on year 1996 conditions. (Supplement, TRS-5, p. 5.) Water quality results on the other hand were updated to reflect updated information, *e.g.*, average annual precipitation data now include the time period from 1948 to 2000 and, as discussed above in Comment I.C, LACDPW EMCs were adjusted to include the year 2000. The estimates of average annual pollutant loads for the baseline condition are dependent on the average annual precipitation, the EMCs, and on the various on- and off-airport land uses. According to the Supplement, the off-airport land uses had apparently already been updated for the Draft EIS/EIR to

reflect year 2000 conditions. (Supplement, Appx. S-B⁷, p. 40.) Presumably, since the Supplement did not comment on it, the on-airport land uses are still characterized for the year 1996.

This treatment of the baseline conditions is inconsistent and unacceptable. To be consistent, factors affecting hydrology, *i.e.* drainage and flood control structures, as well as on-airport land uses should have also been updated to reflect year 2000 conditions.

Here, as in the other sections, the Supplement should have used the 2000 baseline. Using a 1996 baseline for a project that will be implemented in the year 2004 is entirely inappropriate, especially considering the fact that newer data sets exist.

II. MITIGATION MEASURE REMAINS INADEQUATE

The Draft EIS/EIR proposed mitigation measure HWQ-1 to address significant water quality impacts, *i.e.* an increased load of a pollutant of concern delivered to a receiving water body by surface water runoff. This measure consists of the commitment to develop a drainage plan once an alternative is selected. The purpose of this drainage plan will be to "assess site-specific drainage flows at a design level of detail that provide adequate drainage capacity to prevent flooding." The drainage plan will incorporate BMPs "to minimize the effect of airport operations on surface water quality and to prevent a net increase in pollutant loads to surface water resulting from the selected Master Plan alternative." (Supplement, p. 4-410.) The Supplement made only minor changes to this mitigation measure.

The Supplement merely presents lists of potential methods to reduce peak flow of surface water runoff, potential measures to increase drainage capacity, and potential BMPs that could be employed to infiltrate or treat storm water runoff and dry weather flows, and control peak flow rates. The descriptions of the mitigation measures in the Supplement are too general to assure that they will actually be implemented. The measure does not establish specific targets that must be met, *e.g.*, no net increase in pollutants discharged from the site, and are not enforceable as a practical matter.

Enforceability is normally achieved by including mitigation measures in the requests for bids and resulting construction contracts, posting bonds, drawing up legal agreements, or recording conditions of approval on property

⁷ LAX Master Plan Supplement to the Draft Environmental Impact Statement/Environmental Impact Report, Appendix S-B, Existing Baseline Comparison Issues – 1996–2000, July 2003,

titles or in agency permits. None of the proposed mitigation measures include any legally binding commitments or methods to ensure implementation and enforcement.

The mitigation measure also does not specify criteria for selecting from among these various methods, measures, and BMPs. (Supplement, pp. 4-410/411.) The Supplement made no attempt to assess feasibility of any of the measures, or to evaluate their secondary impacts, thus deferring the development of the drainage plan to the future, outside of public view.

II.A Development Of Mitigation Plan Cannot Be Deferred

Rather than developing a conceptual level design for each of the proposed alternatives, as we suggested in our comments on the Draft EIS/EIR, the Supplement continues to defer the development of the proposed drainage plan until after an alternative is selected and only added the request that the plan be developed "to the satisfaction of the City of Los Angeles Department of Public Works, Bureau of Engineering." (2001 Fox Comments, I., p. 1/2; Supplement, p. 4-410.) The Supplement thus removes the review of the proposed drainage plan from public review. This approach is not permissible under CEQA and NEPA.

While it is not feasible to develop a detailed engineering design of physical facilities before an alternative is selected, it is possible to develop a conceptual level design for each alternative. This would facilitate selecting and evaluating the mitigation measures that could be used to reduce the impacts from Project alternatives.

Further, by deferring the development of the plan into the future until after the alternative is developed, secondary impacts from the mitigation measures cannot be identified, assessed and mitigated, as required. For example, the selection of Alternatives A, B, or C would involve the elimination of the Imperial water quality retention basin and require that an alternative retention and/or water quality treatment BMP be provided. (Supplement, p. 4-456.) Both the elimination of the Imperial water quality retention basin and the establishment of an alternative will result in local changes of the water quality and peak flows. It will also have construction emission impacts that have not been assessed. These secondary (or indirect) impacts of the mitigation measure need to be evaluated to understand the full impact of the selected alternative on hydrology and water quality.

II.B All Feasible Mitigation Not Required For Flows And Water Quality

We commented previously that the list of specific mitigation measures, from which a selection would be made for the drainage plan, was limited and incomplete. We recommended that the list be expanded to include the large body of Best Management Practices ("BMPs") developed by federal, state, and local agencies as well as inspection and maintenance programs. We recommended incorporating into the list all feasible measures based on the large number of manuals and guidelines that have been published. (2001 Fox Comments, p. 2.)

Aside from specifying one additional measure, *i.e.* hydrodynamic devices, the Supplement only added that "Best Management Practices (BMPs) will be incorporated to minimize the effect of airport operations on surface water quality and to prevent a net increase in pollutant loads to surface water resulting from the selected Master Plan alternative" and that "[o]ther structural BMPs may also be selected from the literature and the many federal, state and local guidance documents available." (Supplement, p. 4-410.)

This requirement does not cure the defects previously identified in the previous Draft EIS/EIR version. If the specific measures that would be implemented are not identified in the Draft EIS/EIR, the public is precluded from reviewing them. Further, if the specific measures are not identified, it is not possible to determine if the impacts have been reduced to a less than significant level. Finally, if specific measures are not identified, it is not possible to identify and assess secondary (indirect) impacts from the mitigation measures themselves. For example, impacts from building new retention basins might include local changes in water quality and peak flows, changes in water quantity of receiving wetlands, habitat changes, and construction air quality impacts.

II.C Method To Evaluate Effectiveness Not Stated

We previously commented that the Draft EIS/EIR did not specify any monitoring provisions or methods to determine the effectiveness of the above mentioned future drainage plan. We recommended that the monitoring program be described with sufficient specificity to allow a knowledgeable individual to assess its efficacy. We further recommended to establish a stormwater flow and pollutant load baseline for at least two years prior to the start of construction and to continue monitoring for at least two years beyond buildout. (2001 Fox Comments, I.C, pp. 3/4.)

The Supplement did not address this issue beyond merely adding that "LAWA will prepare a specific Standard Urban Stormwater Mitigation Plan

(SUSMP) for the selected alternative," which "addresses water quality and drainage issues by specifying source control, structural, and treatment control BMPs with the objective of reducing the discharge of pollutants from the stormwater conveyance system to the maximum extent practicable." (Supplement, p. 4-411.)

This statement does nothing to address the lack of monitoring provisions, it does not set any goals, nor does it identify how LAWA's Standard Urban Stormwater Mitigation Plan ("SUSMP") would select the BMPs or determine their efficiency.

II.D The BMP Copper Calculation Is Flawed

The Supplement added a brief discussion of storm water BMPs, presumably in an attempt to rationalize the lack of a detailed mitigation plan (Supplement, TRS-5, p. 11/12.) It attempts to "illustrate the potential to achieve no net gain in pollutant loads" by calculating the quantity of a pollutant, exemplary for total copper under Alternative A in 2015, that could potentially be removed through a retention basin – assuming a certain percentage of runoff can be diverted to the retention basin – and comparing this quantity to the estimated increase in pollutant load compared to the baseline. The calculation results in a range of total copper that could potentially be removed by a retention basin, 33 to 77 lb/year. The Supplement's estimate for the average annual copper load increase for this alternative compared to the baseline is 42 lb/year. (Supplement, TRS-5, p. 12.)

The Supplement then, without any further discussion, concludes that "it can be seen that the additional estimated average annual copper load ... resulting from construction of Alternative A could be treated so that estimated annual average baseline copper loads would not be exceeded" and that "[t]his could also be shown for other potential pollutants." (Supplement, TRS-5, p. 12.)

This conclusion is not supported by the Supplement's calculation since the amount of additional estimated average annual copper load is higher than the lower bound of the potential removal efficiency of the retention basin. While it is likely that the removal efficiency is somewhere in between the lower and the upper bound, the Supplement cannot rely on it. In this case, additional mitigation measures would have to be implemented to reduce at least another nine pounds of copper – the difference between the lower bound of the removal estimate and the additional total copper load. However, absent more detailed information on the implementation of other methods and BMPs that would remove copper, it cannot be concluded that a sufficient quantity of the pollutant can be removed to achieve no net increase.

II.E Conclusion Of Non-significance After Mitigation Not Valid

One cannot conclude that a significant impact is less-than-significant after implementation of mitigation without quantifying the impact after mitigation and then comparing the result to a significance threshold, in this case "no net increase in pollutant loads compared to the baseline." The Supplement failed to do this for any pollutant save copper. As discussed in Comment II.D, the copper analysis is flawed and does not demonstrate "no net increase". Thus, the Supplement does not demonstrate that the proposed mitigation measures reduce the impacts to a less than significant level.

III. SOME IMPACTS WERE NOT EVALUATED

III.A Dry Weather Flows Were Not Analyzed

We previously commented that the Draft EIS/EIR should have analyzed dry weather flows, *i.e.* discharge from storm drains during the dry season, but the Supplement does not contain this analysis. (2001 Fox Comments, p. 19.) Elevated total and fecal coliform levels are of particular concern in dry weather flows.

The Draft EIS/EIR describes the many sources of dry water flows but does not contain any quantitative analysis. (Draft EIS/EIR, TR6, pp. 33-34.) This is particularly problematic for Alternatives A, B, or C, which would involve the elimination of the Imperial water quality retention basin and require that an alternative retention and/or water quality treatment BMP be provided. (Supplement, p. 4-456.)

We previously commented on this lack of an analysis and noted that its reliance on existing regulations and procedures cannot be used to avoid performing a proper analysis. (2001 Fox Comment, III.A, pp. 19/20.) The Supplement does not acknowledge these comments nor does it add any additional comment.

The document should be modified to quantitatively evaluate the impacts of dry weather flows and to impose feasible mitigation to reduce the impacts to a less-than-significant level.

III.B Construction Water Quality Impacts Were Not Evaluated

Neither the Supplement nor the Draft EIS/EIR contains an analysis of the water quality impacts of Project construction. Construction of the Project would

occur over an extended period of time and affect a very large area. Construction activities are notorious for creating erosion and generating muddy turbid runoff, *i.e.* high TSS pollutant loads. The Draft EIS/EIR acknowledges that construction “could create sources of pollution that could potentially affect water quality,” yet it contains no analysis of this issue, instead arguing that following the procedures in LAWA’s Construction Storm Water Pollution Prevention Plan (“SWPPP”) for LAX would assure that these impacts would be less than significant. (Draft EIS/EIR, pp. 4-553, 4-556, 4-559.) However, it is impossible to conclude that site-specific impacts have been fully mitigated without first performing an appropriate analysis. Further, it is impossible to review a document that purports to address the issue when the document is not provided for public review.

We previously commented on this lack of an analysis and noted that reliance on existing regulations and procedures cannot be used to avoid performing a proper analysis. (2001 Fox Comments, III.A, pp. 19/20.) The Supplement does not acknowledge these comments nor does it add any additional comment.

This lack of a quantitative analysis is unacceptable under CEQA and the document must be modified to quantitatively evaluate the impacts of construction for each alternative and to impose feasible mitigation to reduce the impacts to a less-than-significant level.

**Table 1: Comparison of Total Estimated Pollutant Loads
Using AAAE/ARDF and LACDPW Event Mean Concentrations**

	Average Annual Storm Water Runoff (ft ³ /year)	Estimated Pollutant Loads (lbs/year)											
		AAAE/ARDF EMCs						LACDPW EMCs					
		TSS	TP	TKN	O&G	BOD5	COD	TSS	TP	TKN	O&G	BOD5	COD
ECM for Airport Operations and Airport Open Space (mg/L)		19.01	0.24	1.07	2.29	6.58	45.7	78	0.44	1.9	3.1	21	50
Airport Operations													
1996 Baseline	87,137,482	103,410	1,306	5,821	12,457	35,794	248,598	424,306	2,394	10,336	16,863	114,236	271,991
No Action/No Project Alternative (2015)	88,436,964	104,953	1,325	5,907	12,643	36,328	252,306	430,633	2,429	10,490	17,115	115,940	276,047
Alternative A (2015)	102,045,428	121,102	1,529	6,816	14,588	41,918	291,130	496,898	2,803	12,104	19,749	133,780	318,524
Alternative B (2015)	102,298,105	121,402	1,533	6,833	14,624	42,021	291,851	498,128	2,810	12,134	19,797	134,111	319,313
Alternative C (2015)	99,590,850	118,189	1,492	6,652	14,237	40,909	284,127	484,946	2,736	11,813	19,273	130,562	310,863
Alternative D (2015)	98,738,787	117,178	1,479	6,596	14,116	40,559	281,696	480,797	2,712	11,712	19,109	129,445	308,203
Airport Open Space													
1996 Baseline	7,939,474	9,422	119	530	1,135	3,261	22,651	38,660	218	942	1,536	10,409	24,782
No Action/No Project Alternative (2015)	7,059,390	8,378	106	472	1,009	2,900	20,140	34,375	194	837	1,366	9,255	22,035
Alternative A (2015)	7,752,222	9,200	116	518	1,108	3,184	22,117	37,749	213	920	1,500	10,163	24,198
Alternative B (2015)	7,714,771	9,156	116	515	1,103	3,169	22,010	37,566	212	915	1,493	10,114	24,081
Alternative C (2015)	8,632,305	10,244	129	577	1,234	3,546	24,627	42,034	237	1,024	1,671	11,317	26,945
Alternative D (2015)	6,745,952	8,006	101	451	964	2,771	19,246	32,849	185	800	1,306	8,844	21,057
Total Airport (Airport Operations + Airport Open Space)													
1996 Baseline	95,076,956	112,832	1,425	6,351	13,592	39,055	271,249	462,966	2,612	11,277	18,400	124,645	296,773
No Action/No Project Alternative (2015)	95,496,354	113,331	1,431	6,379	13,652	39,228	272,446	465,008	2,623	11,327	18,481	125,194	298,082
Alternative A (2015)	109,797,650	130,302	1,645	7,334	15,696	45,102	313,247	534,647	3,016	13,023	21,249	143,943	342,722
Alternative B (2015)	110,012,876	130,558	1,649	7,348	15,727	45,190	313,861	535,695	3,022	13,049	21,290	144,225	343,394
Alternative C (2015)	108,223,155	128,433	1,621	7,229	15,471	44,455	308,754	526,980	2,973	12,837	20,944	141,879	337,808
Alternative D (2015)	105,484,739	125,184	1,580	7,047	15,080	43,330	300,942	513,645	2,897	12,512	20,414	138,289	329,260
Other Land Uses (Total Pollutant Load - Total Airport)													
1996 Baseline	34,819,121	357,055	724	4,723	3,155	38,329	128,022	357,055	724	4,723	3,155	38,329	128,022
No Action/No Project Alternative (2015)	36,704,273	386,142	791	5,360	4,009	44,238	143,743	386,142	791	5,360	4,009	44,238	143,743
Alternative A (2015)	23,896,705	223,342	503	3,024	2,696	27,979	79,957	223,342	503	3,024	2,696	27,979	79,957
Alternative B (2015)	22,160,002	210,678	443	2,479	2,233	24,465	64,277	210,678	443	2,479	2,233	24,465	64,277
Alternative C (2015)	24,111,481	236,399	502	2,991	2,569	27,626	78,581	236,399	502	2,991	2,569	27,626	78,581
Alternative D (2015)	29,586,496	308,857	643	4,216	3,251	35,311	112,666	308,857	643	4,216	3,251	35,311	112,666
Total Pollutant Load (Total Airport + Other Land Uses)													
1996 Baseline	129,896,077	469,887	2,149	11,074	16,747	77,384	399,271	820,021	3,336	16,000	21,555	162,974	424,795
No Action/No Project Alternative (2015)	132,200,627	499,473	2,222	11,739	17,661	83,466	416,189	851,150	3,414	16,687	22,490	169,432	441,825
Alternative A (2015)	133,694,355	353,644	2,148	10,358	18,392	73,081	393,204	757,989	3,519	16,047	23,945	171,922	422,679
Alternative B (2015)	132,172,878	341,236	2,092	9,827	17,960	69,655	378,138	746,373	3,465	15,528	23,523	168,690	407,671
Alternative C (2015)	132,334,636	364,832	2,123	10,220	18,040	72,081	387,335	763,379	3,475	15,828	23,513	169,505	416,389
Alternative D (2015)	135,073,235	434,041	2,223	11,263	18,331	78,641	413,608	822,502	3,540	16,728	23,665	173,600	441,926
		TSS	TP	TKN	O&G	BOD5	COD	TSS	TP	TKN	O&G	BOD5	COD
Percent Difference Compared To Baseline													
No Action/No Project Alternative (2015)	2%	6%	3%	6%	5%	8%	4%	4%	2%	4%	4%	4%	4%
Alternative A (2015)	3%	-25%	0%	-6%	10%	-6%	-2%	-8%	5%	0%	11%	5%	0%
Alternative B (2015)	2%	-27%	-3%	-11%	7%	-10%	-5%	-9%	4%	-3%	9%	4%	-4%
Alternative C (2015)	2%	-22%	-1%	-8%	8%	-7%	-3%	-7%	4%	-1%	9%	4%	-2%
Alternative D (2015)	4%	-8%	3%	2%	9%	2%	4%	0%	6%	5%	10%	7%	4%
Percent Difference Compared To No Action/No Project Alternative													
Alternative A (2015)	1%	-29%	-3%	-12%	4%	-12%	-6%	-11%	3%	-4%	6%	1%	-4%
Alternative B (2015)	0%	-32%	-6%	-16%	2%	-17%	-9%	-12%	1%	-7%	5%	0%	-8%
Alternative C (2015)	0%	-27%	-4%	-13%	2%	-14%	-7%	-10%	2%	-5%	5%	0%	-6%
Alternative D (2015)	2%	-13%	0%	-4%	4%	-6%	-1%	-3%	4%	0%	5%	2%	0%

¹ Conversion of EMCs according to: mg/L x g/1000 mg x lb/454 g x L/ft³ = lb/ft³



Comments

On

HAZARDOUS WASTE

**LAX Master Plan Supplement To The
Draft Environmental Impact Statement/
Draft Environmental Impact Report**

Prepared by

**J. Phyllis Fox, Ph.D., P.E., DEE, QEP, REA I/II
Consulting Engineer
Berkeley, CA**

**Peter Russell, Ph.D., P.E.
Northgate Environmental Management, Inc.
950 Northgate Drive, Suite 313
San Rafael, CA**

November 2003

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HAZARDOUS MATERIALS

Los Angeles World Airports ("LAWA" or "the Applicant"), the operator of the Los Angeles International Airport ("LAX"), has published a Draft Master Plan Addendum, a Supplement to the Draft Environmental Impact Statement/Environmental Impact Report¹ ("Supplement"), and Airport Layout Plans Package on the modernization of LAX ("Project"). These documents supplement the Draft Environmental Impact Statement/ Environmental Impact Report² ("Draft EIS/EIR") and add discussion of Alternative D to the previously discussed Master Plan alternatives.

There are a number of contaminated properties in the areas that would be disturbed by construction. (Supplement, Table S4.23-1 and Figs. S4.23-1, S.23-2, S4.23-3, S4.23-4, S4.23-5.) The Draft EIS/EIR and Supplement acknowledge this contamination could result in significant impacts and recommend two Master Plan Commitments, HM-1 and HM-2, to mitigate these impacts. (Draft EIS/EIR, pp. 4-979/980 and Supplement, pp. 4-559/600.) However, the Draft EIS/EIR and Supplement fail to discuss all of the impacts of this contamination. Further, these two mitigation measures are not adequate to mitigate the impacts to a less than significant level.

These comments expand upon some of our previous comments on the Draft EIS/EIR and address new issues raised by the Supplement. (Comments on Hazardous Waste, LAX Master Plan Draft EIS/EIR (July 13, 2001) by J. Phyllis Fox, Ph.D., Attachment F to September 18, 2001 Comments Submitted on Behalf of the City of El Segundo by Shute, Mihaly & Weinberger ("2001 Fox Comments").)

I. IMPACTS NOT EVALUATED

IA Impacts Of Construction At Contaminated Sites Are Significant And Neither Adequately Analyzed Nor Mitigated

The Draft EIS/EIR and Supplement identify a number of contaminated sites and conclude that additional contamination may be discovered during construction. The Draft EIS/EIR and Supplement also admit that disturbance of

¹ LAX Master Plan Supplement to the Draft Environmental Impact Statement/Environmental Impact Report, July 2003.

² LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report, January 2001.

contaminated soils and groundwaters during construction "could pose a risk of exposure to construction workers or the environment." (Draft EIS/EIR, pp. 4-989, 4-993, 4-994 and Supplement, p. 4-608.) However, neither the Draft EIS/EIR nor the Supplement evaluates what those impacts would actually be, instead arguing without any analysis that these impacts would be fully mitigated by Master Plan Commitments HM-1 and HM-2 and existing laws and regulations.

However, as discussed in Comment II below, these measures are not adequate to mitigate significant impacts from construction at contaminated sites. Further, compliance with existing laws and regulations will not avoid adverse impacts to workers because they do not address construction at contaminated sites. HM-1 and HM-2 do not ensure that all contamination will be remediated prior to the start of construction, and they provide no means to identify previously undiscovered contamination that comes to light during construction, creating a situation in which construction workers could be adversely exposed to contaminated soils and groundwaters. Thus, significant exposures are possible and unmitigated.

In addition to the comments made on this issue in the Fox 2001 Comments, the failure to thoroughly investigate sites of known soil and groundwater contamination results in a significant impact of construction at contaminated sites.

The failure to complete remediation at construction sites and provide for safety procedures to deal with encounters with previously unidentified contamination before construction begins is amplified by the fact that many known sites within the Master Plan boundaries have yet to be characterized sufficiently for remedial measures to be selected. Table S4.23-1, Soil and Groundwater Contamination and Remediation Status, lists ten sites at which investigation of soil contamination is not completed and that are within the footprint of all four alternatives. An additional five such sites are within the footprint of one or more of the alternatives. The same Table lists four sites at which investigation of groundwater contamination is not completed and that are within the footprint of all four alternatives. An additional three such known groundwater contamination sites are within the footprint of one or more of the alternatives. The presence of known, but uncharacterized soil and groundwater contamination increases the probability of uncontrolled encounters by workers during construction activities.

I.B Significance Thresholds Not Adequate

In addition to the comments made on this issue in the Fox 2001 Comments, the significance thresholds are not adequate in yet another respect.

The fourth threshold of significance listed in the Supplement, "Contamination of soil or groundwater or prevention of cleanup of sites that are *currently undergoing soil or groundwater remediation*" is also inadequate. (Supplement, p. 4-599.) Soil or groundwater contamination caused by the Master Plan would be significant if it would potentially frustrate future investigation efforts or foreclose remedial options that future investigation efforts may find would be most effective. The fourth threshold of significance should be reworded to be "Contamination of soil or groundwater, prevention of cleanup of sites that are currently undergoing soil or groundwater remediation, or construction in an area of known soil or groundwater contamination for which investigation and remedy selection are not yet accomplished."

II. MITIGATION MEASURES ARE NOT ADEQUATE

The mitigation measures recommended in the Draft EIS/EIR and Supplement are not adequate to protect construction workers at or near contaminated sites, for the reasons presented in the Fox 2001 Comments. In addition, these mitigation measures are not adequate to ensure thorough remediation of soil and groundwater contamination, particularly where investigations of known contamination are not yet completed.

An environmental site inspector, reporting to the City and oversight agency, had to be present during construction to detect previously undiscovered contamination.

The Draft EIS/EIR's and Supplement's analyses of contaminated properties are plagued with circular reasoning that fails to mitigate significant impacts. The following expands the significance of this circular reasoning.

Draft EIS/EIR and Supplement admit that known contamination poses a risk to construction workers and the environment. As mitigation, they recommend mitigation measure HM-1, which requires that existing soil or groundwater remediation efforts at contaminated sites be remediated prior to the start of construction. This requirement appears to apply only to known contamination sites at which the requisite investigation has occurred to support beginning a soil or groundwater remediation effort in the first place. Where such investigation has not of yet occurred, or been completed, HM-1 appears not to apply. Moreover, a careful reading of this measure indicates that remediation need not be completed prior to construction if it is "not possible," which leads

back to the original impact, *sans* mitigation. The Draft EIS/EIR and Supplement neglect to analyze the impacts if remediation is not possible or has not started because the remedial measure has yet to be selected.

II.A. Mitigation Measure HM-1

HM-1 is inadequate in two fundamental areas. First, it is deficient in the way it attempts to protect the continued effectiveness of existing remediation efforts. Second, it does not provide for completion of investigation at sites of known contamination prior to beginning construction. The first of these areas of inadequacy is thoroughly discussed in the Fox 2001 Comments.

The second fundamental deficiency of HM-1 is its failure to require completion of investigations at known contamination sites prior to construction. Because the investigation of known soil and groundwater contamination is incomplete, and in some instances not even begun, remedial alternatives for the most effective remediation may be foreclosed. Soil or groundwater contamination that becomes covered by the Project's runways or buildings may be difficult, and sometimes impossible, to clean up as thoroughly as before construction occurs.

Unfortunately, Master Plan Commitment HM-1 is silent with regard to known contamination for which remedial efforts have yet to be identified because investigation has yet to begin or is incomplete. By its very nature, Master Plan Commitment HM-1 as currently worded could not assure effective remediation after Project construction, unless the investigation of soil and groundwater contamination were completed so as to enable selection the optimal remedial alternative. Construction in areas of known soil or groundwater contamination that have not been fully investigated is a significant impact not acknowledged in the Supplement. HM-1 should be revised to provide for acceleration of environmental investigations at and near construction sites before any construction occurs that could either hinder investigation or install Project facilities that render a preferred remedial alternative less effective.

In sum, investigation and remediation of hazardous waste contaminants is nearly always completed before the start of construction. Master Plan commitment HM-1 should be modified to explicitly require the investigation and remediation of all contaminated properties prior to the start of construction.

II.B. Additional Mitigation Measures

The above comments, and those discussed in Fox 2001 Comments, identify potentially significant impacts that have not been either discussed or

mitigated in the Draft EIS/EIR and the Supplement. The Supplement should be revised to include analyses and recommend mitigation measures for these impacts. In addition to the Fox 2001 Comments' commonly required measures that are feasible and should be included, the following mitigation measure should be required:

- Construction should not begin at any site of known soil or groundwater contamination until investigations and remedy selection have been completed and approved by the appropriate regulatory agencies.

COMMENTS

**2003 LAX MASTER PLAN ADDENDUM & SUPPLEMENT
TO THE DEIS/EIR**

Prepared for Shute Mihaly and Weinberger

**By
A. Kanafani**

**Berkeley, California
November 2003**

INTRODUCTION

The following comments analyze several elements of the 2003 LAX Master Plan Addendum (Addendum) and Supplement to the DEIS/EIR (Supplement). We have conducted an extensive analysis of the gate capacity of Alternative D, which is summarized in these comments and more fully documented in the attached report, "Capacity Analysis of Aircraft Gate Positions", (Appendix A). The comments below also discuss additional aspects of Alternative D relating to its physical capacity, including airfield configuration and sequencing of the Master Plan. In addition, we have analyzed the proposed alterations to the Runway 25 complex. We have identified numerous uncertainties regarding the proposed changes to this southern runway complex and concluded that additional information must be provided before we can fully evaluate its effects on El Segundo.

1. ALTERNATIVE D CAPACITY ISSUES

The Master Plan Addendum's Alternative D proposes to limit LAX to approximately 78 MAP by limiting the total number and size of gate positions to a figure that is below the other alternatives, and below the current values. This, 78 MAP is a limit on passenger traffic; it does not limit the total number of aircraft operations. According to the Addendum and the Supplement, the total number of aircraft operations remains about the same for Alternative D as for Alternative C and the No Action/No Project Alternative. The Addendum's stated conclusion that Alternative D will serve no more than 78 MAP, i.e., substantially less than the 89 MAP served by Alternative C, is based on the assumption that by limiting the number and size of gates, it will force airlines to make specific anticipated adjustments to their markets and to shift services around between categories (international, domestic air carrier, commuter, etc.), and between aircraft types, and between airports in the Southern California region, which, according to The Addendum's projections, would result in approximately the target number of passengers served. The published documents provide no discussion on specific actions LAWA or other regional authorities propose to take in order to cause such market-driven adjustments to occur, nor do they provide any meaningful basis for concluding that The Addendum's assumptions are accurate or that the airlines would make the assumed adjustments to types of services offered. This is particularly problematic since the airfield and other elements of the airport under Alternative D have capacities that exceed the target 78 MAP.

The following sections summarize our analysis of capacity issues related to the airfield configuration, terminal and gate positions. *Our conclusion, based on this analysis and on our full analysis of the gate capacity of Alternative D (Appendix A to this report), is that the gate positions as currently proposed by Alternative D do not limit future passenger levels to 78 MAP, especially since the airfield and other airport elements can accommodate larger numbers.*

1.1 Airfield Capacity

The airfield improvements proposed in Alternative D include runway relocation to increase the distance between parallel runways as well as runway length extensions. The increased separation allows the addition of centerline parallel taxiways between each pair of runways (24L/R and 25L/R). While these improvements are aimed primarily at enhancing runway safety by improving the runway crossing and reducing the potential for runway incursions, they will to some extent reduce delays, improve the overall operation and thus have a generally positive impact on runway capacity.

The DEIS/EIR Supplement (see p. ES 1-3) uses the concept of practical capacity as constraining the traffic at the airport, defining it on the basis of flight delays, expressed in minutes of delay per operation. But then the analysis in the Supplement goes on to show that Alternative D will have lower delay rates. This means that Alternative D will provide an increase in practical capacity, using the Master Plan's own definition. Fig. E-17 of the Addendum, Appendix E, shows this reduction in average delay for Alternative D compared to both the NA/NP alternative and to Alternative C.

The table below lists the improvements to the airfield planned in Alternative D and as shown in Table ES-2 of the Supplement. Comparing the various alternatives, each of these improvements has an effect on capacity, and that effect can be either positive or negative. From the comparisons available it is clear that all the airfield improvements in Alternative D enhance capacity over the baseline, leading to the conclusion that the airfield configuration proposed in Alternative D will have a capacity that is greater than, or at least equal to, that of the existing baseline or to the NA/NP alternative

Furthermore, based on The Addendum's analysis Alternative D even appears to have a capacity equivalent to, and possibly even higher than, Alternative C. The airfield analysis shown in Tables E-4 through E-7 of the Addendum, Appendix E, shows Alternative D operating with an all-weather average peak hour throughput of 141 operations as compared to 138 for Alternative C and 140 for the NA/NP alternative.

Based on this comparison, the airfield configuration proposed in Alternative D does not preclude traffic from reaching levels well beyond the baseline volumes, and can accommodate levels that exceed those projected for Alternative C of the Master Plan.

Airfield Improvements and Capacity Comparisons

Existing Baseline	Master Plan Alternative C	Alternative D	Effect on Airfield Capacity of Alternative D Compared to:	
			Baseline	Alt. C
Outboard North Runway 24R				
8,925 ft.	9,400 ft	10,420	≥	≥
Inboard North Runway 24L				
10,285 ft.	12,000 ft	11,700	≥	≤
	Shorten west end by 2,900 ft.	Relocate 340 ft. south	≥	=
	Extend 2,900 ft. east	Extend 715 ft.	≥	=
	Add centerline taxiway	Add centerline taxiway	≥	=
Outboard South Runway 25R				
12,091 ft.	12091 ft.	12091 ft.	=	=
Outboard South Runway 25L				
11,096	11,096	11,096	=	=
	Move Runway 50 ft. South	Move Runway 50 ft. South	≥	=
	Add centerline taxiway	Add centerline taxiway	≥	=
		Add cross-field taxiway, N-S	≥	≥

1.2 Terminal and Gate Position Capacity

The LAX Master Plan Addendum proposes a configuration for Alternative D that includes 153 nominal aircraft gate positions, and a distribution of gate sizes that results in about 179 narrow body equivalents (NBEG). However, neither the Addendum nor the Supplement to the DEIS/EIR contains a capacity analysis of the proposed terminal and gate position system. Instead, the Addendum calculates a flow of 78.8 million annual passengers (MAP) on the basis of a series of market assumptions and forecasts.

Our review and analysis of the proposed terminal and gate configuration for Alternative D leads to the conclusion that the capacity of the system exceeds 78 MAP, and is close to 87 MAP. (See Attachment A to this Report, Capacity Analysis of Aircraft Gate Positions.) The analysis on which this capacity estimate is based accepts the majority of the assumptions of the Master Plan and is considered a fairly conservative estimate of the system's ability to handle traffic.

The Addendum's calculation of passenger traffic flow is based on a number of market assumptions. These assumptions do not represent a capacity analysis of the gate positions, but an estimate of what traffic volumes might be under assumed market conditions. We consider these market assumptions to be fairly conservative, and result in an underestimation of possible traffic volume. The traffic volumes used in the Addendum cannot be used as a representation of the capacity of the system.

In the following paragraphs, we list the assumptions used by the Addendum and we provide comments on them, pointing out discrepancies, errors, and inaccuracies. The assumptions of the Addendum that underlie the estimation of traffic are summarized in Table 1 below, which shows the excerpts from Table 3.3-1 of the Master Plan Addendum, comparing the NA/NP alternative with Alternatives C and D. (Table 1 here contains corrections to some numbers that were erroneous in the Addendum)

Table 1. LAX Master plan Assumptions for Alternatives

Alternative	NA/NP	C	D
Annual Passengers	78715200	89553200	78864100
Annual Operations	712500	714000	713100
Design Day Operations	2058	2058	2058
Design Day Passengers	262329	298588	262758
Design Day Enplanements per Departure	127.47	145.09	127.68
Annual Enplanements per Departure	110.48	125.43	110.59
Annual Conversion Factor	300	300	300
Nominal Gates 2015	163.00	168.00	153.00
NBEG 2015	188.20	222.20	178.90

1. Total Airport Traffic

As seen in Table 1 above, the Addendum indicates that Alternative D is designed to handle about the same total annual and Design Day aircraft operations in 2015 as the No Action/No Project Alternative and Alternative C. Despite this, the Addendum concludes that annual passenger flows will differ dramatically between the alternatives. This is based on assumed distributions of these operations among types of operations, aircraft, and gate position sizes. The basic premise of the Addendum is that airlines will respond to the number and size of gates by downsizing fleets and will thereby end up carrying fewer passengers per operations. The Addendum quantifies these effects by making extensive assumptions regarding airline operation and markets. There is no justification or validation of the vast number of market assumptions used in the Addendum to arrive at the traffic flow numbers presented. A detailed review of some of these assumptions also raises doubt about their viability. For example the Addendum predicts that the number of domestic air carrier passengers will actually drop at LAX between 2000 and 2015 (from 47 MAP to 45 MAP). Some of that drop is taken up by growth in commuter passengers (about 0.7 MAP). The implication is that the rest of the traffic demand will move to other regional airports. There is no reason to believe that this shift will occur, especially in the absence of specific policies that make it happen, and certainly not with the proposed number and configuration of gate positions proposed in Alternative D.

2. Fleet mix and aircraft sizes

The Addendum makes assumptions about the fleet mix that it considers to be a market response to the limited number and size distribution of gates provided in Alternative D. The Addendum further assumes that each aircraft carries what it refers to as a "typical" number of seats.

There are several assumptions regarding fleet mix used that we believe are questionable. The first concern is with the accuracy of assumed seating for each aircraft considered in the analysis. In the attached capacity report we show that the assumed aircraft seating sizes are not realistic for capacity comparison, and while they might reflect current market conditions, they do not reflect what the practical capacity of gates are, especially given the current developments in the fleet and the types of aircraft that airlines using LAX are ordering.

The second concern deals with some of the aircraft types used, where older versions are retained in the analysis and some of the newer aircraft versions are not taken into account. For example, B-737-800 and B-737-900, are overlooked even though a fair number of those aircraft have been ordered by the major airlines operating at LAX. These types have significantly higher number of seats compared to the earlier versions of the same type. Also, the Master Plan's fleet mix includes some of the older aircraft types that are likely to be phased out of the operations by 2015 (i.e. F-100, ATR-42), either because they are fairly old and not compatible with the noise (and other) standards, or because they have already been out of production for some time (examples include F-100, F-70, ATR-42).

The GA, military, cargo and air carrier fleet mix used in the Alternative D is not clearly described in the Addendum. In many places the Addendum refers to the fleet mix assumptions of LAX Master Plan Draft, but the data and information differ between the two, and there are no explanations of these differences.

3. Traffic Operations by Type of Service

The Addendum assumes a mix of total design day operations by carrier type: domestic, international, Hawaiian, and commuter. These operations split assumptions are shown in Table 3.3-1 of the Addendum. The Addendum bases these assumptions on the following market analysis as stated (Addendum Section 3.3.3 Air Service Changes):

- *“Commuter operations would likely be reduced from 1996 levels, consistent with the forecasts for No Action/No Project and Alternative C, in order to maximize the number of passengers that could be served with a limited number of operations. It is also projected that some of the forecast commuter O&D demand would be served by domestic air carrier flights.*
- *Domestic air carrier connecting passengers would decrease from 2015 forecast levels to reflect the projected loss of connecting passengers from commuter flights.”*

According to these assumptions, one would expect the number of commuter operations not to be as high as it is projected in Alternative D. So while all three alternatives (NA/NP, Alternative C and Alternative D) are projected to show a drop in commuter operations from the 1996 level of 644 during the design day, Alternative D seems to have dropped the least. In fact, Alternative D forecasts that the commuter traffic will actually grow from today’s level. In Table 3.3-1 of LAX Master Plan Addendum we see that there were 644 commuter operations in 1996, then 474 commuter operations in 2000. Alternative D assumes that these operations will grow to 532 in 2015, which does not agree with the Master Plan assumptions. The table below shows the Addendum’s questionable assumption that commuter operations in Alt D will exceed the NA/NP alternative.

Commuter Operations, Design Day and Annual Passengers

	1996 Actual	2000 Actual	2015 NA / NP	2015 Alt. D
Operations	644	474	467	532
Passengers	7595	8232	10147	11937
Total Passengers	186512	215645	262329	262758
Percentage	4.1%	3.8%	3.9%	4.5%
Annual Passengers	2759991	2918282	3115400	3664900
Annual Total Passengers	57974559	67303182	78715200	78864100
Percentage	4.8%	4.3%	4.0%	4.6%

4. Seasonal patterns

Another of the Master Plan assumptions that we believe is flawed is the adopted Annual Conversion Factor of 300. (Annual Conversion Factor = Annual Passengers/Design Day Passengers). The LAX Draft Master Plan correctly assumes that as traffic grows in the face of limited facility expansion, de-peaking of both operations and passengers will occur. This should result in a rise rather than a decline of the Annual Conversion Factor. Table 2 below shows the actual operations and Annual Conversion Factors for 1996 and 2000, and the Addendum's forecasted values for 2015. We can see that even in year 2000 when the number of operations declined, the Annual Conversion Factor was 312. In 1996 it was 310. If alternative D involves de-peaking due to the capacity constraint then we should expect these factors to increase and not to decrease to the 300 level assumed in the Master plan.

Table 2. Annual Conversion Factors

	Design Day Passengers	Annual Passengers	Annual Conversion Factor	Design Day Operations	Annual Operations	Annual Conversion Factor
1996 Actual	186,512	57,974,559	310.83	2055	712,206	346.57
2000 Actual	215,645	67,303,182	312.10	2054	710,791	346.05
NP Action 2015	262,329	78,715,200	300.06	2058	712,500	346.21
Alternative C 2015	298,588	89,553,200	299.92	2058	714,000	346.94
Alternative D 2015	262,758	78,864,100	300.14	2058	713,100	346.50

It is also curious that the same conversion factor of 300 is used for all alternative A through D and the NA/NP alternative. If there were a basis for changing the factor depending on market response to the different alternatives, then one would have expected it to vary among such vastly differing alternative as A and D. But it does not. Nor do the annual factors used to convert design daily operations, which appear to be the same for all alternatives, and the same for the base years of 1996 and 2000 as well as 2015. The Addendum's estimate of annual passenger flows as based on these conversion factors is therefore considered questionable and not a sound basis for estimating system capacity, not in the terminal, and not in the airfield for that matter.

5. Mix of Gates and Computation of Narrow-Body Equivalent (NBEG's)

The Addendum uses the concept of narrow-body equivalents (NBEG's) to characterize the size of different gate types. This is a sound concept in principle, but needs to be used with caution when analyzing the capacity of a gate position system. The reason is that for the same wingspan, or gate position size, aircraft come in a fairly wide

variety of seating configurations. A one narrow-body equivalent gate, for example, can accommodate aircraft with seating configurations as low as 100 and as high as 200. Furthermore, the capacity can be altered significantly by converting smaller gates into larger ones, losing numbers of gates, but gaining seating capacities and passenger flows.

It is therefore important from the capacity control perspective to ensure that a gate mix proposed and approved in the Master Plan not be altered, even if the total number of NBEG's remains unchanged. We note that there are some mistakes in the computation of the number of NBEG's as presented in the Addendum. These are described and corrected in the attached capacity analysis report.

1.3 Terminal Building Square Footage

There are discrepancies in the total available square footage ASF of the terminal building in Alternative D as presented in various locations in the Addendum and the Supplement. Figures of 6.55 million available square feet appear commonly, but so do other figures such as 6.8 million in Table S3-2 and 7.24 million in the Land Use analysis. THE ADDENDUM needs to clarify the actual figures envisaged in the Master Plan.

In any case, assuming here that the smallest of the figures that appear, 6.55 million sq. ft. is the correct one, there remains the question as to why this figure is needed. This figure is significantly higher than that of the NP/NA alternative, which has 3.99 million sq. ft. and they are both presumably serving presumably the same traffic volume. While some of that difference can be explained by the increased security requirements that are accommodated in Alternative D, the total figure remains unexplained. The same is true of the available square footage for gate lounge areas, which also exceed the figures for the base NP/NA alternative. The available square footage in the terminal system in total, and related to annual passenger volumes is compared in the table below for the three alternative, NP/NA, C, and D.

Comparison of Terminal Space Available in the Various Alternatives

Alt.	Total Terminal Sq. Ft.	Gate Lounge Area Sq. Ft.	Annual Pax per Lounge Sq. Ft.	Annual Pax per Terminal sq. ft.
NA/NP	3,997,700	360,000	218.65	19.69
Alt. C	7,319,000	518,000	172.88	12.24
Alt. D	6,550,000	416,000	189.58	12.04

This comparison raises the question as to why Alt D enjoys such a significantly higher level of service than the others. The increased terminal size would be consistent with an airport serving more than 78 MAP. A reduction in terminal square footage from the proposed major increase should be considered as a secondary means of ensuring that passenger levels under Alt D do not exceed the asserted goal of 78 MAP.

1.4 Airport parking

It is unclear why Alternative D provides a public parking capacity similar to Alternative C, when the latter is planned for a much higher level of traffic. The Addendum shows Alt. D with 35,002 stalls compared to 35,636 for Alt. C and 33,926 for the NA/NP alternative. If Alternative D has a capacity of 78 MAP, then the amount of parking provided should be less than that required for Alternative C, which is designed to serve 89 MAP. An airport whose capacity is limited to 78 MAP would generate less congestion and landside traffic, so that the amount of parking should also be reduced.

1.5 Additional Concerns Related to Capacity and Traffic Assumptions

Discrepancies in Air Traffic Assumptions Used in Noise Analysis:

Table S7 of S-C1. *Supplemental Aircraft Noise Technical Report* shows the 2015 Average Annual Day Operations and Fleet Mix for the Alternative D. The fleet mix used in this table differs from that used in the Master Plan Addendum Fleet Mix. There are several aircraft in the Table S7 that are not used in the Design Day schedule of the Master Plan Addendum: Boeing 717, British Aerospace 146, Challenger 601, Learjet 35, Fairchild SA227. There needs to be an explanation as why these aircraft types are used here and whether they represent others used in the rest of the Addendum as equivalent noise generators. Moreover, it is said that the SIMMOD outputs are used to build the input for the noise model. Presumably these SIMMOD outputs were also used to load the airfield and the gate positions, so there needs to be a clarification of these variations in fleet mix and of any necessary adjustments to the noise analysis that may result.

Another inconsistency is about the total number of the operations considered in the Average Annual Day. The total number of operations is stated as 2121, but it is actually 2123. Even so, if this is the Average Annual Day, then if we multiply this number by the number of the days in the year we should get the number of Annual Operations. In both cases (of 2121 and 2123 operations) the yearly number obtained is lower than the number of Annual Operations of the Alternative D for the year 2015, which is shown in the Table below.

**Comparison of 2015 Annual Operations
Used in Master Plan Addendum and Noise Analysis**

Alt. D Annual Operations	784,000	
Figures Used in Noise Analysis	Average Annual Day Operations	Corrected Average Annual Day Operations
	2121	2123
	774165	774895

2. The Sequencing of the Master Plan

The Addendum describes a phasing scheme for the development of Alternative D. The scheme is far too lumpy and does not illustrate the evolution of provision of airport elements in sufficient detail to ascertain capacity and other operational impacts at the intermediate stages to 2015. The proposed phasing does not guarantee that at some transitional phase during build-out of this plan, e.g. between phases II and III, the availability of gate positions and terminal facilities will not exceed the amount that limit the capacity to 78 MAP. For example, the phasing plan should ensure that opening of the West Terminal, in Phase III should not proceed before the decommissioning of the North Terminal elements.

The current phasing shown in the Addendum (sect. 2-10 of the Addendum) shows the construction of the West Satellite Concourse as occurring during phase II. The demolition of part of TBIT building and the conversion of the north terminals to a linear facility occur in phase III. Should there be a period between the completion of phase II and the start of Phase III, such a period would entail a system with a much higher capacity than intended.

This is especially true since there is no mention in the sequencing plan of the point in time at which the remote gate positions will be eliminated. If the conditions that permit capacity to exceed 78 MAP are to never arise, then a clear time plan of when the remote gate positions will be decommissioned and eliminated.

Addendum should therefore be modified to provide a very specific step-by-step phasing that would ensure that such a violation does not become possible.

3. The Runway 25 Complex

According to the text in the Addendum the proposed modifications to the runway 25L/R complex entail the relocation of runway 25L "approximately 50 ft. south of the existing runway centerline" and the insertion of a 11,096 ft. taxiway centered between the two runways 25L and 25R. No other modifications of this runway system are described in the available documents, although the plans and drawings show additional modifications such as the introduction of high-speed exit taxiways to connect the inserted center taxiway to the two runways. Although it is not described in the text, some of the drawings show that the southern taxiway (Taxiway A) will also be shifted south, presumably in order to maintain its current 500 ft. separation to runway 25L. The following comments discuss the gaps in the THE ADDENDUM'S analysis and the need for additional information and clarity regarding the proposed reconfiguration of the southern runway complex.

- Presumably the (approximate) 50 ft shift is 55.42 ft., which is the shift needed to provide space for 400 ft. separation between the center taxiway and the two runways 25L And 25R. The EIS/EIR should be corrected to include the correct number of feet of intended shift of runway 25L.
- There is no reason why taxiway A needs to move south in order to maintain its 500 ft. distance from runway 25L, since the remaining 444 ft. separation is adequate and exceeds the 400ft. separation used for the center taxiway. THE ADDENDUM needs to clarify this and to confirm that taxiway A will not be moved.
- There is no clear description in the Addendum of any further modifications to taxiways, especially any possible extensions to Taxiway A. The Addendum needs to clarify that under Alternative D the need for an end-round taxiway is eliminated and that no further westward extension of Taxiway A will be made. In the same vein, there should be no need for the taxiway bypass to connect between A and B Taxiways.
- The documents do not provide adequate analysis comparing the “centerline taxiway” alternative proposed for this runway complex and the alternative of continuing the use of left exits from runway 25L with an end-round taxiway back to the terminal area. Such a comparison, especially from the point of view of noise impacts, is critical to provide a meaningful evaluation of the noise impacts of the reconfiguration on the City of El Segundo and its residents. A published study by NASA Ames [CITE] investigates air traffic control procedures necessary to reduce runway incursions with and without the southward shifting of runway 25L but does not address the issue of noise impacts.
- While the insertion of a center taxiway between the two runways 25L and 25R may be a desirable action from the point of view of airfield operations and safety, it must be evaluated in the context of a comparative noise analysis analyzing this option and the end-around option, along with the development of the appropriate noise mitigation measures specifically designed to deal with the impact of the shifting of the runway southward on the communities immediately to the South of the airport.
- With the proposed modification in Alternative D the need to use Taxiway A for exits of aircraft landing on Runway 25L will be reduced greatly, especially after the removal of the remote gate pads in the Northwestern portion of the airfield. LAWA should adapt the taxiway system loading accordingly to ensure minimal use of this taxiway, in order to minimize its noise impact on the surrounding communities.
- Temporary use during the first phase of the plan by new large aircraft (NLA) runway 25L and the left exit into taxiway A should be restricted in order to minimize the noise impact to the south of the airport.

Conclusion regarding the Runway 25R/L Complex

Based on the publicly available documents, there is not a sufficient basis for favoring the centerline taxiway configuration of the southern runway complex, especially from the perspective of the communities south of the airport. Additional detailed analysis of the noise impacts, the operational characteristics, and the engineering requirements, is needed. Of particular importance is the articulation of specific mitigation measures that are necessary to compensate for the noise impacts.

APPENDIX A

CAPACITY ANALYSIS of AIRCRAFT GATE POSITIONS

**Los Angeles International Airport
Master Plan Alternative D**

Prepared By

A. Kanafani
Berkeley, California

November 2003

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1. INTRODUCTION

The following is an analysis of the annual passenger capacity of the aircraft gate position system as proposed in Alternative D of the Los Angeles International Airport Master Plan Addendum of July 2003. The analysis is limited to a study of the capacity of the gate configuration to serve passengers, and does not, for purposes of this analysis, dispute the market-based forecasts and assumptions of the LAX Master Plan Addendum (Addendum).

Alternative D as presented in the LAX Master Plan Addendum has a stated goal of limiting the annual capacity at LAX to about 78 million passengers. It proposes to accomplish that by limiting the number and size distribution of aircraft gate positions to 153 gate positions and a corresponding 178.9 narrow body-equivalents (NBEG's). The Addendum does not include a capacity analysis of the gate configuration proposed, showing how it can limit the traffic volume to about 78 MAP. Instead it contains a market analysis based on a set of assumptions regarding how airlines might adjust to the proposed gate positions provided by shifting traffic among categories (international, domestic air carrier, commuter, etc.), by shifting the fleet mix, and by diverting traffic to other regional airports. The analysis presented here calculates the annual passenger capacity of the proposed gate positions. It shows that the capacity significantly exceeds 78 MAP.

2. REVIEW OF THE ADDENDUM'S DESIGN AND MARKET ASSUMPTIONS

The LAX Master Plan Addendum calculates a flow of 78.8 million annual passengers (MAP) on the basis of a series of market assumptions and forecasts. Most of these assumptions are used in the capacity analysis conducted here in order to ascertain the capacity of the system, as designed and envisaged in the Master Plan Addendum. This does not mean acceptance of these assumptions. The assumptions and how they are treated in this capacity analysis are listed below:

1. *Annual & Design Day Aircraft Operations:* The Addendum assumes that Alt. D will handle approximately the same number of annual passenger operations and the same number of design day passenger operations as Alternative C and the No Action/No Project Alternative. These forecast numbers are not modified by this capacity analysis. They are shown in Table 1 below.
2. *Fleet Mix and Aircraft Sizes:* The Addendum makes assumptions about the fleet mix that are considered to be the airlines' response to the number and size distribution of gates provided in Alternative D. In addition each aircraft is assumed to carry a "typical" number of seats. The Master Plan's fleet mix assumption is shown in Table F-9 of LAX Master Plan Addendum. The aircraft size ranges assumed in the Master Plan are shown in Table IV-2.3 of LAX Draft Master Plan.

The fleet mix forecast is not modified in this capacity analysis. However, the aircraft seating capacities are revised on the basis of a review of actual seating configurations used by airlines using LAX, seating capacity ranges as offered by the

manufacturers, and seating configurations of aircraft currently on order by airlines using LAX. This is described in more detail further on.

3. *Operations By Type of Service:* The Addendum assumes a mix of the total Design Day Operations by service type: air carrier, international, Hawaiian, and commuter. The operations split assumptions in the Master Plan are shown in Table 3.3-1 of the LAX Master Plan Addendum. The Addendum forecasts a drop in air carrier operations and an increase in commuter operations between the base year and 2015. Although questionable, these market forecast assumptions are retained in the capacity analysis. They are discussed again in the next section.
4. *Load Factors:* The Addendum projects the load factors by carrier type and uses them to convert design day operations and aircraft sizes to passengers. Forecasted load factors for year 2015 are shown in Table IV-2.8¹. Projections are made by type of operation (air carrier, international, Hawaiian, commuter), and a presumably weighted average of all commercial operations is also used. The load factor assumptions and calculations found in the Addendum are not questioned and are used in this capacity analysis. A sensitivity analysis is made to show the range of capacities that result from the range of load factors used in the Addendum.
5. *Seasonal Patterns:* The conversion of the Design Day Operations and passenger flow to annual figures is based on the assumed annual conversion factors that are intended to reflect seasonal variations in traffic demand. Annual Conversion Factor of 300 is inferred from Table 3.3-1 of the LAX Master Plan Addendum. This factor is used to calculate the Annual Passengers by multiplying the Design Day Passengers with the Annual Conversion Factor. Design day flows are considered the average weekday of the peak month. Wednesday in August is used by the Master plan. The Addendum uses a conversion factor of 300 to convert the Design Day Passengers to Annual. It uses a factor of 346 to convert Design Day Operations to Annual Operations. These same factors are used for all the alternatives of the Master Plan: NA/NP, A, B, C, and D. They differ from the historic and current factors at LAX in one important way, and that is the current and recent historic figures for passenger ratios at LAX have been consistently around 310. The implication of the Addendum's assumption that the capacity constraint will cause traffic peaks to spread rather than accentuate is that these factors should rise and not decline. Therefore the conversion factor of 300 for passengers is considered wrong and is replaced by the more correct value of 310 for this capacity analysis. A sensitivity analysis is used to show the implication of the de-peak assumed in the Addendum by considering a range from 300 up to 320. The current, histories, and assumed values of these conversion factors, for both passengers and operations are summarized in the next section.

¹ According to the LAX Master Plan Addendum, the load factors and aircraft size assumptions were taken from Chapter V of Master Plan, but that information is not available in Chapter V, so we assume that the information from Chapter IV is used.

6. *Mix of Gates*: The Master Plan Addendum's gate mix for Alternative D is shown in the Table E-2. This mix results in a ratio of 1.16 between gates and narrow body equivalent gates NBEG's. (153 gates = 178.9 NBEG's). The capacity is estimated for the gate mix as given in the Addendum.
7. *Flight Schedules and Gate Position Loading*: The flight schedule is shown in Table F-9 of the Addendum. This assignment represents a certain gate position loading and implies a certain level of gate utilization. The capacity analysis presented here uses this assumed loading and schedule and does not question whether the gate utilization level achieved from the assignments can be increased, which would increase the capacity. By using the schedule used in the Addendum this analysis also implicitly accepts the daily peaking patterns assumed in the Master Plan.

2.1 Summary of the Master Plan Assumptions

Table 1 below shows excerpts from Table 3.3-1 from the Addendum, comparing the NP/NA, with Alternatives C and D. This table contains corrected numbers of NBEG's as obtained from Table V-3.3 (Lax Draft Master Plan) and Table 2.2-3.²

Table 1. LAX Master Plan Assumptions for Different Alternatives

Alternative	NA/NP	C	D
Annual Passengers	78715200	89553200	78864100
Annual Operations	712500	714000	713100
Design Day Operations	2058	2058	2058
Design Day Passengers	262329	298588	262758
Design Day Enplanements per Departure	127.47	145.09	127.68
Annual Enplanements per Departure	110.48	125.43	110.59
Annual Conversion Factor	300	300	300
Nominal Gates 2015	163.00	168.00	153.00
NBEG 2015	188.20	222.20	178.90

It should be noted, again, that as seen in Table 1, the LAX Master Plan Addendum assumed that Alternative D is designed to handle about the same total Annual aircraft Operations and Design Day Operations in 2015 as alternatives NA/NP and C. The difference in the annual passenger flow between these alternatives is attributed to the assumed distributions of these operations among types of operations, aircraft, and gate position sizes. Again, the basic assumption is that by limiting the number and size of gates, airlines will

² There are several mistakes concerning the number of NBEG's in the original report:

- The number of NBEG for existing gates in 2000 from Table 2.2-1 of LAX Master Plan Addendum is not calculated properly. The number of existing gates is 165 and according to the gate mix (Table 2.2-3 of LAX Master Plan Addendum) and the conversion table (Table IV-4.3 of the LAX Draft Master Plan) it is not 184.6, it is 190.9.
- Also, in Table V-3.3 of LAX Draft Master Plan, the number of NBEG for the NA/NP Alternative is stated to be 203.4, which is not the case if the gate distribution is the one shown in the Table 2.2-3 of Lax Master Plan Addendum. The correct number should be 188.20 instead.

respond by downsizing fleets and will thereby end up carrying fewer passengers per operation.

Design-Day to Annual Conversion Factors: As mentioned earlier, the number of annual passengers in Alternative D is also brought to 78 million by using an Annual Conversion Factor (ratio of annual number to design-day number) of 300, which is lower than the numbers observed at LAX today. Table 2 shows the actual 1996, 2000 and the forecasted values.

Table 2. Annual Conversion Factors

	Design Day Passengers	Annual Passengers	Annual Conversion Factor	Design Day Operations	Annual Operations	Annual Conversion Factor
1996 Actual	186,512	57,974,559	310.83	2055	712,206	346.57
2000 Actual	215,645	67,303,182	312.10	2054	710,791	346.05
NP/NA 2015	262,329	78,715,200	300.06	2058	712,500	346.21
Alternative C 2015	298,588	89,553,200	299.92	2058	714,000	346.94
Alternative D 2015	262,758	78,864,100	300.14	2058	713,100	346.50

One of the assumptions in the Master Plan is that the de-peaking of both operations and passengers will occur, which should result in a rise rather than a decline of the Annual Conversion Factor. We can see that even in year 2000 when the number of operations went down, the Annual Conversion Factor was 312. In 1996 it was 310. If Alternative D involves de-peaking due to the capacity constraint then we should expect these factors to increase.

3. CAPACITY ANALYSIS

Two methods are used to calculate the capacity of the gate position system as proposed for Alternative D. The first is an aggregate method based on the Addendum's projection of operations by service type and using the Addendum's fleet assumptions of the service type. The second more detailed analysis is based on the Addendum's projected flight schedule and gate assignment on an aircraft by aircraft basis. In both cases the Addendum's assumptions and forecasts are treated as described above. Aircraft seating sizes and Annual Conversion Factors are adjusted as described before, and load factors are assumed as in the Master Plan. Both of these methods yield similar results, and also corroborate the flow numbers estimated in the Addendum under the Addendum's assumptions.

3.1 PRELIMINARY CAPACITY ANALYSIS

A preliminary capacity analysis is shown in Tables 3 and 4. In this method, the Design Day Operations by service category, as obtained from Table 3.3-1 of the Addendum are used and assigned to the assumed typical aircraft for each service category. These typical aircraft are shown in Table 3. Two seating configurations (also shown in Table 3) are used to calculate total design day seats. First are the typical seating sizes as declared by the

manufacturers for the assumed aircraft types (shown later in Table 8), and second are the typical seats for the aircraft group as assumed by the Master Plan and can be found in the LAX Draft Master Plan Table IV-4.7.

Table 3. Assumed Aircraft Types, Seats and Load Factors.

Operation Type	Aircraft Type	Manufacturer Seats Assumed	"Typical" Seats Assumed in Master Plan	Load Factors*
Air Carrier	Boeing 757	200	185	0.6981
Commuter	Commuter	50	40.25 ¹	0.5675
Hawaii	Boeing 757	200	185	0.8988
International	MD 11	285	280	0.8076

* Load factors have been taken from the Draft LAX Master Plan, Table IV-2.8, LAX Draft Master Plan: Design Day forecasted load factors for year 2015.

¹Weighted average seats, for 12 class I and 20 class II commuter aircraft.

The seats are multiplied by load factors as assumed for each service category in the LAX Draft Master Plan. These numbers are also shown in Table 5 here. The Design Day Passengers are then obtained by multiplying number of operations by number of seats and the load factors. The Annual Passengers are obtained by multiplying the Design Day Passengers by the Annual Conversion Factor of 300.

The results of this analysis, using the Addendum's annual conversion factor of 300 are shown in Tables 4 and 5. Table 4, with the Addendum's assumed aircraft sizes and the annual conversion of 300 represents the passenger flows that result from the unmodified Addendum assumptions.

Table 4. Design Day & Annual Passengers, "Typical Seats" Assumed in Master Plan

Alternative	No Action/No Project	Alternative C	Alternative D
Design Day Operations Split*	1069 AC, 467 C, 54 H, 468 I	1120 AC, 317 C, 57H, 564 I	975 AC, 532 C, 53 H, 498 I
Design Day Passengers	263633	288969	259609
Annual Passengers	79089960	86690608	77882808
Design Day Passengers/NBEG	1400.81	1300.49	1451.14
Design Day Operations per NBEG	10.94	9.26	11.50

* AC: Air Carrier, C: Commuter, H: Hawaii, I: International operations.

Next in Table 5 we see the effect of adjusting aircraft seating capacities by using manufacturer specified figures for the aircraft categories assumed for each service type. The annual passenger flows are now higher. Such higher numbers reflect the capacity of the gates in the various categories, while the low numbers in Table 4 represent flows based on market assumptions of what airlines are assumed to use. In both cases these tables do not represent annual capacity since they are based on the Addendum's assumed conversion factor between design day and annual of 300, which is incorrect.

Table 5. Design Day Passengers, Manufacturer Seats Assumed

Alternative	No Action/No Project	Alternative C	Alternative D
Design Day Operations Split*	1069 AC, 467 C, 54 H, 468 I	1120 AC, 317 C, 57 H, 564 I	975 AC, 532 C, 53 H, 498 I
Design Day Passengers	279930	306262	275375
Annual Passengers	83978890	91878697	82612484
Design Day Passengers/NBEG	1487.41	1378.32	1539.27
Design Day Operations Per NBEG	10.94	9.26	11.50

* AC: Air Carrier, C: Commuter, H: Hawaii, I: International operations.

The figures shown in Table 4, completely reflecting the unmodified Master Plan assumptions corroborate the Addendum's estimation of the flow rates for the various alternatives. Under these assumptions all three alternatives C, D, and NA/NP have the same number of Design Day Operations, 2058, but as seen in Tables 4 and 5 these alternatives differ in the operations split. In the Alternative D projections, we can see that air carrier operations are significantly lower compared to Alternative C and to the NA/NP alternative assumptions. We can also see that the number of commuter operations is assumed to be the highest in Alternative D.

A Note on Addendum Assumptions of Operations By Service Type: These traffic assumptions seem to contradict the Master Plan's own market assumptions as stated in the Addendum (3.3.3 Air Service Changes) namely:

- *"Commuter operations would likely be reduced from 1996 levels, consistent with the forecasts for No Action/No Project and Alternative C, in order to maximize the number of passengers that could be served with a limited number of operations. It is also projected that some of the forecast commuter O&D demand would be served by domestic air carrier flights.*
- *Domestic air carrier connecting passengers would decrease from 2015 forecast levels to reflect the projected loss of connecting passengers from commuter flights."*

According to these assumptions, one would assume the number of commuter operations not to be as high as it is projected in Alternative D. So while all three alternatives are projected to have a drop in commuter operations from the 1996 level of 644 during the design day, Alternative D seems to have dropped the least. Instead we see the Design Day air carrier operations dropping measurably from 1096 in NA/NP and 1120 in Alternative C. to 975 in Alternative D.

Before subjecting the numbers obtained in tables 4 and 5 to sensitivity analysis a more detailed analysis of Design Day flows is conducted using the Master Plan Addendum's projected hourly operations by aircraft type. Given the importance of fleet mix and aircraft size assumptions, a detailed look at the assumed flights, aircraft type by aircraft type is more accurate than the numbers assumed on the basis of service category.

3.2 DETAILED PASSENGER CAPACITY AND SENSITIVITY ANALYSIS

Passenger capacity analysis involves calculation of passenger flow following the Master Plan assumptions of the fleet mix. The Design Day aircraft fleet mix was obtained from Table F-9 in the LAX Master Plan Addendum. This fleet mix contains all the flights in the Design Day: commercial, cargo, GA and military. In order to obtain the fleet mix for commercial passenger operations, cargo, general aviation and military flights are taken out according to the forecast in Tables IV-2.4 and IV-2.5 of the Draft LAX Master Plan. In the Draft Master Plan forecasted cargo, and GA operations are higher than the ones for Alternative D (i.e. 157 compared to 117 for cargo). Therefore, to obtain the cargo fleet mix for the Alternative D a pro-rated reduction of total operations is made using the percentage of each aircraft type in the projected cargo and GA fleets. The numbers are also adjusted to retain the projected distribution among service categories in the commercial operations flow³. These numbers are shown in Table 6.

Table 6. Cargo Fleet Mix.

Aircraft Type	Number of Forecasted Operations	Percentage of Operations	Percentage* Total Operations	Rounded Operations	Operations Alternative D	Percentage of Operations
B747-400	18	0.1146	13.41	13	13	0.1111
B747-100/200	18	0.1146	13.41	13	13	0.1111
MD11	15	0.0955	11.18	11	10	0.0854
DC10	16	0.1019	11.92	12	12	0.1025
A300	9	0.0573	6.71	7	6	0.0513
B767	15	0.0955	11.18	11	11	0.0940
B757	12	0.0764	8.94	9	8	0.0684
A310	10	0.0637	7.45	7	7	0.0598
B737	20	0.1274	14.90	15	15	0.1282
BE1	6	0.0382	4.47	4	6	0.0513
Small TP	18	0.1146	13.41	13	16	0.1367
Total	157			115	117	

The GA and military operations are shown in Table 7. By taking these out of the total in Table F-9, we obtain the Design Day fleet mix for passenger operations.

Table 7. GA and Military Fleet Mix.

Aircraft Type	MP Forecasted Operations	Alternative D Operations
Turboprop	81	76
Jet	29	28
Total	110	104

³ Operations by aircraft type in Alt. D are chosen to be lower than if we round the numbers we have from column 4. The reason is that simply rounding the numbers, will leave too many operations with larger aircraft (B737 to B747-400), thereby distorting the Addendum's assumed operations by commuter.

Having obtained the hourly Design Day commercial operations by aircraft type the next step is to perform a sensitivity analysis on aircraft seating capacities. For this sensitivity analysis two different seating analyses are made. In the first analysis, resulting in *Lower Range Seats* we use lower end of seats as shown in Table IV-2.3 (3 of 3) of LAX Draft Master Plan. The second analysis, resulting in *Higher Range Seats*, takes into account the number of seats for each aircraft type based on a combination of three sources:

1. Aircraft manufacturer specification.
2. Current fleet seating by the major US carriers serving LAX. (Obtained from major airlines' websites.)
3. Aircraft orders and options by the major US Carriers (As obtained from *Aviation Week and Space Technology 2003 Aerospace Source Book seating (Order/Options column)*)

Conservatively, we use the mid-range values rather than the high ends of the ranges shown from each source. All these numbers, the Master Plan's range, the manufacturer's range as well as the numbers used in the sensitivity analysis are shown in Table 8.

For each seating case the number of operations of each aircraft type, as projected in the Master Plan Addendum, is multiplied by its seats yielding the number of the Design Day seats. Table 9 shows the number of Design Day Offered Seats for Lower and Higher seat ranges respectively. The total Design Day Seats are shown in bold letters at the bottom of each table.

Table 8. Aircraft Type Seating Assumptions
Manufacturer's Seating Range, Master Plan Assumptions and Range Used in this Analysis

Aircraft	Manufacturer Seat Range	Master Plan Assumption	Lower Range Used	Higher Range Used	Current Fleet	Order/Options**
F100*	98	98	98	98	87	
A-300	266/298	270-285	275	280	250/251	
A-310	240/247	220-237	220	240		
A-318						107 (15)
A-319	124/134	120	120	124	120-124	124 (386)
A-320	150/164	144-150	144	150	138-150	150 (162)
A-321					169	185 (18)
A-330	295/335	300-335	300	300	266-298	253-440 (57)
A-340	380/419	303-335	303	380		
737-300	128/134	118-134	128	130	120-134	
737-400	146/159	138-146	138	146	144	
737-500	108/122	102-110	102	115	104-116	
737-700	126/149	118-134	120	135	124	126 (223)
737S*	102-110	102-110	105	110	107-113	
737-800					134-155	162 (158)
737-900					167	177 (5)
747-400	416/496	390-436	390	410	347-403	416-568 (2)
747*	366-496	260-410	366	416	353-430	
74M*	366-497	234	234	416		
74X	600	600	600	600		
757	200-280	185-188	185	220	168-224	200-243 (47)
767-300*	261/290	220-240	220	250	174-204	181-218 (15)
767*	226-375	172-203	181	226	168-204	
767-400					256-287	245 (37)
777	305-370	305-375	305	360	224-348	301-368 (55)
A-300	266/298	270-285	280	280	250-251	
DC-10*	250-380	260-310	280	275	273	
MD-11*	285/410	284-375	285	300	268	
MD80*	155/172	142-147	143	150	129-141	
MD87*	130/139	125	125	140	142	
MD90*	153/172	150	150	150	150	
MD90-50*	153/172	104	104	153		
ATR72*	66-72	68	64	68	64	
ATR42*	46/48/50	46	46	46	46	
BE1	19	19	19	19	19	
C50	50	50	50	50	40-50	
C70	64-75	70	70	75	64-70	
C90					80	
CAN	19	n/a	19	19	N/a	
DS7*	50/54	48	48	50	N/a	
DS8*					37-50	
EM2		30	30	40	30-44	
EMB	50	50	50	50	50	
Bae-146*					88-100	

F50*	50	50	50	50	N/a	
F70*	70/80	70	70	70	N/a	
GAJ	19	n/a	19	19	N/a	
J31*	18/19	19	19	19	N/a	
J41*					29-30	
S20*	50/58	50	50	50		
S36	20-39	36	36	36		
SF3*	34	34	34	34	34	
SWM	19	19	19	19		

*Production ended or terminated.

** Orders/Options for AAL, AWE, COA, DAL, USA, UAL, NWA, SWA, JetBlue. Number in brackets represents the number of aircraft on order/options for mentioned airlines.

Table 9. Design Day Seats Offered, Lower and Higher Range Seating

Aircraft Type	Design Day Operations	Aircraft Size Lower Range	Aircraft Size Higher Range	D. Day Seats Lower Range	D. Day Seats Higher Range
100	4	98	98	392	392
300	5	280	275	1400	1375
310	14	220	240	3080	3360
319	3	120	124	360	372
320	50	144	150	7200	7500
330	21	300	300	6300	6300
340	19	303	380	5757	7220
733	163	128	130	20864	21190
734	52	138	146	7176	7592
735	45	102	115	4590	5175
737	16	120	135	1920	2160
73S	22	105	110	2310	2420
744	122	390	410	47580	50020
747	9	366	416	3294	3744
74M	17	234	416	3978	7072
74X	27	600	600	16200	16200
757	386	185	220	71410	84920
763	73	220	250	16060	18250
767	72	181	226	13032	16272
777	55	305	360	16775	19800
AB3	110	280	280	30800	30800
D10	0	280	275	0	0
M11	95	285	300	27075	28500
M80	76	143	150	10868	11400
M87	2	125	140	250	280
M90	34	150	150	5100	5100
M95	34	104	153	3536	5202
AT7	25	64	68	1600	1700
ATR	53	46	46	2438	2438
BE1	38	19	19	722	722
C50	47	50	50	2350	2350
C70	5	70	75	350	375
CAN	43	19	19	817	817
DS7	63	48	50	3024	3150
EM2	22	30	40	660	880
EMB	31	50	50	1550	1550
F50	20	50	50	1000	1000
F70	8	70	70	560	560
GAJ	0	19	19	0	0
J31	43	19	19	817	817
S20	34	50	50	1700	1700
S36	6	36	36	216	216
SF3	36	34	34	1224	1224
SWM	58	19	19	1102	1102
Total	2058			347437	383217

Having the number of the Design Day Seats for both seating ranges, a sensitivity analysis is next conducted on Annual Passengers, using different load factors and Annual Conversion Factors. The load factor of **0.7346** is the forecasted total commercial load factor, as obtained from Table IV-2.8 of the Draft Master Plan. Annual Passenger sensitivity analysis is presented in Tables 10 and 11, for lower and higher seat ranges, along with the design day passengers and design day passengers per operation. Bolded numbers are those exceeding 78.5 MAP.

Table 10. Annual Passenger Sensitivity Analysis, Lower Range Seats

Load Factor	0.7	0.72	0.7346	0.74	0.76
D. Day Passengers per Operation	118.2	121.6	124.0	124.9	128.3
Design Day Passengers	243206	250155	255227	257103	264052
Annual Conversion Factor	Annual Passengers				
300	72961770	75046392	76568166	77131014	79215636
305	74177800	76297165	77844302	78416531	80535897
310	75393829	77547938	79120438	79702048	81856157
315	76609859	78798712	80396574	80987565	83176418
320	77825888	80049485	81672710	82273082	84496678

Table 11. Annual Passenger Sensitivity Analysis, Higher Range Seats

Load Factor	0.7	0.72	0.7346	0.74	0.76
D. Day Passengers per Operation	130.3	134.1	136.8	137.8	141.5
Design Day Passengers	268252	275916	281511	283581	291245
Annual Conversion Factor	Annual Passengers				
300	80475570	82774872	84453362	85074174	87373476
305	81816830	84154453	85860919	86492077	88829701
310	83158089	85534034	87268475	87909980	90285925
315	84499349	86913616	88676031	89327883	91742150
320	85840608	88293197	90083587	90745786	93198374

Figures 1 and 2 show the numbers presented in Tables 10 and 11 in graphical form. Values that exceed 78.5 MAP are shown in gray, and the ones under are shown in white, thus making it easier to see influence of each assumption (load factor and annual conversion factor).

Figure 1. MAP Sensitivity Analysis, Lower Seat Range

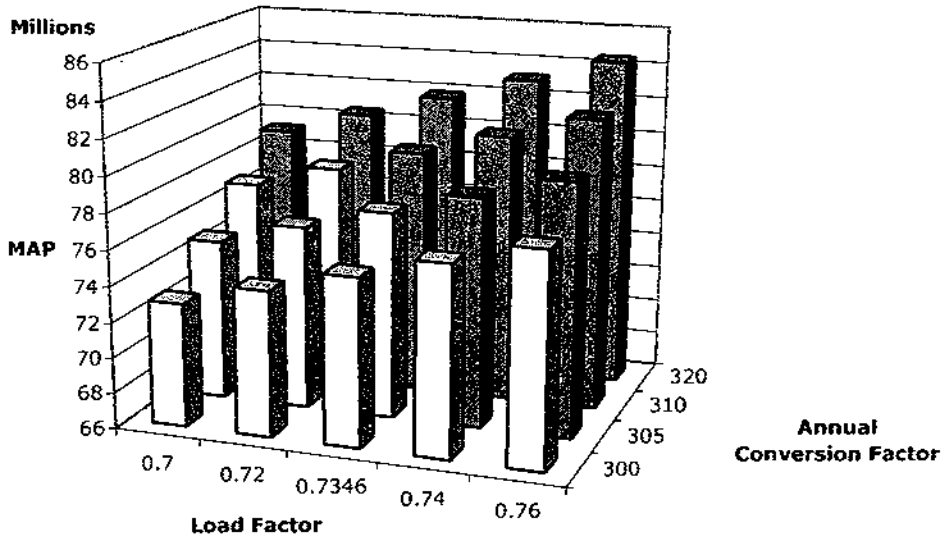
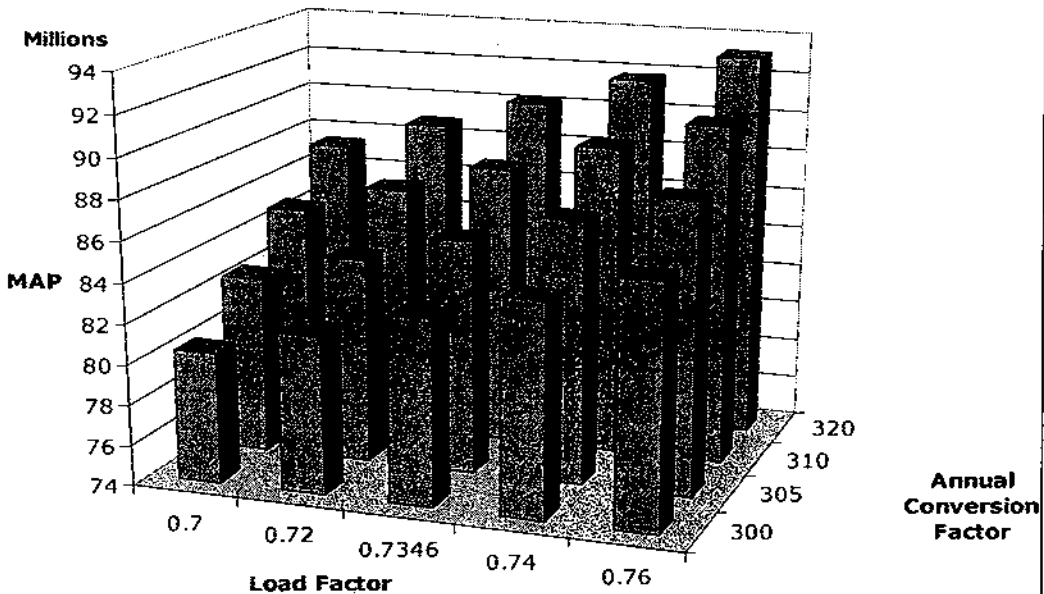


Figure 2. MAP Sensitivity Analysis, Higher Seat Range



3.3 Capacity of Alternative D

To conclude regarding the capacity of the 153 gates as configured in Alternative D into 178.9 NBEG's we adopt the Master Plan's assumed average load factors of 73.46%. We also adopt LAX's prevailing Annual Conversion Factor of 310, and conservatively do not increase is to reflect possible spreading of the peak as traffic grows in face of capacity constraints. We also adopt the higher range seating of aircraft as described in the previous section as a better representation of the capacity of the gate positions, noting that it too is conservatively kept within the range of possible seating configurations rather than its top values. With that the capacity is estimated to be 87.24 MAP, as shown by the italicized number in Table 11.

3.4 Capacity Analysis for a Range of Gate Positions

The next step is to perform the capacity analysis for a range of gate positions in order to ascertain the number that would limit the capacity to 78 million. As shown in the results below, a significant reduction in gates or NBEG's would be needed to limit the capacity to 78 MAP. This question is addressed in this section.

To do this analysis, first the *Gate Passenger Flow Rate* is computed. This rate is the number of the Design Day Passengers divided by the number of NBEG's. Since it is the size as well as the number of gates that determines capacity, passenger flow per NBEG is used to calculate the capacity and then map it back on to the number of gates using the Master Plan Addendum's conversion assumptions, or gate mix. Table 12 shows Passenger Gate Flows for both Lower and Higher range seats and for each load factor used.

Table 12. Gate Passenger Flow: Design Day Passengers per NBEG

Load Factor	0.70	0.72	0.7346	0.74	0.76
Gate Passenger Flow-Lower Seat Range	1359	1398	1427	1437	1476
Gate Passenger Flow-Higher Seat Range	1499	1542	1574	1585	1628

We assume that Gate Passenger Flow is NBEG capacity in each load factor case. We also assume that the gate mix will not change. Right now the ratio between the nominal gates and NBEG's is 1.169. Sensitivity analysis can now be used to determine the change in capacity as the number of gates varies. Design Day Passengers are obtained by multiplying the average flow figures in Table 12 with the number of NBEG's. Annual capacity is then obtained by applying the conversion factor. The following tables (13-22) and figures (3-12) show the Annual Passengers served, for each load factor and number of NBEG's. We also show the number of nominal gates involved, following Alternative D ratio between nominal gates and NBEG's. As shown in Table 18 the figure of 87.24 MAP appears again as the capacity estimate.

Table 13. Annual Passenger Capacity: Lower Seat Range
Annual Conversion Factor = 300

NBEG	Gates	0.70	0.72	0.7346	0.74	0.76
179	153.0	72961770	75046392	76568166	77131014	79215636
178	152.2	72594718	74668853	76182971	76742988	78817122
177	151.4	72186883	74249365	75754977	76311847	78374330
176	150.5	71779047	73829877	75326983	75880707	77931537
175	149.7	71371212	73410389	74898989	75449567	77488744
174	148.8	70963376	72990901	74470994	75018426	77045951
173	148.0	70555541	72571413	74043000	74587286	76603158
172	147.1	70147705	72151925	73615006	74156145	76160366
171	146.2	69739870	71732437	73187012	73725005	75717573
170	145.4	69332034	71312949	72759017	73293865	75274780
169	144.5	68924199	70893461	72331023	72862724	74831987
168	143.7	68516363	70473973	71903029	72431584	74389194

Table 14. Annual Passengers Capacity: Higher Seat Range
Annual Conversion Factor = 300

NBEG	Gates	0.70	0.72	0.7346	0.74	0.76
179	153.0	80475570	82774872	84453362	85074174	87373476
178	152.2	80070718	82358453	84028499	84646188	86933922
177	151.4	79620883	81895765	83556429	84170647	86445530
176	150.5	79171047	81433077	83084359	83695107	85957137
175	149.7	78721212	80970389	82612289	83219567	85468744
174	148.8	78271376	80507701	82140218	82744026	84980351
173	148.0	77821541	80045013	81668148	82268486	84491958
172	147.1	77371705	79582325	81196078	81792945	84003566
171	146.2	76921870	79119637	80724008	81317405	83515173
170	145.4	76472034	78656949	80251937	80841865	83026780
169	144.5	76022199	78194261	79779867	80366324	82538387
168	143.7	75572363	77731573	79307797	79890784	82049994
167	142.8	75122528	77268886	78835727	79415243	81561601
166	142.0	74672692	76806198	78363657	78939703	81073209
165	141.1	74222857	76343510	77891586	78464163	80584816
164	140.3	73773021	75880822	77419516	77988622	80096423
163	139.4	73323186	75418134	76947446	77513082	79608030
162	138.5	72873350	74955446	76475376	77037542	79119637

Figure 3. Lower Seat Range, Annual Conversion Factor 300

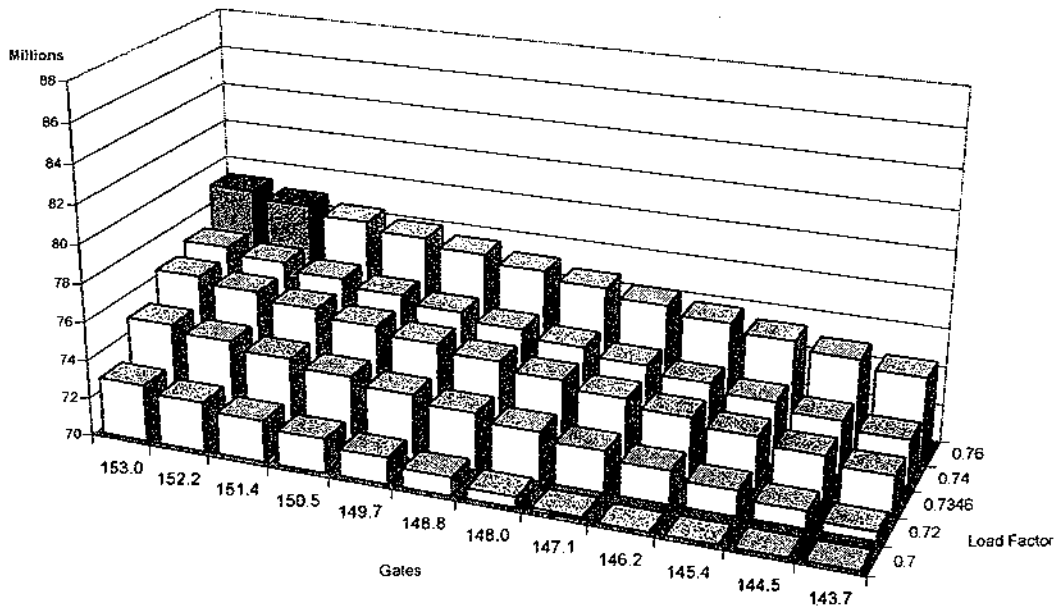
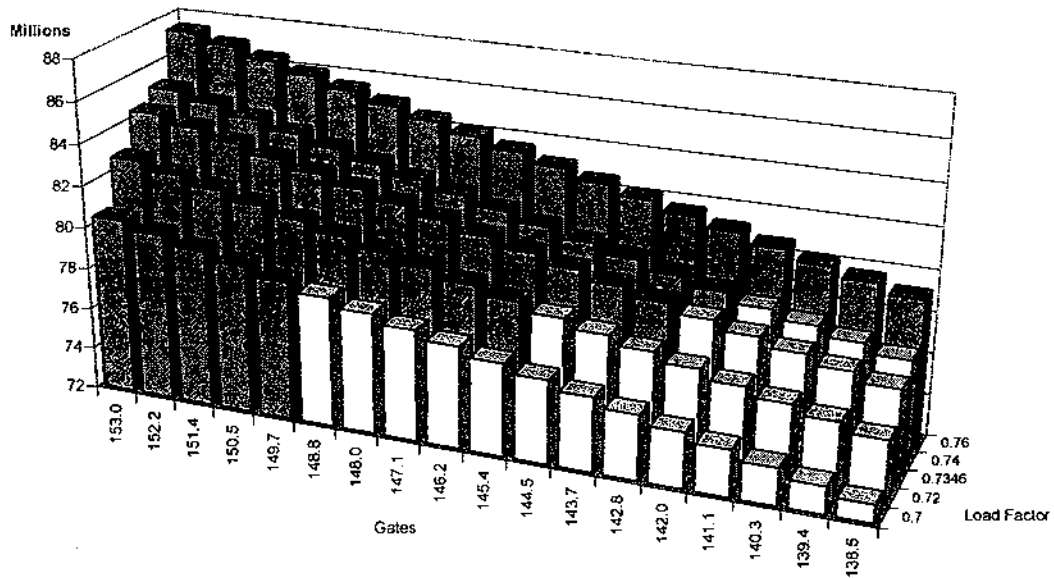


Figure 4. Higher Seat Range, Annual Conversion Factor 300



**Table 15. Annual Passengers Capacity: Lower Seat Range
Annual Conversion Factor = 305.**

NBEG	Gates	0.70	0.72	0.7346	0.74	0.76
179	153.0	74177800	76297165	77844302	78416531	80535897
178	152.2	73804630	75913334	77452687	78022037	80130741
177	151.4	73389997	75486854	77017560	77583711	79680568
176	150.5	72975365	75060375	76582433	77145385	79230396
175	149.7	72560732	74633896	76147305	76707059	78780223
174	148.8	72146099	74207416	75712178	76268733	78330050
173	148.0	71731466	73780937	75277050	75830407	77879878
172	147.1	71316834	73354457	74841923	75392081	77429705
171	146.2	70902201	72927978	74406795	74953755	76979532
170	145.4	70487568	72501499	73971668	74515429	76529360
169	144.5	70072935	72075019	73536540	74077103	76079187
168	143.7	69658302	71648540	73101413	73638777	75629014

**Table 16. Annual Passengers Capacity: Higher Seat Range
Annual Conversion Factor = 305.**

NBEG	Gates	0.70	0.72	0.7346	0.74	0.76
179	153.0	81816830	84154453	85860919	86492077	88829701
178	152.2	81405230	83731094	85428974	86056957	88382821
177	151.4	80947897	83260694	84949036	85573491	87886288
176	150.5	80490565	82790295	84469098	85090025	87389756
175	149.7	80033232	82319896	83989160	84606559	86893223
174	148.8	79575899	81849496	83509222	84123093	86396690
173	148.0	79118566	81379097	83029284	83639627	85900158
172	147.1	78661234	80908697	82549346	83156161	85403625
171	146.2	78203901	80438298	82069408	82672695	84907092
170	145.4	77746568	79967899	81589470	82189229	84410560
169	144.5	77289235	79497499	81109532	81705763	83914027
168	143.7	76831902	79027100	80629594	81222297	83417494
167	142.8	76374570	78556700	80149656	80738831	82920961
166	142.0	75917237	78086301	79669718	80255365	82424429
165	141.1	75459904	77615901	79189780	79771899	81927896
164	140.3	75002571	77145502	78709841	79288433	81431363
163	139.4	74545239	76675103	78229903	78804967	80934831
162	138.5	74087906	76204703	77749965	78321501	80438298

Figure 5. Lower Seat Range, Annual Conversion Factor 305

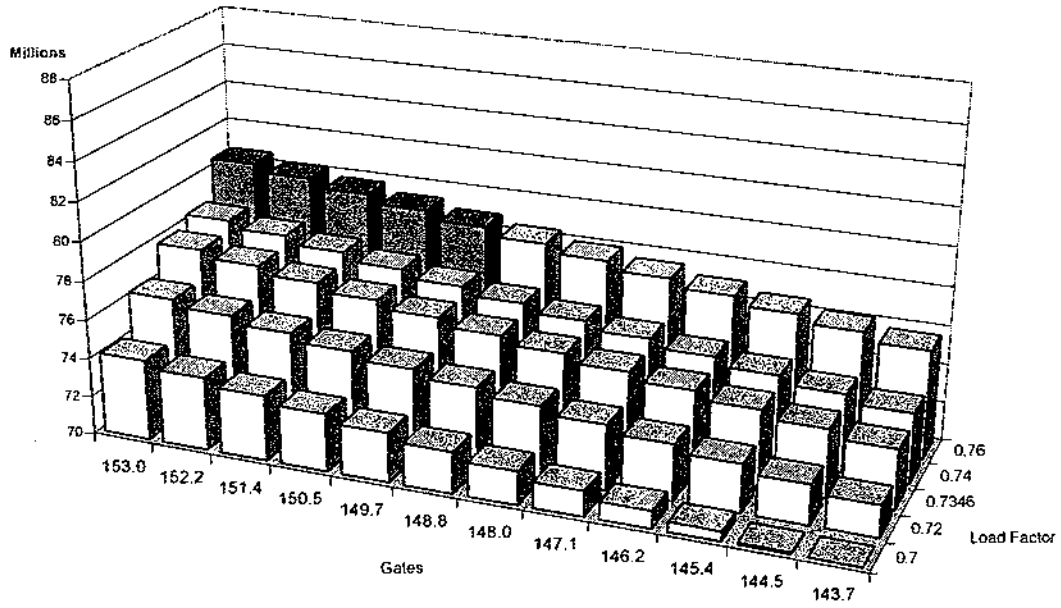


Figure 6. Higher Seat Range, Annual Conversion Factor 305

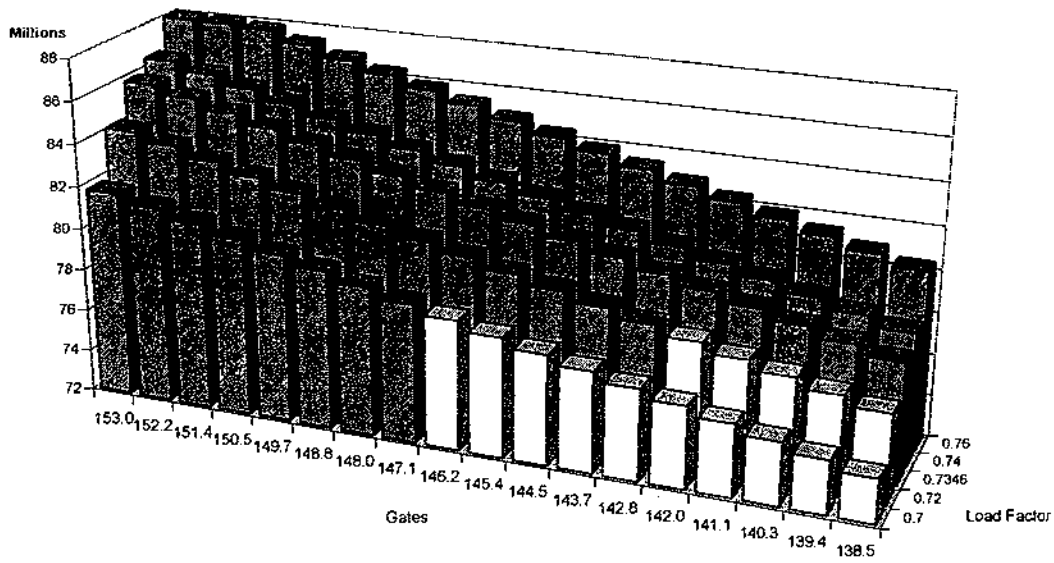


Table 17. Annual Passengers Capacity: Lower Seat Range
Annual Conversion Factor = 310.

NBEG	Gates	0.70	0.72	0.7346	0.74	0.76
179	153.0	75393829	77547938	79120438	79702048	81856157
178	152.2	75014542	77157815	78722404	79301087	81444360
177	151.4	74593112	76724344	78280143	78855576	80986807
176	150.5	74171682	76290873	77837882	78410064	80529255
175	149.7	73750252	75857402	77395622	77964552	80071702
174	148.8	73328822	75423931	76953361	77519040	79614150
173	148.0	72907392	74990460	76511100	77073529	79156597
172	147.1	72485962	74556989	76068839	76628017	78699044
171	146.2	72064532	74123519	75626579	76182505	78241492
170	145.4	71643102	73690048	75184318	75736993	77783939
169	144.5	71221672	73256577	74742057	75291482	77326387
168	143.7	70800242	72823106	74299797	74845970	76868834

Table 18. Annual Passengers Capacity: Higher Seat Range
Annual Conversion Factor = 310.

NBEG	Gates	0.70	0.72	0.7346	0.74	0.76
179	153.0	83158089	85534034	87268475	87909980	90285925
178	152.2	82739742	85103735	86829449	87467727	89831720
177	151.4	82274912	84625624	86341643	86976336	89327047
176	150.5	81810082	84147513	85853837	86484944	88822375
175	149.7	81345252	83669402	85366032	85993552	88317702
174	148.8	80880422	83191291	84878226	85502160	87813030
173	148.0	80415592	82713180	84390420	85010769	87308357
172	147.1	79950762	82235069	83902614	84519377	86803684
171	146.2	79485932	81756959	83414808	84027985	86299012
170	145.4	79021102	81278848	82927002	83536593	85794339
169	144.5	78556272	80800737	82439196	83045202	85289667
168	143.7	78091442	80322626	81951390	82553810	84784994
167	142.8	77626612	79844515	81463584	82062418	84280321
166	142.0	77161782	79366404	80975779	81571027	83775649
165	141.1	76696952	78888293	80487973	81079635	83270976
164	140.3	76232122	78410182	80000167	80588243	82766304
163	139.4	75767292	77932072	79512361	80096851	82261631
162	138.5	75302462	77453961	79024555	79605460	81756959

Figure 7. Lower Seat Range, Annual Conversion Factor 310

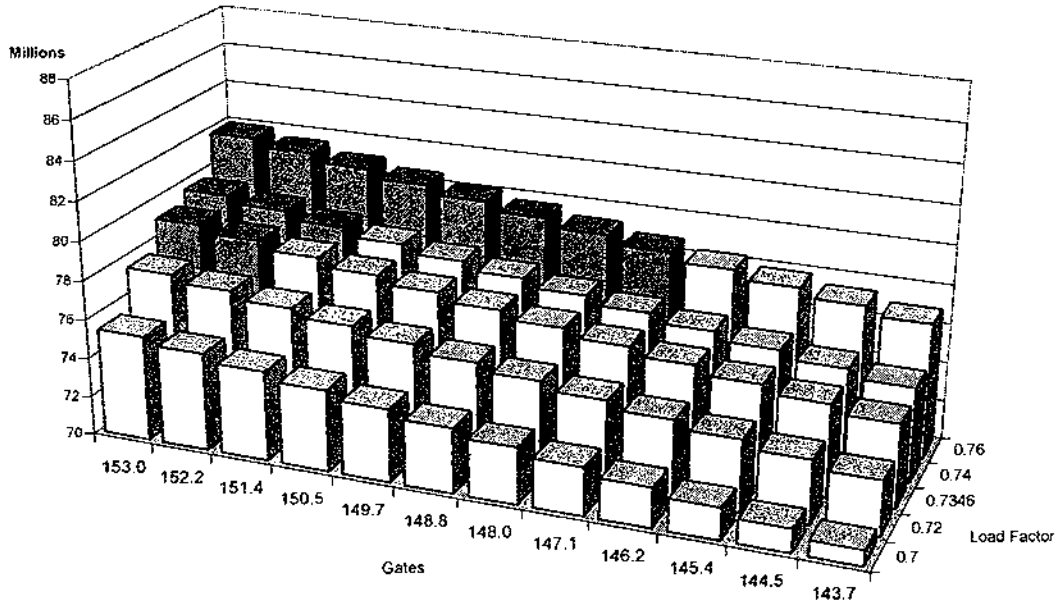


Figure 8. Higher Seat Range, Annual Conversion Factor 310

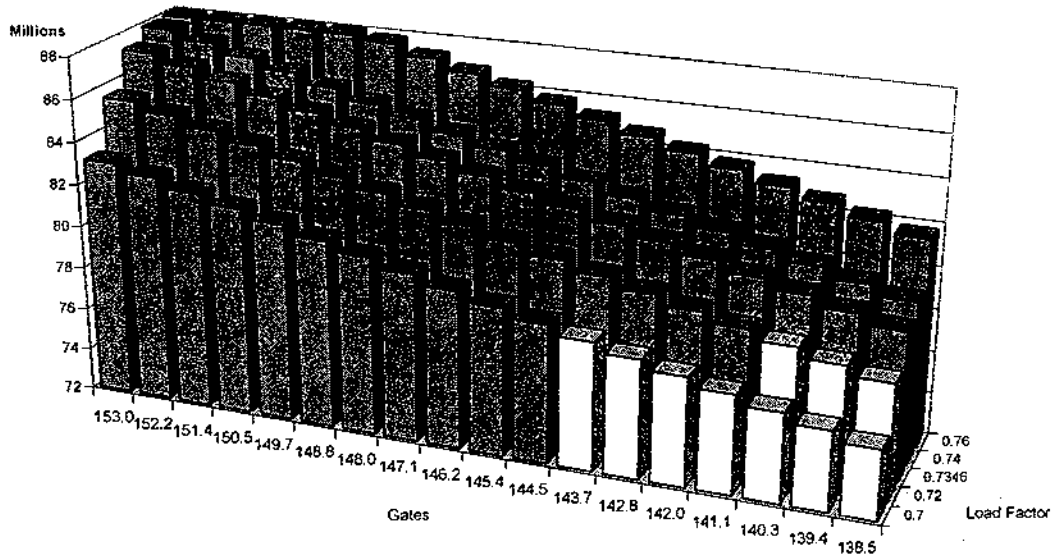


Table 19. Annual Passengers Capacity: Lower Seat Range
Annual Conversion Factor = 315.

NBEG	Gates	0.70	0.72	0.7346	0.74	0.76
179	153.0	76609859	78798712	80396574	80987565	83176418
178	152.2	76224454	78402295	79992120	80580137	82757979
177	151.4	75796227	77961833	79542726	80127440	82293046
176	150.5	75367999	77521371	79093332	79674742	81828114
175	149.7	74939772	77080908	78643938	79222045	81363181
174	148.8	74511545	76640446	78194544	78769347	80898249
173	148.0	74083318	76199984	77745150	78316650	80433316
172	147.1	73655090	75759521	77295756	77863953	79968384
171	146.2	73226863	75319059	76846362	77411255	79503451
170	145.4	72798636	74878597	76396968	76958558	79038519
169	144.5	72370409	74438134	75947574	76505860	78573586
168	143.7	71942181	73997672	75498181	76053163	78108654

Table 20. Annual Passengers Capacity: Higher Seat Range
Annual Conversion Factor = 315.

NBEG	Gates	0.70	0.72	0.7346	0.74	0.76
179	153.0	84499349	86913616	88676031	89327883	91742150
178	152.2	84074254	86476375	88229924	88878497	91280619
177	151.4	83601927	85990553	87734250	88379180	90767806
176	150.5	83129599	85504731	87238577	87879862	90254994
175	149.7	82657272	85018908	86742903	87380545	89742181
174	148.8	82184945	84533086	86247229	86881227	89229369
173	148.0	81712618	84047264	85751556	86381910	88716556
172	147.1	81240290	83561441	85255882	85882593	88203744
171	146.2	80767963	83075619	84760208	85383275	87690931
170	145.4	80295636	82589797	84264534	84883958	87178119
169	144.5	79823309	82103974	83768861	84384640	86665306
168	143.7	79350981	81618152	83273187	83885323	86152494
167	142.8	78878654	81132330	82777513	83386006	85639681
166	142.0	78406327	80646507	82281839	82886688	85126869
165	141.1	77933999	80160685	81786166	82387371	84614057
164	140.3	77461672	79674863	81290492	81888053	84101244
163	139.4	76989345	79189040	80794818	81388736	83588432
162	138.5	76517018	78703218	80299145	80889419	83075619

Figure 9. Lower Seat Range, Annual Conversion Factor 315

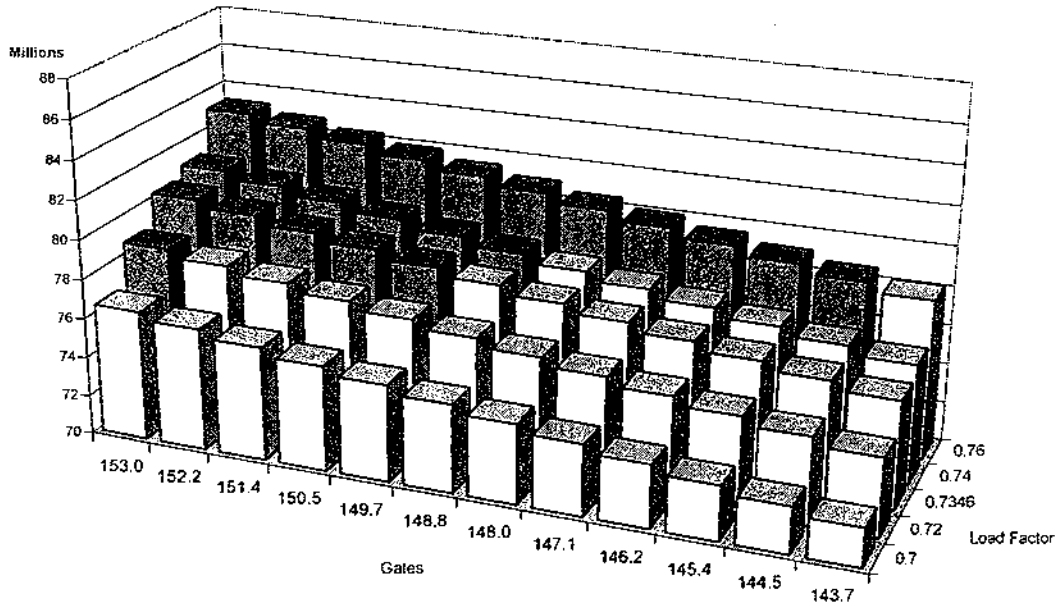


Figure 10. Higher Seat Range, Annual Conversion Factor 315

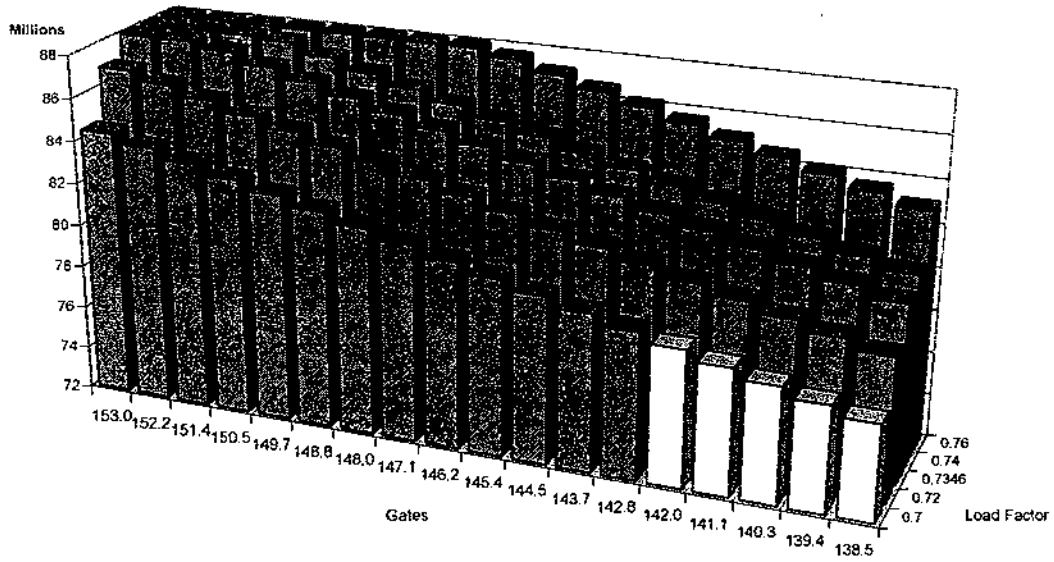


Table 21. Annual Passengers Capacity: Lower Seat Range
Annual Conversion Factor = 320.

NBEG	Gates	0.70	0.72	0.7346	0.74	0.76
179	153.0	77825888	80049485	81672710	82273082	84496678
178	152.2	77434366	79646776	81261836	81859187	84071597
177	151.4	76999341	79199323	80805309	81399304	83599285
176	150.5	76564317	78751869	80348782	80939421	83126973
175	149.7	76129292	78304415	79892255	80479538	82654660
174	148.8	75694268	77856961	79435727	80019655	82182348
173	148.0	75259243	77409507	78979200	79559771	81710036
172	147.1	74824219	76962054	78522673	79099888	81237723
171	146.2	74389194	76514600	78066146	78640005	80765411
170	145.4	73954170	76067146	77609619	78180122	80293099
169	144.5	73519145	75619692	77153091	77720239	79820786
168	143.7	73084121	75172238	76696564	77260356	79348474

Table 22. Annual Passengers Capacity: Higher Seat Range
Annual Conversion Factor = 320.

NBEG	Gates	0.70	0.72	0.7346	0.74	0.76
179	153.0	85840608	88293197	90083587	90745786	93198374
178	152.2	85408766	87849016	89630399	90289267	92729517
177	151.4	84928941	87355483	89126858	89782024	92208565
176	150.5	84449117	86861949	88623316	89274781	91687613
175	149.7	83969292	86368415	88119775	88767538	91166660
174	148.8	83489468	85874881	87616233	88260295	90645708
173	148.0	83009643	85381347	87112691	87753051	90124756
172	147.1	82529819	84887814	86609150	87245808	89603803
171	146.2	82049994	84394280	86105608	86738565	89082851
170	145.4	81570170	83900746	85602067	86231322	88561899
169	144.5	81090345	83407212	85098525	85724079	88040946
168	143.7	80610521	82913678	84594984	85216836	87519994
167	142.8	80130696	82420145	84091442	84709593	86999042
166	142.0	79650872	81926611	83587900	84202350	86478089
165	141.1	79171047	81433077	83084359	83695107	85957137
164	140.3	78691223	80939543	82580817	83187864	85436184
163	139.4	78211398	80446009	82077276	82680621	84915232
162	138.5	77731573	79952476	81573734	82173378	84394280

Figure 11. Lower Seat Range, Annual Conversion Factor 320

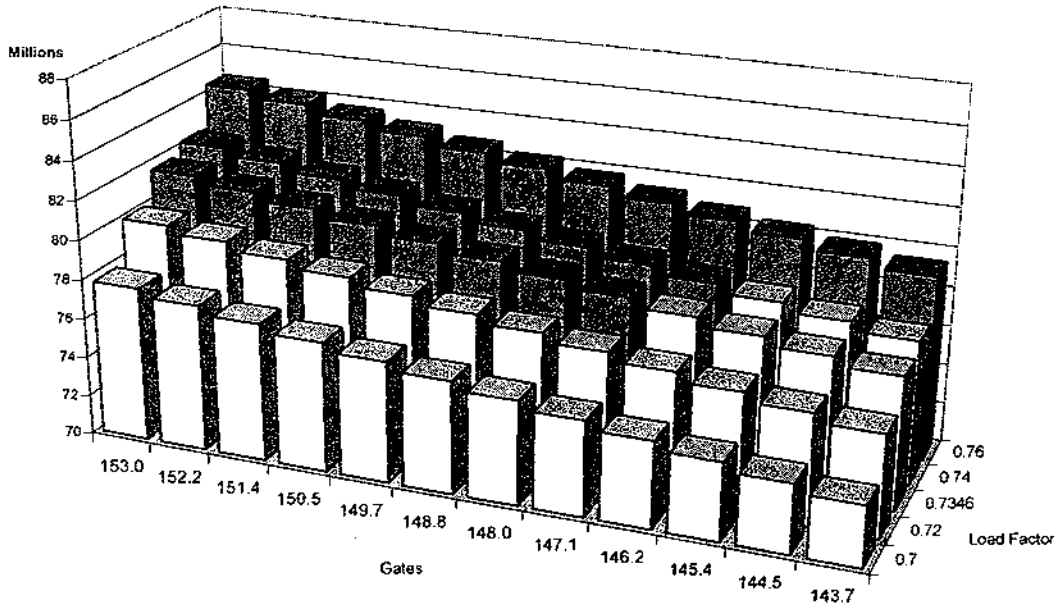
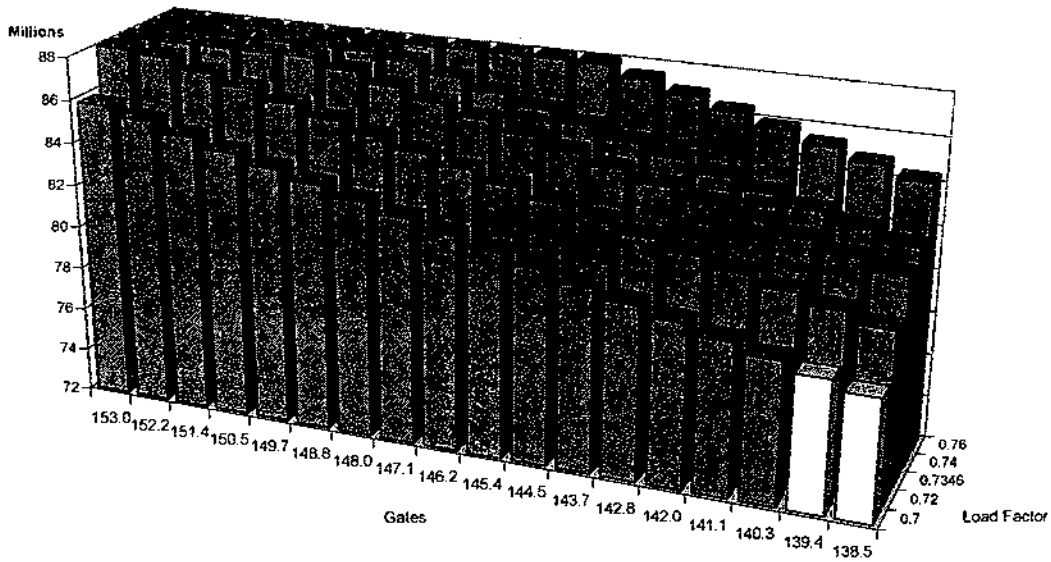


Figure 12. Higher Seat Range, Annual Conversion Factor 320



3.5 Gate Capacity Analysis

The previous analysis showed the capacity of the current plan to be about 87 MAP. It also showed the relation between capacity and the number of gates or NBEG's, while maintaining the gate mix as it is presently proposed in Alternative D, and hence the same ratio between gates and NBEG's. In this section we calculate the capacity on the basis of the mix of gates proposed in Alternative D using the parameters defined in the Addendum for each gate design group. This permits the evaluation of the impact on capacity of reduction in gates of different size groups rather than simply number of gates and NBEG's as would be obtained from the previous section.

The gate mix proposed in the Addendum is found in Table E-2 of the Addendum. From the Table E-2 we see the gate mix and the gate assignment to airline operators. This information is used in the analysis, which is described in the following text.

Table 23 shows the range of load factors used in the sensitivity analysis. Bold-faced load factors are the Master Plan forecasted load factors for the 2015 Design Day, which can be found in the Table IV-2.8, LAX Draft Master Plan. Only the first row of bold face load factors has different values for different operations. The other bold-faced load factors are the LAX Master Plan's average load factors for all operation types. Hawaiian operations are not separated from the Air Carrier Operations, since from the Table E-2 and the airline definitions it was not possible to discern which gates would be used for Hawaiian operations.

Table 23. Range of Load Factors Used

Air Carrier	Commuter	International
0.7000	0.7000	0.7000
0.7100	0.7100	0.7100
0.6981*	0.5675*	0.8076*
0.7200	0.7200	0.7200
0.7346	0.7346	0.7346
0.7400	0.7400	0.7400

* The Master Plan's load factors by carrier group

The number of Design Day Operations for each gate design group is obtained by dividing the number of operations in each group by the number of gates in that group. The aircraft are grouped by gate size according to the Addendum's Table IV-4.7, and the number of gates in each design (or size) group is taken from the Addendum's Table E-2. The Design Day number of Operations for each gate size group is obtained from the Design Day fleet mix as shown in Table 9. The aircraft types are grouped according to the wing span range for each Aircraft Wing Span Group. The results are shown in Table 24. As before, the Design Day Passengers are calculated by multiplying for each gate in the gate size group the typical seats for that group by the corresponding load factor, and then multiplying that number by Design Day Operations per Gate.

Table 24. Operations per Gate for Proposed Gate Sizes and Fleet Mix

Gate Size	Aircraft Wing Span Group	Typical Seats	Number of Gates	Number of Operations	Design Day Operations per Gate
74X	VI	600	6	27	4.50
747	V	400	22	243	11.05
MD11, DC10, 767	IV	280	30	369	12.30
757	IIIa	185	23	386	16.78
MD80, 737	III	145	40	501	12.53
Commuter	I-III	40*	32	532	16.63

* Weighted average of typical seats for commuter I and II gates.

By considering the load factors discussed in the Master Plan we convert these operations into Design Day passenger flows, as shown in Table 25. The table shows the flows in passengers per NBEG as well, in order to facilitate sensitivity analysis.

Table 25. Design Day Passengers and Gate Passenger Flow.

Load Factors	Design Day Passengers	Passengers per NBEG
0.70	267596	1495.78
0.71	271418	1517.15
DD Load Factors*	272392	1522.60
0.72	275241	1538.52
0.7346	280823	1569.72
0.74	282887	1581.26

The Master Plan's load factors by carrier group

Table 26 shows the sensitivity analysis of load factor and NBEG number changes, with the Annual Conversion Factor of 300. Table 27 shows the same sensitivity analysis for the Annual Conversion Factor of 310. In both tables besides the NBEG number we show the number of physical gates. The number of nominal gates is calculated assuming that the current Alternative D gate mix. By using the data in Tables 24 and 25 it is possible to study the effect of gate reductions in various mixes of gate design groups on capacity.

The results shown in Table 27 suggest that if the gate, or fleet group mix is not altered, and if the Master Plan's Design Day load factors are used then a reduction of about 10 gates would be necessary to limit the capacity to the 78.9 MAP. Different, higher or lower degrees of reduction can be also used if these reductions are articulated by specific design groups. Clearly a reduction by one NLA group VI gate would reduce the capacity considerably more than a reduction by one commuter Class I or II gate.

Table 26. Annual Passengers Sensitivity Analysis: Annual Conversion Factor = 300.

NBEG	Gates	0.70	0.71	DD LF	0.72	0.7346	0.74
180.0	154.0	80772325	81926216	82220189	83080106	84764786	85387887
178.9	153.0	80278717	81425556	81717732	82572394	84246779	84866072
178.0	152.3	79874855	81015925	81306631	82156994	83822955	84439133
176.0	150.6	78977385	80105633	80393074	81233882	82881124	83490378
174.0	148.8	78079915	79195342	79479516	80310769	81939293	82541624
172.0	147.1	77182444	78285051	78565958	79387657	80997462	81592870
170.0	145.4	76284974	77374759	77652401	78464545	80055631	80644115
168.0	143.7	75387504	76464468	76738843	77541432	79113800	79695361
167.0	142.9	74938769	76009322	76282064	77079876	78642885	79220984
166.0	142.0	74490034	75554177	75825285	76618320	78171969	78746607
165.0	141.1	74041298	75099031	75368507	76156764	77701054	78272230
164.0	140.3	73592563	74643886	74911728	75695208	77230138	77797853
163.0	139.4	73143828	74188740	74454949	75233652	76759223	77323475
162.0	138.6	72695093	73733594	73998170	74772096	76288308	76849098
161.0	137.7	72246358	73278449	73541391	74310539	75817392	76374721
160.0	136.9	71797623	72823303	73084613	73848983	75346477	75900344
159.0	136.0	71348888	72368157	72627834	73387427	74875561	75425967
158.0	135.2	70900152	71913012	72171055	72925871	74404646	74951590
157.0	134.3	70451417	71457866	71714276	72464315	73933730	74477213
156.0	133.4	70002682	71002720	71257497	72002759	73462815	74002835
155.0	132.6	69553947	70547575	70800718	71541203	72991899	73528458

Table 27. Annual Passengers Sensitivity Analysis: Annual Conversion Factor = 310.

NBEG	Gates	0.70	0.71	DD LF	0.72	0.7346	0.74
180.0	154.0	83464736	84657090	84960862	85849443	87590279	88234150
178.9	153.0	82954674	84139741	84441657	85324808	87055005	87694941
178.0	152.3	82537350	83716455	84016852	84895560	86617054	87253770
176.0	150.6	81609964	82775821	83072843	83941678	85643828	86273391
174.0	148.8	80682578	81835187	82128833	82987795	84670603	85293012
172.0	147.1	79755193	80894552	81184824	82033912	83697378	84312632
170.0	145.4	78827807	79953918	80240814	81080030	82724152	83332253
168.0	143.7	77900421	79013284	79296805	80126147	81750927	82351873
167.0	142.9	77436728	78542967	78824800	79649206	81264314	81861683
166.0	142.0	76973035	78072649	78352795	79172264	80777702	81371494
165.0	141.1	76509342	77602332	77880790	78695323	80291089	80881304
164.0	140.3	76045649	77132015	77408785	78218381	79804476	80391114
163.0	139.4	75581956	76661698	76936781	77741440	79317864	79900925
162.0	138.6	75118263	76191381	76464776	77264499	78831251	79410735
161.0	137.7	74654570	75721064	75992771	76787557	78344638	78920545
160.0	136.9	74190877	75250746	75520766	76310616	77858026	78430355
159.0	136.0	73727184	74780429	75048761	75833675	77371413	77940166
158.0	135.2	73263491	74310112	74576757	75356733	76884800	77449976
157.0	134.3	72799798	73839795	74104752	74879792	76398188	76959786
156.0	133.4	72336105	73369478	73632747	74402851	75911575	76469597
155.0	132.6	71872412	72899161	73160742	73925909	75424962	75979407

These numbers are shown graphically in Figures 13 and 14.

Figure 13. Gate Capacity, Annual Conversion Factor 300

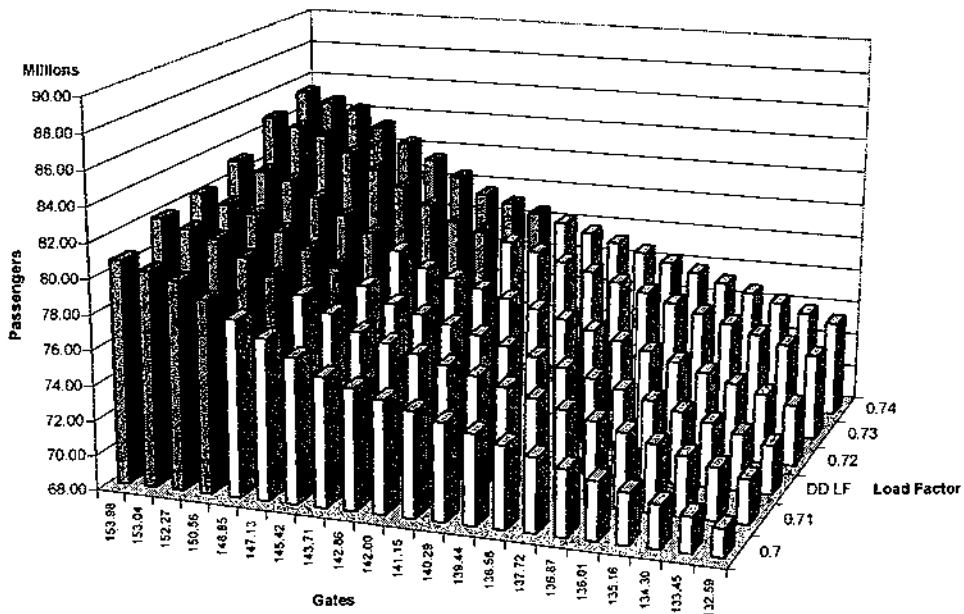
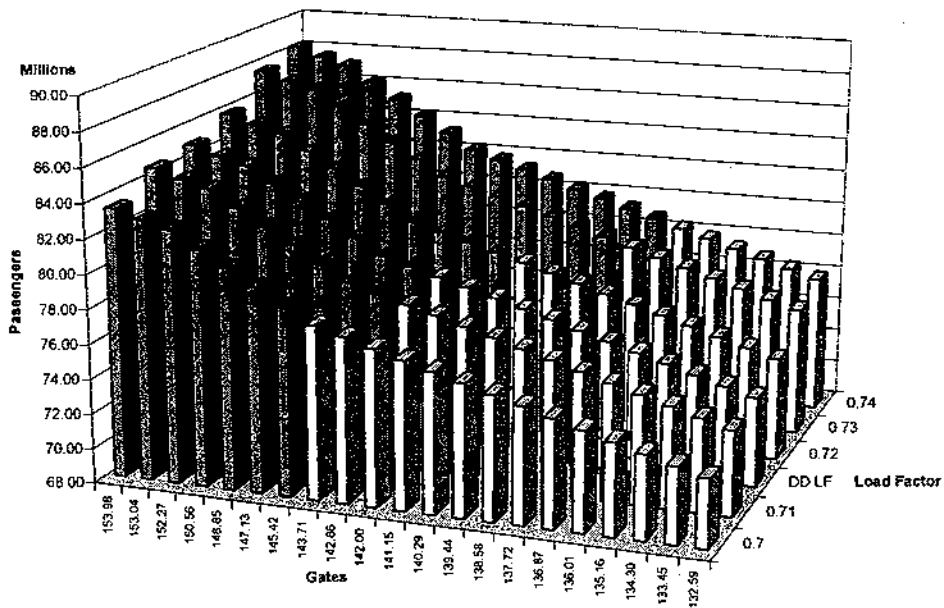


Figure 14. Gate Capacity, Annual Conversion Factor 310



4. GENERAL CONCLUSIONS

We conclude that the capacity of the gate position system proposed in Alternative D and described in the Addendum: the 153 gates, or 178.9 NBEG's, will have a capacity conservatively estimated at 87 MAP. This capacity analysis is performed on the basis of most of the planning and forecast assumptions made in the Addendum. It is a conservative estimate because it does not allow for possible spreading of the peaks either daily or seasonally. The analysis uses the Master Plan's assumed hourly traffic patterns. It uses LAX's current seasonal traffic patterns. Adjusting either of these assumptions to reflect any possible de-peaking would result in a higher capacity estimate. The analysis uses the same aircraft fleet mix and gate size mix proposed in the Master Plan Addendum. However, it uses higher aircraft seating capacities that are considered more realistic and reflective of the capacity of the system. The Master Plan Addendum's figures appear to be based on market considerations rather than on the actual capacity possibilities.

A number of strategies are possible to limit the capacity to about 78 MAP as is the intended aim of Alternative D. All of these would entail a reduction in the number of gates provided. The actual number of gates to be reduced depends on how they are allocated among the different design groups. The analysis provided in this report permits exploring alternative ways of accomplishing the goal of limiting the capacity to about 78 MAP.

Adib Kanafani
Edward G. and John R. Cahill Professor of Civil Engineering
Department of Civil & Environmental Engineering
University of California at Berkeley
Telephone: 510- 642-0367; Fax: 510- 642-1246
E-mail: kanafani@ce.berkeley.edu; www.ce.berkeley.edu/~kanafani/

Adib Kanafani has been professor in the Civil and Environmental Engineering Department at the University of California at Berkeley since 1970. During this period he has taught and conducted research on air transportation, airport planning and design, and transportation systems, demand analysis and transportation economics. He was Director of Berkeley's Institute of Transportation Studies from 1983 to 1998 and Chairman of Berkeley's Department of Civil and Environmental Engineering from 1998 to 2002. He is a member of the National Academy of Engineering.

Kanafani's made contributions to air transportation including demand analysis, airport capacity analysis methods, and airline network analysis. He was a member of the research team that developed airport capacity analysis methods that are in widespread application in airport planning and design. He has also consulted extensively on airport planning and design for a number of agencies worldwide. In 1997 he was founding Co-Director of the National Center of Excellence in Aviation Operations Research, NEXTOR, a University/Industry partnership funded by the Federal Aviation Administration and headquartered at Berkeley.

Kanafani has had a long and distinguished public service record. He has served on a number of national and international advisory panels to Government and industry dealing a variety of aviation topics. He was a member of the FAA-Industry Task Force on Airport Capacity and Delay. He was also a member of a number of national Research Council study panels and committees including the Special Committee on Airport Landside Capacity, the Committee on Long-Term Airport Capacity Needs, and the Committee on Air Passenger Service and Safety Since Deregulation. He served the American Society of Civil Engineers as Chairman of the Air Transport Division, and the Transportation Research board, TRB as a member of the Special Committee on Air Transport Activities that helped usher air transportation into the scope of that organization, and where he is currently a member of the Executive Committee.

City of Los Angeles



*Los Angeles
World Airports*

Capital Improvement Program



Fiscal Years 2001 to 2003

Runway Joint Reseal**Total Project Cost: \$2,200,000**

This project will reseal deteriorated joints on all runways at LAX. It is expected to be completed in Fiscal Year 2001.

<u>Fiscal Year</u>	<u>Future Bonds</u>	<u>Total</u>
2000-2001	\$2,200,000	\$2,200,000
2001-2002		
2002-2003		
Project Total		\$2,200,000

Miscellaneous Major Maintenance Projects**Total Project Cost: \$8,500,000**

These funds will cover various programmed miscellaneous Major Maintenance projects.

<u>Fiscal Year</u>	<u>Future Bonds</u>	<u>Revenue</u>	<u>Total</u>
2000-2001		\$2,000,000	\$2,000,000
2001-2002		\$3,500,000	\$3,500,000
2002-2003	\$3,000,000		\$3,000,000
Project Total			\$8,500,000

General**Century Cargo Complex**

This project has several elements, as follows:

 Cargo Building A**Total Project Cost: \$17,300,000**

This project will provide for the replacement of a 145,000-square-foot cargo building in the Century Cargo Complex. Construction began in September 1999 and is scheduled to be completed by September 2000.

<u>Fiscal Year</u>	<u>Revenue</u>	<u>Total</u>
Previous year(s)	\$8,000,000	\$8,000,000
2000-2001	\$9,300,000	\$9,300,000
2001-2002		
2002-2003		
Project Total		\$17,300,000

 Cargo Building A - Elevated Transfer Vehicle System**Total Project Cost: \$5,000,000**

This project will construct an Elevated Transfer Vehicle (ETV) system in Cargo Building A. The purpose of this system is to facilitate the transportation of cargo from the aircraft to the cargo facility. A consultant has been hired to determine whether or not this system is feasible in this facility.

<u>Fiscal Year</u>	<u>Revenue</u>	<u>Total</u>
2000-2001	\$5,000,000	\$5,000,000
2001-2002		
2002-2003		
Project Total		\$5,000,000

Avion Drive Realignment

Total Project Cost: \$23,000,000

This project will realign Avion Drive along Century Blvd. and Aviation Blvd. and will provide complete utility and drainage systems. Construction will begin in October 2000 with completion expected in September 2001.

<u>Fiscal Year</u>	<u>Future Bonds</u>	<u>Revenue</u>	<u>Total</u>
Previous year(s)		\$1,000,000	\$1,000,000
2000-2001	\$20,000,000		\$20,000,000
2001-2002	\$2,000,000		\$2,000,000
2002-2003			
Project Total			\$23,000,000

Air Freight Building 1 Remodel

Total Project Cost: \$4,200,000

This project involves modifications to Air Freight Building 1, including demolishing the northerly portion and relocating a vehicular ramp to rooftop parking. Construction will begin in June 2000 with completion in January 2001.

<u>Fiscal Year</u>	<u>Revenue</u>	<u>Total</u>
2000-2001	\$3,500,000	\$3,500,000
2001-2002	\$700,000	\$700,000
2002-2003		
Project Total		\$4,200,000

Air Freight Building 3 & USAir Cargo Demolition

Total Project Cost: \$3,100,000

This project will include the demolition of approximately 120,000 square feet of warehouse/office space in the Century Cargo Complex. Construction is scheduled to begin in April 2001 with completion in August 2001.

<u>Fiscal Year</u>	<u>Revenue</u>	<u>Total</u>
2000-2001	\$1,600,000	\$1,600,000
2001-2002	\$1,500,000	\$1,500,000
2002-2003		
Project Total		\$3,100,000

Cargo Building B

Total Project Cost: \$21,800,000



This project will provide for the replacement of a 150,000-square-foot cargo building in the Century Cargo Complex. Construction is scheduled to begin September 2001 with completion by September 2002.

Artist's rendering of Cargo Building B.

(Cargo Building B financing)

<u>Fiscal Year</u>	<u>Revenue</u>	<u>Total</u>
2000-2001		
2001-2002	\$17,000,000	\$17,000,000
2002-2003	\$4,800,000	\$4,800,000
Project Total		\$21,800,000

Demolition of Air Freight Building 8 & TWA Cargo Buildings

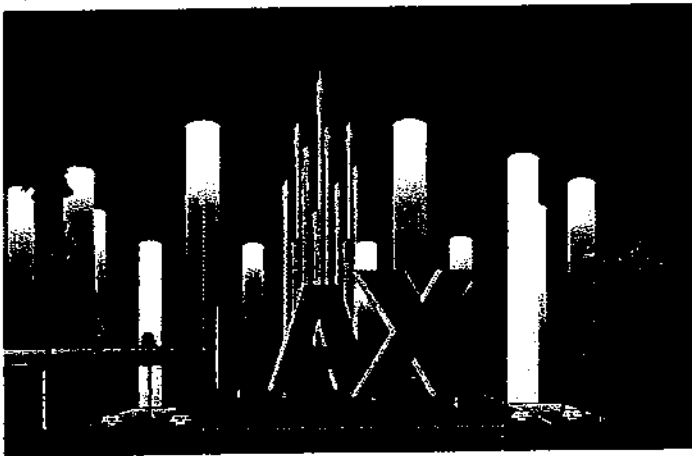
Total Project Cost: \$3,600,000

This project will demolish approximately 140,000 square feet of warehouse/office space in the Century Cargo Complex. Construction is scheduled to begin in October 2002 with completion in March 2003.

<u>Fiscal Year</u>	<u>Revenue</u>	<u>Total</u>
2000-2001		
2001-2002	\$600,000	\$600,000
2002-2003	\$3,000,000	\$3,000,000
Project Total		\$3,600,000

LAX Enhancement Program (Gateway LAX)

This project, entitled "Gateway LAX", consists of the installation of internally illuminated pylons, LAX letter signs and new landscaping at and along the main entrances to LAX.



Artist's conception of Gateway LAX at night.

Construction on this project began in January 2000. Gateway LAX is being developed in two phases. Phase I will create a clear and visually stimulating entrance into LAX, enhancements to the central terminal area and second level roadway, and a new comprehensive signage program to improve the overall functioning of the airport. The first phase will be complete by fall of 2000.

Phase II, scheduled to be completed by the end of 2001, includes the installation of new second level canopies, new treatments for the pedestrian bridges, and enhancements to the parking structures (including lighting improvements). The main program elements of work have been divided into various projects, as follows:

Waterview Landscaping

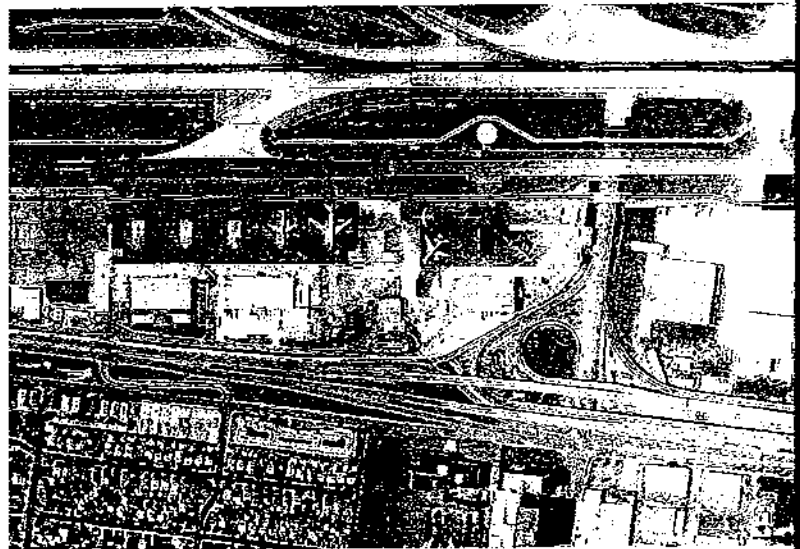
Total Project Cost: \$850,000

This project consists of landscaping the area along the south side of Waterview and Napoleon Streets between Pershing Drive and Vista Del Mar. The project also includes the construction of new meandering sidewalks, an irrigation system and airport fencing. The purpose of this project is to enhance the aesthetic character of the airport's northern border by creating an attractive, pedestrian-friendly environment while maintaining the ocean view.



Negative Declaration

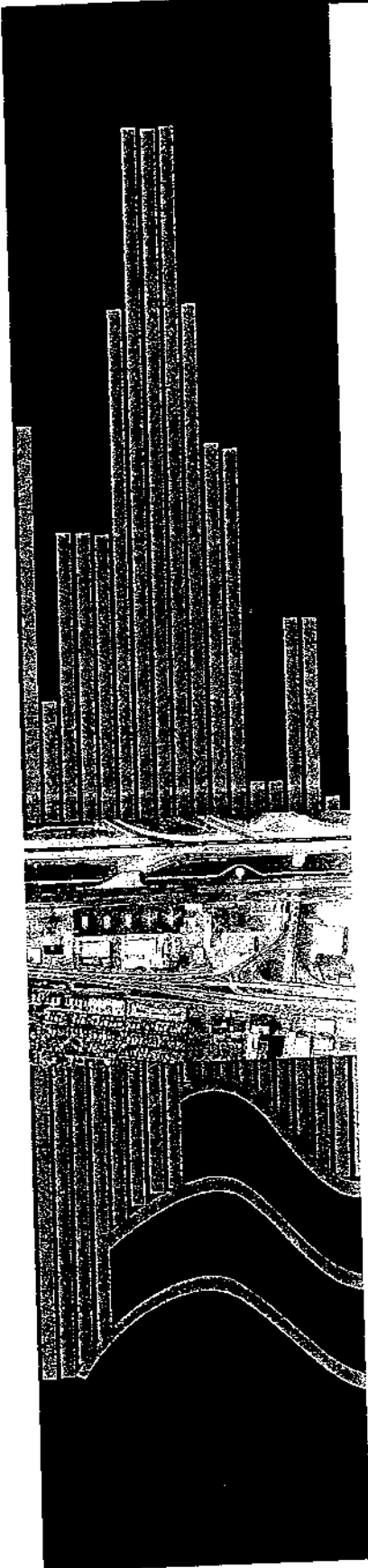
Mercury Air Group FBO



PCR SERVICES CORPORATION

April 2003





Negative Declaration

Mercury Air Group FBO

Submitted To:

Los Angeles World Airports
LAX-Environmental Management Division
7301 World Way West, 3rd Floor
Los Angeles, California 90045

Submitted By:

PCR Services Corporation
233 Wilshire Boulevard, Suite 130
Santa Monica, California 90401
Tel: 310 451.4488
Fax: 310 451.5279

PCR SERVICES CORPORATION

April 2003



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CITY OF LOS ANGELES

OFFICE OF THE CITY CLERK
ROOM 615, CITY HALL
LOS ANGELES, CALIFORNIA 90012

CALIFORNIA ENVIRONMENTAL QUALITY ACT

**INITIAL STUDY
AND CHECKLIST**

(Article IV of City CEQA Guidelines)

LEAD CITY AGENCY Los Angeles World Airports	COUNCIL DISTRICT Council District 11	DATE April 17, 2003
---	--	-------------------------------

RESPONSIBLE AGENCIES

PROJECT TITLE/NO. Mercury Air Center Fixed Base Operation	CASE NO. AD 153-03
---	------------------------------

PREVIOUS ACTIONS CASE NO.	<input type="checkbox"/> DOES have significant changes from previous actions. <input type="checkbox"/> DOES NOT have significant changes from previous actions.
----------------------------------	--

PROJECT DESCRIPTION:

See Attachment A.

ENVIRONMENTAL SETTING:


See Attachment A

PROJECT LOCATION

Northwest corner of Sepulveda Boulevard and Imperial Highway. 6401 and 6411 Imperial Highway.

PLANNING DISTRICT Los Angeles International Airport Interim Plan	STATUS: <input type="checkbox"/> PRELIMINARY <input type="checkbox"/> PROPOSED _____ date <input type="checkbox"/> ADOPTED _____ date
--	---

EXISTING ZONING Heavy Industrial (M3-1)	MAX. DENSITY ZONING	<input checked="" type="checkbox"/> DOES CONFORM TO PLAN <input type="checkbox"/> DOES NOT CONFORM TO PLAN <input type="checkbox"/> NO DISTRICT PLAN
PLANNED LAND USE & ZONE Service Area	MAX. DENSITY PLAN	
SURROUNDING LAND USES North, east and west - Airport South - Commercial and residential	PROJECT DENSITY	

 **DETERMINATION (To be completed by Lead Agency)**

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions on the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

I find the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



SIGNATURE

City Planner

TITLE

EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- 4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of a mitigation measure has reduced an effect from "Potentially Significant Impact" to "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section

XVII, "Earlier Analysis," cross referenced).

- 5) Earlier analysis must be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR, or negative declaration. Section 15063 (c)(3)(D). In this case, a brief discussion should identify the following:
- 1) Earlier Analysis Used. Identify and state where they are available for review.
 - 2) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - 3) Mitigation Measures. For effects that are "Less Than Significant With Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated
- 7) Supporting Information Sources: A sources list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whichever format is selected.
- 9) The explanation of each issue should identify:
- 1) The significance criteria or threshold, if any, used to evaluate each question; and
 - 2) The mitigation measure identified, if any, to reduce the impact to less than significance.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|---|--|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Agricultural Resources | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Air Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Utilities/Service Systems |
| <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Mandatory Findings of Significance |
| <input type="checkbox"/> Geology/Soils | <input type="checkbox"/> Population/Housing | |

INITIAL STUDY CHECKLIST (To be completed by the Lead City Agency)

 **BACKGROUND**

PROPONENT NAME	PHONE NUMBER
Mercury Air Group	

PROPONENT ADDRESS
7000 World Way Drive, Los Angeles, California

AGENCY REQUIRING CHECKLIST	DATE SUBMITTED
Los Angeles World Airports	April 17, 2003

PROPOSAL NAME (If Applicable)

 ENVIRONMENTAL IMPACTS

(Explanations of all potentially and less than significant impacts are required to be attached on separate sheets)

Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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I. AESTHETICS. Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a. Have a substantial adverse effect on a scenic vista? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, or other locally recognized desirable aesthetic natural feature within a city-designated scenic highway? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. Substantially degrade the existing visual character or quality of the site and its surroundings? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

II. AGRICULTURAL RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Conflict the existing zoning for agricultural use, or a Williamson Act Contract? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

III. AIR QUALITY. The significance criteria established by the South Coast Air Quality Management District (SCAQMD) may be relied upon to make the following determinations. Would the project result in:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a. Conflict with or obstruct implementation of the SCAQMD or Congestion Management Plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c. Result in a cumulatively considerable net increase of any criteria pollutant for which the air basin is non-attainment (ozone, carbon monoxide, & PM ₁₀) under an applicable federal or state ambient air quality standard? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d. Expose sensitive receptors to substantial pollutant concentrations? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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e. Create objectionable odors affecting a substantial number of people?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

IV. BIOLOGICAL RESOURCES. Would the project:

a. Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations by the California Department of Fish and Game or U.S. Fish and Wildlife Service ?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in the City or regional plans, policies, regulations by the California Department of Fish and Game or U.S. Fish and Wildlife Service ?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh vernal pool, coastal, etc.) Through direct removal, filling, hydrological interruption, or other means?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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e. Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance (e.g., oak trees or California walnut woodlands)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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V. CULTURAL RESOURCES: Would the project:

a. Cause a substantial adverse change in significance of a historical resource as defined in State CEQA §15064.5?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b. Cause a substantial adverse change in significance of an archaeological resource pursuant to State CEQA §15064.5?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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d. Disturb any human remains, including those interred outside of formal cemeteries?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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VI. GEOLOGY AND SOILS. Would the project:

a. Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving :

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potential result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for the people residing or working in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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VIII. HYDROLOGY AND WATER QUALITY. Would the proposal result in:

a. Violate any water quality standards or waste discharge requirements?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b. Substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned land uses for which permits have been granted)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off site?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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f. Otherwise substantially degrade water quality?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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g. Place housing within a 100-year flood plain as mapped on federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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h. Place within a 100-year flood plain structures which would impede or redirect flood flows?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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j. Inundation by seiche, tsunami, or mudflow?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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IX. LAND USE AND PLANNING. Would the project:

a. Physically divide an established community?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b. Conflict with applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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c. Conflict with any applicable habitat conservation plan or natural community conservation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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X. MINERAL RESOURCES. Would the project:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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XI. NOISE. Would the project:

a. Exposure of persons to or generation of noise in level in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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b. Exposure of people to or generation of excessive groundborne vibration or groundborne noise levels?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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XII. POPULATION AND HOUSING. Would the project:

a. Induce substantial population growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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b. Displace substantial numbers of existing housing necessitating the construction of replacement housing elsewhere?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

c. Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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XIII. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Fire protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Police protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. Schools? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. Parks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e. Other governmental services (including roads)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XIV. RECREATION.

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XV. TRANSPORTATION/CIRCULATION. Would the project:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to ratio capacity on roads, or congestion at intersections)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e. Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f. Result in inadequate parking capacity? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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XVI. UTILITIES. Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. Have sufficient water supplies available to serve the project from existing entitlements and resource, or are new or expanded entitlements needed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g. Comply with federal, state, and local statutes and regulations related to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XVII. MANDATORY FINDINGS OF SIGNIFICANCE.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Does the project have impacts which are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects). | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c. Does the project have environmental effects which cause substantial adverse effects on human beings, either directly or indirectly? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |



DISCUSSION OF THE ENVIRONMENTAL EVALUATION (Attach additional sheets if necessary)

(See Attachments A and B)

**ATTACHMENT A
PROJECT DESCRIPTION**

1.0 INTRODUCTION

The Applicant, Mercury Air Group, Inc. (MAG), proposes to relocate their existing Mercury Air Center Fixed Base Operation (FBO) at Los Angeles International Airport (LAX), 7000 World Way West, to another site on the airport located near the northwest corner of Sepulveda Boulevard and Imperial Highway. The proposed project would situate Mercury Air Center in a more accessible location within LAX as well as consolidate their existing FBO activities.

2.0 PROJECT LOCATION AND SURROUNDING USES

As shown in Figure 1 on page A-2, the project site is located within the City of Los Angeles on Los Angeles World Airports (LAWA) property. The jurisdictional boundary between the City of Los Angeles and the City of El Segundo is formed by Imperial Highway, which also defines the southern boundary of the airport. More specifically, the approximately 15-acre project site is located near the northwest corner of Sepulveda Boulevard and Imperial Highway (see Figure 2 on page A-3). Regional access is provided by the Century Freeway (Interstate 105), an east-west freeway, which is located south of the proposed project area and crosses the San Diego Freeway (Interstate 405), a north-south freeway located east of the project area. Major roadways serving the site include Imperial Highway, Century Boulevard and Manchester Avenue, which run in an east-west direction and Sepulveda Boulevard, Pershing Drive, and Vista Del Mar which run in a north-south direction.

Two buildings, the B-4 Hangar (approximately 67,200 square feet) and Air Freight Building 12 (approximately 15,000 square feet), currently occupy the approximately 15-acre project site (see Figure 3 on page A-4). The project site is surrounded by LAX property to the north and west, as well as to the east across Sepulveda Boulevard. Immediately to the north of the project site is the South Airfield Complex; immediately to the west are air cargo facilities and to the east across Sepulveda Boulevard is a Fixed Base Operation (FBO), run by Garrett Aviation Service. At the southwest corner of the project site on airport property is Federal Aviation Administration (FAA) Airport Surface Detection Equipment (ASDE-3). There are commercial uses located to the south across Imperial Boulevard in the City of El Segundo. There are also residential uses located in El Segundo further south from the airport behind the commercial uses and to the west along the south side of Imperial Highway.

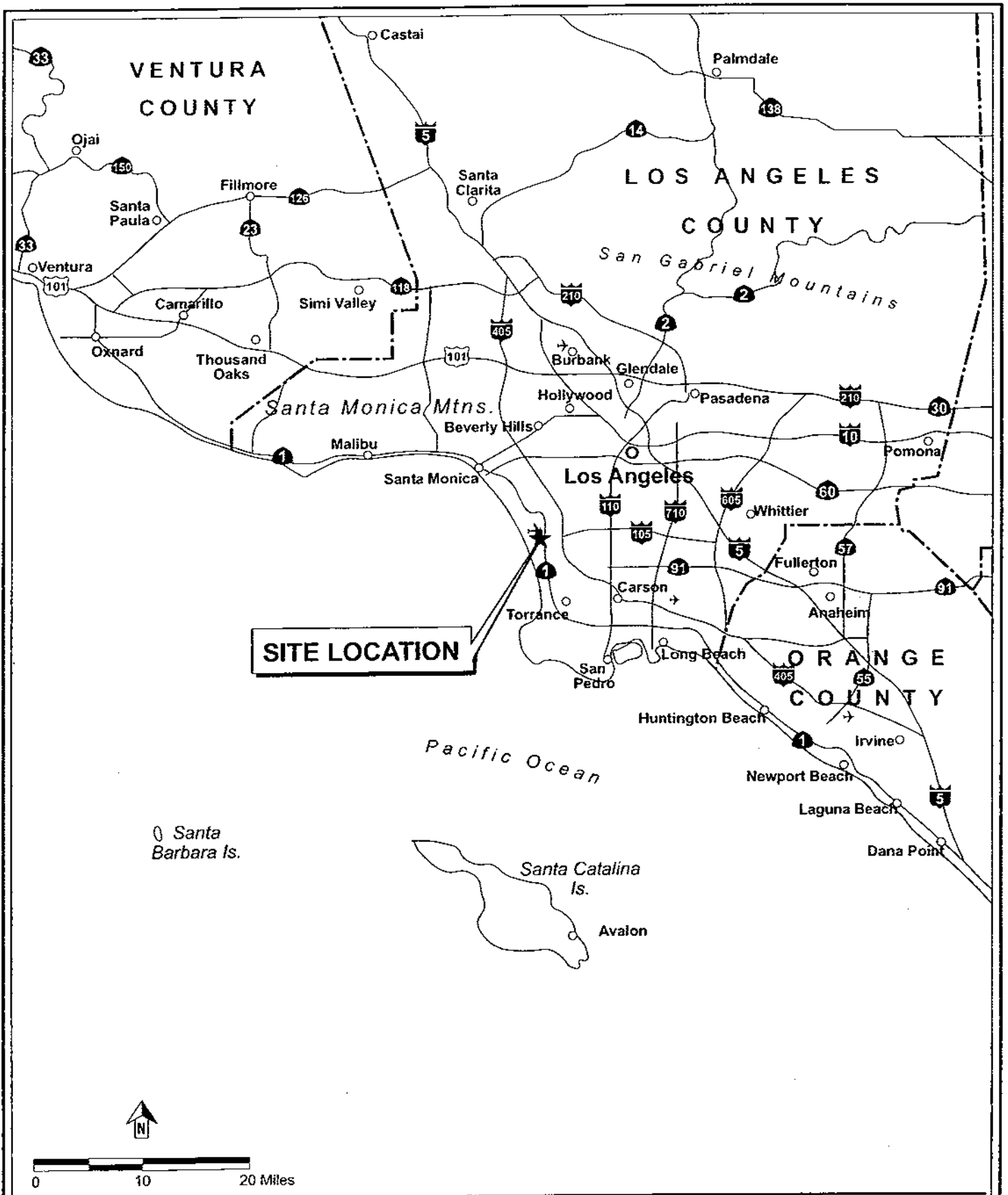


Figure 1
Regional Location Map

Source: PCR Services Corporation, May 2002

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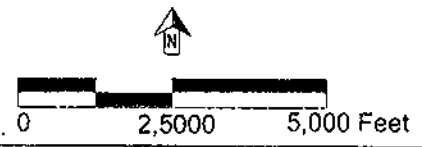
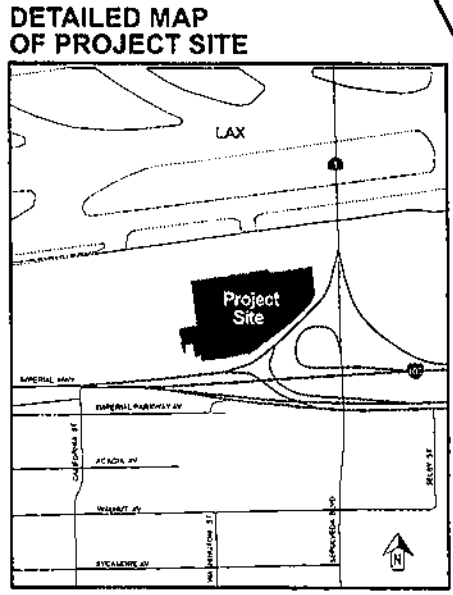
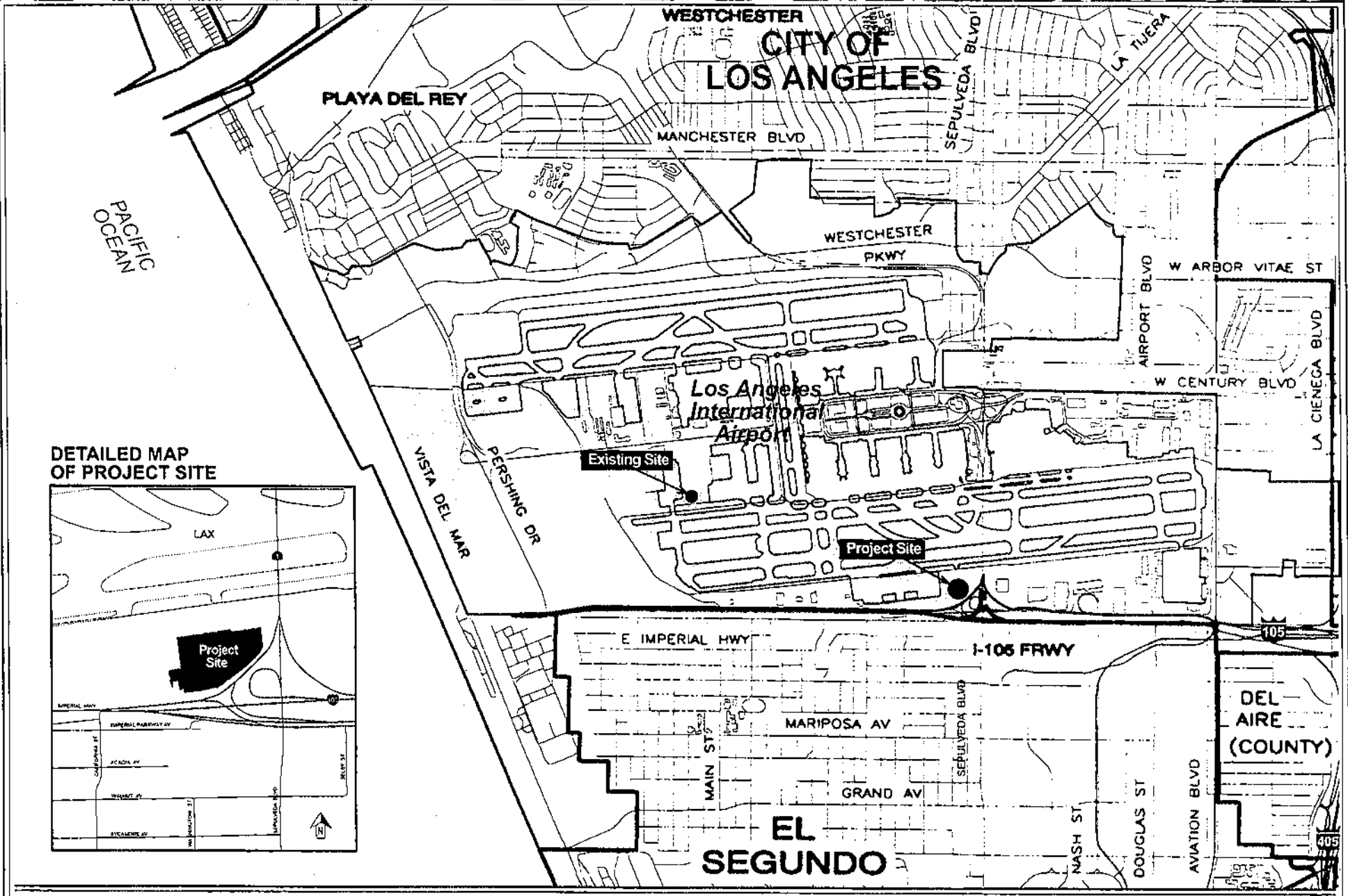


Figure 2
Project Site Location

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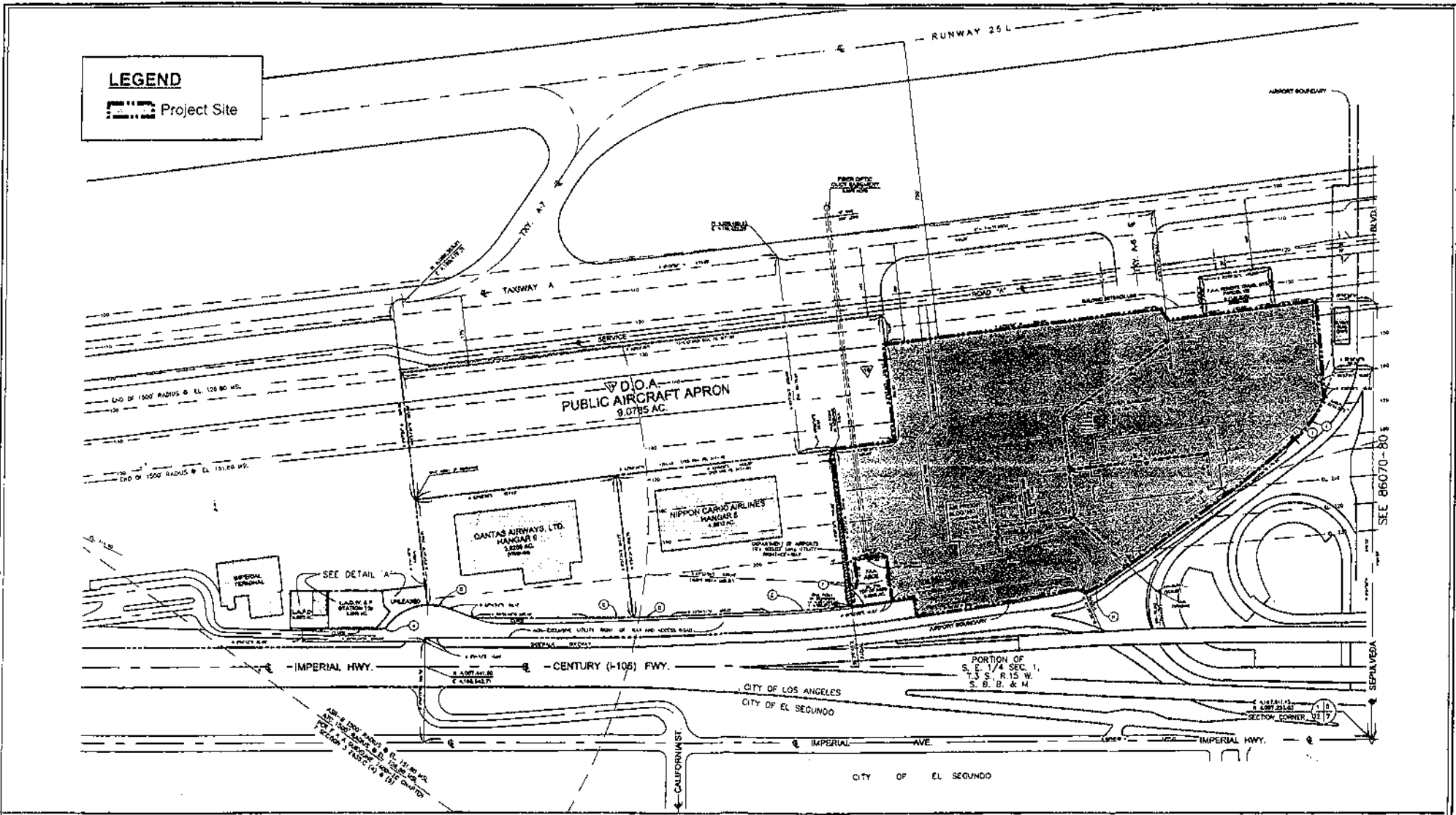


Figure 3
 Project Site Showing
 Existing Development

Source: Los Angeles World Airports, March 2002.

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3.0 STATEMENT OF PROJECT OBJECTIVES

Section 15124(b) of the CEQA Guidelines states that the Project Description shall contain “A statement of the objectives sought by the proposed project.” Section 15125(b) of the CEQA Guidelines further states that, “The statement of objectives should include the underlying purpose of the project.” The main purpose of this project is to alleviate severely constrained operating conditions at the present Mercury Air Center FBO by relocating and developing a significantly improved FBO at LAX that will provide the following:

- A building that will contribute to improved productivity of Mercury operations, management and customer service personnel. The new building will improve productivity through increased space, a more functional building plan compared to the current facility, improved visibility of and by management, and more harmonious and pleasing customer service areas;
- A building that contains space and flexibility for whatever new security requirements that may be imposed as a function of September 11, 2001;
- A larger aircraft parking area that will allow less stacking of aircraft and therefore safer and more productive work and faster service on the ramp area when receiving, parking and dispatching aircraft;
- An operational area that will consolidate various MAG employee parking areas and eliminate current use of the Imperial Terminal parking. This will contribute to productivity, security and reduced travel time for employees; and
- A new FBO access point that will eliminate the current security and safety issues resulting from the requirement to enter the American Airlines gate from World Way West and travel across airport operation areas in order to arrive at the current FBO. This will improve security, reduce trips across the operations area, increase airfield safety, and reduce vehicular travel time throughout the area; and
- Consolidation at LAX of the areas used by FBOs and associated segregation of General Aviation from airline operations resulting in enhanced safety.

4.0 DESCRIPTION OF THE PROPOSED PROJECT

The proposed project is the relocation and consolidation of the Mercury Air Center Fixed Base Operation (FBO)¹ that is currently located at Los Angeles International Airport (LAX) at 7000 World Way West. The proposed site is located at 6401 and 6411 West Imperial Highway. Figure 2 shows the current location of the Mercury Air Center FBO and the site proposed for its relocation.

LAX is approximately 3,640 acres in size. Ancillary uses, which include general aviation, ground service, airline administration and maintenance, LAWA and FAA offices, flight kitchens, and other airport related uses, occupy approximately 364 acres.² The current zoning on the airport property is primarily light industrial (M2) and heavy industrial (M3). The current and proposed sites are zoned M3-1.

Existing Mercury Air Center Facilities and Operations

Mercury's current site, which is leased from the airport, is 1.96 acres and includes a 2,000 square foot FBO facility with a kitchen, restrooms, a flight planning room, a reception area and offices. The current hours of operation for the FBO are from 6:00 A.M. to 11:00 P.M. The existing FBO site includes one acre of ramp parking, one airframe and power (A&P) facility, one line service facility, approximately 22 vehicle parking spaces, and space for 30 pieces of FBO ground services and A&P equipment. Mercury also leases, uses, and rents space at various locations on the airport in order to operate the FBO. Mercury leases 0.6 acres from American Airlines, of which approximately two-thirds is used for parking aircraft and one-third for air maintenance facility and vehicular parking. Between 7:00 A.M. and 7:00 P.M., Mercury also has daily use of 0.8 acres of American Airlines property adjacent to the 0.6 acres leased from American Airlines. When adequate aircraft parking space is not available at the Mercury FBO facility, Mercury rents individual parking spots (approximately one acre) from Continental Airlines for wide-body aircraft overflow parking. In addition, Mercury rents approximately 0.7 acres at Imperial Terminal to provide 90 vehicular parking spaces, 60 of which are used by fueling employees and 30 are used by air cargo employees. Mercury also rents approximately 0.5 acres from American Airlines for an additional 55 vehicular parking spaces, 19 of which are used by the FBO and 36 are used for aircraft maintenance staff. When combining the 1.96 acres FBO site with other areas leased, used, and rented by MAG, approximately 4.56 acres are currently used by MAG.

¹ A Fixed Based Operation (FBO) is a commercial operation that is authorized by agreement with an airport operator to provide to the public at a minimum the following activities at the airport: sale of aviation fuels and lubricants; ancillary aircraft ground services and support; tiedown, hangar, and parking; and aircraft maintenance.

² Draft EIR/EIS for the LAX Proposed Master Plan Improvements, January 2001.

Mercury's current FBO activities are severely constrained. With regard to aircraft parking spaces, unlike commercial airline operations that park a single aircraft at a specifically designated gate, FBO operations cater to a wider variety of aircraft types and sizes. Mercury has been able to accommodate up to eleven aircraft at one time on the 1.96-acre site. However, many of the planes being served by the FBO are towed into their parking locations because of a lack of space. Aircraft are parked in close proximity to one another to efficiently use the space that is available. The limited space requires Mercury to constantly reposition aircraft in order to accommodate arriving and departing aircraft. This results in potential safety issues, inefficiencies in operation, increases in emissions, and potential inconvenience to customers. The constrained site also requires Mercury to occasionally park wide-body aircraft at Continental Airlines facilities, further contributing to the same issues.

Even with the rented space discussed above, there are times when Mercury has to turn away clientele due to a lack of space either for aircraft or vehicle parking. These flights are currently going elsewhere at LAX. Mercury routinely turns down LAX originating non-scheduled passenger charter flights because of a lack of vehicle parking. Many of the passengers on a charter flight choose to drive themselves to the FBO. Since no transportation service is provided from remote locations to the FBO, parking is necessary at the FBO facility. Currently, vehicle parking is available for charter flight passengers at the Imperial Terminal parking lot.

Mercury's existing facility does not provide direct access from public streets and clientele and employees are subject to involved procedures to cross the airfield and access the facility. Clientele access the airport via World Way West and pass through a security checkpoint. Upon clearance, clientele must then drive by escort approximately one-eighth of a mile to the Mercury air center building, where parking for drop-off is provided. No overnight parking is available for aircrew, passengers or employees.

The level of activity at the FBO facility fluctuates on a daily and weekly basis. The level of activity tends to follow a weekday business cycle with most of the clientele coming to Los Angeles in private planes for meetings or events. In addition to daily and weekly fluctuations, there can also be seasonal fluctuations. Operational data collected by Mercury at their existing facility for the year 2002, shows that the number of landings and take-offs ranged from a low of one to a maximum of 30 per day.³ (This represents one to 15 aircraft visits per day.) The total landings and take-offs ranged between a low of 304 monthly landings and take-offs in August 2002 to a high of 463 monthly landings and take-offs in January 2002. This results in a monthly average ranging from 10 daily landings and take-offs (5 aircraft visits), which occurred in August 2002, to a high of 15 daily landings and take-offs (7.5 aircraft visits), which occurred in January 2002.

³ Both the low and high occurred in February 2002.

The types of aircraft using the existing Mercury facility vary but can be divided into two categories: corporate aircraft (e.g., Cessna Citation, LearJet 45, Hawker 800, LearJet 60, GulfstreamV, Canadair Challenger); and airline business jets (e.g., Boeing Business Jet-BBJ, Boeing 757, Airbus A-340). The airline business jets, which are similar in size to commercial jets, such as B-727, B-737, B-757, B-747, DC-8, DC-9, DC-10, and A-340, are the largest aircraft served by the Mercury facility. The landings and take-offs for the corporate aircraft account for the majority of the activity, between 94 to 98 percent of the total operations. The total number of corporate aircraft landings and take-offs ranged from 299 to 441 per month in 2002. The total number of landings and take-offs for airline business jets accounted for approximately two to six percent of the total operations. The total number of airline business jet landings and take-offs ranged from five to 28 per month in 2002.

Operational data for general aviation accessing LAX for the year 2002 shows typical annual fluctuations.⁴ Activity ranged from 1,165 landings and take-offs in February to a high of 1,563 landings and take-offs in April. Mercury landings and take-offs represent from 22 to 37 percent of the total general aviation at LAX.

As indicated above, the current facility has a total of 22 vehicular parking spaces. However, since September 11, 2001, employees are prohibited from parking at the FBO. Currently, FBO customers may only temporarily park vehicles during hours that the FBO is open. There is no overnight parking for customer or rental cars. All non-airfield permitted vehicles must be off the FBO leasehold each night before closing. Mercury leases approximately 0.5 acres from American Airlines to accommodate 55 employee parking spaces, 19 of which are for the FBO and 36 for aircraft maintenance.

With regard to the level and type of maintenance to support the FBO, Mercury Air Center LAX provides line maintenance and overnight checks for scheduled airlines. Line maintenance is performed at the terminal gate. Many of the carriers that require overnight checks do not have leaseholds at LAX. Therefore, overnight checks must be performed on other carrier leaseholds due to the lack of space at the current Mercury FBO facility. Routine overnight maintenance, referred to as "A" checks, are performed at other places on the airport using equipment carried in Mercury's service vehicles. Overnight checks are scheduled functional inspections performed from a checklist. The activities include lubrication of moving parts, servicing of fluids, inspection of components, hoses, electrical items and aircraft structure. Lighting and a ground power unit are used during these checks. Mercury currently performs overnight checks for Hawaiian Airlines using other airlines' leaseholds.

⁴ *LAWA Long Range Planning, Forecasting and Analysis, website at <http://www.lawa.org/lax/htmlaf/voltraffic.html>*

Existing Activity on the Project Site

The proposed project would locate the Mercury Air Center FBO adjacent to Imperial Highway near Sepulveda Boulevard (see Figure 2). Two buildings, the B-4 Hangar and Air Freight Building 12, currently occupy the approximately 15-acre site (see Figure 3). The B-4 Hangar, which was built in 1951, contains approximately 67,200 square feet of floor area. The main hanger is 50,000 square feet, with a 30 foot by 40 foot, two-story office area at each end of the hangar providing 17,200 square feet of office space.

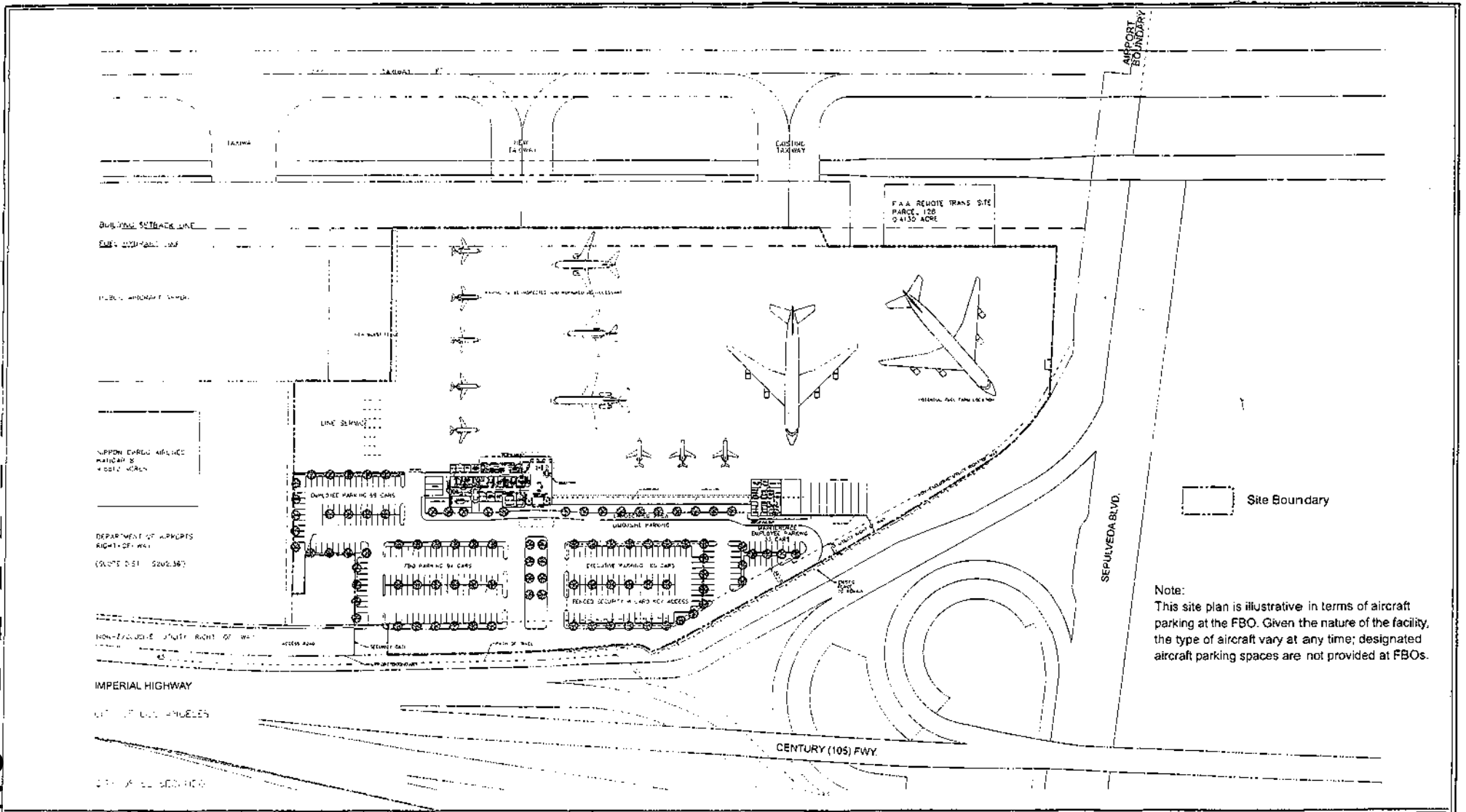
Currently, the Hangar is partially occupied by Airborne Express, a commercial shipping company. Airborne Express has operated at this location since 1993. Airborne Express currently utilizes the offices on the west side of the building and also uses approximately 10,000 square feet of the western portion of the hangar for warehouse space, as well as the ramp area except for the area east of the B-4 Hangar. Airborne's current level of activity ranges from two to four flight operations (commercial) per day, including operations at night. The remainder of the Hangar is vacant.

The second building on the project site, Air Freight Building 12, is located to the west of the Hanger at 6411 West Imperial Highway and is referred to as the Southwest Airlines/LAX Lost and Found building. Currently, the LAWA lost and found office operates at this location. Both buildings ultimately will be demolished. However, Air Freight Building 12 would be used as a temporary FBO during construction of the new facility.

Proposed Mercury Air Center Facilities and Operations

At the outset, the level of aircraft activity at the proposed location would be similar to existing levels of activity for MAG. The majority of the planes would be able to taxi to the location where they would be parked at the FBO rather than being towed because of the increase in space that would result at the proposed site. The increase in space would allow planes to be parked with more space between them. In addition, planes would be parked and generally left in one position rather than having to be moved for other arriving or departing flights. This would increase the overall safety and efficiency of Mercury operations, reduce emissions, and allow MAG to provide better customer service. Figure 4 illustrates a scenario of how planes might park at the new facility. Given the nature of the facility, the types of aircraft vary at any time and designated parking spaces are not provided at FBOs.

LAWA intends to curtail non-scheduled passenger charter flights at the Imperial Terminal, which is located west of the project site. The proposed MAG FBO or other FBO's located at LAX are expected to absorb these flights. The relocation of the non-scheduled passenger charter flights from Imperial to other FBOs would represent an easterly shift in the location of these flights along the southern airport boundary rather than an increase in general



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Source: CSA Architects, December 2002.

Figure 4
Illustrative Site Plan

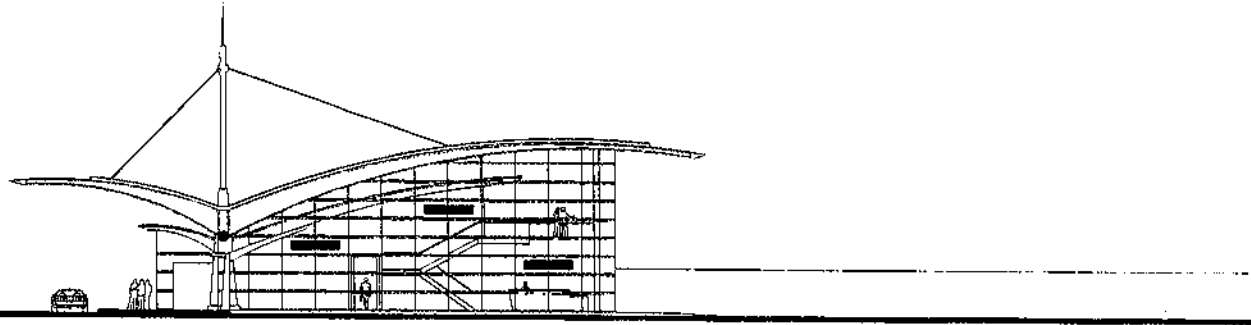
aviation activity levels at the airport. To present a conservative analysis, these flights and potential increases in related flight activity are accounted within the forecasted increase in operations for the project as described below.

Overall general aviation operations activity at LAX has shown a declining trend since peaking in 1978. In 1992, there were 44,016 general aviation operations and by 2000 this had dropped to 17,018 operations at LAX.⁵ It should also be noted that the actual general aviation operations in 2000 fell below the 22,100 general aviation operations projected in the Draft LAX Master Plan. The LAX Master Plan projections, which have been accepted by the FAA, indicate a slight increase in general aviation operations from 22,100 in 2000 (projection) to 22,900 in 2015. Mercury Air Group does not foresee a significant increase in operations over time at the new facility. However, because of the projected increase in general aviation at LAX, an increase in operations is assumed for the proposed Mercury FBO. Using recorded general aviation operations at LAX in 2000 (17,018 operations) as a baseline, forecasts show annual operations at LAX increasing by 5,882, to a total of 22,900 operations by the year 2015. Assuming Mercury captures 50 percent of the general aviation market share, this would result in a daily increase by 2015 of eight operations per day at the proposed Mercury FBO. While the aircraft type and level of activity vary on a daily basis at an FBO, for analysis purposes the flight mix associated with the projected increase in activity is based on the combined most recent annual data available for the fleet mix at Mercury FBO (2002) and Imperial Terminal (2001).

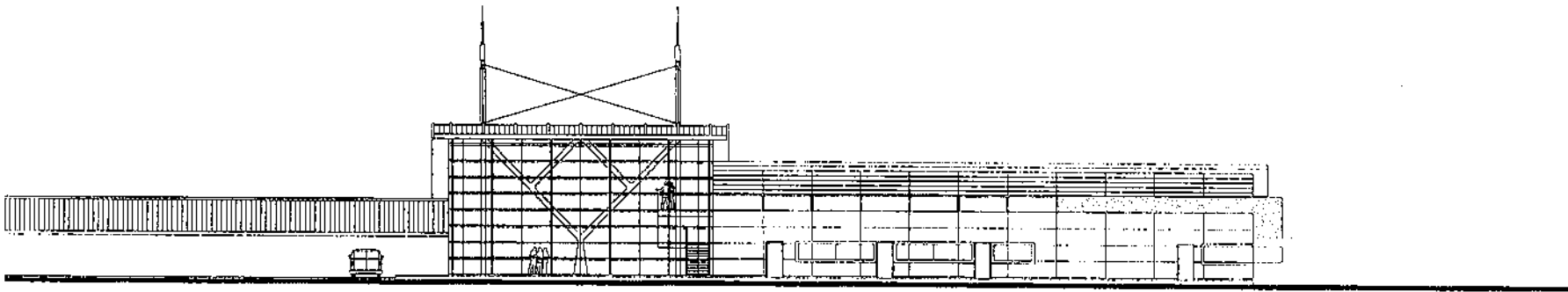
As shown in Figure 4 on page A-10, the proposed approximately 11,530-square foot air center building would be constructed in the western portion of the site. The proposed air center building would provide for necessary increased space, a more functional building plan when compared to the current temporary facility, improved visibility of and by management and more harmonious and pleasing customer service areas. The air center building would house a reception/lobby area, flight planning room, lounge, offices and storage space. The exterior of the air center building includes overhangs that reflect aeronautical concepts (see Figure 5 on page A-12). The building materials would be high quality and durable.

As discussed above, the line service maintenance and overnight checks on general aviation aircraft that are currently conducted by Mercury would be relocated to the extreme western portion of the site, just northwest of the proposed air center building. The new site would allow Mercury to provide overnight maintenance and parking of commercial aircraft, which would occur on the eastern portion of the site. A dedicated aircraft parking space needs to be available in order for such service to occur. However, the first priority would always be to ensure adequate aircraft parking spaces for FBO clientele. The relocation of general aviation and

⁵ The 1992 data is from the LAX Master Plan and the 2001 data is from <http://www.lawa.org/statistics>.

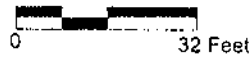


EAST ELEVATION



NORTH ELEVATION

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PCR



Source: CSA Architects, August 2002.

Figure 5
Elevations of the Proposed
Air Center Building

commercial service activities would result in a consolidation of activity that Mercury is currently providing at different locations.

A separate maintenance building would be constructed to the east of the air center building. The approximately 3,400-square foot maintenance building would include offices, training space, and space for aircraft parts storage. In addition, a vehicle and equipment parking area would be provided adjacent to the maintenance building to accommodate the existing Mercury service vehicles and other equipment. In-ground power would be provided and electric-powered ground vehicles would be used. No ground run-up engine testing is proposed.

The parking area for planes using the facility would be to the north of the air center building and maintenance building adjacent to the south airfield complex. The site is currently served by infrastructure for the provision of sewer, water, gas, and electricity. No major upgrades to these facilities are planned.

All new site lighting, including parking lot lighting, would be designed to minimize glare and spill-over onto adjacent, non-airport property through the use of fixtures that would focus and shield illumination. Lighting levels in the parking lot and on the aircraft side of the project would be in conformance with LAWA standards and requirements.

The project site currently has very limited landscaping. Project implementation would substantially increase landscaping through the provision of trees, shrubs, and groundcover along the edges of proposed driveway entry points and in islands within the vehicular parking areas. Landscaping would also be provided around the proposed buildings and at the airside/landside boundaries. All landscaping would, at a minimum, comply with LAWA standards and requirements.

Access and Parking

Access to the site would be from Imperial Highway via California Street, which is located approximately 0.3 miles west of Sepulveda Boulevard. California Street provides access to a frontage road, which parallels Imperial Highway, and leads to the site. Site and adjacent airfield access would be under Mercury Air Center's control.

Parking for the clientele of the FBO facility would be provided along the southern portion of the site. The proposed parking would provide for the consolidation of Mercury parking that exists at the present Mercury site as well as Mercury employee parking at Imperial Terminal. In addition to the parking at the existing facility (22 spaces), Mercury currently rents approximately 0.7 acres at Imperial Terminal to provide 90 spaces, 60 of which are used by fueling employees and 30 spaces are used by air cargo employees. There are also approximately 50 secure parking spaces at Imperial Terminal that are primarily used for non-scheduled passenger charter flights

that will be relocated to the proposed FBO. All of this parking would be consolidated at the new Mercury FBO facility. In total, the project would provide approximately 280 parking spaces divided into four clusters. The easternmost area would contain 33 spaces for maintenance employee parking. To the west of that parking cluster would be a 90-space fenced, security parking area with card key access. A general FBO 90-space parking area would be located to the west of the main entrance. The fourth area would be to the west of the proposed air center building and would contain 66 spaces for employee parking. The additional parking would provide needed parking for the non-scheduled passenger charter flights that would shift from Imperial Terminal to the project site. The proposed parking, which is greater than the parking Mercury currently has available, would provide sufficient parking for Mercury clientele and employees of various Mercury operations. In addition, up to eight spaces would be used for rental cars, which would serve to avoid daily delivery and pickup. As previously stated, the parking areas would be landscaped around the perimeter with trees interspersed within the parking areas. The existing perimeter fencing would be retained and repaired as necessary.

Construction

Construction would begin in 2003, upon receipt of approvals, and would be phased over an approximately 18 month time period. Phase I would involve the renovation of an approximately 5,700-square foot portion of Air Freight Building 12 to serve as a temporary air center building. The B4 Hangar would be demolished. The concrete on the ramp and parking areas would be rehabilitated to the extent required to meet the engineering specifications necessary to accommodate the weight for the types of planes that would use the facility. At this point Mercury Air Group, Inc. would relocate and begin operation at the project site.

Phase II of the project would be the construction of the proposed air center building and maintenance building. All construction activities would occur in accordance with the hours set forth in the City of Los Angeles Municipal Code. Construction could occur between the hours of 7:00 A.M. and 9:00 P.M. on Monday through Friday; between the hours of 8:00 A.M. and 6:00 P.M. on Saturday; and no construction would occur on Sunday.

5.0. NECESSARY APPROVALS

Approvals required for relocation of the Mercury Air FBO facility include, but may not be limited to, the following:

- Approval by LAWA;
- Grading, foundation, and building permits by City of Los Angeles Department of Building and Safety; and
- Any additional actions as may be determined necessary.

ATTACHMENT B
EXPLANATION OF CHECKLIST DETERMINATIONS

I. AESTHETICS. *Would the Project:*

a. Have a substantial adverse effect on a scenic vista?

No Impact. Opportunities for scenic views within the project area and surrounding vicinity vary due to topography and existing development. The project site is developed with two large, industrial-type buildings and pavement. The B-4 Hangar contains 67,200 square feet of floor area and Air Freight Building 12 contains approximately 16,400 square feet of floor area. The project site currently has very limited landscaping and does not contain any unique natural or urban features which contribute to scenic views. In general, public views of the site are limited to vantage points along adjacent roadways and from adjacent commercial properties. The site is visible from Sepulveda Boulevard to the east and from Imperial Highway, which generally runs along the southern boundary of the site. The site is also visible from the El Segundo bluff, which rises at the south side of Imperial Highway and generally runs from Sepulveda Boulevard to Pershing Drive on the west. In addition, the site is visible from the upper stories of an office building and hotel located on the south side of Imperial Highway in El Segundo. As indicated, the buildings on the site are large, industrial-type cargo buildings with little architectural or visual interest. The proposed project would replace these buildings with a new, attractively designed terminal that reflects an aeronautical concept (see Figure 4 of the Project Description). The project would also include a maintenance building and parking areas for automobiles and aircraft. The proposed buildings would represent a reduction in the height and scale of buildings on the site. In addition, the project would introduce landscaping to an area that is currently devoid of landscaping, which would break up the expanse of paving and would provide visual interest. The project would improve the visual quality of the site as seen from Sepulveda Boulevard, Imperial Highway, the bluffs, and adjacent commercial buildings. The project would not have a substantial adverse effect on a scenic vista and therefore, no mitigation measures would be required.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, or other locally recognized desirable aesthetic natural feature within a city-designated scenic highway?

No Impact. The proposed project site does not contain any unique or officially recognized natural, urban, or historic features. In addition, the project site is not located adjacent to a designated scenic highway or vista. The project site is located within the Los Angeles

International Airport (LAX) and consists of industrial buildings and paving. The site is essentially devoid of landscaping and natural features. Consequently, implementation of the proposed project would not damage scenic resources or other locally recognized desirable aesthetic natural features within a city-designated scenic highway or from other non-designated locales. Mitigation measures would not be required.

c. Substantially degrade the existing visual character or quality of the site and its surroundings?

No Impact. The project site is currently developed with large, industrial-type buildings, the B-4 Hangar with 67,200 square feet of floor area and the Air Freight Building 12 with 16,400 square feet of floor area. Along Imperial Highway immediately south of the site, landscaping is very limited. The proposed FBO operation and terminal have been planned and designed to be compatible with existing development at LAX. The approximately 11,530-square foot terminal building would be attractively designed, reflecting an aeronautical concept (see Figure 5 in the Project Description).

The proposed surface parking would be provided in four clusters, which would break up the overall expanse of paving on-site. In addition, the project would substantially increase landscaping on the site through the provision of trees, shrubs, and groundcover along the edges of proposed driveway entry points, adjacent to the terminal building, and in islands within the vehicular parking areas. All landscaping would, at a minimum, comply with LAWA standards and requirements. The proposed landscaping would serve to screen the parking area and other portions of the site from the view of vehicles traveling on Imperial Highway, and from viewpoints along the El Segundo bluff, and from the upper stories of the commercial buildings to the south.

Upon project completion, the proposed buildings, landscaping, and on-site uses would blend harmoniously with existing development and activities within the immediate vicinity. Rather than degrade the existing visual character or quality of the site and its surroundings, the project would represent a substantial upgrade to the visual quality of the site. No mitigation measures would be required.

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. The B-4 Hangar, which occupies a portion of the site, was built in 1951. For approximately the past 30 years, the Hangar has been used for air cargo. Currently, the B-4 Hangar is partially occupied by Airborne Express, a commercial shipping company. Airborne's current level of activity ranges from two to four flight operations

(commercial) per day, including operations at night. Therefore, the 15-acre site is a source of nighttime lighting similar to other areas along the southern boundary of LAX. The land uses to the south of LAX in the City of El Segundo are separated from the airport by Imperial Highway, Imperial Avenue, and the Imperial Strip, a landscaped open space corridor that parallels Imperial Highway. These three areas create a buffer between the southern boundary of LAX and the land uses located south of LAX and west of Sepulveda Boulevard. The closest light sensitive receptors (residential and hotel uses) are approximately 400 feet south of the project site. The distance from the site to light sensitive receptors (residential and hotel uses) in El Segundo is substantial and as a result, lighting on the site does not currently affect these receptors.

The project would involve demolition of the existing buildings on the site. The new terminal, maintenance building, and parking areas would incorporate lighting. However, all new site lighting, including parking lot lighting, would be designed to minimize glare and spill-over onto adjacent, non-airport property through the use of fixtures that would focus and shield illumination. Lighting levels in the parking lot and on the aircraft side of the project would be in conformance with LAWA standards and requirements. As designed, with conformance to standards, and due to the distance to sensitive receptors, adverse affects from lighting are considered less than significant.

II. AGRICULTURAL RESOURCES. *In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California agricultural land evaluation and site assessment model (1997) prepared by the California department of conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the Project:*

- a. **Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?**

No Impact. The project site is located within a developed airport and is surrounded by an urban area. No agricultural resources or operations exist now, or have existed in the recent past at the project site. The proposed project would represent use of the project site in a similar manner to its current uses (i.e., airport-related uses) and would not convert farmland to non-agricultural use. Therefore, no impacts due to conversion of farmland would occur with implementation of the project and no mitigation measures would be required.

b. Conflict the existing zoning for agricultural use, or a Williamson Act Contract?

No Impact. The project site is zoned for Heavy Industrial (M3) use and is located within a developed airport. No agricultural uses presently occur on-site and there are no Williamson Act contracts in effect for the project site or surrounding areas. Therefore, implementation of the proposed project would not result in any conflicts with existing zoning for agricultural use or a Williamson Act contract and no mitigation measures would be required.

c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

No Impact. There is no farmland in the vicinity of the proposed project site. As discussed in Response No. II.b above, the site is within a developed airport and no farmland would be converted to non-agricultural use. Therefore, implementation of the proposed project would not involve changes in the environment that would result in the conversion of farmland to non-agricultural use and no mitigation measures would be required.

III. AIR QUALITY. *The significance criteria established by the south coast air quality management district (SCAQMD) may be relied upon to make the following determinations. Would the project result in:*

a. Conflict with or obstruct implementation of the SCAQMD or Congestion Management Plan?

No Impact. The project site is located within the 6,600-square mile South Coast Air Basin (Basin). The South Coast Air Quality Management District (SCAQMD) is required, pursuant to the Clean Air Act, to reduce emissions of criteria pollutants for which the Basin is in non-attainment (i.e., ozone, carbon monoxide, and PM₁₀). The Project would be subject to the SCAQMD's Air Quality Management Plan (AQMP). The AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving ambient air quality standards. These strategies are developed, in part, based on regional population, housing, and employment projections prepared by the Southern California Association of Governments (SCAG).

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial Counties and addresses regional issues relating to transportation, the

economy, community development and the environment.¹ With regard to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide (RCPG), which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation control portions of the AQMP, and are utilized in the preparation of the air quality forecasts and consistency analysis included in the AQMP. Both the RCPG and AQMP are based, in part, on projections originating with County and City General Plans. Since the proposed project is consistent with the land use designations of the Los Angeles International Airport Interim Plan and will not increase the amount or nature of FBO operations at LAX, it is considered consistent with the region's AQMP.

With regard to the Congestion Management Plan (CMP), the proposed project will not add 50 or more trips during the A.M. or P.M. weekday peak hours at any CMP intersection. Nor will the project add 150 or more trips during the A.M. or P.M. weekday peak hours at any CMP mainline freeway monitoring location (see Section XV., Transportation/Circulation). As indicated in the Traffic Technical Memorandum, which is contained in Appendix C, the project would generate 6 net peak hour trips. (Even with a worst case assumption of a 25 percent increase in employees, as indicated in the Traffic Technical Memorandum, with this assumption the project would generate 18 net peak hour trips.) Thus, the project would not exceed any CMP thresholds. No impacts associated with implementation of the AQMP or CMP would result, and no mitigation measures would be required.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less Than Significant Impact. As discussed above, the project site is located within the Basin, which is characterized by relatively poor air quality. State and federal air quality standards are often exceeded in many parts of the Basin.

The proposed project would contribute to regional air pollutant emissions during construction and long-term operation. The SCAQMD has established methodologies to quantify air emissions associated with general construction activities such as on-site equipment operation, fugitive dust (from demolition and site preparation activities), and mobile emissions (from construction worker and haul truck travel). Demolition would produce equipment and fugitive dust emissions, as would site grading and construction activities. As indicated in Table 1 on page B-6, construction emissions are anticipated to fall below SCAQMD significance thresholds, resulting in a less than significant impact to regional air quality.² In addition, all construction

¹ SCAG serves as the federally designated metropolitan planning organization (MPO) for the southern California region.

² Please refer to Appendix A for air quality worksheets prepared by PCR Services Corporation, April 2003.

Table 1

ESTIMATED WORST CASE CONSTRUCTION EMISSIONS BY PHASE

Construction Phase	Pollutant Emissions (Pounds per Day)				
	CO	ROC	NO _x	SO _x	PM ₁₀ ^a
Demolition (11 weeks) ^b	39	10	84	6	14
Site Preparation (1 week)	3	<1	6	1	1
Building Erection/Finishing (20 weeks) ^c	40	19	81	4	9
Maximum Construction Emissions	40	19	84	6	14
SCAQMD Significance Threshold	550	75	100	150	150
Maximum Construction Emissions less SCAQMD Significance Threshold Over (Under)	(510)	(56)	(16)	(144)	(136)

^a Fugitive dust emissions assume compliance with SCAQMD Rule 403.

^b Demolition debris may be recycled or reused on-site which would require the use of crushing equipment. Daily emissions associated with these activities would result in similar emissions as provided above and would remain below the SCAQMD significance threshold.

^c The 20 weeks includes 18 days for architectural coatings and 35 days for asphalt paving.

Source: PCR Services Corporation, April 2003. Construction emission calculation worksheets are included in Appendix A.

activities would comply with SCAQMD Rule 403 fugitive dust control measures. Compliance with these measures would further ensure that the short-term air quality impacts of the proposed project due to demolition, grading, and construction activities would be less than significant.

The SCAQMD has also established methodologies to quantify air emissions associated with long-term project operations. As discussed below in Section XV, Transportation/Circulation, the proposed project would generate 6 net peak hour vehicle trips (as a worst case scenario, assuming a 25 percent increase in employees, the trip would generate 18 net peak hour trips). The 6 net peak hour trips are not really new trips, but rather are trips that would relocate from the west side to the south side of the airport. There would be a minimal increase in mobile source emissions. In addition, the proposed project would not impact local one-hour or eight-hour carbon monoxide (CO) concentrations, since the project would not meaningfully affect existing traffic volumes or circulation patterns.

As discussed in Attachment A, Project Description, based on general aviation projections for the year 2015, the proposed project could result in a slight increase in the level of aircraft activity compared with the existing levels of activity at Mercury FBO and at Imperial Terminal

relative to non-scheduled passenger charter flights. Assessment of airport-related air emissions was conducted in accordance with the FAA guidelines and SCAQMD's Air Quality Handbook.³ The Emissions and Dispersion Modeling System (EDMS, version 4.0) was used to generate an inventory of emissions from aircraft and ground service equipment (GSE) associated with this additional activity. (The flight mix associated with the increase in activity is based on the most recent annual data available for the fleet mix at Mercury FBO (2002) and Imperial Terminal (2001).) EDMS was developed by the Federal Aviation Administration in cooperation with the United States Air Force and is the preferred model for analyzing civilian and military airport emissions. The model results indicate that aviation-related uses for the project would generate 139 lbs/day of CO, 43 lbs/day of ROC, 48 lbs/day of NO_x, one lb/day of PM₁₀, and four lbs/day of SO_x. These emissions are incorporated into the regional operational emissions for the project, presented in Table 2 on page B-8, and are detailed in Appendix A. The EDMS input and output files are also provided in Appendix A.

As discussed in Attachment A, Project Description, Mercury provides line maintenance and overnight checks for general aviation and scheduled airlines. Routine overnight maintenance, referred to as "A" checks, are scheduled functional inspections performed from a checklist. The activities include lubrication of moving parts, servicing of fluids, inspection of components, hoses, electrical items and aircraft structure. Lighting and a ground power unit are used during these checks. The level of proposed service maintenance would be similar as to existing levels for MAG and, therefore, emissions generated from small amounts of lubricants, solvents, and paints would not be anticipated to change. Project-related operational emissions generated by stationary sources (due to electricity and natural gas consumption) were calculated based on SCAQMD's CEQA Air Quality Handbook, Table A9-11.⁴ Compared to existing conditions, implementation of the proposed project would result in a net decrease in building square footage and related stationary-source emissions on the project site due to the demolition of two existing buildings. However, a conservative estimate of stationary source emissions has been provided in this assessment and, therefore, emissions due to electricity and natural gas from project-related buildings are calculated as new emissions and are included in Table 2.

As indicated in Table 2 on page B-8, the overall increase in pollutants (mobile sources and stationary sources combined) associated with the proposed Mercury FBO would be below SCAQMD significance thresholds. As such, the resulting stationary and mobile source emissions generated during operation of the project would have less than significant impacts on air quality and no mitigation measures would be required.

³ Federal Aviation Administration, "Airport Environmental Handbook," *FAA Order 5050.4A*, October 8, 1985; "Policies and Procedures for Considering Environmental Impacts," *FAA Order 1050.1D*, December 5, 1986; and *Air Quality Procedures for Civilian Airports and Air Force Bases*, 1997.

⁴ No new stationary equipment (e.g., boilers and generators) is proposed as part of the project.

Table 2

PROJECT OPERATIONAL EMISSIONS

Project Source	Pollutant Emissions (Pounds per Day)				
	CO	ROC	NO _x	SO _x	PM ₁₀
Mobile Sources	---	---	---	---	---
Stationary Sources (electricity consumption) ^a	<1	<1	<1	<1	<1
Aviation Emissions ^b	139	43	48	4	<1
Total Project Emissions	139	44	49	4	<1
SCAQMD Significance Threshold	550	55	55	150	150
Project Emissions less SCAQMD Significance Threshold	(411)	(11)	(6)	(146)	(149)

^a Based on electricity consumption taken from the SCAQMD's CEQA Air Quality Handbook.

^b Based on FAA's EDMS preferred model for analyzing civilian and military airport emissions.

Source: PCR Services Corporation, April 2003. Supporting calculations are included in Appendix A.

c. Result in a cumulatively considerable net increase of any criteria pollutant for which the air basin is non-attainment (ozone, carbon monoxide, & PM₁₀) under an applicable federal or state ambient air quality standard?

Less Than Significant Impact. The project site is located in a region that is classified as non-attainment for ozone, CO, and PM₁₀. Construction-period emissions would not be cumulatively considerable, as daily emissions would fall below the SCAQMD significance thresholds. With regard to the project's long-term operational emissions cumulative effect on regional air quality, the proposed project is anticipated to have negligible effect on regional emissions and result in a net decrease in stationary-source emissions. The project would not contribute to a cumulatively considerable net increase in ozone, carbon monoxide or PM₁₀. No mitigation measures are necessary.

d. Expose sensitive receptors to substantial pollutant concentrations?

No Impact. The project site and the surrounding area contain airport and transportation uses. The closest residential uses are located south of the project site across Imperial Highway. The proposed project does not contain any SCAQMD permitted stationary emissions sources (e.g., boilers, emergency generators, spray-booths). In general, the primary pollutant of concern with regard to harmful pollutant concentrations resulting from this type of project is carbon monoxide. As described in Response No. III.b. above, construction and operation of the proposed uses would not result in any substantial local or regional air pollution impacts and,

therefore, would not expose any nearby sensitive receptors to severe air pollution conditions. No impacts would occur, and no mitigation measures would be required.

e. Create objectionable odors affecting a substantial number of people?

No Impact. No objectionable odors are expected as a result of project construction or operation. Small quantities of chemicals, solvents, and petroleum products would be used during maintenance activities, which would take place outside the enclosed buildings. Usage of these products would comply with the manufacturer's recommended storage and handling specifications. Odorous emissions from these products would be negligible and no impacts are anticipated. Therefore, no mitigation measures would be required.

IV. BIOLOGICAL RESOURCES. *Would the project:*

a. Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No Impact. The project site is located within a developed airport and an urbanized area and is currently developed with airport facilities. Although small portions of the project site perimeter and small areas adjacent to the existing buildings have been landscaped, largely non-native plant species occupy the area. However, other areas within the airport boundary contain plant and animal species as well as habitats identified as sensitive. The western portion of the airport contains habitat for the El Segundo blue butterfly, Riverside fairy shrimp, Lewis' evening primrose, and the California spineflower. In addition, there have been American Peregrine falcon sightings within and surrounding the airport boundary.⁵ None of the identified sensitive plant or animal species have been identified on the proposed project site or immediate vicinity. Suitable habitat for sensitive mammal, reptile, amphibian, or fish species do not exist on the project site. Given the limited on-site animal and plant life and the urbanized nature of the project site and surrounding area, the proposed project would not have a substantial adverse affect on any identified candidate, sensitive, or special status species. Therefore, no impacts to candidate, sensitive, or special status species would occur and no mitigation measures would be required.

⁵ U.S. Department of Transportation Federal Aviation Administration and City of Los Angeles, Draft Environmental Impact Statement/Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements, Section 4.10-4.11, January 2001.

- b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in the City or regional plans, policies, regulations by the California Department of Fish and Game or U.S. Fish and Wildlife Service?**

No Impact. As discussed in Response No. IV.a, the project site has been previously developed as part of an airport and is located within an urbanized area. The project site does not contain any riparian habitat or other sensitive natural communities. Therefore, implementation of the proposed project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community and no mitigation measures would be required.

- c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh vernal pool, coastal, etc.) Through direct removal, filling, hydrological interruption, or other means?**

No Impact. As discussed in Response No. IV.a, the project site has been previously developed as part of an airport and is located within an urbanized area. The project does not contain any wetlands as defined by Section 404 of the Clean Water Act. Therefore, implementation of the proposed project would not have an adverse effect on federally protected wetlands and no mitigation measures would be required.

- d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

No Impact. As discussed in Response No. IV.a, the project site has been previously developed as part of an airport and is located within an urbanized area. The project site does not contain native resident or migratory species or native nursery sites. Therefore, implementation of the proposed project would not interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native nursery site and no mitigation measures would be required.

- e. Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance (e.g., oak trees or California walnut woodlands)?**

No Impact. As discussed in Response No. IV.a, the project site has been previously developed within an airport and is located within an urbanized area. Furthermore, the project site does not contain any significant biological resources, such as oak trees or California walnut woodlands, protected by local policies or ordinances. Therefore, the proposed project would not

conflict with local policies or ordinances protecting biological resources and no mitigation measures would be required.

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. As discussed in Response No. IV.a, the project site is within a developed airport and within an urbanized area. Although the Dunes Specific Plan Area is a designated Los Angeles County Significant Ecological Area (which contains the El Segundo Blue Butterfly Habitat Restoration Area), the area is not in close proximity and is located at the far western portion of the airport. There is no adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan that includes the project site or immediate vicinity. Therefore, implementation of the proposed project would not conflict with the provisions of any adopted conservation plan or other similar plan and no mitigation measures would be required.

V. CULTURAL RESOURCES. *Would the project:*

a. Cause a substantial adverse change in significance of a historical resource as defined in State CEQA §15064.5?

No Impact. Section 15064.5(a)(3) of the CEQA Guidelines generally defines historical significance as any object, building, structure, site, area, place, record, or manuscript determined to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Historical resources are further defined as being associated with significant events, important persons, or distinctive characteristics of a type, period or method of construction; representing the work of an important creative individual; or possessing high artistic values.

The proposed project includes the demolition of the B-4 Hangar and Air Freight Building 12. The B-4 Hangar was constructed in 1951 and is approximately 50 years old. The timing of construction of the Air Freight Building 12 is not known. However, Air Freight Building 12 does not appear in a 1976 aerial of LAX, but is apparent in a 1994 aerial. Historic and architectural resources surveys were conducted in 1995, 1998 and 2000 of LAWA owned properties and other areas in association with the preparation of the EIR/EIS for the Los Angeles International Airport Master Plan. The findings of the surveys indicate that four buildings within LAX are considered potentially significant historic/architectural resources. These buildings are: Hangar One (listed on National Register); Theme Building (eligible for National Register);

WWII Munitions Storage Bunker (eligible for National Register); and Intermediate Terminal Complex (eligible for the California Register).⁶ The existing buildings on the project site are neither historically significant nor significant in terms of their architecture. As such, no adverse impacts to significant historical resources would occur and no mitigation measures would be necessary.

b. Cause a substantial adverse change in significance of an archaeological resource pursuant to State CEQA §15064.5?

No Impact. No prehistoric or historic archaeological sites have been identified within the project site, nor have unique or important prehistoric or historic archaeological resources been encountered within the immediate project vicinity. The project site, located within LAX, is developed and has been subject to extensive disruption over the years. Thus, any surficial archaeological resources, which may have existed at one time have likely been removed. The project would involve only limited excavation at shallow depths. With no surficial archaeological resources existing on the site, and previous development and grading, the proposed project is not expected to cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5. Therefore, the project would not result in an impact and no mitigation measures would be required.

c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No Impact. The LAX property lies in the northwestern portion of the Los Angeles Basin, a broad structural syncline with a basement of older igneous and metamorphic rocks overlain by thick younger marine and terrestrial deposits.⁷ The proposed project site is relatively flat and is underlain by older eolian deposits of Quaternary age. Any surficial paleontological resources, which may have existed at one time, have likely been previously disturbed by past development activities. Therefore, the topmost layers of soil in the project area are not likely to contain substantive fossils. While a records search identified the presence of two vertebrate fossil occurrences with the LAX study area, the fossils were found at depths ranging from 13 to 70 feet. While excavation into the deeper deposits could potentially uncover vertebrate fossil remains, the project would involve only limited excavation at depths less than three feet. Therefore, the proposed project is not expected to directly or indirectly destroy a unique paleontological resource or site or geologic feature. No mitigation measures would be required.

⁶ Draft EIR/EIS for the LAX Proposed Maser Plan Improvements, January 2001.

⁷ Ibid.

d. Disturb any human remains, including those interred outside of formal cemeteries?

No Impact. The project site has been previously developed as part of an airport and is located within an urbanized area. Within the project area, traditional burial resources would likely be associated with the Native American group known as the Gabrielino. Based on previous surveys conducted at LAX and on record searches completed in 1995, 1997, and 2000 for the LAX Master Plan, no traditional burial sites have been identified within the project site or in the vicinity. The project would involve surficial grading and trenching. Therefore, it is not anticipated that the proposed project would disturb any human remains and no mitigation measures would be required.

VI. GEOLOGY AND SOILS. *Would the project:*

- a. Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:**
- i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.**

Less Than Significant Impact. Fault rupture is the surface displacement that occurs along the surface of a fault during an earthquake. The City of Los Angeles is affected by the Alquist-Priolo Earthquake Fault Zones as listed in Special Publication 42.⁸ While the site is located within the seismically active southern California region, it is not located within an Alquist-Priolo Special Study Zone or a Fault Rupture Study Area. Geotechnical literature indicates that the Charnock Fault, a potentially active fault, may be located near or through eastern portions of LAX property. However, a recent evaluation conducted for the LAX Master Plan EIS/EIR indicates that the Charnock Fault does not displace Holocene deposits and is considered to have low potential for surface rupture independently or in conjunction with movement on the Newport-Inglewood Fault Zone. Therefore, impacts to people or structures resulting from rupture of a known earthquake fault are considered less than significant and no mitigation measures are required.

⁸ California Department of Conservation California Geological Survey, Table 4 Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones as of May 1, 1999, <http://www.consrv.gov/cgs/rghm/ap/affected.htm>.

ii. Strong seismic ground shaking?

Less Than Significant Impact. The project site is located in the seismically active southern California region; however, there is no evidence of faulting on the site, and it is not located within an Alquist-Priolo Special Study Zone or a Seismic Hazard Zone, as delineated by the California Geological Survey.⁹ As part of the proposed project, new construction would meet Uniform Building Code (UBC) and City of Los Angeles building code requirements and modern standards for seismic safety. Since the proposed project would comply with UBC and City of Los Angeles building code requirements, potential impacts associated with strong seismic ground shaking would be less than significant and no mitigation measures would be required.

iii. Seismic-related ground failure, including liquefaction?

No Impact. Liquefaction is a phenomenon where loose, saturated, granular soils lose their inherent shear strength due to excess water pressure that builds up during repeated movement from seismic activity. Factors that contribute to the potential for liquefaction include a low relative density of granular materials, a shallow groundwater table, and a long duration and high acceleration of seismic shaking. Liquefaction usually results in horizontal and vertical movements from lateral spreading of liquefied materials and post-earthquake settlement of liquefied materials. Based on the City's Safety Element, the proposed project site is not located within an area that is highly susceptible to liquefaction.¹⁰ In addition, the Official Map of Seismic Hazard Zones, published by the California Geological Survey (formerly, Division of Mines and Geology), indicates that the project site is not within a liquefaction zone.¹¹ Therefore, development of the proposed project would not expose people or structures to significant impacts involving seismic ground-related failure, including liquefaction and no mitigation measures are required.

iv. Landslides?

No Impact. The project site and vicinity are relatively flat, and are surrounded by existing urban and airport development. Furthermore, the City of Los Angeles Landslide Inventory and Hillside Areas map does not identify any areas in the vicinity of the project site

⁹ California Department of Conservation California Geological Survey (formerly, Division of Mines and Geology), State of California Seismic Hazard Zones Venice Quadrangle Official Map, Released March 25, 1999.

¹⁰ City of Los Angeles Planning Department, Safety Element of the City of Los Angeles General Plan, Exhibit B, Areas Susceptible to Liquefaction In the City of Los Angeles, October 1993.

¹¹ California Department of Conservation California Geological Survey (formerly, Division of Mines and Geology), State of California Seismic Hazard Zones Venice Quadrangle Official Map, Released March 25, 1999.

that contain unstable slopes which may be prone to seismically-produced landslides.¹² Implementation of the proposed project would not result in the exposure of people or structures to the risk of landslides during a seismic event. No impacts resulting from landslides would occur and no mitigation measures would be required.

b. Result in substantial soil erosion or the loss of topsoil?

No Impact. The potential for soil erosion on the project site is low due to the generally level topography of the project site. In addition, the majority of the site is developed with buildings and covered with impervious surfaces. Although the existing B-4 Hanger and Air Freight Building 12 would ultimately be demolished, the entire project site would not be exposed to potential soil erosion at one time. Air Freight Building 12 would be used as a temporary FBO building during construction of the portion of the site containing the existing B-4 Hangar. Project construction could require the removal of some of the existing asphalt on-site. However, the amount of asphalt to be removed is expected to be minimal. The slabs underneath the existing buildings, as well as pavement would be removed only as determined to be necessary. In addition, soil moved during grading activities required for the proposed project would be balanced on the project site. In addition, conformance with City Building Code Sections 91.7000 through 91.7016, which include construction requirements for grading, excavation, and use of fill, would reduce the potential for wind or waterborne erosion. In addition, the Los Angeles Building Code requires an erosion control plan that is reviewed by the Department of Building and Safety prior to construction if grading exceeds 200 cubic yards and occurs during the rainy season (between November 1 and April 15). Therefore, project impacts related to soil erosion are anticipated to be minimal and no mitigation measures would be required.

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potential result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

No Impact. The project site and vicinity are relatively flat and do not contain unstable slopes that are prone to on- or off-site landslides or lateral spreading. Furthermore, the project site is underlain by older eolian deposits of Quaternary age, which have low liquefaction susceptibility.¹³ With implementation of requirements associated with UBC and City of Los Angeles building code requirements, other City and County regulations, and project design

¹² City of Los Angeles Planning Department, *Safety Element of the City of Los Angeles General Plan, Exhibit C, Landslide Inventory & Hillside Areas In the City of Los Angeles, June 1994.*

¹³ California Department of Conservation California Geological Survey (formerly, Division of Mines and Geology), *Seismic Hazard Evaluation of the Venice 7.5-Minute Quadrangle, Los Angeles County, California, 1998, page 9 and plate 1.1.*

features, no significant impacts are anticipated to occur due to unstable geologic or soil conditions. No mitigation measures would be required.

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

No Impact. Expansive soils are typically composed of certain types of silts and clays that have the capacity to shrink or swell in response to changes in soil moisture content. The project site is not located in an area with expansive soil. Since construction would occur in accordance with the Los Angeles Building Code Sections 91.7000 through 91.7016, which include construction requirements for grading, excavation, and foundation work, the potential for hazards to occur as a result of expansive soils would be minimized. Therefore, project implementation would not result in significant impacts associated with expansive soils and no substantial risks to life or property would occur. No mitigation measures would be necessary.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. The proposed project site is located in an urbanized area where wastewater infrastructure is currently in place. The proposed project would not use septic tanks or alternative wastewater disposal systems. Therefore, the ability of on-site soils to support septic tanks or alternative wastewater systems would not be relevant to the proposed project and no mitigation measures would be required. Refer to Response No. XVI.b for a discussion of wastewater flows associated with the proposed project.

VII. HAZARDS AND HAZARDOUS MATERIALS. *Would the project:*

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact. Project implementation would result in construction of a new terminal and associated uses on-a site currently developed with cargo facilities. Construction activities associated with the new structures would involve the use of potentially hazardous materials, including vehicle fuels, oils, and transmission fluids. However, all potentially hazardous materials necessary for the construction of the project would be contained, stored, and used in accordance with manufacturers' instructions and handled in compliance with applicable standards and regulations.

Due to the age of the existing structures on the project site, the potential for encountering asbestos containing materials (ACM) and lead based paint (LBP) during demolition exists. The use of ACM and LBP was unregulated until 1979. A Phase I Baseline Environmental Site Assessment of the B-4 Hangar indicates that ACM and LBP exist in the Hangar.¹⁴ Therefore, an ACM survey would be required in accordance with SCAQMD Rule 1403 and a LBP survey would be conducted to document worker exposure levels per California Occupational Safety and Health Administration (Cal-OSHA) Construction Safety Orders, California Code of Regulations, Title 8, Section 1532.1. Any removal of these materials from the buildings on the project site would be performed by a State-certified lead or asbestos containment contractor. Mandatory compliance with applicable standards and procedures would reduce risks associated with ACM and LBP to acceptable levels. Therefore, significant impacts associated with exposure to asbestos or lead based paint would not occur. As such, construction of the proposed project would not create a significant hazard to the public or the environment through the transport, use, or disposal of hazardous materials, and no mitigation measures would be required.

FBO activities typically involve the use and storage of potentially hazardous materials in the form of fuels, oils, and transmission fluids for the aircraft. In addition, cleaning solvents associated with the terminal and pesticides for landscaping would be used on the project site. All potentially hazardous materials would be contained, stored, and used in accordance with manufacturers' instructions and handled in compliance with applicable standards and regulations. Thus, project implementation would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and no mitigation measures would be necessary.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact. Numerous safeguards are required by law, or are otherwise provided in the hazardous materials handling processes to minimize any hazards to people or property. Provisions relating to the generation, transport, treatment, storage, and disposal of hazardous materials are contained in the federal Resource Conservation and Recovery Act, the federal Toxic Substances Control Act, the California Hazardous Waste Control Law, the Uniform Fire Code, the Hazardous Materials Transportation Act of 1994, and numerous other federal, state and local regulations. These safeguards are designed to minimize the potential for and the effects from an accident if one were to occur. In addition to the many safeguards required by law, LAWA and tenants of LAX maintain Emergency Response and

¹⁴ Earth Tech, Inc., Phase I Baseline Environmental Site Assessment, B-4 Hangar, ABX Air Inc., 6401 West Imperial Highway, April 2002.

Evacuation Plans to minimize the potential for an accident and to minimize the effects of an accident, if one occurs. The project would not change the nature of or meaningfully increase handling of hazardous materials as the site would continue to serve aircraft with associated support facilities. With a new emphasis on passenger service rather than cargo, the potential for an accidental release of hazardous materials would likely be reduced. Considering the safeguards required by law and maintenance of Emergency Response and Evacuation Plans, impacts associated with upset or accident conditions involving hazardous materials are considered to be less than significant and no mitigation measures would be required.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. There are no schools located or proposed within one-quarter mile of the project site. Furthermore, the project would not change the nature of or meaningfully increase hazardous emissions or the handling of hazardous materials as aircraft would continue to use the site and be served by site facilities.

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The site does not have any known existing soil or groundwater contamination or remediation underway.¹⁵ Four underground storage tanks (USTs) were removed from the site in 2001. Soils samples, which were collected from below the USTs, were analyzed for total petroleum hydrocarbons (TPH) as gasoline, TPH as diesel, and methyl tert-butyl ether (MTBE). TPE (gasoline or diesel) and MTBE were not detected above the laboratory reporting limits.¹⁶ As such, no impact would occur associated with project implementation since the project would not occur on a site that is included on a list of hazardous materials sites. Therefore, the project would not create a significant hazard to the public or environment and mitigation measures would not be required.

¹⁵ Draft EIR/EIS for the LAX Proposed Maser Plan Improvements, January 2001 and Camp Dresser & McKee Inc., Soil Contamination Assessment Report, August 4, 1999.

¹⁶ Camp Dresser & McKee Inc., UST Closure Report: Asiana Facility, 6401 Imperial Highway, May 2002.

- e. **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?**

Less Than Significant Impact. Numerous safeguards are required by law to minimize the potential for and the effects from an accident if one were to occur. FAA's Airport Design Standards establish, among other things, land use related guidelines to protect people and property on the ground, including establishment of safety zones that keep areas near runways free of objects that could interfere with aviation activities. City of Los Angeles Ordinance No. 132,319 regulates building height limits and land uses within the Hazard Area established by the Planning and Zoning Code to protect aircraft approaching and departing from LAX from obstacles. In addition to the many safeguards required by law, LAWA and tenants of LAX maintain Emergency Response and Evacuation Plans that also serve to minimize the potential for and the effects of an accident. The project would relocate the existing FBO from one area within the airport to an area that is currently used for air cargo freight. Mercury Air Group would modify their Emergency Response and Evacuation Plan for the new location. In addition, the relocation of Mercury FBO would consolidate the FBO activity on the south side of the airfield, since Garrett Aviation Service (another FBO facility) is located to the east of the project site across Sepulveda Boulevard. This consolidation would contribute to overall airport safety since it would minimize confusion for transient pilots as to their parking location relative to the runway complex. Additionally, the consolidation would eliminate runway crossings by mechanics re-positioning general aviation aircraft from Mercury FBO to Garrett Aviation Service FBO and vice-versa.¹⁷ As such, the proposed project would result in a less than significant impact with regard to a safety hazard for people working in the project area. No mitigation measures would be required.

- f. **For a project within the vicinity of a private airstrip, would the project result in a safety hazard for the people residing or working in the area?**

No Impact. The project site is not located within the vicinity of a private airstrip but rather within a public airport. See Response to Comment VII., e., above.

- g. **Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

No Impact. LAWA and tenants of LAX maintain Emergency Response and Evacuation Plans to minimize the potential for and the effects of an accident, should one occur.

¹⁷ Written communication, Raymond Jack, LAX Airfield Operations, October 28, 2002.

Construction activities and staging areas for the proposed project would be confined to the site. Since the site is generally accessible from all sides, access by emergency vehicles to the project site would not be physically impaired during construction. During operation of the project, the site would also be accessible from the road to the south as well as from other areas of LAX. In addition, Mercury Air Group, as a tenant at LAX, would modify the existing Emergency Response and Evacuation Plan for the proposed site and would continue to maintain an Emergency Response and Evacuation Plan. As such, construction and operation of the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. No mitigation measures would be required.

- h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?**

No Impact. The project site and vicinity are predominantly paved and/or developed. There are no fire hazard areas containing flammable brush, grass, or trees on or adjacent to the project site. Furthermore, the proposed project site is not within a City of Los Angeles Wildfire Hazard Area, as delineated in the Safety Element of the General Plan.¹⁸ Therefore, implementation of the proposed project would not result in the exposure of people or structures to hazards associated with wildland fires and no mitigation measures would be required.

VIII. HYDROLOGY AND WATER QUALITY. *Would the proposal result in:*

- a. Violate any water quality standards or waste discharge requirements?**

No Impact. The agency with jurisdiction over water quality at LAX is the Los Angeles Regional Water Quality Control Board (LARWQCB). The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States from any point source unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. In accordance with the CWA, the airport is within the region covered by NPDES Permit No. CAS614001 issued by the LARWQCB on July 15, 1996. Construction of the proposed project would occur on a site that serves aircraft and is currently developed with cargo buildings and related facilities. Demolition of these buildings and possible reconditioning or replacement of airfield paving would not meaningfully alter the existing drainage pattern or result in substantial erosion or siltation. In addition, project implementation would not alter the surface water runoff quantities of the site. Project construction would occur in accordance with

¹⁸ *City of Los Angeles Planning Department, Safety Element of the City of Los Angeles General Plan, Exhibit D, Selected Wildfire Hazard Areas In the City of Los Angeles, April 1996.*

applicable discharge requirements as set forth by the Los Angeles Regional Water Quality Control Board (LARWQCB). As such, project construction would not result in adverse impacts on surface water quality and no mitigation measures would be necessary.

Similar to existing conditions on the site, runoff from the proposed surface parking lot areas and the aircraft taxiway would contain heavy metals, oil, and grease. As part of the proposed project, implementation of the Standard Urban Storm Water Mitigation Plan (SUSMP) would occur. Under SUSMP, the project would be required to ensure that post-development peak storm water runoff discharge rates would not exceed the estimated pre-development rates where the increased peak storm water discharge rate would result in increased potential for downstream erosion. SUSMP requirements also include, but are not limited to, the following: minimizing stormwater pollutants of concern; providing storm drain system stenciling and signage; containing properly designed outdoor material storage areas; containing properly designed trash storage areas; and providing proof of ongoing Best Management Practice (BMP) maintenance. Specifically, parking lots on the project site could be required to: reduce impervious land coverage of parking areas; infiltrate runoff before it reaches the storm drain system; treat runoff before it reaches the storm drain system; treat to remove oil and petroleum hydrocarbons; and ensure adequate operation and maintenance of treatment systems. Since the project would implement SUSMP requirements, project operation would not result in adverse water quality impacts, and no mitigation measures would be necessary.

Since the project would comply with all LARWQCB requirements regarding water quality standards and waste discharge requirements, the construction and operation of the project would not violate any water quality standards or waste discharge requirements.

- b. Substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned land uses for which permits have been granted)?**

No Impact. The project site is located within the West Coast Groundwater Basin.¹⁹ Groundwater beneath LAX is not used for municipal or agricultural purposes. Construction and operation of the proposed project would not require the use of groundwater and thus, would not deplete groundwater supplies. In addition, the project is the relocation of an existing use to another location within the airport boundaries. The project site is developed and paved. The project would introduce landscaping into the area and thus, provide a slight increase in permeable areas at the site. Implementation of the proposed project would not substantially

¹⁹ Draft EIR/EIS for the LAX Proposed Maser Plan Improvements, January 2001.

deplete groundwater supplies or interfere with groundwater recharge, and no mitigation measures would be required.

- c. **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?**

No Impact. Construction of the proposed project would occur on a site that serves aircraft and is currently developed with cargo buildings and related facilities. Demolition of these buildings and possible reconditioning or replacement of airfield paving would not alter the existing drainage pattern of the site or result in substantial erosion or siltation. Therefore, the project would not result in an impact regarding drainage and no mitigation measures would be required.

- d. **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in an manner which would result in flooding on- or off site?**

No Impact. The project site is developed and currently contains buildings and paving. There are no streams or rivers on the site. Project implementation would not involve drainage system improvements and would not result in significant changes to existing drainage patterns or increases in surface water runoff quantities. In addition, the project site is not located within close proximity to a stream or a river; thus, project implementation would not result in flooding on- or off-site. As such, project implementation would not substantially alter the existing drainage pattern of the site or area that would result in flooding on- or off-site and no mitigation measures would be required.

- e. **Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?**

No Impact. The project site is developed and currently contains buildings and pavement. The proposed project, with the incorporation of landscaping, would likely result in a decrease in runoff due to an increase in permeable materials. Project implementation would not involve drainage system improvements and would not result in changes to existing drainage patterns or increases in surface water runoff quantities. Therefore, no impact to the capacity of existing or planned stormwater drainage systems or water quality would occur and no mitigation measures would be required.

f. Otherwise substantially degrade water quality?

No Impact. As discussed Response No. VIII.a., project construction activities would occur in accordance with the Los Angeles Building Code Sections 91.7000 through 91.7016, which requires necessary permits, plan checks, and inspections to reduce effects of sedimentation and erosion. Additionally, project construction would occur in accordance with applicable discharge requirements as set forth by the LARWQCB. As part of the proposed project, implementation of SUSMP would occur, which would minimize potential water quality impacts during project operation. As such, no impact to water quality would result from the construction and operation of the proposed project, and no mitigation measures would be required.

g. Place housing within a 100-year flood plain as mapped on federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The project site is not located within a 100-year flood hazard area mapped on the relevant FIRM map²⁰ and does not involve the construction of housing. Therefore, no impacts resulting from the placement of housing within a 100-year flood plain would occur and no mitigation measures would be required.

h. Place within a 100-year flood plain structures which would impede or redirect flood flows?

No Impact. As previously discussed in Response No. VIII.g, the proposed project site is not located within a 100-year flood hazard area. Therefore, no impacts resulting from the placement of structures within a 100-year flood plain would occur and no mitigation measures would be required.

i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

No Impact. As delineated on the City of Los Angeles Inundation and Tsunami Hazard Areas map,²¹ the project site is not within a boundary of an inundation area from a flood control basin. In addition to the flood control basins delineated on the City map, the project site is not located within the downstream influence of any levee or dam. Therefore, no impacts due to the

²⁰ City of Los Angeles Planning Department, Safety Element of the City of Los Angeles General Plan, Exhibit F, 100-Year & 500-Year Flood Plains In the City of Los Angeles, March 1994. [Flood plains shown on this map reflect the relevant FIRM maps.]

²¹ City of Los Angeles Planning Department, Safety Element of the City of Los Angeles General Plan, Exhibit G, Inundation & Tsunami Hazard Areas In the City of Los Angeles, March 1994.

exposure of people or structures to a risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam would occur and no mitigation measures would be required.

j. Inundation by seiche, tsunami, or mudflow?

No Impact. The project site is located approximately one and one-quarter miles east of the Pacific Ocean. The project site is not delineated as a potential inundation or tsunami impacted area in the City of Los Angeles Inundation and Tsunami Hazard Areas map.²² Mudflows are not a risk as the project site is located on, and is surrounded by, level terrain and urban development. Therefore, no impacts resulting from inundation by seiche, tsunami, or mudflow are anticipated to occur and no mitigation measures would be required.

IX. LAND USE AND PLANNING. *Would the project:*

a. Physically divide an established community?

No Impact. The proposed project site is located on a developed airport in an urbanized area. The 15-acre project site is currently occupied by cargo facilities, including the B-4 Hanger and Air Freight Building 12. The remainder of the project site is paved and used for cargo activities that involve trucks, other ground support vehicles, and aircraft. The proposed project would relocate an existing use from one area of the airport to another. Therefore, the proposed project would not disrupt or divide the physical arrangement of an established community. No impacts resulting from disruption or division of the physical arrangement of an established community would occur and no mitigation measures would be required.

b. Conflict with applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The proposed FBO is an allowable use pursuant to the LAX Interim Plan and applicable zoning. Use of the site as proposed is also being recognized as part of on-going planning efforts associated with the proposed LAX Master Plan.

²² City of Los Angeles Planning Department, *Safety Element of the City of Los Angeles General Plan, Exhibit G, Inundation & Tsunami Hazard Areas In the City of Los Angeles, March 1994.*

c. Conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. As previously discussed in Response No. IV.f, the Dunes Specific Plan Area, a designated Los Angeles County Significant Ecological Area, is located remote from the site at the far western portion of the airport. There is no adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved habitat conservation plan or other natural community conservation plan that includes the proposed project site or immediate vicinity. The proposed project, therefore, would not conflict with any such plans and no mitigation measures would be required.

X. MINERAL RESOURCES. *Would the project:*

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. The State Mining and Geology Board classifies mineral resource zones throughout the State. The project site is contained within a MRZ-3 zone, which represents areas with mineral deposits whose significance cannot be evaluated from available data.²³ The proposed site is located on a developed airport in an urbanized area. Although there are two oil fields in the area surrounding the project site, no known mineral resources exist on or underlying the project site. The Hyperion Oil Field lies approximately one-half mile west of the project site and the El Segundo Oil Field lies approximately one-third mile south of the project site. No other known mineral resources exist in the vicinity of the project site. Therefore, the proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State and no mitigation measures would be required.

b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. The proposed project site is not within an area delineated on the City of Los Angeles Oil Field & Oil Drilling Areas map in the City of Los Angeles General Plan Safety Element.²⁴ Furthermore, as discussed in Response No. X.a above, the project site does not

²³ U.S. Department of Transportation Federal Aviation Administration and City of Los Angeles, *Draft Environmental Impact Statement/Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements, Section 4.17, January 2001.*

²⁴ City of Los Angeles Planning Department, *Safety Element of the City of Los Angeles General Plan, Exhibit E, Oil Field & Oil Drilling Areas In the City of Los Angeles, May 1994.*

contain any known mineral resources. Therefore, the proposed project would not result in the loss of availability of a locally-important mineral resource recovery site and no mitigation measures would be required.

XI. NOISE. *Would the project:*

- a. Exposure of persons to or generation of noise in level in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

Less than Significant Impact. The L.A. CEQA Thresholds Guide (Guidelines) has been developed as a tool for evaluation of potential project related impacts to streamline the City's permit and development process.²⁵ This guidance document provides a recommended analysis method for project impacts and thresholds of significance which take into consideration standards established in the local general plan and municipal code. As such, the methodology and significance thresholds provided in Chapter I, Noise, of the Guidelines has been used to evaluate potential noise impacts related to the project.

Construction-period noise impacts are discussed below in Section XI.d. Noise generated by on-site construction activities would have a less than significant impact on surrounding residential uses.

As discussed below in Section XV, Transportation/Circulation, the proposed project is not anticipated to generate any meaningful net new vehicle trips; therefore, there would be no increase in traffic related noise. Other sources of operational noise (e.g., aircraft, GSE, line maintenance, and parking lot activities) are discussed below in Section XI.C and would have a less than significant impact on community noise levels. As impacts would be less than significant, no mitigation measures are necessary.

- b. Exposure of people to or generation of excessive groundborne vibration or groundborne noise levels?**

Less than Significant Impact. The project would be constructed using typical construction techniques. As such, it is anticipated that the construction equipment to be used during project construction would not cause excessive groundborne noise or vibration. Post-construction on-site activities are limited to airport uses that would not generate excessive

²⁵ City of Los Angeles, "L.A. CEQA Thresholds Guide," May 1994.

groundborne noise or vibration since all airplanes and GSE are equipped with compressed air rubberized tires that act as vibration isolators. In addition, any engine run-ups associated with project-related aircraft would be off-site and limited to existing LAX designated engine run-up areas. As such, potential impacts associated with the project would be less than significant. No mitigation measures are required.

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact. The noise environment within the vicinity of the project site is determined by a combination of noise from motor vehicle traffic on nearby roadways and from aircraft operations. The closest noise-sensitive uses are the residences located across Imperial Highway in El Segundo which are within the 65 Community Noise Equivalent Level (CNEL) contour for aircraft noise.²⁶ As indicated in the Traffic Technical Memorandum, which is contained in Appendix C, the project would only generate six to 18 net peak hour trips. This small increment in traffic associated with the project would not result in a measurable or significant change in traffic related noise levels.²⁷ Since the proposed project is not anticipated to generate substantial net new vehicle trips or change the local circulation pattern, the assessment of potential operational noise impacts focuses on aircraft related operations.

A portion of the project site is currently occupied by Airborne Express, a commercial shipping company. Airborne Express currently utilizes a portion of the B-4 Hangar and a portion of the ramp area for warehouse space. Airborne's current level of activity ranges from two to four flight operations (commercial) per day, including operations at night and use of GSE (e.g., mechanical loading equipment and towing equipment) and heavy-duty trucks (delivery trucks). In addition, LAWA intends to curtail non-scheduled passenger charter flights at the Imperial Terminal, which is located west of the project site. The proposed Mercury FBO or other FBO's located at LAX are expected to absorb these flights. The relocation of the non-scheduled passenger charter flights from Imperial to other FBOs would represent an easterly shift in the location of these flights along the southern airport boundary rather than an increase in general aviation activity levels at the airport. This easterly shift would move these operations further away from residences located directly south of LAX across Imperial Highway in El Segundo. A slight reduction in noise levels would likely occur at these residences.

For aircraft related noise a significant impact on ambient noise levels would normally occur if noise levels at a noise sensitive use attributable to airport operations exceed 65 dBA.

²⁶ Department of Airports Noise Management Bureau, *Second Quarter 2002 Noise Report, 2002.*

²⁷ *Traffic volumes would have to double for traffic related noise levels to increase by three dBA.*

CNEL and the project increases ambient noise levels by 1.5 dBA CNEL or greater.²⁸ For all other on-site operations (taxiing aircraft, GSE, line maintenance, and parking lot activities) a significant impact on ambient noise levels would normally occur if noise levels at a noise sensitive use attributable to on-site operations causes the ambient noise level measured at the property line of affected uses to increase by 3 dBA CNEL to or within the “normally unacceptable” or “clearly unacceptable” category, or any 5 dBA or greater noise increase.²⁹

As discussed in Attachment A, Project Description, based on general aviation projections for the year 2015, the proposed project would result in a slight increase in the level of aircraft activity compared with the existing level of activity at Mercury FBO and activity associated with non-scheduled charter flights at Imperial Terminal. LAWA determined the CNEL impact of the additional operations on communities surrounding LAX (26 existing noise monitoring stations) using the Integrated Noise Model (INM). This model was developed by the FAA and has been used extensively for noise analysis at commercial airports. In addition, comparisons of the Maximum Noise Levels (L_{max}) and the maximum Sound Exposure Levels (SELs) were also undertaken.

There were no significant changes in the CNEL, SEL, and L_{max} levels at any of the affected location points based on the projected increase in operations. There was a 0.1 dBA expected increase in the CNELs at four sites in El Segundo and Lennox. The projected SELs reflected a 0.1 dBA increase at 10 sites. The expected L_{max} values did not change at any of the sites. The projected 0.1 dBA CNEL increase is well below the 1.5 dBA threshold and, therefore, would result in a less than significant impact.

The Mercury FBO on-site operations would include aircraft ground taxi during ingress/egress on the aircraft parking ramp, GSE, maintenance activities, and parking lot activities. As discussed above, while these activities currently exist on site, these activities are further evaluated below.

The proposed project would result in increased aircraft ground taxi during ingress/egress on the aircraft parking ramp at the project site. The majority of these operations are corporate jets and to a much lesser extent commercial jets. Large commercial jets (e.g., A-300, DC-10, MD-11, B-767, and B-747) taxiing at a distance of approximately 100 feet have maximum noise levels (L_{max}) in the range of 92 to 96 dBA.³⁰ At a distance of 600 feet (distance to closest residential uses across Imperial Highway) the noise level would be approximately 77 to 81 dBA L_{max} . Barrier/structure attenuation related to nearby buildings and the raised portion of Imperial

²⁸ In addition, the FAA's Airport Environmental Handbook indicates that its threshold of significance is a 1.5 dBA CNEL increase in noise in any sensitive area located within the 65 dB CNEL contour.

²⁹ The “normally acceptable” range for single family dwelling units is 50-60 CNEL; “conditionally acceptable” is 55-70 CNEL; “normally unacceptable” is 70-75 CNEL; and “clearly unacceptable” is above 70 CNEL.

³⁰ HMMH, Anchorage International Airport, Noise Assessment Report, February 11, 2000.

Highway would create a bermed effect and would provide a minimum barrier insertion loss of 15 dBA. Therefore, the maximum noise level would be approximately 62 to 66 dBA and only one dBA above the existing ambient noise level of 65 dBA CNEL. All corporate aircraft are anticipated to be below this maximum predicted noise level. In addition, with the relocation of the non-scheduled passenger charter flights from Imperial Terminal, residences located directly south of LAX across Imperial Highway would be further away from this activity and would likely experience a slight reduction in noise levels.

GSE as part of the project would be similar to existing GSE used at the existing FBO and would have typical maximum noise levels from 75-85 dBA at 50 feet. These pieces of equipment would operate intermittently throughout the day. At a distance of 600 feet (distance to closest residential uses across Imperial Highway noise levels from GSE) would be approximately 64 L_{max} .³¹ As discussed above, existing site specific barrier/structure attenuation would provide an additional reduction in noise of 15 dBA. The predicted increase in ambient noise levels would be well below the current ambient noise levels and well below an increase of 3 dBA. Therefore, GSE noise impacts would be less than significant. No mitigation measures are required.

As discussed in Attachment A, Project Description, Mercury provides line maintenance and overnight checks for general aviation and scheduled airlines. Routine overnight maintenance, referred to as "A" checks, are scheduled functional inspections performed from a checklist. The activities include lubrication of moving parts, servicing of fluids, inspection of components, hoses, electrical items and aircraft structure. A ground power unit (GPU) is used during these checks. The noise level for the GPU is 80 dBA L_{eq} at 50 feet. At a distance of 600 feet (distance to closest residential uses across Imperial Highway) the noise level would be approximately 59 L_{eq} . As discussed above, site specific barrier/structure attenuation would provide an additional reduction in noise of 15 dBA.

Various sounds, including automobile movement, car alarms, car horns, door slams, and tire squeals, may occur at the surface parking area. The activation of car alarms, sounding of car horns, slamming of car doors, and tire squeals would occur periodically and may occasionally be audible. Noise from these sources, even though intermittent and short-term in nature, may be intermittently audible to nearby sensitive land uses. Automobile movement would result in the most continuous source of noise and would result in a noise level of approximately 50 dBA at a distance of 25 feet. The resultant noise levels at the closest residence would not be audible due to traffic noise along Imperial Highway. Therefore, noise levels associated with operation of the parking facilities would be less than significant. Mercury FBO on-site operations (i.e., aircraft ground taxi during ingress/egress on the aircraft parking ramp, GSE, maintenance activities, and

³¹ Based on a noise attenuation rate of approximately 6 dBA per doubling of distance.

parking lot activities) would each contribute to a combined noise level. As discussed above, these activities may result in maximum noise levels that are audible at the nearest residence. However, given that these sources of noise would typically be short-term and intermittent, the combined noise level would not significantly change the CNEL at residences in close proximity to the project site.

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact. Construction noise was evaluated by determining the noise levels generated by outdoor construction activity and calculating the potential for exposure to noise-sensitive uses. A significant noise impact from construction would occur if the project would result in one or more of the following conditions:³²

- construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive use;
- construction activities lasting more than 10 days in a three month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use; or
- construction activities would exceed the ambient noise level by 5 dBA at a noise sensitive land use between the hours of 9:00 P.M. and 7:00 A.M. Monday through Friday, before 8:00 A.M. or after 6:00 P.M. on Saturday, or at anytime on Sunday.

Ambient noise levels at the noise-sensitive uses were determined from the Second Quarter 2002 Noise Report.³³ The closest noise-sensitive uses are the residences located across Imperial Highway which are within the 65 CNEL contour for aircraft noise. Construction noise levels were based on typical levels contained in the L.A. CEQA Thresholds Guide, as derived from USEPA documents. Distances between the noise-sensitive uses and the construction site were measured and construction noise levels at the sensitive uses were calculated based on standard noise-versus-distance relationships. Impacts were then calculated based on thresholds for exceedance of ambient noise levels.

Noise levels from outdoor construction indicate that the noisiest phases of construction are typically during grading and finishing, and that noise levels from equipment with mufflers is typically 86 L_{eq} at 50 feet from the noise source. Noise levels diminish at a rate of

³² *City of Los Angeles, L.A. CEQA Thresholds Guide, May 14, 1998.*

³³ *Department of Airports Noise Management Bureau, Second Quarter 2002 Noise Report, 2002.*

approximately 6 dBA per doubling of distance. Thus, a noise level of 86 dBA at a reference distance of 50 feet would be about 80 dBA at 100 feet, and 74 dBA at 200 feet. At a distance of 600 feet (distance to closest residential uses across Imperial Highway) would be approximately 65 L_{eq} . As discussed above, site specific and existing barrier/structure attenuation would provide an additional reduction in noise of 15 dBA. The predicted increase in ambient noise levels would be 65.1, or an increase of 0.1 dBA and, therefore, construction noise impacts would be less than significant. No mitigation measures are required.

- e. **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?**

No Impact. The proposed project would entail the consolidation and relocation of existing FBO operations within existing airport boundaries. No changes would be made to runway locations or configurations as part of the project. Over time, based on the projections for general aviation at LAX, there may be an increase in the number of general aviation operations. However, based on the slight increase in activity that would be experienced at the proposed facility, aircraft noise single event level (SEL) and community noise equivalent level (CNEL) contours would remain unchanged. As such, no impacts are anticipated and no mitigation would be required.

- f. **For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?**

No Impact. The project site is not located within the vicinity of a private airstrip, but rather within a public airport. Those working or using the site would be exposed to noise levels normally expected for an airport terminal operation. See Response to Comment XI, e., above.

XII. POPULATION AND HOUSING. *Would the project:*

- a. **Induce substantial population growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

No Impact. The proposed project would relocate and consolidate the Mercury Air Group FBO at Los Angeles International Airport. The level of aircraft activity and the number of employees would not substantially increase with implementation of the proposed project. With no meaningful increase in employment and no new homes and/or businesses proposed, direct or

indirect increases in population growth are not expected as a result of the project. Furthermore, the project site is located within a developed airport and no new roads or extensions of existing roads or other infrastructure are proposed. Therefore, the proposed project would not directly or indirectly induce population growth and no impacts would occur. No mitigation measures are required.

b. Displace substantial numbers of existing housing necessitating the construction of replacement housing elsewhere?

No Impact. There are no existing residential properties within the proposed project site. Implementation of the proposed project would not result in displacement of housing. No mitigation measures would be required.

c. Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?

No Impact. While the project includes demolition of two existing buildings, the project would not affect housing or displace people thereby necessitating construction of replacement housing. Therefore, no impacts would occur and no mitigation measures would be required.

XIII. PUBLIC SERVICES. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:*

a. Fire protection?

No Impact. The City of Los Angeles Fire Department provides fire protection services throughout Los Angeles International Airport, including the proposed project site. Fire Station No. 51, located at 10435 South Sepulveda Boulevard, is approximately one-half mile north of the proposed project site. Access to the project site would be kept clear and unobstructed at all times during construction in accordance with FAA, State Fire Marshal, and Los Angeles Fire Code regulations. Fire service requirements are generally based on the size of the building and relationships to other structures and property lines. The proposed project site is currently developed and the boundary of the proposed project would not extend beyond the current airport boundary. The proposed project would relocate and consolidate the Mercury Air Group FBO at LAX. Furthermore, the proposed project would upgrade on-site fire safety mechanisms to meet current fire safety code requirements. The proposed project would comply with all applicable

City, State, and federal codes and ordinances and architectural plans will be reviewed and approved by the City of Los Angeles Fire Department prior to project implementation. Therefore, the proposed project would not result in any substantial increase in demand for fire protection services which would result in the need for new or altered fire protection services. No significant impacts to or need for new or altered fire protection services is anticipated and no mitigation measures would be required.

b. Police protection?

No Impact. Both the Los Angeles World Airports Police Division (LAWAPD) and the City of Los Angeles Police Department LAX Detail (LAPD LAX Detail) provide police protection services to the airport, including the project site. The LAWAPD is located approximately one mile north of the project site and the LAPD LAX Detail station is located approximately 0.8 miles north of the project site. Demand for on-airport police protection services is typically determined by increases in aircraft activity and employees. Based on projections for general aviation activity at LAX, an increase in overall general aviation at LAX is assumed. The project may experience an increase of up to eight operations per day by 2015. Based on this increase at the project site and given that staffing levels and facility needs for police services at LAX are routinely addressed and accounted for in long-range plans, no impacts on airport police protection services is expected with implementation of the proposed project. Therefore, no mitigation measures would be required.

c. Schools?

No Impact. The proposed project would relocate and consolidate the Mercury Air Group FBO at Los Angeles International Airport. The number of employees serving FBO's at LAX would not increase with implementation of the proposed project. (The project is not expected to generate new employees, however, a worst-case scenario for the traffic analysis assumes a 25 percent increase in the number of employees.) Since the proposed project would not include residential development or generate a substantial number of new employees, no enrollment increases would occur with implementation of the proposed project. Therefore, no impacts to or the need for new school facilities would occur and no mitigation measures would be required.

d. Parks?

No Impact. The proposed project would relocate and consolidate the Mercury Air Group FBO at Los Angeles International Airport. The number of employees would not increase with implementation of the proposed project. (The project is not expected to generate new employees, however, a worst-case scenario for the traffic analysis assumes a 25 percent increase in the number of employees.) Since the proposed project would not include residential

development or generate a substantial number of new employees, additional demand for parks would not occur as a result of the proposed project. As such, no impacts to or the need for new parks would occur and no mitigation measures would be required.

e. Other governmental services (including roads)?

No Impact. The development of the Mercury Air Group FBO would not result in any substantial increase in demands on other governmental services. Thus the project would not increase the need for maintenance of such services, including roads. No impacts to other governmental services would occur and no mitigation measures would be required.

XIV. RECREATION.

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The proposed project would relocate and consolidate the Mercury Air Group FBO at Los Angeles International Airport. The number of employees would not increase with implementation of the proposed project. (The project is not expected to generate new employees, however, a worst-case scenario for the traffic analysis assumes a 25 percent increase in the number of employees.) Since the proposed project would not include residential development or generate a substantial number of new employees, additional demand for parks or other recreational facilities is not anticipated. Therefore, the proposed project would not increase the use of existing parks or recreational facilities and no mitigation measures would be required.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The proposed project would relocate and consolidate the Mercury Air Group FBO at Los Angeles International Airport. As discussed in Response No. XIV.a, the proposed project would not result in the need for new recreational facilities. Furthermore, the proposed project does not include recreational facilities or require the construction or expansion of recreational facilities. No impacts would occur and no mitigation measures would be required.

XV. TRANSPORTATION/CIRCULATION. *Would the project:*

- a. **Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to ratio capacity on roads, or congestion at intersections)?**

No Impact. A Traffic Technical Memorandum is provided in Appendix C. Table 3 on page B-36 summarizes the project trip generation and trip rates.

The trip generation rates used for the analysis are taken from the ITE Trip Generation Manual, 6th Edition. General Aviation Airport trip generation rates are based on the number of employees, however, the factor also accounts for passenger trips. The trip generation rate for the existing facility is 1.03 trips. Using this trip generation rate, which accounts for passengers and employees, the project would generate 45 P.M. peak hour trips. While no increase in employees is anticipated, for analysis purposes a 25 percent increase is assumed. Using this assumption, the project would generate 57 employee and passenger trips in the p.m. peak hour.

The Coastal Transportation Corridor Specific Plan articulates trip generation rates for airport-related land uses. Trip credit for demolition of the uses on the project site, which include Airborne Express, Aeroground, and the LAX Lost and Found buildings, all of which have all been active within the last two years, would result in the proposed project receiving credit for 39 existing afternoon peak hour trips. Accounting for this credit and based on current estimates of the Mercury FBO's trip generation, the project would generate six net P.M. peak hour trips. Based on a 25 percent increase in employees, the project would generate 18 net P.M. peak hour trips.

Based on the trip generation analysis, the project would not generate enough net trips to meet the City of Los Angeles Department of Transportation (LADOT) requirements of 43 peak hour trips for the preparation of a Traffic Impact Analysis. It should also be noted that the trips using the existing level of employment already occur today. These trips would relocate from the west side of the airport. The shift in trips from Imperial Terminal would not affect the traffic analysis. The project site would result in a reduction of trip length for Mercury FBO employees and these trips would pass through the same intersections that are currently used. Therefore, the project would not cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system and the project would not have a significant impact. No mitigation measures would be required.

Table 3

SUMMARY OF PROJECT TRIP GENERATION

Use	Type of Use	Size	PM Peak Hour
<u>Proposed Uses</u>			
Mercury FBO Facility	General Aviation Airport	44 to 55 employees ^a	45 to 57 ^a
<u>Existing Uses to be Removed</u>			
Airborne Express (B4 Hangar) ^b	Cargo Facility (partially occupies B4 Hangar)	12,400 sf	10
Aeroground (b4 Hangar) ^c	Cargo Facility (partially occupies B4 Hangar)	30,000 sf	24
LAX Lost and Found (Air Freight Building 12)	Storage	16,387 sf	5
Total Existing Trips			39
TOTAL NET TRIPS			6 to 18 ^c

^a Existing number of employees is 44. While this number is not expected to increase, for analysis purposes a 25 percent increase in employment is assumed. Therefore, the worst case analysis would be an increase to 55 employees. Trip generation factors for employment include associated passenger activity.

^b Aeroground facility was active within the past two years per LAWA Lease – LLA7742: June 2, 1998 to July 31, 2001.

^c Total net trips equal the projected trips minus the existing trips (i.e., $45 - 39 = 6$ and $57 - 39 = 18$). Two numbers are provided to reflect the same number of employees as well as a worst case analysis of a 25 percent increase in employment.

Notes:

sf = square feet

Trip Generation Rate from ITE Trip Generation Manual, 6th Edition:

General Aviation Airport: PM peak hour – 1.03 trips/employee

Cargo Facility: PM peak hour = 0.8 trips/1,000 sf

Storage: PM peak hour = 0.3 trips/1,000 sf

Source: Kaku, Associates, Inc., Traffic Technical Memorandum, February 2003 (see Appendix C)

b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

No Impact. As indicated above in XV.a and in the Traffic Technical Memorandum, which is contained in Appendix C, assuming a worst case analysis including a 25 percent increase in employees, the project would generate 18 net peak hour trips. The proposed project would not add 50 or more trips during the A.M. or P.M. weekday peak hours at any Congestion Management Plan (CMP) intersection, nor would the project add 150 or more trips during the A.M. or P.M. weekday peak hours at any CMP mainline freeway monitoring location. Thus, the project would not exceed any CMP thresholds. No impacts associated with implementation of the CMP would result, and no mitigation measures would be required.

c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The project would relocate existing flights from the Mercury FBO facility on the west side of the airport to the project site on the south side of the airport. In addition, the project would shift non-scheduled charter flights from Imperial Terminal to the east to the project site. No changes would be made to runway locations and configurations as a result of the project. Based on projections, the proposed facility would experience a slight increase in activity due to an overall increase of general aviation activity at LAX. The project would not result in a change in air traffic patterns or an increase in traffic levels or change in location that would result in substantial safety risks. Therefore, no mitigation measures would be required.

d. Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The project would represent continued use of the site to serve aircraft with a change in focus from cargo to passengers. While access drives and on-site parking would be provided for clients and workers, these areas would be isolated from the apron and airfield. The project does not include any changes to design features on the existing roadways. The project would not alter or create any design features that would create a hazard on-site or in adjacent apron or airfield areas.

e. Result in inadequate emergency access?

No Impact. LAWA and tenants of LAX maintain Emergency Response and Evacuation Plans to minimize the potential for and the effects of an accident, should one occur. In addition, the project site is accessible from the public road to the south as well as from other areas of LAX. The project would not interfere with emergency access. The Mercury Air Group, as a tenant at LAX, would modify the existing Emergency Response and Evacuation Plan for the proposed site to ensure that emergency access is maintained. As such, construction and operation of the proposed project would not result in inadequate emergency access and no mitigation measures would be required.

f. Result in inadequate parking capacity?

No Impact. As indicated in Attachment A, Project Description, and shown on Figure 4, the project would provide approximately 280 parking spaces divided into four clusters along the southern portion of the project site. The easternmost area would contain 33 spaces for maintenance employee parking. To the west of that parking cluster would be a 90-space fenced, security parking area with card key access. A general FBO 90-space parking area would be

located to the west of the main entrance. The fourth area would be to the west of the proposed air center building and would contain 66 spaces for employee parking. The proposed parking would provide for the consolidation of Mercury parking that exists at the present Mercury site as well as Mercury employee parking at Imperial Terminal. In addition, the project would provide for the relocation of approximately 50 secure parking spaces primarily used for non-scheduled charter flights at the Imperial Terminal. The project would provide adequate parking for current and future uses and therefore, would not result in an impact to parking capacity. No mitigation measures would be required.

g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

No Impact. The project is the relocation and consolidation of an existing FBO facility at LAX. The project is contained entirely within airport property and off of public roadways. As such, the project would not conflict with policies, plans, or programs supporting alternative transportation.

XVI. UTILITIES. *Would the project:*

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact. The City of Los Angeles Department of Public Works, Bureau of Sanitation, provides wastewater services for the site. The City of Los Angeles operates four wastewater treatment facilities that provide sewage treatment for most of the City's incorporated area and for several other cities and unincorporated areas in the Los Angeles region. Sanitary wastewater generated by activities at LAX, including the existing FBO, is treated at Hyperion Treatment Plant (HTP). HTP is located adjacent to the southwest boundary of LAX, approximately two miles southwest of the CTA. Currently, HTP has a design capacity of 600 million gallons per day (mgd). Average flows at HTP were 352 in April 2000, leaving an excess capacity of close to 248 mgd.³⁴ A collector sewer line is located to the west of the project site and runs parallel to Imperial Highway. Project implementation would relocate activities to another area within LAX but would not result in a substantial increase in wastewater flows from LAX. The project would make any necessary tie-ins to the existing facilities. Therefore, no impact with regard to wastewater treatment would occur and no mitigation measures would be required.

³⁴ Draft EIR/EIS for the LAX Proposed Master Plan Improvements, January 2001.

b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. As discussed in Response No. XVI.a., above, and e., below, project implementation would not result in a substantial increase in water demand and wastewater generation since the activity already exists within LAWA property. Existing water and wastewater facilities are adequate to serve the proposed project. As such, implementation of the project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities. No impact to water or wastewater facilities would occur and therefore, no mitigation measures would be necessary.

c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. At LAX, stormwater is discharged to both County of Los Angeles and City of Los Angeles drainage and flood control structures. The existing drainage system at LAX consists of catch basins, subsurface storm drains and open channels, and outfalls. The project site is within the Argo Drain Subbasin. The project site is developed and paved and project implementation would not increase the amount of surface run off from the site. Therefore, the project would not result in the need to construct new stormwater drainage facilities or to expand existing facilities, the construction or expansion of which would cause environmental effects to occur.

d. Have sufficient water supplies available to serve the project from existing entitlements and resource, or are new or expanded entitlements needed?

No Impact. The City of Los Angeles Department of Water and Power (DWP) is the water purveyor for LAX. DWP is responsible for supplying, treating, and distributing water within the City. Current City of Los Angeles planning indicates that water supply will be sufficient to meet projected demands.³⁵ LAX is served by a 36-inch trunk line in Sepulveda Boulevard that distributes water to a combination of 12-inch and 16-inch transmission lines running along the airport perimeter. The project would relocate an existing FBO from one area within LAX to another area. Transmission lines are available at the project site. Project implementation would not result in an increase in water consumption. Since the transmission lines are in place and there would be no increase in water demand with the proposed project, there would be sufficient water infrastructure and supplies available to serve the project, and no

³⁵ *Ibid.*

new or expanded entitlements would be needed. Therefore, project implementation would not result in adverse impacts to water supplies and no mitigation measures would be required.

- e. **Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?**

No Impact. As discussed in Response Nos. XVI.a. and b., above, project implementation would not result in a substantial increase in wastewater generation since the activity already exists within LAWA property. Existing wastewater facilities are adequate to serve the proposed project. Therefore, no impact to wastewater facilities would occur and no mitigation measures would be necessary.

- f. **Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?**

No Impact. Solid waste management at the project site is conducted by both LAWA and private companies. Currently, solid waste generated at the project site is collected by Waste Management Inc. for disposal off-site. During project operation, solid waste from the site could be taken to one of several Class III landfills located within the Los Angeles County. Class III landfills accept all types of non-hazardous solid waste. The mid- to long-term solid waste disposal capacity availability in Los Angeles County is uncertain. Efforts are underway to address the disposal capacity issue in the region. For example, plans to enable the expansion of Sunshine Canyon landfill are underway. In addition, the County Sanitation Districts of Los Angeles County is seeking a 10-year extension of its operating permit for the Puente Hills Landfill. In light of landfill capacity issues throughout the state, in 1989 the state legislature enacted AB 939, which requires each city and county to divert 50 percent of their waste streams by the year 2000. LAWA developed a program to achieve waste diversion mandated by AB 939. In 1999, LAX achieved a diversion rate of 54 percent.³⁶ The proposed project is the relocation and consolidation of existing uses from other areas of the airport to one area within the airport boundary, with a slight increase in operations based on 2015 projections. The potential increase of eight operations a day would result in a negligible increase in solid waste disposal from passengers on those flights. Therefore, no impacts would occur and no mitigation measures would be required.

Construction of the proposed project would generate demolition debris. All demolition debris will be recycled or reused on-site to the extent possible, rather than disposed of at a landfill. For example, the B-4 Hangar is primarily steel and Air Freight Building 12 has a

³⁶ *Ibid.*

framework of steel. All demolished steel will be recycled. Asphalt and concrete will be recycled and reused to the extent feasible. In the event that demolition debris would be disposed of at regional landfills, inert waste, including asphalt, could be accepted at one of four following unclassified landfills within the Los Angeles County: Azusa Land Reclamation located in Azusa; Nu-Way Live Oak located in Irwindale; Peck Road Gravel Pit located in Monrovia; and Reliance Pit #2 located in Irwindale. Since unclassified landfills in the County do not generally have capacity issues, inert landfills serving the site would have sufficient capacity to accommodate project construction solid waste disposal needs and no impact would occur. Since the majority of the demolished material would be recycled and capacity exists at inert landfills for minor amounts of demolition debris that may need to be disposed of at landfills, no mitigation measures are required.

g. Comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. The proposed project would operate in accordance with the City's Solid Waste Management Policy Plan and Framework Element of the General Plan, in addition to any applicable federal and State regulations associated with solid waste. Since the project would comply with federal, State, and local statutes and regulations related to solid waste, no impact would occur. No mitigation measures would be required.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE.

a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

No Impact. The project is the relocation and consolidation of an existing fixed base operation at LAX from the western side of the airport to the southern side of the airport. The approximately 15-acre project site is currently occupied by two buildings, which would be demolished. The remainder of the site is primarily covered in impervious surfaces. The site does not support sensitive species or water bodies. Because of the long use of the site as part of LAX and high levels of aircraft and human activity, project implementation does not have the potential to substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. In addition, as indicated in the responses to the checklist, the project would not degrade the

quality of the environment. No potential impacts were determined to occur from implementation of the project in any of the topical areas addressed above.

- b. Does the project have impacts which are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects).**

Less Than Significant Impact. The proposed project would not generate impacts that are individually limited but cumulatively considerable. The proposed FBO is an allowable use pursuant to the LAX Interim Plan, which is currently in place. The proposed use is being recognized in on-going planning efforts at LAX, including the proposed LAX Master Plan. Based on the developed nature of the site and the fact that the project is the relocation and consolidation of a fixed base operation, the potential project-related impacts would be less than significant and sufficiently limited so as to preclude any substantial contribution to cumulative effects. Project implementation could result in an increase in operations at the project site by 2015 based on projections for general aviation activities at LAX. However, given the nature of the facility and the daily fluctuations in activity, no additional employees are expected to result from the project. Although the project is not expected to cause an increase in vehicular trips by employees and passengers over levels generated at the existing FBO facility and Imperial Terminal, additional trips that might be associated with forecasted growth in general aviation activity would be very limited and would not result in a significant cumulative impact on traffic. Additionally, the project operational air emissions, with the assumed increase in activity, would be below the SCAQMD significance thresholds. Furthermore, potential construction and operational noise impacts would be less than significant.





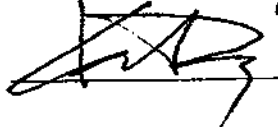
- c. Does the project have environmental effects which cause substantial adverse effects on human beings, either directly or indirectly?**

No Impact. Based on the documentation provided above, implementation of the proposed project would not cause environmental effects that cause direct or indirect substantial adverse effects on human beings.



Los Angeles World Airports

BOARD OF AIRPORT COMMISSIONERS

APPROVED BY: 	Meeting Date: 10-20-03
REVIEWED BY:  Richard M. Danisse, Deputy Executive Director	CAO Report <input checked="" type="checkbox"/> Completed <input type="checkbox"/> Pending <input type="checkbox"/> N/A
REVIEWED BY:  Paul L. Green, Chief Operating Officer	
CITY ATTORNEY: 	
EXECUTIVE DIRECTOR: 	Reviewed by: Budget <u>8/19/03</u> e-mail Environmental Mgt. <u>5/27/03</u> e-mail Procurement <u>8/21/03</u> e-mail

SUBJECT:

APPROVAL OF A 30-YEAR GROUND LEASE WITH MERCURY AIR GROUP, INC. FOR DEVELOPMENT OF A FIXED BASE OPERATION FACILITY AND APPROVAL OF BUILDING AND CONSTRUCTION PERIOD RENTAL RATES AT LOS ANGELES INTERNATIONAL AIRPORT

RECOMMENDATION:

Management RECOMMENDS that the Board of Airport Commissioners:

1. ADOPT the staff report.
2. CERTIFY that the initial Study/Negative Declaration was prepared in accordance to the requirements of the California Environmental Quality Act (CEQA) and the Los Angeles City CEQA Guidelines;
3. CERTIFY that the Final Negative Declaration was presented to the Board and that the Board reviewed and considered the information contained therein before considering whether to approve the project;
4. FIND that the Initial Study/Negative Declaration reflects the independent judgement and analysis of the Board and ADOPT the Negative Declaration.
5. APPROVE building rental rates and construction period rates as set forth in this report.
6. APPROVE a 30-year Lease between the City of Los Angeles and Mercury Air Group, Inc. that will generate approximately \$1,147,560 after the first year in

annual revenue to LAWA.

7. AUTHORIZE the Executive Director to execute the lease, after approval as to form and legality by the City Attorney and approval by Los Angeles City Council.

DISCUSSION:

1. Prior Related Actions

Mercury Air Group, Inc. (Mercury) has operated at Los Angeles International Airport (LAX) as a Fixed Base Operator (FBO) since 1979. Their operations include fuel sales, aircraft maintenance, hangar space rental, full service aircraft ground support, aircraft parking and tie down services, catering services, and weather reporting.

Terms of Previous Lease:

Demised Premises: 1.9284 acres of land
 75,000 square feet of paved aircraft ramp

Lease Term: January 1, 1994 through December 31, 1998

Rent: \$189,991 per year

Mercury had anticipated an earlier move to an alternate location, but a final decision was delayed due to the lack of potential sites that would suit its needs. For this reason, the lease went into and has remained in a holdover status. Since the previous lease expired, Mercury has been on a month-to-month holdover on the leasehold premises and has complied with the provisions of the original lease, including the payment of rent at current rates.

2. Current Action

Mercury's present location is situated in an area of LAX that is operationally constrained and does not provide for development or modernization of existing operations because of limited space. While Mercury leases approximately two acres directly from LAWA, Mercury also has use agreements with American Airlines and Continental Airlines for regular use of aircraft ramp areas that are adjacent to Mercury's leasehold area. Mercury also makes regular use of aircraft gates at the West Imperial Terminal complex. The combination of these non-adjoining areas results in approximately the same acreage that would be utilized under the proposed long-term lease.

In addition to the impacts created by other construction projects in the surrounding area, a suitable location for a replacement facility near its existing location is not possible. After working with LAWA to identify potential alternate sites, the proposed location, situated near the Northwest corner of Sepulveda Boulevard and Imperial Highway, was determined to be the best site.

Mercury proposes to develop approximately 15 acres for its FBO operation. Mercury will demolish and remove the B-4 hangar and Air Freight Building 12 (AF 12), both of which are currently located on the site. These improvements are well past their useful economic lives and will prepare the way for a more functional and efficient use of the site. Development costs total approximately \$10,000,000 and will include aircraft ramp areas, an FBO operations center consisting of two buildings, and vehicle parking

areas. Mercury will have the initial lease term to amortize the improvements it constructs after which ownership will revert to the City.

Terms of Proposed Lease:

Demised Premises: 15.3008 acres of land
 Lease Term: 30 years, commencing upon execution by LAWA after City Council approval
 Rent: \$1,147,560 per year

The proposed lease term is consistent with LAWA Leasing Policy approved by the Board in March 2001. In addition, Mercury has agreed to designate a fuel farm area to be located on the demised premises. The lease requires Mercury, at its sole expense, to relocate its current fuel farm (located at 6851 Imperial Highway) to this new location if deemed necessary by the City during the term of the lease.

Proposed Leasehold and Facility Rental Rates

The rental components are broken into two periods—one for construction period rent and one for the balance of the term.

The construction period rental for the demised premises will be more than one half of the current Board approved rate. The rate shall be in effect for the first six months of the lease.

Construction Period:

<u>Lease Component</u>	<u>Unit</u>	<u>Old Rate</u>	<u>New Rate</u>	<u>6 Mo. Rent</u>
Land	15.3008 Ac.	N/A	\$ 64,328/mo.	<u>\$385,968</u>
			Total Rent	\$385,968

The balance of the lease term, excepting for an interim use of office space, will consist of payments for land only as this is a redevelopment project covering the site.

Post Construction Period:

<u>Lease Component</u>	<u>Unit</u>	<u>Old Rate</u>	<u>New Rate</u>	<u>Annual Rent</u>
Land	15.3008 Ac.	\$75,000 Ac./Yr.	\$75,000 Ac./Yr.	\$1,147,560
Office Space	5,538 Sf.	N/A	\$ 6.00 Sf./Yr.	<u>\$ 33,228</u>
			Total Annual Rent	\$1,180,788

Space rental for the portion of AF 12 that Mercury will use shall commence at the beginning of the seventh month and continue until the space is vacated in preparation for demolition.

The land rental rate of \$75,000 per acre per year is based upon Board Resolution No. 20491 adopted on December 15, 1999. This rate is subject to readjustment on January 1, 2004. The office space rental rate of \$6.00 per square foot per year is consistent with rent charged for other comparable airport buildings at LAX.

Environmental

The attached Initial Study/Negative Declaration was prepared for the project pursuant to the requirements of the California Environmental Quality Act. The Initial Study concluded that the proposed project, if implemented, would not have a significant environmental impact and the adoption of a Negative Declaration would be appropriate.

The Notice of Intent to Adopt an Initial Study and a Proposed Negative Declaration for the project was published in the Los Angeles Times newspaper and posted at the office of the County Clerk. Copies were also mailed to concerned agencies and individuals and the Westchester and El Segundo public libraries for review. In accordance with CEQA Guidelines Section 15073, the 20-day comment period for the Draft Negative Declaration was from April 17, 2003 to May 7, 2003. One comment letter was received from the attorneys representing the City of El Segundo stating "no comment" on the proposed Negative Declaration. Their comment has been noted and the letter has been included in the Final Negative Declaration. This comment does not require revisions to the Negative Declaration.

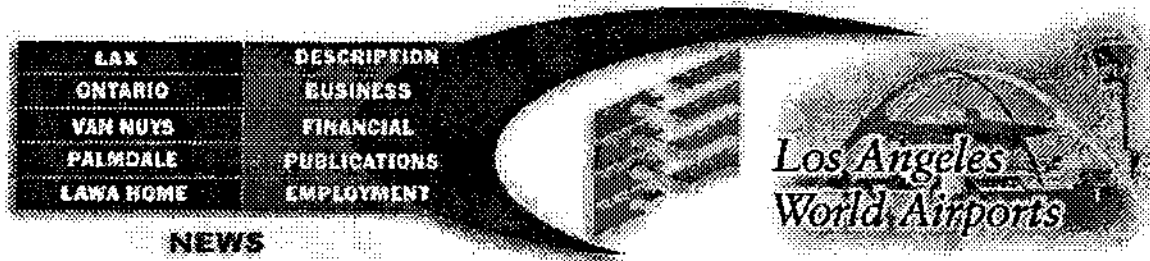
FISCAL IMPACT STATEMENT:

Approval of this lease will generate approximately \$1,147,560 in annual revenue for a total of \$34,255,602 over the 30-year term of the lease, which represents an approximate increase of \$957,569 in annual revenue.

STANDARD PROVISIONS:

1. An Initial Study/Negative Declaration has been prepared for this project. The Initial Study was completed in compliance with the California Environmental Quality Act (CEQA) and the Los Angeles City CEQA Guidelines. The Final Negative Declaration was presented to the Board for review and consideration prior to the Board taking action on the proposed project. Pursuant to CEQA Guidelines Section 15074(c), the location and custodian of documents and materials for the Initial Study/Negative Declaration for this project is Los Angeles World Airports, Environmental Management Division, 7301 World Way West, Third Floor, Los Angeles, California 90045.
2. Mercury Air Group, Inc. will comply with the provisions of the Service Contract Worker Retention and/or Living Wage Ordinances.
3. This item is statutorily exempt from the provisions of the Minority/Women Business Enterprise Program.
4. Mercury Air Group, Inc. has an Affirmative Action Plan and will comply with the provisions of the Affirmative Action Program.
5. Mercury Air Group, Inc. has been assigned a Business Tax Registration Certificate Number.
6. Mercury Air Group, Inc. has submitted the Certification with Child Support Obligations and will comply with the provisions of the Child Support Ordinance.
7. Mercury Air Group, Inc. has approved insurance documents, in the terms and amounts required, on file with the City of Los Angeles.

8. The lease is not subject to the provisions of Charter Section 1022 (Use of Independent Contractor).
9. The Lessee has executed the lease and it has been approved as to form by the City Attorney.
10. The action taken by the Board of Airport Commissioners will become final pursuant to the Los Angeles City Charter, Section 606.
11. Mercury Air Group has submitted the Contractor Responsibility Program Pledge of Compliance and will comply with the provisions of Contractor Responsibility Program.



NEWS RELEASE

LAX OPENS NEW PARKING STRUCTURE ACROSS TERMINAL 6

7/7/00

**-New parking structure offers more than 1,000
slots within Central Terminal Area-**

**CONTACT: Gail Gaddi
(310) 646-5260**

(LOS ANGELES - July 7, 2000) Finding a parking space for the 60,000 people who daily drive to the Central Terminal Area (CTA) of Los Angeles International Airport became easier today with the opening of a new parking structure with 1,000 additional spaces for short term parking.

The \$18-million structure, adjacent to Terminal 6, was completed two months ahead of schedule, just in time for the peak summer travel season. The four-level parking structure will provide 953 parking spaces - including 20 spaces for vehicles with disabled permits and 20 spaces for electric vehicles (EV). There will also be 115 metered parking spaces in the adjacent surface Parking Lot 6. This increases the total number of parking spaces within the CTA to more than 9,400. This new parking structure replaces an old structure that was demolished because of seismic concerns.

"As Passenger demand continues to grow at LAX, we strive to meet our passengers' needs. This project demonstrates our commitment to provide the best service possible to the traveling public," said Lydia H. Kennard, Los Angeles World Airports Executive Director.

Kennard added that one of the features of a proposed Master Plan to modernize LAX will be a six-level parking structure that will provide an additional 12,000 spaces and be located near a new western terminal.

Parking rates are the same as the other parking structures within the CTA. The price will be \$3 for the first two hours and \$1 for each additional hour, with a maximum of \$16 for 24 hours. Metered parking will be 25 cents for 15 minutes with a 2-hour maximum.

The first level of Parking Structure 6 will be restricted to a 2-hour maximum time limit for short term parking. Parking staff will monitor vehicles and give citations to vehicles that are parked longer than two hours.

Parking Structure 6 was designed by Walker Parking Consultants and constructed by S.J. Amoroso Construction Co., Inc. Construction management and oversight were provided by CMTS Inc., LAWA Engineering and Inspection, Public Works Inspection and General Services Standards Division.

Particularly during the busy summer vacation months, passengers are encouraged to use the approximately 11,000 low cost parking stalls available in Remote Parking Lots B and C, which are located outside of the CTA. Remote Parking Lots B at 96th Street and Sepulveda Boulevard and C at 111th Street and La Cienega Boulevard provide free, frequent shuttle service to and from the terminals.

BACK



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**M E M O R A N D U M**

Los Angeles World Airports

Date: July 31, 2000
Memo To: Kim Day, Deputy Executive Director
From: Robert H. Millard, Chief Airports Engineer *RHM*
Subject: Quarterly Project Status Report

Attached are four copies of the "Project Status Report" for the first quarter of 2000.

RHM:KG:cb

Attachment: Project Status Report (4)

cc: P. J. Depoian, Deputy Executive Director w/report
R. D. Anderson, Deputy Executive Director w/report
J. Ritchie, Deputy Executive Director w/report
M. DiGirolamo, Director of Airports Operations w/report
K. L. Sisson, Chief Financial Officer w/report
C. T. Sipple, Chief Airports Construction & Maintenance w/report
B. K. Lobner, City Attorney's Office w/report
C. Salao, Accounting w/report
J. K. Subject, Contract Services w/report
S. E. Fields, Risk Manager w/report
R. Olivares, Concessions w/report
K. M. Van Ness, Finance w/report
M. Z. Laham, Environmental Management w/report
J. Rivera, Ontario w/report
N. S. Castles, Public Affairs w/report
S. J. Miller, Board Office w/report
J. L. Graham w/report
W. R. Wells w/report
Kelly Brown, Aviation Consultant w/report
Office of Contract Compliance, Dept. of Public Works MS 138 w/report
R. Cabalbag, FAA-AWP-621.5, P.O. BOX 92007 WPC, LA 90009 w/report
Airports Project Administration, City of El Segundo, 350 Main Street. w/report
El Segundo, CA 90245, Attn: Airport Projects Administrator

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LAX Construction - Project Status Report

JULY 2000

Priority CONSTRUCTION

Project Name: **CENTURY CARGO COMPLEX - CARGO BUILDING A**
 Project File No.: 97014
 Description: This project will provide for the construction of a 145,000 s.f. Cargo building in the Century Cargo Complex.
 Project Engineer: Van Thompson
 Total Project Cost: \$17,310,000
 Architect/Engineer: HOK
 Other Consultant (s): Tishman Construction
 General Contractor: M.A. Mortenson
 Construction Start Date: September 1999
 Estimated Construction Completion Date: September 2000
 Construction Contract Amount: \$11,987,000
 Approved Change Order(s): \$344,846
 Priority: Construction
 Comments: The project is approximately 76% complete.

Project Name: **SOUTHSIDE TAXIWAYS WG, WF, & T**
 Project File No.: 91014
 Description: This project will construct three high-speed taxiways on the South Airfield.
 Project Engineer: Mark Vicelja
 Total Project Cost: \$35,529,000
 Architect/Engineer: HNTB
 Other Consultant (s): Carter Burgess
 General Contractor: Kiewit Pacific Co.
 Construction Start Date: May 1999
 Estimated Construction Completion Date: March 2000
 Construction Contract Amount: \$24,258,426
 Approved Change Order(s): \$909,484
 Priority: Construction
 Comments: Construction is complete. Administrative contract close-out is in progress.

Project Name: **PARKING STRUCTURE 6**
 Project File No.: 91011
 Description: This project will construct a 4-Level, 953-car parking structure across from Terminal 6 at LAX.
 Project Engineer: Marlene Dupras
 Total Project Cost: \$18,631,000
 Architect/Engineer: Walker Parking Consultants
 Other Consultant(s): CMTS
 General Contractor: S.J. Amoroso
 Construction Start Date: July 1999
 Estimated Construction Completion Date: July 2000
 Construction Contract Amount: \$11,764,000
 Approved Change Order(s): \$1,874,735
 Priority: Construction
 Comments: The project is complete. Administrative contract close-out is in progress.

Project Name: **TBIT MEZZANINE ADDITIONAL SEATING**
 Project File No.: 98008
 Description: This project will add additional seating on the Food Court mezzanine level.
 Project Engineer: Jay Vaswani
 Total Project Cost: \$118,000
 Architect/Engineer: Leo A. Daly
 Other Consultant (s):
 General Contractor:
 Construction Start Date: December 1999
 Estimated Construction Completion Date: August 2000
 Construction Contract Amount: \$87,123
 Approved Change Order(s):
 Priority: Construction
 Comments: Samples were submitted and approved. Fabrication has commenced.

Los Angeles World Airports
 RESOLUTION NO. 20353

WHEREAS, on recommendation of Management, there was presented for approval, rejection of bids and authorization to re-advertise for bids for the project entitled "Parking Structure 6" at Los Angeles International Airport; and

WHEREAS, this project consists of construction of a new parking structure consisting of four levels and providing 373,700 square feet of gross floor space and 953 parking spaces. It will serve Terminal 6 and also connect to the existing vehicular bridge to Parking Structure 5. This structure will replace the already demolished parking structure at 551 World Way; and

WHEREAS, Resolution No. 20071 approved the Final Plans and Specifications for this project and authorized the Executive Director to advertise for bids. Bids received on March 24, 1998 are as follows:

CONTRACTOR	BASE BID	ALTERNATE NO. 1	ALTERNATE NO. 2	ALTERNATE NO. 3
SSC Construction	\$ 9,591,028	\$ 0	\$250,000	\$ 610,000
H.A. Lewis, Inc.	\$10,619,000	\$164,000	\$360,000	\$ 360,000
EMMA Corp.	\$11,300,000	\$200,000	\$250,000	\$ 360,000
Morse Diesel	\$11,304,500	\$ 15,000	\$ 30,000	\$ 45,000
PARR Contracting	\$11,610,000	\$250,000	\$700,000	\$1,600,000
SJ Amoroso Const.	\$11,660,000	\$225,000	\$325,000	\$ 425,000
Ray Wilson Co.	\$11,728,139	\$ 88,000	\$120,000	\$ 220,000

The two low bidders, SSC Construction and H.A. Lewis, Inc., have requested to be released from their bid in accordance with Sections 5100 of the California Public Contract Code. The Engineering Bureau and the City Attorney's Office have reviewed the documentation and determined that clerical errors (all costs were not included) were made by SSC Construction and H.A. Lewis, Inc. Since there is a significant difference between the lowest bid with errors corrected (almost \$1,000,000) and the third bidder, it is recommended that all bids be rejected and the project be re-advertised for bids; and

WHEREAS, this action, as a continuing administrative activity, is exempt from the requirements of the California Environmental Quality Act as provided by Article III, Section 2.f of the Los Angeles City CEQA Guidelines; and

WHEREAS, actions taken on this item by the Board of Airport Commissioners will become final pursuant to the provisions of the Los Angeles City Charter Section 32.3;

NOW, THEREFORE, BE IT RESOLVED that the Board of Airport Commissioners determined that this action is exempt from CEQA requirements, adopted the Staff Report, rejected all bids and authorized the Executive Director to re-advertise for bids for the Parking Structure 6 Project.

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I hereby certify that the above is a true and correct copy of Resolution No. 20353 adopted by the Board of Airport Commissioners at a special meeting held Friday, August 7, 1998.

Sandra J. Miller
 Sandra J. Miller - Secretary
 BOARD OF AIRPORT COMMISSIONERS

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 DEPT. OF AIRPORTS
 ENGINEERING BUREAU



Los Angeles World Airports

BOARD OF AIRPORT COMMISSIONERS REPORT

TO: The Board of Airport Commissioners	DATE OF BOAC MEETING May 19, 1998	DATE REPORT WRITTEN May 12, 1998
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REFERENCE:
 PARKING STRUCTURE 6 - LOS ANGELES INTERNATIONAL AIRPORT
 FILE No. 91011

SUBJECT:
 AWARD OF CONTRACT TO EMMA CORPORATION FOR THE PROJECT ENTITLED "PARKING STRUCTURE 6" AT LOS ANGELES INTERNATIONAL AIRPORT.

SUMMARY:
 By Resolution No. 20071 dated December 16, 1997, the Board of Airport Commissioners approved the Final Plans and Specification for this project and authorized the Executive Director to advertise for bids. The design consultant's construction cost estimate for this project is \$11,623,500. Bids received on March 24, 1998, are as follows:

Contractor	Base Bid	Alternate #1	Alternate #2	Alternate #3
SSC Construction	\$ 9,591,028	\$ 0	\$250,000	\$ 610,000
H.A. Lewis, Inc.	\$10,619,000	\$164,000	\$360,000	\$ 360,000
EMMA Corp.	\$11,300,000	\$200,000	\$250,000	\$ 360,000
Morse Diesel	\$11,304,500	\$ 15,000	\$ 30,000	\$ 45,000
PARR Contracting	\$11,610,000	\$250,000	\$700,000	\$ 1,600,000
SJ Amoroso, Const.	\$11,660,000	\$225,000	\$325,000	\$ 425,000
Ray Wilson Co.	\$11,728,139	\$ 88,000	\$120,000	\$ 220,000

Of two low bidders, SSC Construction and H.A. Lewis, Inc., have requested to be released from their bid in accordance with Sections 5100 of the California Public Contract Code. Engineering and the City Attorney have reviewed the documentation and determined that clerical errors were made by SSC Construction and H.A. Lewis Incorporated. Release from their bids is recommended.

The level of participation established for this contract was 20% combined MBE/WBE. The Bureau of Contract Services confirms that EMMA Corporation, based on the documentation submitted, has made a good faith effort to outreach to MBE/WBE/OBE subcontractors for participation on this project. EMMA Corporation proposes a combined MBE/WBE participation of 17% and OBE participation of 83%.

COMMENDATION:
 In lieu of a report requesting that the Board of Airport Commissioners DECLARE that SSC Construction and H.A. Lewis, Inc., made clerical errors, RECOMMEND release of SSC Construction and H.A. Lewis, Inc., from their bids, RECOMMEND Award of Contract, based on the Base Bid to EMMA Corporation for the project entitled "Parking Structure 6 at Los Angeles International Airport" and appropriation of funds.

REVIEWED BY CITY ATTORNEY

EXECUTIVE DIRECTOR

DISCUSSION AND FINDINGS:

This project consists of construction a new parking structure, consisting of four (4) levels and providing 373,700 square feet of gross floor space and 953 parking spaces. It will serve Terminal 6 and also connect to the existing vehicular bridge to Parking Structure 5. This structure will replace the already demolished parking structure at 551 World Way.

The two low bidders, SSC Construction and H.A. Lewis, Incorporated, have requested to be released from their bid in accordance with Sections 5100 of the California Public Contract Code. Engineering and the City Attorney have reviewed the documentation and determined that clerical errors were made by SSC Construction and H.A. Lewis Incorporated. Release from their bids is recommended.

Walker Parking Consultants, LAWA's design consultants, recommends the construction of this project using the Base Bid duration of 14 months. LAWA staff has conducted an investigation into the experience, references, and financial statement submitted by EMMA Corporation, and has determined that the bidder is responsive and responsible. Therefore, award of the contract and allocation of funds are recommended.

The estimated cost of this project is as follows:

Construction Cost (Base Bid)	\$ 11,300,000.00
Contract Contingencies (20%)	\$ 2,260,000.00
DO to Dept. of Public Works for Inspection	\$ 635,000.00
DO to Dept. of General Services for Testing	\$ 275,000.00
DO to Cultural Affairs Dept. for Art Development Fee	\$ 112,900.00
	<hr/>
TOTAL ESTIMATED CONSTRUCTION COSTS	\$ 14,582,900.00

ISCAL IMPACT STATEMENT:

This is an approved 1995 Bond Construction Fund project, and Bond funds are available. It is, therefore, requested that the Board authorize the appropriation of \$14,582,900 from the appropriated Balance of the 1995 LAX Series D Bond Construction Fund to Work Order No. 9510.

STANDARD PROVISIONS:

The level of participation established for this contract was 20% combined MBE/WBE. The Bureau of Contract Services confirms that EMMA Corporation, based on documents submitted, has made a good faith effort to outreach to MBE/WBE/OBE subcontractors for participation on this project.

This award of contract is a normal follow-up activity, and accordingly, this activity is exempt from the requirements of CEQA as provided by Article III, Section 2.1 of the Los Angeles City CEQA Guidelines.

Action taken on this item by the Board of Airports Commissioners will become final pursuant to the provisions of the Los Angeles City Charter Section 32.3.

EMMA Corporation has an approved Affirmative Action Plan on file with the City of Los Angeles.

Management RECOMMENDS that the Board DETERMINE that this action is exempt from CEQA requirements, REQUEST that the Board DECLARE that SSC Construction and H.A. LEWIS, Inc., made clerical errors, RECOMMENDS release of SSC Construction and H.A. Lewis, Inc., from their bond, RECOMMEND Award of Contract to EMMA Corporation, and FURTHER REQUEST APPROPRIATION of \$14,582,900.00 from the Unappropriated Balance of the 1995 Series D Bond Construction Fund to Work Order No. 9510.


ROBERT H. MILLARD

PROVED: _____
LYDIA H. KENNARD

HM:mjt



LAX

Los Angeles World Airports

RESOLUTION NO. 20071

WHEREAS, on recommendation of Management, there was presented for approval, Plans and Specifications and authorization to advertise for bids for the project entitled, "Parking Structure 6" at Los Angeles International Airport; and

WHEREAS, this project will consist of a new parking structure consisting of four levels and providing 953 parking spaces of which 20 will have charging stations for electric vehicles. This parking structure will serve Terminal 6 and will also connect to the existing vehicular bridge to Parking Structure 5. This structure will replace the already demolished parking structure at 551 World Way; and

WHEREAS, in addition, Allocation of \$150,000 is also being requested for costs associated with reproduction of bid documents and payment of permit fees check and other miscellaneous fees; and

WHEREAS, the City Attorney has reviewed and approved the specifications for this project; and

WHEREAS, the Contract Service Bureau has reviewed the project and established a combined level of participation of 20% MBE/WBE for this project; and

WHEREAS, all bidders will be required to ascribe to the provisions of Ordinance No. 147,030 relating to the City's Affirmative Action requirements; and

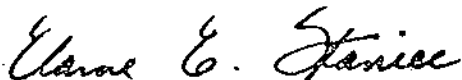
WHEREAS, this project is exempt from the requirements of the California Environmental Quality Act as provided by Article VII, Class 2(2) of the Los Angeles City CEQA Guidelines; and

WHEREAS, actions taken on this item by the Board of Airport Commissioners will become final pursuant to the provisions of the Los Angeles City Charter Section 32.3;

NOW, THEREFORE, BE IT RESOLVED that the Board of Airport Commissioners determined that this action is exempt from CEQA requirements, adopted the Staff Report, approved the Plans and Specifications, authorized the Executive Director to advertise for bids and further approved Allocation of \$150,000 from the Unallocated Balance of the 1995 Bond Construction Fund Series D to Work Order No. 9510.

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I hereby certify that the above is a true and correct copy of Resolution No. 20071 adopted by the Board of Airport Commissioners at a regular meeting held Tuesday, December 16, 1997.



Elaine E. Staniec - Secretary
BOARD OF AIRPORT COMMISSIONERS

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ENGINEER
DEPT. OF AIRPORTS
CIVIL ENGINEERING

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BOARD OF AIRPORT COMMISSIONERS REPORT

<i>The Board of Airport Commissioners</i>	DATE OF BOAC MEETING November 19, 1996	DATE REPORT WRITTEN October 31, 1996
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REFERENCE

**PARKING STRUCTURE 6
LOS ANGELES INTERNATIONAL AIRPORT
FILE NO. 91011**

SUBJECT

AWARD OF CONTRACT TO WALKER PARKING CONSULTANTS/ENGINEERS, INC., COVERING CONSULTANT SERVICES FOR THE PROJECT ENTITLED "PARKING STRUCTURE 6" AT LOS ANGELES INTERNATIONAL AIRPORT.

SUMMARY Walker Parking Consultants/Engineers, Inc. is the Engineer of Record for the project entitled "Parking Structure 6" at Los Angeles International Airport. The contract documents were substantially completed in 1993, but construction of the project was delayed due to budgetary reasons. Walker's original contract has expired. This continuation contract will provide services to update and redesign the plans and specifications to meet new code requirements. This contract will also provide construction administration services and record drawings.

The proposed fee for the Consultant Services is as follows:

Basic Services	\$ 400,000.00
Extra Services	\$ 80,000.00
TOTALS CONTRACT	\$ 480,000.00

The Extra Services may include, but not be limited to, additional engineering, geotechnical, survey, printing, and construction scheduling services. All Extra Services, if needed, will require prior approval of the Executive Director.

RECOMMENDATION

Adoption of a report requesting that the Board of Airport Commissioners award a contract to Walker Parking Consultants/Engineers, Inc., for continuation of Consultant Services for the project entitled Parking Structure 6 at Los Angeles International Airport.

VIEWED BY CITY ATTORNEY

EXECUTIVE DIRECTOR

DISCUSSION AND FINDINGS

This item requests authorization for the Executive Director to enter into a contract with Walker Parking Consultants/Engineers, Inc. for the of Engineering Services for the project entitled Parking Structure 6 at Los Angeles International Airport.

This project will consist of a new parking structure consisting of four levels and providing 373,700 square feet of gross floor space and 953 parking spaces. It will serve Terminal 6 and also connect to the existing vehicular bridge to Parking Structure 5. This structure will replace the already demolished parking structure at 551 World Way.

This project was originally scheduled for construction in 1994 but was delayed due to budgetary concerns and further evaluation of parking capacity needs. Subsequently, the Facilities Planning Bureau has studied the parking needs in the Parking Structure 6 location and has determined that the structure is needed to meet current and future demand, and that the construction is advantageous from a financial perspective.

Because of the delay and the code changes resulting from the Northridge earthquake, the plans will require substantial structural upgrades. In addition, the Consultant will reevaluate the exit layout relative to use of credit cards, as well as make revisions required in connection with other code changes. The Consultant will provide construction administration services, as well as record drawings.

It is in the City's best interest to use Walker Parking Consultants/Engineers, Inc. for completion of final plans, construction administration services and the preparation of record drawings for the following reasons:

- 1) Walker Parking Consultants/Engineers, Inc. has particular and specific knowledge of the contract documents, having prepared the original studies, calculations, plans and specifications.
- 2) There are significant cost savings in having Walker Parking Consultants/Engineers, Inc. utilize the knowledge they have already gained in the preparation of the original contract documents.
- 3) Because of the impending construction of the improvements, time is of the essence. Walker Parking Consultants/Engineers, Inc. is immediately available to complete the contract documents and provide construction administrative services.

The proposed fee for the Consultant Services is as follows:

	Total
Basic Services	\$ 400,000.00
Extra Services	<u>\$ 80,000.00</u>
TOTAL CONTRACT	\$ 480,000.00
 Miscellaneous Project Costs	 \$ 75,000.00

In addition to the above additional contract funds, appropriation of \$75,000 for printing costs, plan check and miscellaneous fees is also requested.

STANDARD PROVISIONS

- 1. Walker Parking Consultants/Engineers, Inc. has an approved Affirmative Action Plan on file with the City of Los Angeles.

2. Walker Parking Consultants/Engineers, Inc. will continue to maintain or exceed the original Contract goals of 15% MBE and 5% WBE participation for this contract.
3. Walker has executed the Contract and the City Attorney has approved it as to form.
4. This project is exempt from the requirements of the California Environmental Quality Act as provided by Article VII, Class 2 (2) of the Los Angeles City CEQA Guidelines.
5. Actions taken on this item by the Board of Airport Commissioners will become final pursuant to the provisions of the Los Angeles City Charter, Section 32.3.

Management RECOMMENDS that the Board DETERMINE that this action is exempt from CEQA requirements, RECOMMENDS Award of Contract to Walker Parking Consultants/Engineers, Inc., REQUESTS AUTHORIZATION for the Executive Director to execute the contract with Walker Parking Consultants/Engineers, Inc., and FURTHER REQUESTS APPROPRIATION of \$362,000 from the Unappropriated Balance of the Airport Revenue Fund to the Unallocated Balance of the Capital Improvements Account, and then ALLOCATE \$362,000 from the Unallocated Balance to Work Order No. P674.



ROBERT H. MILLARD

APPROVED: _____
LYDIA H. KENNARD

RHM:jmg

City of Los Angeles Department of Airports
Richard J. Riordan, Mayor

Board of Airport Commissioners

Daniel P. Garcia
President
Patricia Mary Schnegg
Vice President
William H. Dahl
Edward P. Manning
Warren W. Valdry

John J. Driscoll
Executive Director

Board File

No. DA-3177

RESOLUTION NO. 19700

WHEREAS, on recommendation of Management, there was presented for approval, Award of a Contract to Walker Parking Consultants/Engineers, Inc. covering consultant services for the project entitled, "Parking Structure 6" at Los Angeles International Airport; and

WHEREAS, this project will consist of a new parking structure consisting of four levels and providing 393,700 square feet of gross floor space and 953 parking spaces. It will serve Terminal 6 and also connect to the existing vehicular bridge to Parking Structure 5. This structure will replace the already demolished parking structure at 551 World Way; and

WHEREAS, this project was originally scheduled for construction in 1994 but was delayed due to budgetary concerns and further evaluation of parking capacity needs. Subsequently, the Facilities Planning Bureau has studied the parking needs in the Parking Structure 6 location and has determined that the structure is needed to meet current and future demand, and that the construction is advantageous from a financial perspective; and

WHEREAS, because of the delay and the code changes resulting from the Northridge earthquake, the plans will require substantial structural upgrades. In addition, the Consultant will re-evaluate the exit layout relative to use of credit cards, we will as make revisions required in connection with other code changes. The Consultant will provide construction administration services, as well as record drawings; and

WHEREAS, it is the City's best interest to use Walker Parking Consultants/Engineers, Inc. for completion of final plans, construction administration services and the preparation of record drawings for the following reasons:

- 1) Walker Parking Consultants/Engineers, Inc. has particular and specific knowledge of the contract documents, having prepared the original studies, calculations, plans and specifications.
- 2) There are significant cost savings in having Walker Parking Consultants/Engineers, Inc. utilize the knowledge they have already gained in the preparation of the original contract documents.
- 3) Because of the impending construction of the improvements, time is of the essence. Walker Parking Consultants/Engineers, Inc. is immediately available to complete the contract documents and provide construction administrative services; and

WHEREAS, the proposed fee for the Consultant Services is as follows:

Basic Services	\$400,000
Extra Services	<u>\$ 80,000</u>
Total Contract	\$480,000
Miscellaneous Project Costs	\$ 75,000; and

WHEREAS, in addition to the above additional contract funds, appropriation of \$75,000 for printing costs, plan check and miscellaneous fees is also requested; and

WHEREAS, Walker Parking Consultants/Engineers, Inc. has an approved Affirmative Action Plan on file with the City of Los Angeles; and

WHEREAS, Walker Parking Consultants/Engineers, Inc. will continue to maintain or exceed the original Contract goals of 15% MBE and 5% WBE participation for this Contract; and

WHEREAS, Walker has executed the Contract and the City Attorney has approved it as to form; and

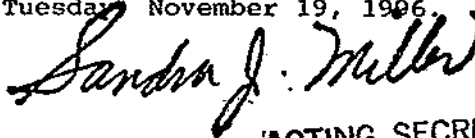
WHEREAS, this project is exempt from the requirements of the California Environmental Quality Act as provided by ~~Article 22, Section 2.2~~ of the Los Angeles City CEQA Guidelines; and

WHEREAS, this Contract is subject to approval of the City Council pursuant to Charter Section 390;

NOW, THEREFORE, BE IT RESOLVED that the Board of Airport Commissioners determined that this action is exempt from CEQA requirements, adopted the Staff Report, approved Award of a Contract to Walker Parking Consultants/Engineers, Inc. for continuation of consultant services for the project entitled, "Parking Structure 6" at Los Angeles International Airport, authorized the Executive Director to execute the Contract, and further approved Appropriation of \$362,000 from the Unappropriated Balance of the Airport Revenue Fund, to the Unallocated Balance of the Capital Improvements Account, and then Allocate \$362,000 from the Unallocated Balance to Work Order No. O.P674.

oOo

I hereby certify that the foregoing is a true and correct copy of Resolution No. 19700 adopted by the Board of Airport Commissioners at a regular meeting held Tuesday, November 19, 1996.



ACTING SECRETARY

Elaine E. Staniec - Secretary
BOARD OF AIRPORT COMMISSIONERS

CITY OF LOS ANGELES • DEPARTMENT OF AIRPORTS

DATE: March 15, 1996
TO: John J. Driscoll
FROM: John L. Graham *JL Graham*
SUBJECT: Rebuilding of Parking Structure 6

In response to your request to examine the necessity of rebuilding Parking Structure 6, which was demolished in 1991, we have determined that the structure is needed to meet current and future demand for parking at that location, and that the construction is advantageous from a financial perspective. We recommend proceeding immediately with an update of the plans and specifications so that the construction can begin as soon as possible.

Background

The previous Parking Structure 6 was demolished in 1991 because it did not meet current seismic regulations. A contract was awarded to Walker Parking Consultants/Engineers for design of a replacement structure. The plans and specifications were completed and checked by the Department of Building and Safety; however, the design will have to be updated and rechecked to conform with changes in the building code resulting from the Northridge earthquake.

The project consists of 393,700 square feet over four levels and provides 953 parking spaces. The structure will connect with the existing pedestrian bridge to Terminal 6 and the existing vehicular bridge to Parking Structure 5. It will provide parking primarily for Terminals 5 and 6. Total project cost in 1993 was estimated at \$10,630,000.

Distribution of Parking Demand in the CTA

It is difficult to closely match parking lots and structures in the CTA with specific terminal buildings because of the interconnections between some structures. However, it is useful to roughly tie the two together to gain insight into the relationship between passengers in a terminal and vehicle counts in and out of the structures. After an analysis of extensive data on passenger volumes and parking tickets issued and collected for all of the terminals and parking structures in the CTA, it appears that Parking Structure 5 and Lot 6 have an average number of vehicles entering and exiting in relation to the number of passengers for those terminals, and Parking Structure 7 has a low number of vehicles in relation to passengers. (Structure 7 usage is important to analyzing the need for a replacement structure in Lot 6 because United Airlines, currently in Terminals 7 and 8, is expanding into Terminal 6.) In Structure 5 and Lot 6, the majority of parking tickets are issued at 5 and collected at 6. It should be kept in mind that this comparison is very rough, and is affected by the number of parking spaces available and the length of time vehicles are parked rather than simply usage of the structures. In addition, some metered lots are highly utilized and are not included in these figures.

The number of passengers in relation to the number of available parking spaces in corresponding structures is shown in Figure 1. Ratios of available spaces to passengers are given in Table 1. Note that Structures 5 and 7 have average numbers of available spaces, and that Lot 6, of

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course, has a low number of available spaces. (Note: Calculations are based on total number of passengers rather than origin/destination passengers for each terminal.)

According to Parking Services, Parking Structure 7 is filled almost constantly on a daily basis. This information, combined with the generally low number of tickets issued and collected in relation to passengers; indicates that there may be insufficient parking for Terminal 7, even though Parking Structure 7 has an average number of spaces available in relation to volume of passengers. Analysis of the data indicates that there has been an increase in usage over time, except from 1994 to 1995, when retrofitting work was being performed. (However, revenues increased even from 1994 to 1995.) For Structure 5 and Lot 6, there has been a decline in parking tickets issued and collected from 1992 to 1995 (presumably attributable to the sluggish economy, which affected passenger traffic and other structures in the CTA). However, there still has been a slight increase in revenue for Structure 5 and Lot 6 from 1993 to 1995.

Regarding peak hour measurements, Leigh Fisher Associates calculated peak accumulation as part of their work for the LAX Master Plan (Table 2). The data indicates that the demand approached or exceeded the capacity of certain structures in the CTA. In particular, Structures 1, 3, 4, 5, and 7 were at full capacity during peak hours. Structures 4 and 5 were closed for several hours of the day. (Note: Perhaps the relatively low usage of Lot 6 during peak periods occurs because of the lack of access from the upper/departure level roadway).

Also as part of the Master Plan, Barton-Aschman Associates notes that the original CTA second level roadway project called for Parking Structure 6 to provide parking for Terminals 5 and 6. With the demolition of the structure, parking for Terminals 6, 7 and 8 is provided only in Structure 7, which is not accessible from the upper level of World Way South. Thus a motorist driving eastbound on upper level World Way South must use the airport return and travel through the critical upper level World Way North-Sky Way intersection to access parking via East Way. Once the United terminal expansion program is completed, there will likely be a significant negative impact to the World Way North-Sky Way intersection. In addition, there is likely to be insufficient convenient parking for the affected terminals (6, 7 and 8). Barton-Aschman recommends, therefore, that a new Parking Structure 6, with access from the upper level of World Way South or perhaps northbound East Way; be constructed.

Finally, the Master Plan public parking forecasts project a growth in CTA parking space requirements from 8,500 spaces in 1994 to 10,500 spaces in 2000 (and 16,000 in 2015). The best available site for developing additional CTA parking is on Lot 6, especially considering the need for more parking in that area of the CTA.

Revenues and Cost Recovery

Revenues for CTA parking structure groupings for 1992 to 1995 are attached. Structure 7 had revenues of approximately \$6.4 million in 1995; Structure 5 and Lot 6 combined had revenues of about \$5.1 million. In addition, revenue from all metered lots in the airport totaled \$1.55 million. The estimated annual cost of operating the proposed lot is \$550,000-\$600,000, plus the cost of operating the metered areas (repairs, accounting staff time and < \$.01 per ticket to collect monies). With a previously estimated total project cost of \$10.63 million (or \$12.31 million assuming an increase in costs of 5% per year), plus \$100,000-200,000 for design updating and rechecks, the cost of replacing Parking Structure 6 should be recovered fairly quickly. Using an assumption of \$4 million in annual revenues and excluding the (minor) cost of operating the meters, the structure would pay for itself in 3.6-3.7 years. This does not account for the time value of the capital.

Other Issues

LAX Master Plan Within the next two years, a new Master Plan may be adopted for LAX. This Master Plan could lead to the ultimate replacement of the entire CTA with new passenger terminals in a different location. However, this will not happen for many years and, in the lengthy interim, Parking Structure 6 will easily pay for itself as well as substantially reduce congestion caused by inadequate parking facilities in the CTA.

JLG:SC:ldh

cc: Jerald K. Lee
Philip J. Depoian
Lydia H. Kennard
Robert H. Millard
Steve Yee
Judy K. Bindrup
Roy N. Yoneda

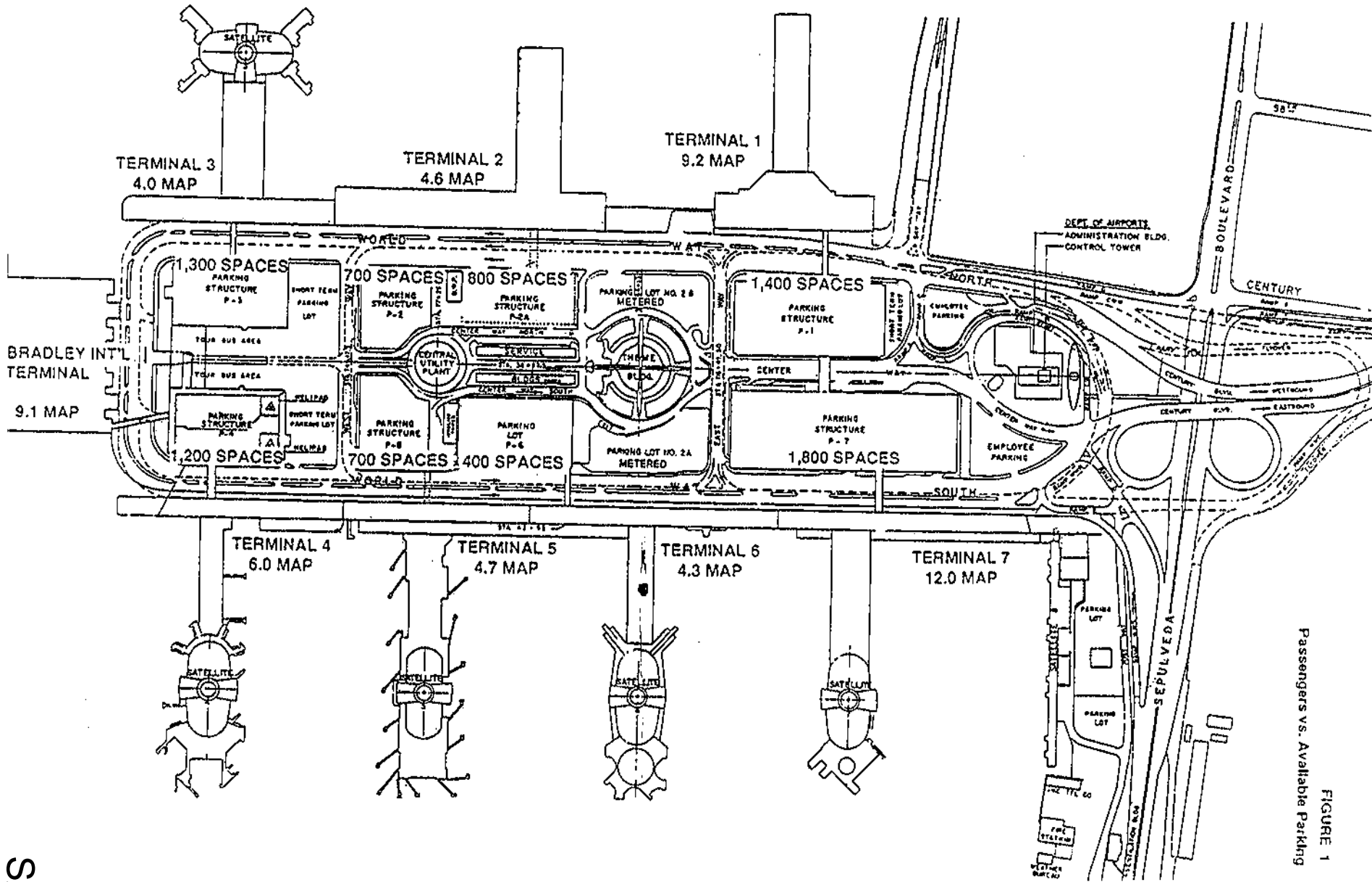


FIGURE 1
Passengers vs. Available Parking

SAL00015

TABLE 1
AVAILABLE PARKING SPACES IN RELATION TO PASSENGERS

Terminal/Parking Structure	Ratio of Spaces per Million Annual Passengers
- T1/P1	152
T2/(P2 + P2A)	314
(T3+TBIT+T4)/(P3+P4)	132
T5/P5	152
T6/(L6 + L2A)	103
(T7+T8)/P7	<u>153</u>
CTA Average	157

**TABLE 2
PARKING USAGE VERSUS CAPACITY**

Lot	Peak Accumulation	Toll-Booth Controlled Spaces	Percent Occupied
P-1	1,094	1,099	100%
P-2	517	673	77%
P-2A	261	683	38%
P-3	1,161	1,166	100%
P-4	1,073	1,069	100%
P-5	712	713	100%
P-6	262	295	89%
P-7	<u>1,582</u>	<u>1,596</u>	99%
	6,662	7,294	

Source: Leigh Fisher Associates, using data provided by
Parking Services for the week of August 14 to 20, 1994

**TABLE 3
PARKING REVENUES**

Parking Revenue	1992	1993	1994	1995
Grand Total				
Structure 1	4,876,180.12	4,887,212.59	5,425,544.78	5,990,121.05
Structure 7	<u>5,243,412.82</u>	<u>5,294,766.65</u>	<u>5,510,121.78</u>	<u>6,376,222.55</u>
	<u>10,119,592.94</u>	<u>10,181,979.24</u>	<u>10,935,666.56</u>	<u>12,366,343.60</u>
Structure 2A	604,330.73	896,827.08	943,731.04	1,206,036.04
Structure 2	<u>2,467,403.89</u>	<u>1,173,784.05</u>	<u>1,131,393.02</u>	<u>1,387,766.16</u>
	<u>3,071,734.62</u>	<u>2,070,611.13</u>	<u>2,075,124.06</u>	<u>2,593,802.20</u>
Structure 3	5,295,731.43	5,177,471.71	4,992,284.72	5,676,479.12
Structure 4	<u>6,700,052.77</u>	<u>6,823,412.07</u>	<u>6,475,431.96</u>	<u>6,720,252.42</u>
	<u>11,995,784.20</u>	<u>12,000,883.78</u>	<u>11,467,716.68</u>	<u>12,396,731.54</u>
Structure 5	2,793,275.31	2,736,015.19	2,856,529.89	2,694,384.17
Lot 6	<u>2,427,777.75</u>	<u>2,250,721.03</u>	<u>2,210,603.70</u>	<u>2,379,465.82</u>
	<u>5,226,053.06</u>	<u>4,986,736.22</u>	<u>5,067,133.59</u>	<u>5,073,849.99</u>
Grand Total	30,413,164.82	29,240,210.37	29,545,640.89	32,430,727.33
Tickets Issued	<u>6,193,518.00</u>	<u>6,247,508</u>	<u>6,183,510.00</u>	<u>5,901,597.00</u>

Revenue From Metered Lots in 1995: \$1,550,034.00

Source: DOA Parking Services





M E M O R A N D U M

Los Angeles World Airports

Date: July 2003
Memo To: Kim Day, Deputy Executive Director
From: Intissar Durham, Chief Airports Engineer
Subject: Quarterly Project Status Report

Attached are four copies of Project Management Division's "Project Status Report" for July 2003.

ID:cbl

Attachment: Project Status Report (4)

cc: L. H. Kennard, Executive Director
P. L. Green, Chief Operating Officer w/report
J. Ritchie, Deputy Executive Director w/report
M. DiGirolamo, Deputy Executive Director w/report
P. J. Depoian, Deputy Executive Director w/report
R. M. Janisse, Deputy Executive Director w/report
P.A. Haney, Deputy Executive Director w/report
W. Bruce, Director of Airports Administration w/report
K. L. Sisson, Chief Financial Officer w/report
J. O. Rivera, Ontario w/report
S. Birk, Van Nuys w/report
A.M. Almeida, Procurement Services w/report
R. E. Atkinson, Terminal Operations w/report
E. Angeles, City Attorney's Office w/report
M. P. Biagi, Landside Operations w/report
G. Brown, Environmental Management w/report
N. S. Castles, Media Relations w/report
T. Chen, Information Technology w/report
R. Jack, Airport Operations w/report
J. L. Romo, Property w/report
C. S. Salao, Accounting Operations w/report
C. T. Sipple, Construction & Maintenance w/report
W. R. Wells, Project Planning & Development w/report
B. Yamamoto, Community Relations w/report
U. Aguirre, Financial Planning w/report
P. McHargue, Forecasting w/report
S. J. Miller, Board Office w/report
M. Corrin, Small Business & Job Opportunities w/report
K. A. Ellis, Ontario Airport Operations Division w/report
Office of Contract Compliance, Dept. of Public Works MS 138 w/report
R. Cabalbag, FAA-AWP-621.5, P.O. BOX 92007 WPC, LA 90009 w/report
Kelley Brown, Aviation Consultant w/report
Osa Armi, Shute, Mihaly & Weinberger LLP, 396 Hayes Street,
San Francisco, CA 94102 w/report

LAX Safety - Project Status Report
JULY 2003

Project Name: **AUTOMATIC EXTERNAL DEFIBRILLATOR INSTALLATION**
 Priority: **CONSTRUCTION**
 Project File No.: 01009
 Description: This project will install automatic external defibrillators throughout the terminal buildings.
 Project Engineer: Cynthia Stoker
 Total Project Cost: \$1,700,000
 Estimated Construction Cost: \$1,500,000
 Architect/Engineer: Gruen Associates
 Other Consultants:
 Estimated Design Completion Date: January 2003
 Estimated Construction Start Date: December 2003
 Estimated Construction Completion Date: June 2004
 Comments: The Board approved cabinets and other equipment purchases.

 Project Name: **SKYCHEF DRIVE TRAFFIC SIGNAL**
 Priority: **CONSTRUCTION**
 Project File No.: 00010
 Description: This project will install a traffic signal at the intersection of World Way West and Skychef Drive.
 Project Engineer: Jose (Ernie) Robledo
 Total Project Cost: \$115,000
 Estimated Construction Cost: \$79,000
 Architect/Engineer: Consolidated A/E/S Inc.
 Design Completion Date: August 2001
 Estimated Construction Start Date: April 2003
 Estimated Construction Completion Date: September 2003
 Comments: The Notice to Proceed was issued in April 2003 and the project is 90% complete.

 Project Name: **TBIT FIRE/LIFE SAFETY UPGRADE**
 Priority: **CONSTRUCTION**
 Project File No.: 02002
 Description: This project will repair the fire/life safety system in TBIT to be code compliant.
 Project Engineer: Chris Grossi
 Total Project Cost: \$1,900,000
 Estimated Construction Cost: \$1,400,000
 Architect/Engineer: Leo A. Daly
 Other Consultant(s): TMAD, Schirmer
 Estimated Design Completion Date: March 2003
 Estimated Construction Start Date: September 2003
 Estimated Construction Completion Date: March 2004
 Comments: Award of contract is scheduled for September 2003.

 Project Name: **CENTER TAXIWAY IMPROVEMENT PROGRAM**
 Priority: **DESIGN - Very High**
 Project File No.: TBD
 Description: This project will provide a new center taxiway between Runways 25L-8R and 25R-8L, relocation of Runway 25L-8R and relocation of numerous navigational aids.
 Project Engineer: Van Thompson
 Total Project Cost: \$240,000,000
 Estimated Construction Cost: \$171,000,000
 Architect/Engineer: HNTB
 Design Completion Date: January 2004
 Estimated Construction Start Date: November 2004
 Estimated Construction Completion Date: December 2005
 Comments: HNTB commenced design in June 2003.

LAX Safety - Project Status Report
JULY 2003

Project Name: **LAWA UTILITIES SURVEY AND DOCUMENTATION (LUSAD)**
Priority: **DESIGN - Very High**
Project File No.: 02003
Description: This project will provide a comprehensive survey and GIS documentation of the underground utilities at LAX, ONT, VNY and PMD.
Project Engineer: Phil Lauri
Phase II: \$8,000,000
Total Project Costs to Date: \$9,500,000
Architect/Engineer: Carter Burgess
Other Consultant(s):
Estimated Design Completion Date: October 2002
Phase II Start Date: August 2003
Estimated Construction Completion Date: June 2005
Comments: The Phase II Contract Amendment has been negotiated and was approved by BOAC on April 1, 2003. Phase II NTP is expected in August 2003.

Project Name: **SOUTHSIDE RUNWAY IMPROVEMENT PROGRAM & NLA INTEGRATED STUDY**
Priority: **DESIGN - Very High**
Project File No.: TBD
Description: This project will improve the southside runway system and evaluate the requirements and impacts of accommodating the New Large Aircraft (NLA) at LAX.
Project Engineer: Van Thompson/Larry Hsu
Total Project Cost: \$1,381,330 (Study only)
Estimated Construction Cost: TBD
Architect/Engineer: HNTB
Other Consultant(s): NASA/AMES
Estimated Design Completion Date: July 2003 (Study Only)
Estimated Construction Start Date: TBD
Estimated Construction Completion Date: TBD
Comments: Board awarded a contract to HNTB to study various alternatives of the south runway complex and airfield accommodation of the new large aircraft. The study with recommendations is scheduled to be complete in July 2003.

Project Name: **APRON LIGHTING UPGRADE**
Priority: **DESIGN - High**
Project File No.: 01004
Description: This project will improve the lighting at the existing Terminal Building aprons.
Project Engineer: Lih Tsau/Mina Hanna
Total Project Cost: \$7,490,000
Estimated Construction Cost: \$5,885,000
Architect/Engineer: PMD Staff
Other Consultants:
Estimated Design Completion Date: July 2003
Estimated Construction Start Date: January 2004
Estimated Construction Completion Date: August 2004
Comments: Light pole locations have been field checked and approved.

Project Name: **ASDE-X PILOT PROJECT**
Priority: **DESIGN - Medium**
Project File No.: TBD
Description: This project will provide an integrated ground surface movement management system based on technology that will integrate ground and aerial surveillance to provide situational information on a real time basis to operators, managers, and controllers of airside operations.
Project Engineer: Joan Raff
Total Project Cost: \$6,000,000
Architect/Engineer: TBD
Estimated Design Completion Date: December 2003
Estimated Construction Start Date: June 2004
Estimated Construction Completion Date: February 2005
Comments: LAWA has been selected by the FAA to participate in the FAA's AIR-21 Pilot Program to permit cost sharing of Air Traffic Modernization Projects. The FAA share of the program is \$867,000. LAWA's consulting firm is no longer in business. LAWA staff is working with the FAA to draft a Memorandum of Agreement (MOA) and secure the services of another consulting firm. The program will be separated into two phases with the initial phase to complete a site survey and identify program cost.

LAX Safety - Project Status Report
JULY 2003

Project Name: **FIRE STATION 80 SHELTER**
Priority: **DESIGN - Medium**
Project File No.: TBD
Description: This project will provide a roof space for several AARF vehicles.
Project Engineer: Tomas Majewski
Total Project Cost: \$500,000
Estimated Construction Cost: \$393,000
Architect/Engineer: Gruen
Other Consultant(s):
Estimated Design Completion Date: TBD
Estimated Construction Start Date: TBD
Estimated Construction Completion Date: TBD
Comments: Gruen will submit a quote for a revised scope of work. Project will only include a basic shelter. Awaiting new design proposal from Gruen.

Project Name: **WIDENING OF WORLD WAY AT TBIT (LOWER LEVEL)**
Priority: **DESIGN - Medium**
Project File No.: 99008
Description: This project will widen World Way (West End) on the parking structure side opposite of TBIT (lower level) to provide an additional traffic lane.
Project Engineer: Jose (Ernie) Robledo
Total Project Cost: \$600,000
Estimated Construction Cost: \$455,000
Architect/Engineer: TBD
Estimated Design Completion Date: TBD
Estimated Construction Start Date: TBD
Estimated Construction Completion Date: TBD
Comments: Preliminary plans are 90% complete. A design consultant for the storm drain improvements is to be selected. The project is on hold at this time.



Chapter 3 - Land Use

GOALS, OBJECTIVES AND POLICIES

ISSUE TWO: USES, DENSITY, AND CHARACTER

REGIONAL CENTERS

Definition

Regional centers are intended to serve as the focal points of regional commerce, identity, and activity. They cater to many neighborhoods and communities and serve a population of 250,000 to 500,000 residents.

They contain a diversity of uses such as corporate and professional offices, retail commercial malls, government buildings, major health facilities, major entertainment and cultural facilities and supporting services. Region-serving retail commercial malls and retail services should be integrated where they complement and support the other uses in the regional center. The development of sites and structures integrating housing with commercial uses is encouraged in concert with supporting services, recreational uses, open spaces, and amenities.

Regional centers, typically, provide a significant number of jobs and many non-work destinations that generate and attract a high number of vehicular trips. Consequently, each center shall function as a hub of regional bus or rail transit both day and night. Good quality street, area, and pedestrian lighting is essential to generating feelings of safety, comfort, and well being necessary for ensuring public nighttime use of transit facilities.

They are typically high-density places whose physical form is substantially differentiated from the lower-density neighborhoods of the City. Generally, regional centers will range from FAR 1.5:1 to 6:1 and are characterized by six- to twenty-story (or higher) buildings as determined in the community plan. Their densities and functions support the development of a comprehensive and inter-connected network of public transit and services.

Physically, the regional centers are generally characterized by three forms of development

1. Areas containing mid- and high-rise structures concentrated along arterial or secondary highway street frontages (e.g., Wilshire and Hollywood Boulevards). The intensity of activity and incorporation of retail uses in the ground floor of these structures should induce considerable pedestrian activity.
2. Areas containing mid- and high-rise structures sited on large independent lots, set back from the property frontages (e.g., Warner Center and most of Century City). Though inhibited by the separation of structures, it is encouraged that buildings and sites be designed to improve pedestrian activity within the center.

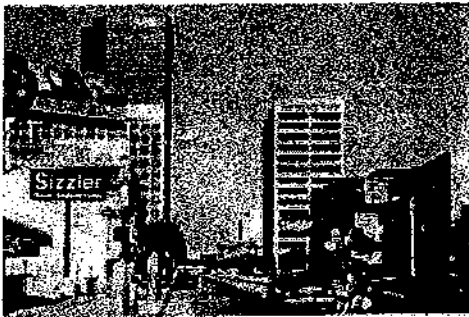
3. Areas containing retail commercial "malls," characterized by low- and mid-rise buildings clustered around common pedestrian areas. It is encouraged that these buildings be sited and designed to improve their relationships to their principal street frontages, enhancing pedestrian activity.

GOAL 3F

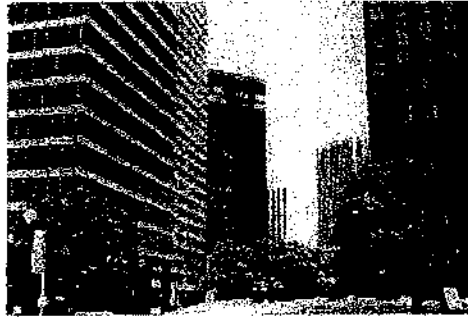
Mixed-use centers that provide jobs, entertainment, culture, and serve the region.

Objective 3.10

Reinforce existing and encourage the development of new regional centers that accommodate a broad range of uses that serve, provide job opportunities, and are accessible to the region, are compatible with adjacent land uses, and are developed to enhance urban lifestyles.



Regional Centers: Sherman Oaks



Century City

Policies

Uses and Density

3.10.1 Accommodate land uses that serve a regional market in areas designated as "Regional Center" in accordance with Tables 3-1 and 3-6. Retail uses and services that support and are integrated with the primary uses shall be permitted. The range and densities/intensities of uses permitted in any area shall be identified in the community plans. (P1, P18)

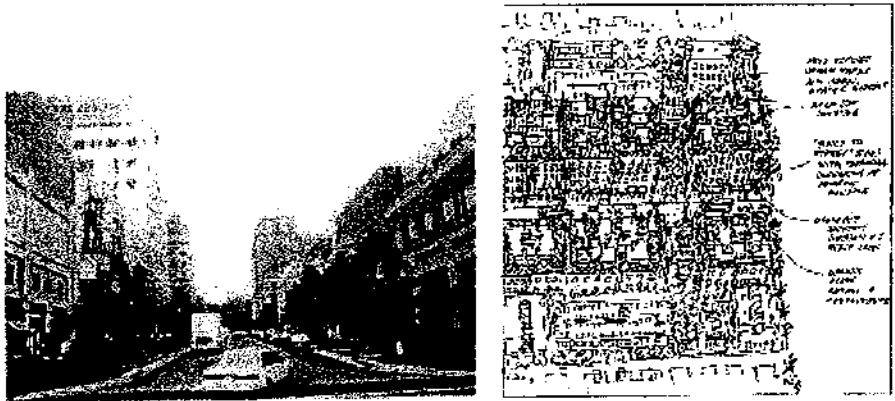
Table 3-6

Land Use Designation	Corresponding Zones
Regional Center	CR, C1.5, C4, [Q]C2

3.10.2 Accommodate and encourage the development of multi-modal transportation centers, where appropriate. (P4, P18, P52)

Design and Development

- 3.10.3 Promote the development of high-activity areas in appropriate locations that are designed to induce pedestrian activity, in accordance with Pedestrian-Oriented District Policies 3.16.1 through 3.16.3, and provide adequate transitions with adjacent residential uses at the edges of the centers. (P1, P18, P24)
- 3.10.4 Provide for the development of public streetscape improvements, where appropriate. (P30, P31, P32)
- 3.10.5 Support the development of small parks incorporating pedestrian-oriented plazas, benches, other streetscape amenities and, where appropriate, landscaped play areas. (P2, P31, P66)
- 3.10.6 Require that Regional Centers be lighted to standards appropriate for nighttime access and use. (P17, P18, P24, P48)



Regional center incorporating retail, offices, and housing (on upper floors) with enhanced pedestrian character. buildings sited along sidewalk, pedestrian-amenities) Characteristics of regional centers: buildings on street frontage, inclusion of small parks, retail and restaurants located on the ground floor.

NEWS

Thursday, September 11, 2003

Questions dog LAX safety operations

SECURITY: Airport officials say the facility is more secure than ever. Others point to what they call possible flaws.

By Ian Gregor DAILY BREEZE

Two years after the Sept. 11 terror attacks, the front door to Los Angeles International Airport is more heavily fortified than ever.

A new federal screening force electronically checks all luggage for explosives. Passengers pass through unprecedented layers of security. Access to airplane gates is limited. More uniformed and undercover police officers and bomb-sniffing dogs patrol the airport terminals and the airfield perimeter.

"Airports are so much more secure than they ever have been," said Michael Di Girolamo, LAX's deputy executive director of airport operations.

"The fact of the matter is we have not had an incident since 9-11," he said. "I think that's a clear indication of positive efforts by (the Department of) Homeland Security, by airports to make sure airports are secure."

But some aviation experts say critical security holes remain, especially in air cargo, as highlighted this week when a man shipped himself in a box from New York to Texas. Moreover, cleaning crews and other workers are allowed onto airplanes without passing through security, and planes face potential threats from shoulder-fired missiles.

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J.Lo, Affleck Postpone Wedding Date
Dow Up 10 Points at 9,430
Lopez Homer Helps Braves in 4-2 Victory

FEATURES

- Hourly News Summary (audio)

CONTRIBUTORS

- John Bogert
Meredith Grenier
Tony Ciniglio
Bob Holtzman
Jim Thomas
Mike Waldner
Woody Woodburn



Passengers have been lulled into a false sense of security by the visible and effective improvements in passenger and baggage screening, said Dawn Deeks, spokeswoman for the Association of Flight Attendants.

“What they don’t see is what happens in back of the airport,” Deeks said.

Federal officials counter that the aviation system is blanketed with redundant layers of security that make it difficult for anyone to blow up a plane or use one as a weapon.

“We’re confident that the system of systems we have in place will protect the traveling public,” said Nico Melendez, a spokesman for the federal Transportation Security Administration.

Billions spent

The TSA, which Congress created after the terror attacks, has spent \$10.6 billion to rebuild the nation’s aviation security system, Melendez said.

Nowhere has the effort been more intense than at LAX, which screens the most departing passengers of any airport and about 150,000 suitcases a day.

TSA has spent tens of millions of dollars deploying a 2,400-member security screening force at LAX — the largest of any U.S. airport — and buying and installing dozens of new \$1 million explosive detection machines. LAX has spent more than \$100 million on renovations for explosive detection machines, more police officers and better airfield perimeter security.

The two agencies are collaborating on a \$313 million project to remove explosive detection machines from terminal lobbies and integrate them into the conveyor belt system that carries bags from airline ticket counters to airplane cargo areas, with the TSA picking up 75 percent of the tab.

But cargo security remains a weak point, experts say.

Fifty percent of the cargo that flows through LAX is in the bellies of passenger planes, but little is inspected. Instead, security largely depends on the

“known shipper” program, which allows only companies that have established relationships with air carriers and freight forwarders to ship cargo.

A General Accounting Office study released in early 2003 found that the program was riddled with procedural and safety violations.

The carrier that shipped the man from New York to Texas apparently followed all protocols because the sender was a known shipper, said Jon Russell, a United Airlines captain based at LAX and regional safety chairman for the Airline Pilots Association.

“I think it’s safe to say the current program has flaws in it,” Russell said. “We have vulnerabilities out there that have to be addressed.”

Proposal stalled

A tough air cargo security bill introduced by U.S. Sens. Dianne Feinstein, D-California, and Kay Bailey Hutchison, R-Texas, passed the Senate but is sitting in the House Committee on Transportation and Infrastructure.

“If you don’t know what’s in the belly of the plane, you’re not safe,” said Deeks, the flight attendant union spokeswoman.

Melendez, the TSA spokesman, said the agency has strengthened the known shipper program, moved to limit what can be shipped in passenger planes, uses dogs at 16 airports including LAX to screen air mail and has teams in place at 30 airports to evaluate cargo processing and identify weak areas.

The agency’s goal is to screen all cargo, but there isn’t adequate scanning technology to penetrate big pallets, he said.

“We’re moving on cargo security (but) we still have work to do there,” Melendez said.

Another security hole, some experts say, is that while pilots and flight attendants undergo the same screening as passengers, catering workers, airplane cleaning crews and mechanics don’t. Criminal background checks, which have been conducted on all workers at LAX who have access to secure parts

of the airport, don't predict what people may do in the future, critics say.

Melendez said flight crews, canine units and "other resources available to the TSA" sweep planes before they take off. An aviation security expert, who asked not to be identified, said it would be difficult for workers to smuggle weapons or bombs aboard planes because they are constantly observed by airline officials and law enforcement personnel.

"If one measure doesn't catch it, we're confident the next measure will," Melendez said.

Copley News Service correspondent Toby Eckert in Washington, D.C., contributed to this article.

Publish Date: *September 11, 2003*

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LAX security hiring program lags

By Ian Gregor

DAILY BREEZE

Federal officials must hire and train up to 3,500 new security workers for Los Angeles International Airport and have most on the job by the end of the year to meet a congressional deadline established after Sept. 11.

But seven months after President Bush signed the legislation, the Transportation Security Administration has yet to announce a security director for LAX or to advertise jobs for the new passenger and baggage screeners, who will replace private companies that worked directly for airlines. Some experts question whether the agency will be able to meet its hiring deadline.

"We think it can happen" on time, said one aviation official, who asked not to be identified.

"The question is whether it will happen on time."

TSA spokesman Greg Warren said the agency will meet the deadline because it has contracted with private companies to hire and train the workers.

"We're on pace to meet our congressional mandates," Warren said. "We're confident it can be done."

One official familiar with the hiring process said he

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expects the TSA will announce a new LAX security director within two weeks. Korn/Ferry International, the executive search firm that the TSA hired to help recruit the security directors, no longer has the LAX job posted on its Web site.



Transportation Secretary Norman Mineta said the hiring may have slowed in some cases because of a desire to ensure a diverse pool of applicants in terms of gender, race, ethnicity and job experience.



At an airport like LAX, "it's a highly visible job," Mineta said during a Washington, D.C., press briefing Thursday.



"You want to make sure you have a good person," Mineta said.

While plenty of attention has been focused on the government's struggle to buy and install enough \$1 million explosives detection machines for the nation's 429 commercial airports, an equally daunting task is hiring and training 30,000 to 35,000 security workers to operate the equipment and staff passenger screening checkpoints.

Several aviation experts said they believe LAX will need 3,000 to 3,500 security personnel. Labor union leaders estimate that fewer than 40 percent of the 1,000 current LAX screeners have U.S. citizenship, which is required for TSA employment.

LAX will need about 1,200 people to screen air travelers at 10 checkpoints in the nine passenger terminals; 800 to 1,000 screen luggage; 300 to 500 to replace LAX police officers who currently observe passengers at screening checkpoints and respond to problems; and 300 to 800 people to screen airport workers as they enter secure areas of the airport and airfield, according to experts' estimates.

Passenger screeners must be in place by Nov. 19 and baggage screeners by Dec. 31, said Warren, the TSA spokesman.

The TSA contracted with Minneapolis-based NCS Pearson to hire the security workers, who will earn \$23,600 to \$35,400 a year, plus cost of living adjustments. Lockheed Martin will train the passenger screeners and develop overall airport security plans, while Boeing Co. will train the baggage screeners.

Jack Keady, an aviation consultant from Playa del Rey, said he believes the TSA can accomplish the task.

“They're going to have to move and move fast but to me it's doable especially if they're willing to hire more of the existing personnel,” Keady said.

The TSA established a pilot hiring program at Baltimore-Washington International Airport earlier this year and started advertising jobs at 30 airports on Friday. The list included major airports in New York, Boston, Atlanta and Chicago, but not LAX.

The TSA on Thursday also announced plans to deploy security checkpoint design teams to up to 120 airports, including LAX, by the first week of July.

The moves mark the start of “more of an action phase, so you should see quicker results, and simultaneously in a lot of areas at once,” a Department of Transportation official said.

LAX officials estimate they will have to spend \$45 million to \$135 million to renovate the airport to accommodate close to 100 minivan-sized explosive detection machines, which use CAT scan technology to determine whether objects inside suitcases are potential bombs. Airport consultants are completing renovation scenarios that will be submitted to the eventual TSA director for consideration.

Thirteen of the machines are in use at LAX.

The TSA has acknowledged that it won't meet the congressional goal of sending every checked piece of luggage through an explosives detection machine by Dec. 31. Instead, the agency plans to screen bags using a combination of 1,100 explosive detection machines and 4,700 to 6,000 machines that detect bags for traces of explosives.

British officials, however, have said that so-called trace detection machines are not accurate.

The TSA has ordered 800 explosives detection machines — 500 from Newark, Calif.-based InVision Technologies and 300 from Clearwater, Fla.-based L-3.

Toby Eckert of Copley News Service in Washington, D.C., contributed to this article.

Publish Date: *Sunday June*

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Friday, May 02, 2003

Screeners at LAX have job security

CUTBACKS: Local layoffs won't be needed because of attrition. Workers from other elsewhere may be able to transfer.

By Ian Gregor
DAILY BREEZE

No federal security screeners at Los Angeles International Airport will lose their jobs as a result of nationwide layoffs because LAX's work force has already shrunk from attrition, a federal official said Thursday.

The Transportation Security Administration announced Wednesday that the agency will eliminate 6,000 of its 56,000 screener jobs nationwide by the end of September, including 154 at LAX. But David Stone, LAX's federal security director, said the airport already has fewer screeners than authorized.

The TSA, in recalculating its screener deployments, authorized LAX for up to 2,695 passenger and baggage screeners, but the airport currently has 2,677, Stone said.

"The message for them is if they do their job and do it well they have a job at LAX," Stone said. "There are no layoffs. There are no pink slips."

LAX, in fact, may be able to take on some screeners who may be laid off at airports in Long Beach, Ontario and Orange County, he said.

"We'll see if there's an opportunity to transfer some of their folks to LAX so they don't have to lose their jobs," Stone said.



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The decision to trim the screening force, which was announced by Adm. James Loy, the TSA administrator, was not unexpected because the agency exceeded its initial screener projections and budget, angering some members of Congress.

Loy also announced that airports no longer will have to post police officers at passenger screening checkpoints — a requirement the TSA mandated after the terror attacks and largely funded.

LAX has stationed officers at checkpoints in all nine terminals since August 1998, airport spokeswoman Nancy Castles said. At that time, following a spate of security breaches and terminal evacuations, the Los Angeles City Council passed a resolution recommending a police presence at the locations.

Stone said he would like LAX to retain officers at checkpoints. The TSA will continue to pay for checkpoint officers at some airports, he said, adding that he will lobby for LAX to get the funding if airport officials want to continue the deployment.

“If there’s any airport that should keep these (checkpoint officers) this is it,” Stone said.

LAX is waiting for a specific policy directive from the TSA before a decision is made on keeping officers at the checkpoints, Castles said. Airport officials also are examining the cost of retaining the officers and the possibility of getting federal reimbursement for their salaries, she said.

Publish Date: May 2, 2003

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Home Sales Stay on Fire, Especially in Inland Empire

Number of homes sold in San Bernardino and Riverside sets all-time high. Median price for Southland rises 21%.

By Bonnie Harris
Times Staff Writer

August 21, 2003

The Southern California housing market delivered another strong performance last month, setting an all-time record for sales in the Inland Empire and the 30th consecutive month of double-digit price increases for the entire six-county region.

Yet some real estate experts suspect the region's supercharged market is finally beginning to calm down.

The median price for homes sold in the Southland hit a new record of \$328,000 in July — up 21% from a year earlier — according to figures released Wednesday. In addition, a total of 33,561 new and existing homes were sold, which was the highest monthly sales count in nearly 15 years.

Riverside and San Bernardino counties easily led the region in sales of new homes, with year-over-year increases of 35% and 36%, respectively.

"Clearly, the Inland Empire is the strongest area for growth right now," said John Karevoll, an analyst at DataQuick Information Systems, which compiled the real estate statistics. He said Riverside County alone had more than a third of Southern California's total new-home sales.

Median home prices rose from a year ago in all six counties, with Orange County again fetching top dollar at \$428,000. In July, the median price for new houses and condominiums in Orange County was \$549,000, for existing houses it was \$465,000 and for existing condominiums, \$300,000.

Only Ventura County topped Orange County's median price in any category, with a \$619,000 median price for new homes in July. That was a year-over-year increase of 48%.

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"It is absolutely crazy," said Veronica Sheffield, a Pacific West Realtors agent in Ventura. "Two months ago, I couldn't imagine [prices] going any higher, and now this. How much more can we honestly expect to see?"

Maybe not much, some agents said. Besides an increase in the number of homes coming onto the market — which typically means fewer bidding wars, lower asking prices and longer sale times — the recent uptick in interest rates also has reduced consumers' buying power.

The average rate for 30-year fixed mortgages rose last week to 6.22%, up almost 1.25 percentage points from its record low in mid-June, according to a weekly survey by the Mortgage Bankers Assn. of America.

Demand for home loans nationwide fell 11% last week to their lowest level in more than a year, the survey showed. And while the decline was led primarily by a drop in refinancing applications, which have fallen more than 70% since May, experts said they expect the interest rates to affect applications for purchase mortgages as well. Already that number has dropped 15% since the end of May, according to the survey.

"I doubt very seriously we're going to see these kinds of monthly price increases and sales numbers much longer," said Scott Gibson, president of real estate firm Coldwell Banker's Los Angeles division. "The market is still strong, and will stay strong, but I believe we've almost reached the peak."

Indeed, Wednesday's housing statistics from DataQuick probably don't reflect the recent jump in interest rates because properties that closed in July had been in escrow for a month or so, when rates were still at or near their lowest levels. More telling, Gibson and others said, would be the monthly figures for August home sales.

In July, though, prices in all categories of homes in Southern California showed strong gains.

Existing single-family homes rose 21% from a year earlier to \$336,000, and new homes climbed 14% to \$378,000. Existing condominiums posted the largest increase, up 22% to \$264,000.

*

(BEGIN TEXT OF INFOBOX)

Hot July

The Southern California housing market continued its upward trend in July, especially in the Inland Empire.



Research Report

A PROSPECTIVE STUDY OF SOME EFFECTS OF AIRCRAFT NOISE ON COGNITIVE PERFORMANCE IN SCHOOLCHILDREN

Staffan Hygge,¹ Gary W. Evans,² and Monika Bullinger³¹Centre for Built Environment, University of Gävle, Gävle, Sweden; ²Department of Design and Environmental Analysis and Department of Human Development, Cornell University; and ³Department for Medical Psychology, University of Hamburg, Hamburg, Germany

Abstract—Before the opening of the new Munich International Airport and the termination of the old airport, children near both sites were recruited into aircraft-noise groups (aircraft noise at present or pending) and control groups with no aircraft noise (closely matched for socioeconomic status). A total of 326 children (mean age = 10.4 years) took part in three data-collection waves, one before and two after the switch-over of the airports. After the switch, long-term memory and reading were impaired in the noise group at the new airport, and improved in the formerly noise-exposed group at the old airport. Short-term memory also improved in the latter group after the old airport was closed. At the new airport, speech perception was impaired in the newly noise-exposed group. Mediation analyses suggest that poorer reading was not mediated by speech perception, and that impaired recall was in part mediated by reading.

A consequence of modern means of transportation is widespread noise exposure. In Europe, almost 25% of the population is exposed to equivalent noise levels (L_{eq}) of 65 dBA or more (Berglund & Lindvall, 1995). At this level, annoyance is marked, sleep is disturbed, and some cognitive processes are impaired (Cohen, Evans, Stokols, & Krantz, 1986; Evans & Lepore, 1993; Smith & Jones, 1992). Noise exposure is consistently correlated with reading deficits and may interfere with speech perception and long-term memory in primary-school children (Evans & Lepore, 1993).

The simultaneous opening and closing of the new and former Munich Airport provided us with an unprecedented opportunity to conduct a prospective study of the effects of aircraft noise on children. This is the only prospective study of nonauditory effects of noise on children that has been undertaken. Moreover, cessation of noise at the old airport provided a unique opportunity to assess whether expected, noise-related impairments are reversible. Sociodemographically matched control groups exposed to little aircraft noise were formed at both airports. By testing children in silence and not in everyday-noise settings, we eliminated confounds between chronic versus acute noise. Furthermore, examination of the interplay among attention, memory, and reading over time enabled us to test whether expected noise-related reading deficits could be accounted for by shifts in underlying cognitive processes.

Previous cross-sectional research (Cohen et al., 1986; Cohen, Glass, & Stryker, 1973; Evans & Maxwell, 1997) indicated that noise-related reading deficits might be mediated by a cognitive strategy wherein children become less attentive to auditory stimuli as a way to cope with noise. It is unclear whether such shifts in attentional strategies are general to noise

or specific to speech. Laboratory noise also impairs both long-term memory (Hygge, 1997; Hygge, Boman, & Enmarker, in press) and short-term memory (Hamilton, Hockey, & Rejman, 1977; Hockey, 1979). Both speech perception and memory are related to reading acquisition (Crowder & Wagner, 1992; Mann & Brady, 1988).

In summary, we collected prospective data to assess how children's reading was affected by changes in ambient noise levels caused by modified airport operations. In addition, we investigated two cognitive processes, attention and memory, implicated in prior experimental work on acute noise exposure, and how they relate to speech perception.

METHOD

Design and Subjects

The two experimental groups comprised children who were (old airport) or would be (new airport) exposed to aircraft noise. The two control groups were selected from areas that had little exposure to aircraft noise. The control groups were matched with their respective experimental groups on the basis of sociodemographic characteristics. One wave of data collection started 6 months prior to the changeover of airports, the second wave was 1 year later, and the third wave 2 years later. A total of 326 children participated: 43 in the old-airport, no-noise group; 65 in the old-airport, noise group; 107 in the new-airport, no-noise group; and 111 in the new-airport, noise group. Their ages ranged from 8 to 12 ($M = 10.4$, $SD = 0.85$). The children at the new airport were tested 3 to 5 months before the children at the old airport, but there was no difference in average year of birth. Criteria for taking part in the study were a minimum of 2 years of residence and German fluency, which ruled out confounds with ethnicity. Normal hearing, as assessed by audiometric screening, was also a criterion for participation. The experimental and control groups at the two airports did not differ in age, gender, ethnicity, number of family members, parental occupation, or education, and attrition did not differ among the four groups, $\chi^2(3, N = 326) = 1.64, p > .10$.

Procedure and Materials

At each data-collection wave, the children were tested individually in silence for 1.5 hr on 2 consecutive days in a specially designed temperature-controlled and sound-attenuated mobile laboratory that traveled to their schools. The children worked individually on an array of different tasks. In this article, we present only the cognitive dependent measures. (For data on physiological stress and mental health, see Bullinger, Hygge, Evans, Meis, & von Mackensen, 1999; Evans, Bullinger, & Hygge, 1998; Evans, Hygge, & Bullinger, 1995.)

Address correspondence to Staffan Hygge, Laboratory of Applied Psychology, Centre for Built Environment, University of Gävle, SE-801 76 Gävle, Sweden; e-mail: staffan.hygge@hig.se.

Aircraft Noise and Children

Reading

A standardized German reading test was employed (Bigmaier, 1969). The children read paragraphs and word lists of increasing difficulty. Some of the words in the lists were pseudowords, but phonologically appropriate in German.

Memory

On the first day, the children read a text in intermittent broadband noise at 80 dBA L_{eq} and the number of lines read within the 12-min time limit was noted. On the second day, the children were tested for long-term memory (recall) in silence. We introduced noise exposure during encoding to make the task more difficult. Children's performance on this test is sensitive to acute noise exposure (Hygge, 1997). For the short-term memory test, strings of consonants were presented one per second over headphones. Randomly, the sequence was stopped, and the children were asked to write down as many consonants as they could remember, in the correct position, starting at the end of the sequence. Letters in the correct or adjacent positions were scored as correct. Acute noise is known to impair performance on this task (Hamilton et al., 1977).

Attention

Two indices of general attention were used: visual search and reaction time. The visual search task is sensitive to ventilation noise (Hygge, 1991) and chronic stress (Baum, Gatchel, & Schaeffer, 1983). For this task, the children were presented with 12 complex figures and 5 simple target figures and asked to identify which one of the target figures was embedded in each complex figure. In the reaction time task, the children responded to random occurrences of red and green lights by pressing two different buttons. The children performed this task first in a silent 5-min session and then in an equally long session with aircraft noise at 85 dBA L_{eq} .

Speech perception

The speech perception measure was adapted from Hygge, Rönnerberg, Larshy, and Arlinger (1992). The children heard a story against different noise backgrounds (aircraft noise, road noise, and broadband noise) and used buttons labeled "+" and "-" to adjust the sound level of the story when it dropped randomly by 10 dBA. They were instructed to readjust the volume to the point where they could understand what was said if they concentrated. Noise-exposed children appear to ignore or tune out speech-relevant stimuli (Cohen et al., 1973, 1986; Evans & Maxwell, 1997) and are expected to require better signal-to-noise ratios than children who have not been exposed to noise.

RESULTS

Noise Levels

Noise levels were measured with a Brüel & Kjær (Copenhagen, Denmark) Community noise-level analyzer for a 24-hr period during data collection at the mobile laboratory. The expected changes in noise levels were observed at both airports (see Table 1).

Table 1. Noise levels (24-hr dBA L_{eq}) before and after the airport switch

Airport and group	Before switch (Wave 1)	After switch (Wave 3)
Old airport—aircraft noise	68	54*
Old airport—no aircraft noise	59	55
New airport—aircraft noise	53	62
New airport—no aircraft noise	53	55

*This number is an average from Waves 2 and 3 because there was only one observation in Wave 3, at a suspect value of 49.

Reading

On the word-list part of the reading test, only difficult words showed differences between the groups (see Fig. 1). The Airport \times Group \times Wave interaction was significant, $F(2, 252) = 5.10, p = .007$. (All F tests with repeated measures of wave were treated with multivariate analyses of variance, MANOVAs, rather than univariate analyses of variance, ANOVAs. These MANOVAs yield higher p values.

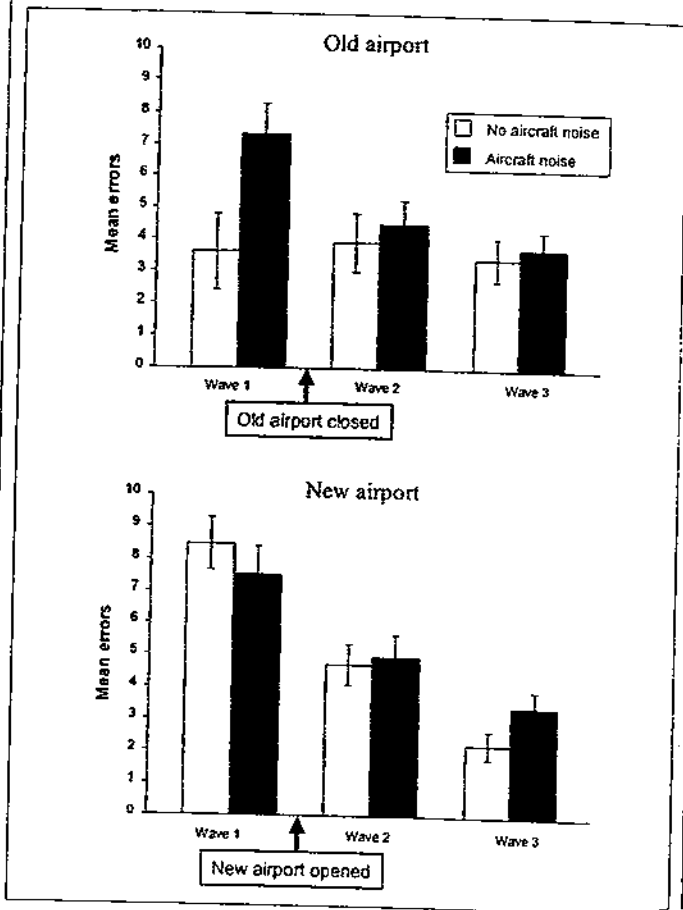


Fig. 1. Mean number of errors on the difficult word list as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

and thus are more conservative, than the corresponding univariate epsilon-corrected Greenhouse-Geisser ANOVAs.) Separate *t* tests (two-tailed throughout, except as noted) showed a difference between groups at the old airport at Wave 1, $t(99) = 2.68, p = .009$, but not at Waves 2 and 3 ($ts < 1$). At the new airport, there was a marginal difference between groups at Wave 3, $t(154) = 1.80, p = .074$, but not at Waves 1 and 2 ($ts < 1$).

The results for the prose component of the reading test were similar to those for the word-list test, but not as marked. For the most difficult paragraphs (Numbers 8–12), there was a weak Airport \times Group \times Wave interaction, $F(2, 172) = 2.16, p = .118$ (see Fig. 2). Separate *t* tests revealed a difference between groups at the old airport at Wave 1, $t(82) = 2.79, p = .007$, but not at Waves 2 and 3 ($ts < 1$). At the new airport there were no significant effects.

Memory

On the long-term recall task (see Fig. 3), there was a significant Airport \times Group \times Wave interaction, $F(2, 311) = 4.25, p = .015$. Separate *t* tests showed a marginally significant difference between groups at the old airport at Wave 1, $t(104) = 1.88, p = .062$, one-tailed, but not at Waves 2 and 3 ($ts < 1.28$). At the new airport, there was a difference between groups at Wave 3, $t(208) = 2.72, p = .007$, but not at Waves 1

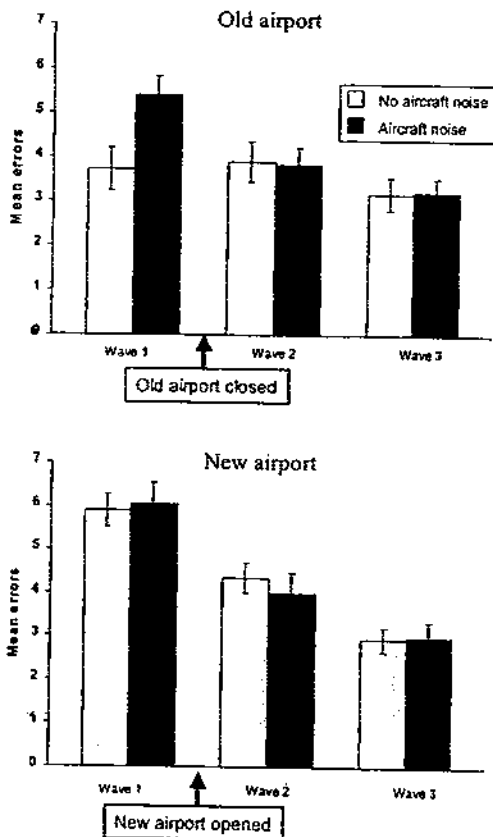


Fig. 2. Mean number of errors on the difficult paragraphs in the reading test as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

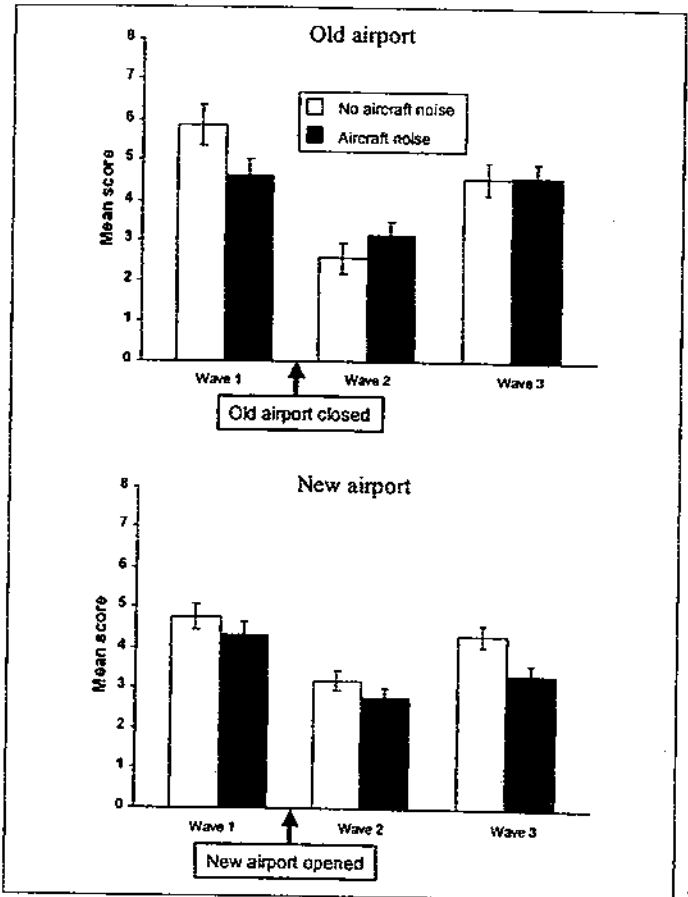


Fig. 3. Mean score on the long-term memory task as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

and 2 ($ts < 1.12$). For the number of lines completed, there were no noise effects.

At the old airport, the short-term memory test showed a significant Group \times Wave interaction, $F(2, 203) = 5.97, p = .004$. The poorer short-term memory performance of the noise group recovered to reach the level of the control group's performance at Waves 2 and 3 (see Fig. 4). Separate *t* tests showed tendencies toward more correct responses in the no-noise group than in the noise group at Wave 1, $t(104) = 1.70, p = .092$; the difference was in the opposite direction at Wave 2, $t(104) = 1.63, p = .108$, and there was no difference between groups at Wave 3. At the new airport, there were no differences between the groups across the waves.

Attention

For the embedded-figures task, there were no reliable interactions involving chronic aircraft noise over time.

For the reaction time task, a MANOVA of reaction time and errors together yielded an Airport \times Group \times Wave interaction, $F(4, 179) = 5.58, p = .004$. Performing the task in acute noise or no noise did not qualify this interaction, and there was no main effect of acute noise, $F_s < 1$. Only reaction time, not errors, contributed to the interaction. The aircraft-noise group at the old airport was slower than its control group

Aircraft Noise and Children

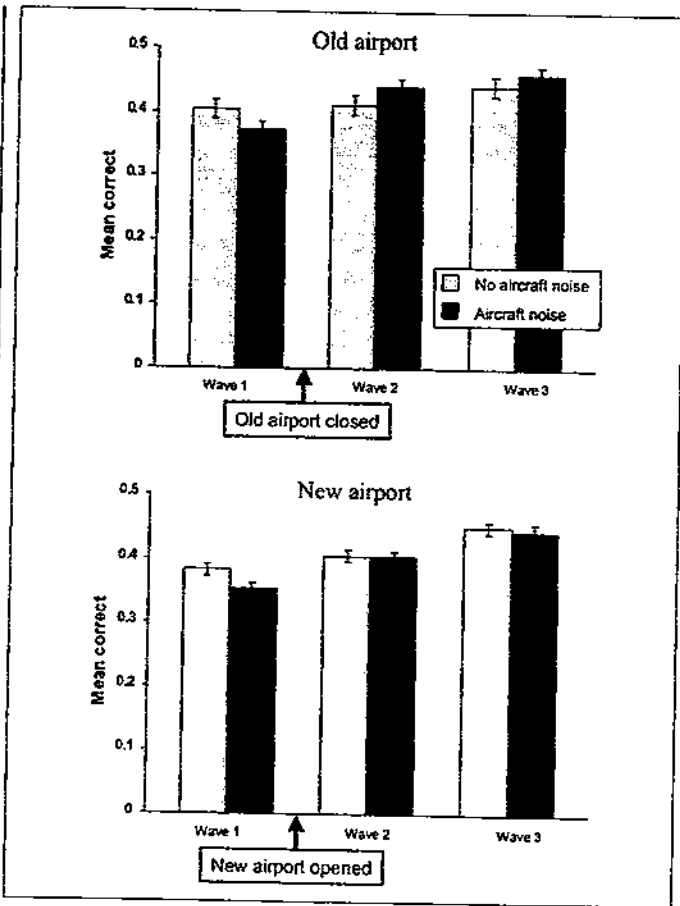


Fig. 4. Mean proportion of correct items on the short-term memory task as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

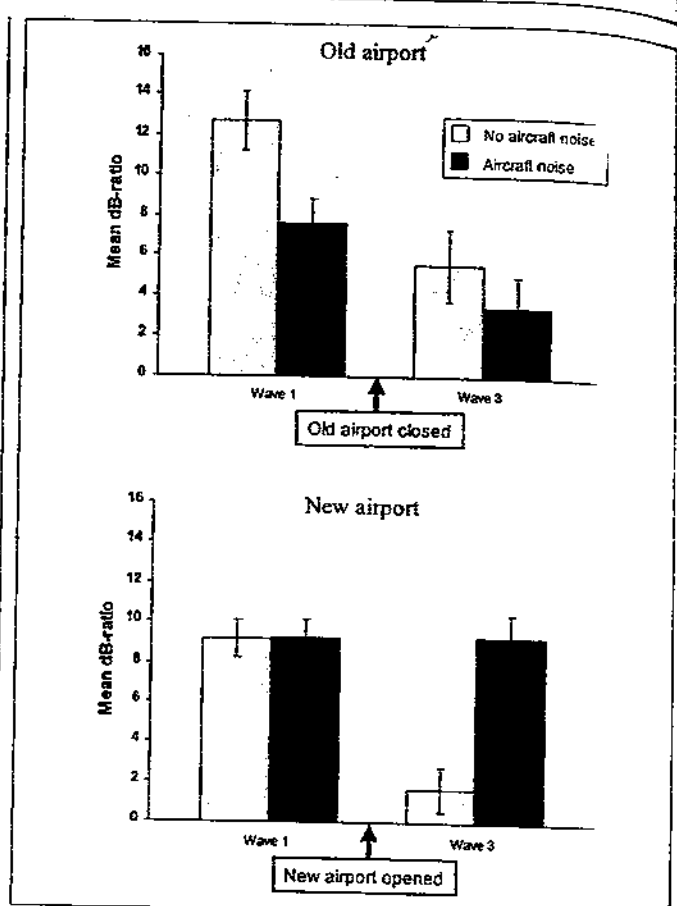


Fig. 5. Mean dB ratio of speech to noise on the speech perception task as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

at Wave 2, $t(61) = 2.29, p = .026$, but not at the other waves ($t_s < 1.34$). At the new airport, the aircraft-noise group was slower than the no-aircraft-noise group at Wave 3, $t(121) = 2.09, p = .039$.

Speech Perception

Because of apparatus failure and resulting low n_s , data from Wave 2 on the speech perception task were discarded. As Figure 5 shows, speech perception improved from Wave 1 to Wave 3 at the old airport, but there was no differential improvement between the groups. At the new airport, the onset of aircraft noise seemed to block improvement in auditory discrimination from Wave 1 to Wave 3, as evidenced by the Group \times Wave interaction, $F(3, 150) = 7.63, p = .000$.

Mediation

To probe for mediation, we entered into path analyses (LISREL; Jöreskog & Sörbom, 1996) the difference scores between performance in the last and first measurement waves for the paragraph reading task, the difficult word list, the long-term memory task, the number of lines completed, the short-term memory task, and the speech perception task. The results of these path analyses were straightforward and showed a

very good fit between data from both airports and one of the models (see Fig. 6). Good fits were indicated by both a high p value ($>.05$) for chi-square and a low value of the root mean square error of approximation ($<.08$; Jöreskog & Sörbom, 1996). In this model, the noise effect on the reading tasks was not mediated by memory or speech perception. For long-term memory, there was a partial mediation by the word-list component of the reading task. For all the other tested variables in different combinations there were no indications of mediating links. The value of N in this analysis was low, mainly because of participants not finishing the difficult reading paragraphs in Wave 1. However, path analyses not including reading, and thus having a higher N , yielded path coefficients between the other variables that were of approximately the same strength as shown in Figure 6.

DISCUSSION

These longitudinal data complement nearly 20 cross-sectional studies showing adverse impacts of aircraft noise on reading in elementary school children. Moreover, these effects occur prospectively and may be reversible. We have also demonstrated prospective impacts of chronic noise on long-term memory. More work is needed to determine the sensitivity of this effect to the duration of exposure, as well as children's age-

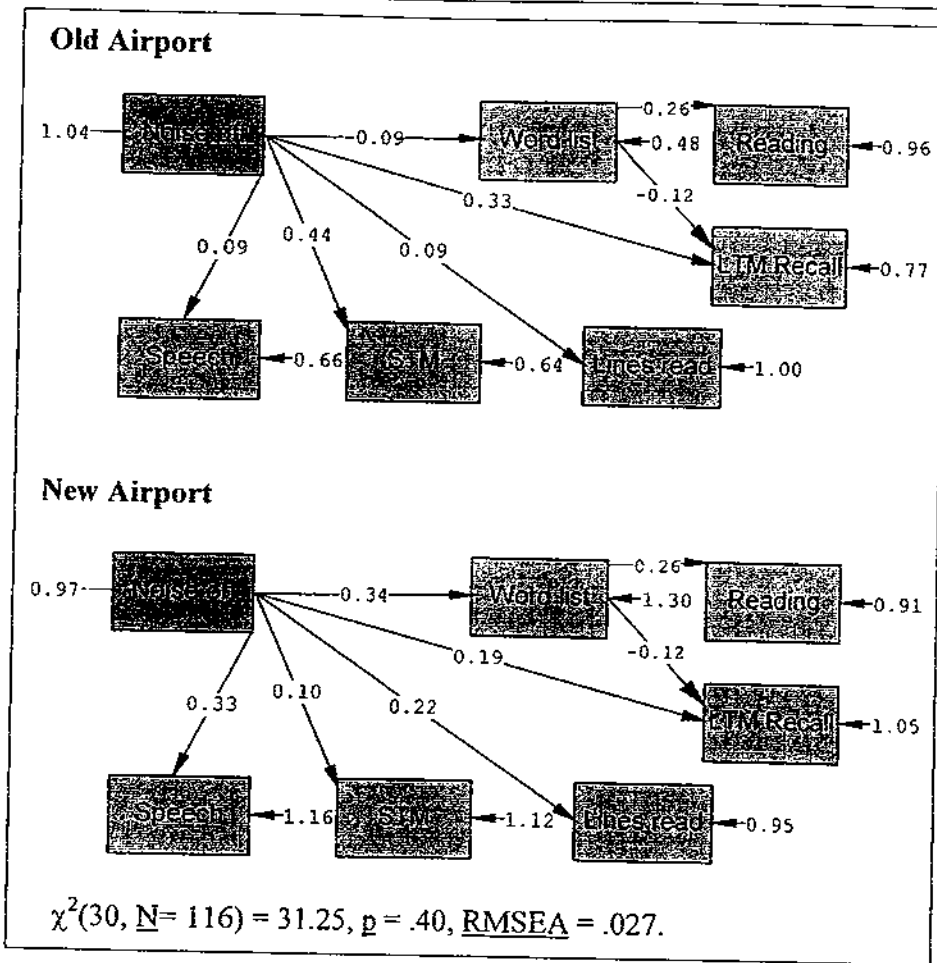


Fig. 6. Model fit (chi-square and root mean square error of approximation, RMSEA) and standardized path coefficients between cognitive measures. The cognitive measures were calculated as difference scores between the last and first measurement waves for the difficult word list ("Word list"), the paragraph reading task ("Reading"), the long-term memory task ("LTM Recall"), the number of lines completed ("Lines read"), the short-term memory task ("STM"), and the speech perception task ("Speech"). The paths from Word list to Reading (0.26) and LTM Recall (-0.12), with values in smaller print, were constrained to be equal at the two airports.

This is also the first study to show prospective impacts of chronic noise on a cognitive process, long-term memory. Weaker evidence suggests noise-induced deficiencies in speech perception and short-term memory.

Reading and long-term memory effects replicated, disappearing when the old airport closed and emerging after the new airport opened. This provides strong causal evidence for the vulnerability of central language processing to noise exposure, and the reversible nature of the impact. Additional research is needed to see whether the adverse noise effects on reading and recall continue over time. Note that at the new airport the negative effects were stronger at Wave 3 than at Wave 2, which suggests a cumulative noise effect.

The speech perception findings warrant further research. Differences in speech perception did not mediate noise effects on reading. The lack of mediation is inconsistent with prior cross-sectional studies (Cohen et al., 1973, 1986; Evans & Maxwell, 1997). The present longitudinal data raise doubts about the validity of inattention, or "tuning out," as an explanatory mechanism for the adverse impacts of noise on reading performance.

Furthermore, although children's reading worsened with cumulative noise exposure at the new airport and recovered following noise cessation at the old airport, speech perception deficits among noise-exposed children at the old airport did not recover. This suggests that speech perception did not mediate the noise effects on reading, a conclusion that is also indicated by the structural equation results. An explanation for this pattern of results may be the developmental timing of the noise exposure. Perhaps noise exposure damages the development of speech perception in different ways during the early and late portions of the reading-acquisition period.

Future research needs to address the importance of both the developmental timing and the duration of noise exposure in determining the effect of noise on reading and cognitive development. Research also needs to sample a wider range of noise levels in order to generate a dose-response function for reading, which would provide additional basic evidence and better inform public policy for noise protection of children.

Acknowledgments—This study was conducted while Staffan Hygge was with the National Swedish Institute for Building Research and with Kungl Tekniska Högskolan—Royal Institute of Technology, both in Gävle, Sweden. We are grateful to the families who cooperated with this research. We thank Gerhard Helm, Sylvia von Mackensen, Markus Meis, Gunnar Söderqvist, and Christian Wigren for their dedication to the project. This research was partially supported by the Society for the Psychological Study of Social Issues, the National Institute of Health (R01 HL 4732 01A), the National Institute of Child Health and Human Development (1 F33 HD 08473-01), the Nordic Scientific Group for Noise Effects, the Swedish Environmental Protection Agency, the German Research Foundation (DFG), and the National Swedish Institute for Building Research. The third author was also supported by a DFG Heisenberg Fellowship. We are particularly grateful to Nils Antoni, former director of the National Swedish Institute for Building Research, who efficiently made necessary funds available at the outset of the Munich study.

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(RECEIVED 12/1/00; REVISION ACCEPTED 11/1/01)



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FACSIMILE: (415) 552-5816
WWW.SMWLAW.COM

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ELIZABETH M. DODD
DAVID NAWI
OF COUNSEL

October 16, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

**Re: Public Records Act Request for Materials Relating to the
Supplement to the Draft EIS/EIR for the Los Angeles
International Airport Proposed Master Plan Improvements**

Dear Mr. Ritchie:

On behalf of the City of El Segundo, this is a request pursuant to the California Public Records Act, Gov. Code § 6250 *et seq.*, for the release and production of the records identified below. These materials were used in the preparation of the Supplement to the Draft EIS/EIR for the LAX Master Plan ("Supplement"), and are necessary for the City and its expert technical consultants to complete their analysis of the air quality analysis and human health risk assessment contained in that Supplement.

1. All data used to provide the estimates for air pollutant background concentrations and emissions set forth in Supplement, Tables S4.6-2, S4.6-6, S4.6-7, S4.6-9, S4.6-10, S4.6-11, S4.6-12, S4.6-13, S4.6-19, S4.6-20, S4.6-21, S4.6-22, and S4.6-27. Specifically, we are requesting the input and output files used to generate the results published in the Supplement. Based on the information regarding modeling that was provided in the Supplement, we are requesting the following, in a hard copy and electronic format:

- EDMS 3.2 input/output files for all alternatives
- EDMS 4.11 input/output files

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Mr. Jim Ritchie
October 16, 2003
Page 2

- ISCST3 input/output files
- CALMPRO input/output files
- CAL3QHCR input/output files
- EMFAC 2002 input/output files
- ARM and ISC3-OLM input/output files
- AIRMET input/output files (1996 AERMOD format meteorological dataset)
- Meteorological data set and one year of ozone data for SCAQMD (Referred to at p. 4-359 of Supplement, footnotes 113 and 114)
- 3 years of hourly monitored data collected at SCAQMD Monitoring Station No. 094, and 7 months of hourly monitored data collected at LAX downwind of Runway 25R (see Attachment Q in Technical Report S-4)

2. The modified ISC3-OLM (version 96113) air dispersion model, which the Supplement describes as having been modified to include the ISCS3T (version 02035) model and algorithms (see Supplement, p 4-359). According to the Supplement, this model was utilized in determining impacts but was not made available in the materials provided with the Supplement.

3. All data used to estimate toxic pollutant emissions modeled in the risk assessments summarized in the Supplement at Tables S4.24.1-1 through S4.24.1-6. In particular, we are requesting the input/output files used for modeling. Please provide these data in a hard copy and electronic format.

We request that these materials be provided by means that will facilitate their use by our consultants. In June 2001, responding to a similar Public Records Act request by El Segundo, LAWA provided us with a compact disk containing similar materials for the January 2001 Draft EIS/EIR for the Master Plan. The files on that disk were use-protected, which prevented El Segundo's technical consultants from verifying the calculations used in the environmental analysis. We are therefore requesting that the data be provided without use-protection, to allow our consultants to complete their analysis.

If you determine to withhold any responsive records, please provide us with a log that describes such records and the basis for your determination that such records are exempt from mandatory disclosure.

The City of El Segundo is also submitting a Freedom of Information Act request to the Federal Aviation Administration. A copy of that letter is attached.

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Mr. Jim Ritchie
October 16, 2003
Page 3

Pursuant to the Public Records Act, please respond to this request within ten calendar days. Gov. Code §6253(c). We appreciate your assistance in this matter. If you have any questions about this request, please do not hesitate to give me a call.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

A handwritten signature in black ink, appearing to read 'Christy H. Taylor', written over a horizontal line.

CHRISTY H. TAYLOR

cc: Ray Ilgunas, City Attorney's office
encl.

[P:\ELSEGUN\MAT3\cht008(PRA 101603).wpd]

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SHUTE, MIHALY & WEINBERGER LLP
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396 HAYES STREET
SAN FRANCISCO, CALIFORNIA 94102
TELEPHONE: (415) 552-7272
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WWW.SMVLAW.COM

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ELIZABETH M. DODD
DAVID NAWI
OF COUNSEL

October 16, 2003

Mr. David Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Worldway Postal Center
Los Angeles, CA 90009-2007

**Re: Freedom of Information Act Request for Materials Relating to
the Supplement to the Draft EIS/EIR for the Los Angeles
International Airport Proposed Master Plan Improvements**

Dear Mr. Kessler:

On behalf of the City of El Segundo, this is a request pursuant to the Freedom of Information Act, 5 U.S.C. § 552, for the release and production of the records and materials identified below. These materials were used in the preparation of the Supplement to the Draft EIS/EIR for the LAX Master Plan ("Supplement"), and are necessary for the City and its expert technical consultants to complete their analysis of the air quality analysis and human health risk assessment contained in that Supplement.

1. All data used to provide the estimates for air pollutant background concentrations and emissions set forth in Supplement, Tables S4.6-2, S4.6-6, S4.6-7, S4.6-9, S4.6-10, S4.6-11, S4.6-12, S4.6-13, S4.6-19, S4.6-20, S4.6-21, S4.6-22, and S4.6-27. Specifically, we are requesting the input and output files used to generate the results published in the Supplement. Based on the information regarding modeling that was provided in the Supplement, we are requesting the following, in a hard copy and electronic format:

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Mr. David Kessler

October 16, 2003

Page 2

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- ARM and ISC3-OLM input/output files
- AIRMET input/output files (1996 AERMOD format meteorological dataset)
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If you determine to withhold any responsive records, please provide us with a log that describes such records and the basis for your determination that such records are exempt from mandatory disclosure.

Mr. David Kessler
October 16, 2003
Page 3

FOIA provides for a waiver or reduction of fees if disclosure "is in the public interest because it is likely to contribute significantly to public understanding of the operations or activities of the government and is not primarily in the commercial interest of the requester." 5 U.S.C. § 552(a)(4)(iii); 49 C.F.R. § 7.97(e). We ask that you waive all search and duplication fees because the parties making this request meet the criteria set forth in these sections and in 49 U.S.C. § 7.97(f). The LAX Master Plan is unquestionably a topic of great public interest in southern California; making these documents available to the public will enhance the public's understanding of the proposed project and its background. The City of El Segundo has no commercial interest that would be furthered by the requested disclosure.

The City of El Segundo is also submitting a Public Records Act request to the Los Angeles World Airports; a copy of that letter is attached.

We certainly appreciate your assistance in this matter. Please contact me as soon as possible to let me know when we can expect to receive the requested documents. If you have any questions about this request, please do not hesitate to give me a call.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP



CHRISTY H. TAYLOR

encl.

cc: Raymond Ilgunas, Los Angeles City Attorney's Office

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ELIZABETH M. DODD
DAVID NAWI
OF COUNSEL

October 28, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Re: Second Public Records Act Request for Materials Relating to the Supplement to the Draft EIS/EIR for the Los Angeles International Airport Proposed Master Plan Improvements

Dear Mr. Ritchie:

On behalf of the City of El Segundo, we are submitting this second request pursuant to the California Public Records Act, Gov. Code § 6250 et seq., for the release and production of the records identified below. These materials were used in the preparation of the Supplement to the Draft EIS/EIR for the LAX Master Plan ("Supplement"), and are necessary for the City and its expert technical consultants to complete their analysis of the air quality and water quality sections of that Supplement. We request the following:

1. The input/output files used for estimating construction emissions with CARB's OFFROAD Model, referred to at page 4-358 of the Supplement. We are requesting the data in hard copy and electronic format, in a form that will allow our expert technical consultants to access the data and check the calculations of the modeling.

2. All data, spreadsheets, and calculations used to estimate storm water runoff, pollutant loadings and concentrations, impervious areas, and surface water recharge volumes, as set forth in Tables S4.7-3, S4.7-5, S4.7-6, S4.7-7 of the Supplement, Tables S2 through S12 of the Supplemental Hydrology and Water Quality Technical Report S5

SAL00015

Mr. Jim Ritchie
October 28, 2003
Page 2

and the Tables presented in Attachments A and C.

3. A copy of the documents cited in footnotes on page 1 of the Supplemental Hydrology and Water Quality Technical Report, specifically:

- City of Los Angeles, Los Angeles World Airports, Revised Hydrology Report for Los Angeles International Airport North Perimeter Storm Drain, prepared by Parsons, Brinckerhoff, Quade & Douglas, Inc., December 2001

- City of Los Angeles, Los Angeles World Airports, Final Onsite Hydrology Report for Los Angeles International Airport, prepared by Parsons, Brinckerhoff, Quade & Douglas, Inc. December 2002.

We request that these materials be provided by means that will facilitate their use by our consultants. In June 2001, responding to a similar Public Records Act request by El Segundo, LAWA provided us with a compact disk containing similar materials for the January 2001 Draft EIS/EIR for the Master Plan. The files on that disk were use-protected, preventing El Segundo's technical consultants from verifying the calculations used in the environmental analysis. We request that the data be provided without use-protection, to allow our consultants to complete their analysis.

We have a prior Public Records Act request still pending, submitted by our letter dated October 16. That request specified data used in the Supplement to estimate air pollutant background concentrations and emissions as set forth in the Supplement, Tables S4.6-2, S4.6-6, S4.6-7, S4.6-9, S4.6-10, S4.6-11, S4.6-12, S4.6-13, S4.6-19, S4.6-20, S4.6-21, S4.6-22, and S4.6-27, including the input and output files used to generate the results published in the Supplement, and the modified ISC3-OLM, which is also utilized in the Supplement. We followed up with a telephone call to airport counsel Raymond Igunas last week. We have received no response from LAWA on that request. Please call me or Osa Armi of my office as soon as possible to discuss our information requests.

If you determine to withhold any responsive records, please provide us with a log that describes such records and the basis for your determination that such records are exempt from mandatory disclosure.

The City of El Segundo is also submitting a second Freedom of Information Act request to the Federal Aviation Administration. A copy of that letter is enclosed.

Pursuant to the Public Records Act, please respond to this request within ten calendar days. Gov. Code §6253(c). We appreciate your assistance in this matter. If you

SAL00015 V

Mr. Jim Ritchie
October 28, 2003
Page 3

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Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP



CHRISTY H. TAYLOR

cc: Ray Ilgunas, City Attorney's office (by fax)

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October 28, 2003

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U.S. Department of Transportation
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Los Angeles, CA 90009-2007

**Re: Second Freedom of Information Act Request for Materials
Relating to the Supplement to the Draft EIS/EIR for the Los
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Note that we have a prior FOIA request pending, submitted by our letter dated October 16. That request specified data used in the Supplement to estimate air pollutant background concentrations and emissions as set forth in the Supplement, Tables S4.6-2, S4.6-6, S4.6-7, S4.6-9, S4.6-10, S4.6-11, S4.6-12, S4.6-13, S4.6-19, S4.6-20, S4.6-21, S4.6-22, and S4.6-27, including the input and output files used to generate the results published in the Supplement, and the modified ISC3-OLM, which is also utilized in the Supplement. We have received no response from you or anyone in your office. Please call me or Osa Armi of my office as soon as possible to discuss our information requests.

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David Kessler
October 28, 2003
Page 3

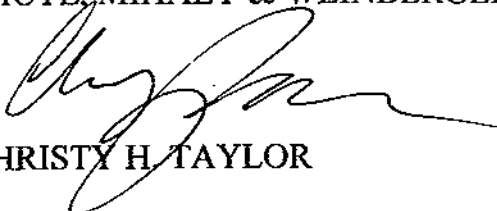
public interest because it is likely to contribute significantly to public understanding of the operations or activities of the government and is not primarily in the commercial interest of the requester." 5 U.S.C. § 552(a)(4)(iii); 49 C.F.R. § 7.97(e). We ask that you waive all search and duplication fees because the parties making this request meet the criteria set forth in these sections and in 49 U.S.C. § 7.97(f). The LAX Master Plan is unquestionably a topic of great public interest in southern California; making these documents available to the public will enhance the public's understanding of the proposed project and its background. The City of El Segundo has no commercial interest that would be furthered by the requested disclosure.

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We certainly appreciate your assistance in this matter. Please contact me as soon as possible to let me know when we can expect to receive the requested documents. If you have any questions about this request, please do not hesitate to give me a call.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP



CHRISTY H. TAYLOR

encl.

cc: Raymond Ilgunas, Los Angeles City Attorney's Office (by fax)



THIS AGENDA FOR THE MEETING WAS POSTED OUTSIDE ON THE BOARD OF AIRPORT COMMISSIONERS' BULLETIN BOARD AND THE FRONT DOOR OF THE DEPARTMENT OF AIRPORTS' ADMINISTRATION BUILDING LOBBY, #1 WORLD WAY, P.O. BOX 92216, LOS ANGELES, CALIFORNIA ON THURSDAY, AUGUST 28, 2003 AT 12:10 P.M. FOR PUBLIC REFERENCE.

MINUTES

OF THE MEETING OF THE BOARD OF AIRPORT COMMISSIONERS OF THE CITY OF LOS ANGELES CONVENED IN SPECIAL SESSION IN THE SAMUEL GREENBERG BOARD ROOM NO. 107/116 IN THE ADMINISTRATION BUILDING AT LOS ANGELES INTERNATIONAL AIRPORT, #1 WORLD WAY, P.O. BOX 92216, LOS ANGELES, CALIFORNIA 90009 ON TUESDAY, SEPTEMBER 2, 2003 AT 8:30 A.M.

PRESENT: Commissioners Levine, Llorens, Petersen, Weil and President Stein

Kim R. Day	Interim Executive Director
Paul L. Green	Chief Operating Officer
Michael DiGirolamo	Deputy Executive Director
Samson Mengistu	Deputy Executive Director
Edward J. Ritchie	Deputy Executive Director
Eduardo Angeles	Managing Assistant City Attorney
Sandra J. Miller	Secretary

ABSENT: Commissioners Contreras and Vergara

oOo

In addition to the above listed Executive staff, there were 15 staff members present.

Presentation for approval Minutes of the Special Meeting of August 11, 2003.

APPROVED AS PRESENTED

oOo

Discussion Items: 4, 5, 10, 11, 12, 13 and 17

Discussion begins on page 21

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services, and activities.

SEPTEMBER 2, 2003

SAL00015 V

ITEM 13. RESOLUTION NO. 22143 – AUTHORIZE THE EXECUTIVE DIRECTOR TO PREPARE AND RELEASE A REQUEST FOR PROPOSAL (RFP) AND NEGOTIATE A CONTRACT FOR PROFESSIONAL SERVICES FOR THE PROJECT ENTITLED "LAX MASTER PLAN ADVANCED PLANNING —PROGRAM AND DESIGN CRITERIA DEVELOPMENT"

RECOMMENDATION: Adoption of the Report requesting that the Board of Airport Commissioners authorize the Executive Director to prepare and release a Request for Proposals and negotiate a contract for professional services for the project entitled "LAX Master Plan Advanced Planning – Program and Design Criteria Development, find that this work can be performed more economically or feasibly by an independent contractor than by City employees. (Kim Day, 310-646-7393)

RECOMMENDATION APPROVED
AS AMENDED

Moved by:
Seconded by:

Ayes:

Nays:

Discussion: See pages 22 and 23

CONSENT CALENDAR

President Stein requested a motion of approval for the following enumerated items that did not need amendments or further discussion: 1, 3, 8, 16, 18, 19 and 20.

Motion of approval of the consent calendar was made by Commissioner Petersen, seconded by Commissioner Llorens and it was unanimously adopted.

DISCUSSION ITEMS

ITEM 17. IN ACCORDANCE WITH CHARTER SECTION 604, THE BOARD OF AIRPORT COMMISSIONERS APPOINTS KIM DAY, AS INTERIM EXECUTIVE DIRECTOR

President Stein addressed this item by acknowledging that this was a bittersweet day for LAWA to lose such a capable leader and that he didn't know anybody else who could have got us through September 11, 2001; but at the same time there's good news in that we had three extraordinarily qualified candidates who interviewed for the position—Mr. Paul Green, COO; Mr. Jim Ritchie, Deputy Executive Director; and Ms. Kim Day, Deputy Executive Director. President Stein stated with pleasure that the Mayor has chosen, to send forward for Interim Executive Director, Kim Day; which speaks highly of her qualifications, but in no way diminishes the qualifications of Mr. Green and Mr. Ritchie. The Board stated their support of the appointment of Ms. Day.

Ms. Day thanked the Board and stated this was an honor and quite a challenge, but she'll do her best to live up to the faith the Board has shown in her.

ITEM 4. APPROVE THE AWARD OF A CONTRACT TO CSA CONSTRUCTORS, INC. FOR THE CONSTRUCTION OF THE PROJECT ENTITLED "SECURITY PROGRAM – ADDITIONAL SECURITY SCREENING CHECKPOINTS IN TBIT – INTERIM SOLUTION" AT LOS ANGELES INTERNATIONAL AIRPORT

Kim Day, Interim Executive Director, briefed the Board on the history of this item as it related to a previously deferred board report.

ITEM 5. APPROVE AWARD OF A CONTRACT TO STEINY AND COMPANY, INC. FOR THE CONSTRUCTION OF THE PROJECT ENTITLED "TBIT FIRE/LIFE SAFETY UPGRADE" AT LOS ANGELES INTERNATIONAL AIRPORT

The Board inquired why the MBE/WBE participation was so low. Director of Administration Bill Bruce addressed the low participation and the outreach process.

ITEM 10. APPROVE THE THIRD AMENDMENT TO CONTRACT NO. DA-3668 WITH M. ARTHUR GENSLER JR. & ASSOCIATES TO PROVIDE COMPLETE ENGINEERING DESIGN FOR THE PROJECT ENTITLED "SECURITY PROGRAM – IN-LINE BAGGAGE SCREENING

ITEM 11. APPROVE THE THIRD AMENDMENT TO CONTRACT NO. DA-3672 WITH CH2MHILL, INC. TO PROVIDE COMPLETE ENGINEERING DESIGN FOR THE PROJECT ENTITLED "SECURITY PROGRAM – IN-LINE BAGGAGE SCREENING SYSTEMS" AT ONTARIO INTERNATIONAL AIRPORT

ITEM 12. APPROVE THE FIFTH AMENDMENT TO CONTRACT NO. DA-3334 WITH LEO A. DALY COMPANY TO PROVIDE DESIGN AND CONSTRUCTION ADMINISTRATION SERVICES FOR AN IN-LINE BAGGAGE SCREENING SYSTEM AT TOM BRADLEY INTERNATIONAL TERMINAL (TBIT) UNDER THE PROJECT ENTITLED "TBIT INTERIOR IMPROVEMENTS" AT LOS ANGELES INTERNATIONAL AIRPORT

ITEMS 10, 11,
AND 12. Cont'd.

Interim Executive Director Day requested these items be amended to add retention clauses to assure quality and performance and liquidated damages to assure a timely performance to all three of these contracts.

Commissioner Llorens asked how is this design going to work with Alternative D? Kim Day responded--consideration was given to Alternative D and that all equipment is modular and that a majority is reusable should plans be changed. But, she didn't anticipate having to move any equipment.

Commissioner Weil asked how staff is able to measure the documents submitted as being highly complete or high quality? Kim Day responded that the drawings are coordinated and constructible. The Construction Manager will review the drawings as well as LAWA Engineering. Commissioner Weil requested to view the liquidated damages and retention clauses after the City Attorney drafts them. Staff responded affirmatively.

Commissioner Petersen moved the amendment to Items 10, 11 and 12 to add retention clauses and liquidated damage language to these agreements, seconded by Commissioner Weil and it was unanimously adopted.

ITEM 13. AUTHORIZE THE EXECUTIVE DIRECTOR TO PREPARE AND RELEASE A REQUEST FOR PROPOSAL (RFP) AND NEGOTIATE A CONTRACT FOR PROFESSIONAL SERVICES FOR THE PROJECT ENTITLED "LAX MASTER PLAN ADVANCED PLANNING_-PROGRAM AND DESIGN CRITERIA DEVELOPMENT"

Interim Executive Director Day requested the report be amended to add the words with significant roles, after-- Per LAWA policy, consultants-- and the rest of the sentence remain unchanged.

Commissioner Llorens asked whom staff considered major players? Ms. Day stated the prime-contractors, but that a review of the contractual percentages needed to be done in order to determine the other significant players, and after this is done she will present the findings to the Board.

Commissioner Weil recommended the amendment that Ms. Day suggested be changed to-- Per LAWA policy, consultants with responsibility for substantial portions of the work (rest of sentence unchanged).

Commissioner Llorens inquired how the knowledge the major players (contractors) had would be transitioned to the new players (contractors)? Commissioner Weil added clarification by inquiring if and when we have contracts where we anticipate having one set of experts at one point and one set of experts at another, does the initial set of experts have an obligation to reasonably cooperate with the transfer, and then does the second set assume as part of the contract, on that company's watch, the cost of getting "up to speed?"

Jim Ritchie, Deputy Executive Director of Long-Range Planning, affirmed that Interim Executive Director Day had said that the consultant contractors would transition with the existing team. He also expects that LAWA staff likewise is a component to make the transition with the existing consultant team.

Commissioner Weil added that a third cause would be if we didn't get the cooperation? That the contracting party would not be a welcomed contracting party in the future, and we expect people to cooperate and act reasonable.

Cont'd.

ITEM 13. Cont'd.

Commissioner Petersen moved the amended language, as again amended by Commissioner Weil to state: Per LAWA policy, consultants with responsibility for substantial portions of the work on the Master Plan EIS/EIR are precluded from proposing on, and thus possibly securing, advanced planning work with respect to Alternative D project components, seconded by Commissioner Levine, and it was unanimously adopted.

President Stein requested items 2, 6, 9 and 14 be deferred.

oOo

COMMENTS FROM THE PUBLIC

The Board received one comment from Joseph Geber.

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At this time, 9:20 a.m., the Board continued the Meeting in Closed Session for conference with legal counsel to discuss and take action regarding the following:

PRESENT: Commissioners Levine, Llorens, Petersen, Weil and President Stein

CLOSED SESSION -- THE BOARD MAY MEET IN CLOSED SESSION ON ANY SUBJECT PERMITTED BY LAW FOR CLOSED SESSION PURPOSES. THE FOLLOWING ITEMS ARE FOR DISCUSSION AND POSSIBLE ACTION:

CONFERENCE WITH LEGAL COUNSEL - PENDING LITIGATION (GOV. CODE SECTION 54956.9(b)(3)(c):

RESOLUTION NO. 22150

ACTION RE: HUMMINGBIRD, USA, INC. CLAIM FOR DAMAGES

Motion of approval was made by Commissioner Petersen, seconded by Commissioner Weil and it was unanimously adopted.

At this time, 9:25 a.m., the Board reconvened the Meeting in Special Session and the City Attorney reported that the Board took action on the above-mentioned item during Closed Session.

oOo



Los Angeles World Airports

13

BOARD OF AIRPORT COMMISSIONERS REPORT

APPROVED BY: W. Richard Wells
 Division Head—Rick Wells

REVIEWED BY: Karen J. Dixon
 Deputy Executive Director—Kim Day

REVIEWED BY: Paul Green
 Chief Operating Officer—Paul Green

CITY ATTORNEY: Eduardo Angeles
 Eduardo Angeles

EXECUTIVE DIRECTOR: Lydia Kennard
 Lydia Kennard

Meeting Date: 9-2-03

CAO Report Completed
 Pending
 N/A

Reviewed by:
 Budget 6/17/03
 Environmental Mgt. 6/17/03
 Procurement 6/25/03

SUBJECT:

AUTHORIZATION FOR THE EXECUTIVE DIRECTOR TO PREPARE AND RELEASE A REQUEST FOR PROPOSAL (RFP), AND NEGOTIATE A CONTRACT FOR PROFESSIONAL SERVICES FOR THE PROJECT ENTITLED "LAX MASTER PLAN ADVANCED PLANNING – PROGRAM & DESIGN CRITERIA DEVELOPMENT".

RECOMMENDATION:

Management RECOMMENDS that the Board of Airport Commissioners:

1. ADOPT the staff report.
2. DETERMINE that this action is exempt from the California Environmental Quality Act pursuant to Article II, Section 2(d) of the Los Angeles City CEQA Guidelines, as amended July 31, 2002.
3. FIND that this work can be performed more economically or feasibly by an independent contractor than by City employees.
4. AUTHORIZE the Executive Director to prepare and release a request for proposal (RFP), and negotiate a contract for professional services for the project entitled "LAX Master Plan Advanced Planning – Program and Design Criteria Development, after approval as to form and legality by the City Attorney.

DISCUSSION:

1. Prior Related Actions

LAX is ranked among the largest airports in the world in terms of aircraft operations, passenger traffic and tons of cargo processed. LAX continues to primarily satisfy regional air transportation demands for domestic and international passengers and air cargo service. LAWA is currently in the final stages of completing the Environmental Impact Statement/ Environmental Impact Report (EIS/EIR) for the LAX Master Plan that will guide the development and modernization at Los Angeles International Airport through the year 2015.

Following the events of September 11, 2001, Los Angeles Mayor James Hahn stated his objective of implementing the enhanced Safety and Security Plan, Alternative D, as soon as possible following the City of Los Angeles approvals and the Federal Aviation Administration's (FAA) Record of Decision (ROD). Master Plan Alternative D reflects the increased concern in airport and aviation security resulting from the events of September 11, 2001 and a decision to limit growth at LAX to 78 million annual passengers (MAP) and 3.1 million annual tons (MAT) cargo. Alternative D also provides for increased passenger capability, more efficient airlines operations and improvements in passenger service, all while improving security. In addition, Alternative D also provides for anticipated new passenger processing requirements and the introduction of the new large aircraft (NLA) in a controlled manner with minimal environmental impact and intrusion on surrounding communities and habitat.

There are two on-going contracts for the LAX Master Plan; DA-3580 (an eighth Amendment was approved by the Board on June 4, 2003 to extend the term and funding until January 31, 2004) with URS Corporation for "Program Management Services for the EIS/EIR and LAX Master Plan" and DA-3581(a ninth Amendment was approved by the Board on June 4, 2003, to extend the term and funding until March 31, 2004) with Camp Dresser & McKee, Inc. for "Environmental Planning Services for the preparation of the LAX Master Plan and EIS/EIR, and for oversight of technical sub-consultants."

2. Current Action

LAWA intends to notify interested firms of the availability of the RFP for advanced planning through advertisements and public notices in appropriate publications. Per LAWA policy, consultants currently working on the Master Plan EIS/EIR are precluded from proposing on, and thus possibly securing, advanced planning work with respect to Alternative D project components. LAWA staff will review and determine qualified consultants and establish a short list. LAWA's panel, consisting of LAWA representatives, will interview qualified consultants and rank them on the criteria set forth in the RFP. After a final ranking, and a list of proposed consultants has been established, LAWA's management will negotiate a contract with the most qualified consultant for complete implementation services which includes, but is not limited to, "advanced programming, advanced planning, program and design criteria development, conceptual phasing plan and schedule, project definition, management services, program controls and conceptual estimates etc." It is Management's intention to return to the Board for authorization to execute and award the contract for a maximum term of three years. No construction will commence prior to obtaining the ROD.

FISCAL IMPACT STATEMENT:

No allocation of funds is required at this time.

STANDARD PROVISIONS:

1. Feasibility and planning studies for possible future action is exempt from the requirements of the California Environmental Quality Act as provided by Article II, Section 2(d) of the Los Angeles City CEQA Guidelines, as amended July 31, 2002.
2. The selected proposer will be subject to the provisions of the Service Contract Worker Retention and/or Living Wage Ordinances in the performance of the contract.
3. Procurement Services has reviewed this item and established a 25 percent combined Minority/Woman Business Enterprise level of participation for this project.
4. The selected proposer must submit an Affirmative Action Plan and comply with the provisions of the Affirmative Action Program.
5. The selected proposer must provide a Business Tax Registration Certificate prior to contract execution.
6. The selected proposer will be required to comply with the provisions of the Child Support Program.
7. The selected proposer will be required to have approved insurance documents on file with Los Angeles World Airports.
8. Pursuant to City Charter Section 1022, the work specified can be performed more economically and feasibly by independent contractors than by City employees.
9. The City Attorney will approve contract as to form.
10. Action taken on this item by the Board of Airport Commissioners will become final pursuant to the provisions of the Los Angeles City Charter Section 245.
11. The successful proposer is subject to the provisions of the Contractor Responsibility Program.



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Spending OKd Before LAX Plan Approved

The airport panel chief says design work on Hahn's proposal, costing up to \$2 million a month, must start now to avoid future delays.

By Jennifer Oldham
Times Staff Writer

September 3, 2003

Although the City Council and Federal Aviation Administration have yet to review Mayor James K. Hahn's \$9-billion modernization plan for Los Angeles International Airport, the city Airport Commission voted Tuesday to begin preliminary design work this fall at a cost of \$1 million to \$2 million a month.

The commission, which is appointed by Hahn, voted 5 to 0 to solicit design proposals on elements of the mayor's proposal, which he said favors safety and security over expansion. The process could double the amount of money the city is spending on planning efforts, without any guarantee that Hahn's plan would be approved, officials said.

"They take on some risk that whatever money is spent would be wasted if they don't go forward with the project," said Richard Marchi, senior vice president of technical and environmental affairs at Airports Council International, a trade group.

The city is spending about \$1 million a month on modernization and has logged about \$116 million in planning costs since Mayor Richard Riordan first proposed reworking LAX about 10 years ago.

Hahn's proposal piggybacks on environmental studies done for Riordan's plan.

The City Council will be able to choose from Riordan's expansion proposals as well as Hahn's alternative when it considers the package, probably in about a year.

Advanced planning efforts approved Tuesday by the commission, however, would focus only on Hahn's proposal.

When the commission hires a firm this fall to start design work, the firm will be asked to iron out the details of each piece of the mayor's plan, such as a passenger check-in center, a consolidated rental car



should stop long enough to really listen to the public discussion still underway. Before approving the blueprints, Hahn needs much better consensus on security, of course, but also on cost and capacity in this post-9/11 world.

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Council Members Attempt to Cut Speed of LAX Work

Seven on panel oppose soliciting design plans before Mayor Hahn's modernization proposal is reviewed by the city and the FAA.

By Jennifer Oldham
 Times Staff Writer

September 6, 2003

Members of the City Council moved on Friday to block the Airport Commission's fast-track approach to modernizing Los Angeles International Airport, insisting that design work wait until after the plan has been approved.

The Airport Commission voted earlier in the week to solicit design proposals on elements of Mayor James K. Hahn's \$9-billion LAX modernization plan, at a cost of \$1 million to \$2 million a month, even before the plan is reviewed by the City Council and the Federal Aviation Administration. The panel expected to hire a firm this fall.

Council members said Friday that it would be premature to spend money on design work without a guarantee that the plan would be approved.

"A fast-track effort is appropriate and more widely used in non-controversial issues that require little public input and relatively little detailed technical review," wrote Councilwoman Cindy Miscikowski in a motion signed by six of her colleagues. "It is also a tool when overwhelming consensus exists on a proposal, which is clearly not the case on this issue."

Hahn is trying to convince skeptics, including the airlines, residents and lawmakers, that his plan is the best way to modernize the 75-year-old airport. Miscikowski's motion, which the council will discuss on Friday, calls on the commission to delay preliminary design work until a project is in place.

The mayor's office asked the council to reconsider its position and said that adding more details to Hahn's plan would help answer questions posed by skeptics.

"The federal government agrees with the mayor that we want to see safety and security enhancements made at LAX as soon as possible," said Deputy Mayor Julie Wong. "That's why they put LAX as one of a handful of projects they're paying special attention to. We want to make sure on our end that we're fully prepared to implement the master plan when it's passed, which is why we would like to see advanced planning."



facility and an intermodal transportation center.

For example, the firm will be charged with figuring out the specific route that a proposed people-mover would take, how it would enter the proposed check-in center — designated for a neighborhood known as Manchester Square — and at what elevation it would arrive there, said Kim Day, interim executive director for the city's airport agency.

The commission's move was criticized by skeptics who are concerned about the cost of the mayor's plan and who believe that the project would provide no discernible benefit for the local economy beyond short-term jobs created during construction.

"I think committing to spend money on detailed planning when [environmental reports] have raised numerous questions is premature," said Councilwoman Cindy Miscikowski.

"This has not been approved, and they should be cautious about spending money until they know these things will be done," she said.

Airport Commission President Ted Stein said it is necessary to begin nailing down details in the mayor's plan now so that the city won't have to wait several years for consultants to draft construction documents once the project is approved.

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EDITORIAL

LAX Plan: What's the Rush?

advertisement

September 12, 2003



The deceptively bureaucratic-looking motion on today's City Council agenda does not commit the council in any way on Mayor James K. Hahn's \$9-billion modernization plan for Los Angeles International Airport. But it would block his effort to speed the plan through, sending the right message to the mayor to slow down and get the remodeling right.

Last week the city Airport Commission, whose members Hahn appoints, voted to hire a consultant to begin nailing down details of the airport plan, such as determining the exact route and elevation of a proposed people-mover. Just one problem: The plan has yet to be approved by the council or the Federal Aviation Administration.

Getting a jump on the design minutiae is not that unusual for such a big public works project, as long as there is general agreement that it will win approval. In this case, that's far from clear.

Former Mayor Richard Riordan's \$12-billion expansion plan stalled three years ago, fought to a standstill by airport neighbors. When he ran for mayor, Hahn, eager for this block of votes, signed a pledge to hold LAX to no more than the 78.9 million passengers a year that planners say the aging airport could accommodate now. (About 56 million used LAX in 2002, down from 67 million in 2000, the peak year before the 2001 terrorist attacks sent air travel into a tailspin.)

After the Sept. 11 hijackings, Hahn called for reconfiguring LAX to make it more secure. Who could argue with that? Plenty of people, it turned out, once the actual plan was unveiled this summer.

What was expected to be a scaled-back remodel had morphed into one of the most expensive public works projects in the country. And the \$9-billion price tag that Hahn cites does not, according to a Times analysis, take into account numerous costs, such as moving 6,000 residents out of a Manchester Square neighborhood intended for a remote passenger check-in center. That huge and probably still growing price would cover a plan that accommodates no more passengers than the current design and therefore does not increase the airport's contribution to the region's economy.

Some of the critics of the Riordan plan see Hahn's as a stealth expansion. Those who take the mayor at his word wonder why his plan costs so much if it doesn't add capacity. There is not even consensus on whether its security measures — the plan's selling point — reflect the best approach.

Hahn and Airport Commission President Ted Stein claim that the design consultant they want to hire at \$1 million a month would answer these questions. But shouldn't LAX's old consulting firm, to which the city has already paid more than \$100 million for planning, be able to do that? Better yet, the mayor

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Council Allows Delayed Design Work on LAX Plan

By Jennifer Oldham
Times Staff Writer

September 17, 2003

The Los Angeles City Council decided Tuesday not to block fast-track design work on Mayor James K. Hahn's airport modernization plan after receiving assurances from the mayor that the work would not begin until early next year.

The effect of the decision is a compromise: Officials will not wait for formal approval of Hahn's \$9-billion proposal to update Los Angeles International Airport, but the additional design work, at a cost of \$1 million to \$2 million a month, will be postponed for several months.

Councilwoman Cindy Miscikowski drafted a motion earlier this month to stop the city's Airport Commission from soliciting preliminary design proposals on Hahn's plan before it is reviewed by the council and the Federal Aviation Administration next fall. Six other council members signed Miscikowski's motion, which was viewed by many as an early referendum on Hahn's LAX plan.

Ferocious lobbying ensued. Airlines, labor representatives and others who support the mayor's plan attempted to convince City Council members that blocking design work now would cost the city more money in the long run.

"Delays in the start of construction will only add to the total cost of modernizing our international gateway airport," wrote Airport Commission President Ted Stein to council members.

"The cost increase could well be in the hundreds of millions of dollars and the delay in implementation of improvements could extend up to two years."

Airport Commissioner Miguel Contreras, who is the leader of the Los Angeles County Federation of Labor, said he contacted eight council members and urged them to vote against Miscikowski's motion, adding that 49,000 construction jobs depend on approval of Hahn's plan.

Miscikowski sent a letter to her colleagues asking why consultants who are now working on Hahn's plan — and being paid about \$1 million a month — aren't being asked to do preliminary design work. She sent an e-mail to Westchester homeowner groups that encouraged them to speak at a public hearing on her motion last Friday; many obliged, saying that they supported slowing the planning work.

Consequently, when she introduced her motion Tuesday, Miscikowski said she hardly needed to explain what was at stake.



"You've no doubt received more calls, more information and more detail on this motion, I daresay, than you've seen in your time on the council — and many of you have been here a long time," she said.

But many council members said they wouldn't support further delays in a 10-year effort to devise a politically palatable LAX plan. When it became clear that she wouldn't get enough votes, Miscikowski effectively withdrew her motion. She said she wasn't deterred by the loss.

"I think there was more harm done today in their fight over this motion than they gained in terms of victory," Miscikowski said of the Airport Commission and the mayor's office. "I think they heard today from a lot of my colleagues that they don't necessarily agree with the plan and have a lot of questions."

Several council members who signed Miscikowski's motion said they decided not to block the preliminary design work when Hahn offered the compromise.

"No money will be spent on the advanced planning consultant until the contract is negotiated, approved and executed," the mayor wrote to the council last week. He added that he will ask the Airport Commission not to award a contract until after March 1.

Councilman Antonio Villaraigosa said he changed his mind about Miscikowski's motion when the mayor offered to wait to solicit proposals. Other council members agreed, adding that stopping work is not an option when the city has logged about \$116 million in planning costs since Mayor Richard Riordan first proposed reworking LAX 10 years ago.

"It's important that we move forward with this at this time," said Councilman Tony Cardenas. "Even though this has been a very contentious situation, people are dialoguing and trying to come up with a compromise."

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News**NEWS
RELEASE****MAYOR HAHN UNVEILS NEW SAFETY AND SECURITY
ALTERNATIVE TO LAX MASTER PLAN**

7/2/02

**CONTACT : Hilda Marella
Delgado, Office of the Mayor
(213) 978-0605****Alternative D Map
Safety and Security Alternative Fact Sheet**

(Los Angeles, California – July 2, 2002) Faced with airport overcrowding and the need to build a safer airport, Mayor Jim Hahn today unveiled a new alternative to the LAX master plan that not only addresses the concerns of the surrounding communities, but also meets security demands.

Mayor Hahn, who currently serves as Chair of the Airport Safety and Security Task Force of the U.S. Conference of Mayors, last fall directed the Board of Airport Commissioners to develop an alternative to the master plan that incorporates the latest technologies and design to address safety and security at the airport while still maintaining his pledge to prevent unreasonable growth at LAX.

"In the past ten months, I have worked to develop a new airport configuration, with the emphasis on building an airport that is functional, efficient, safe and secure," stated Mayor Hahn.

"Last October, I directed the Board of Airport Commissioners to work on developing an alternative plan that would raise the level of safety and security, effectively meet the demand for 78 million annual passengers, eliminate the ring road, add no new runways, seek to eliminate runway incursions and mitigate the negative impacts this airport creates to the surrounding community. I am glad to announce today that we are delivering on those promises," Hahn added.

The proposed plan will cost approximately \$9 - \$10 billion and will be done in four phases beginning in 2004. The airport will remain fully operational during construction.

Mary Lou Crocket, a Westchester community activist and former airport commissioner, applauded Mayor Hahn's goals in seeking stakeholders input, including that from the neighboring communities, in an effort to create a consensus behind the plan.

"Clearly staff took the Mayor's vision and designed a strategy that focuses on a single principle: building a state of the art airport for Los Angeles and its travelers," Crocket said. "This plan presents an opportunity to build a secure and convenient LAX that serves a global market, but not at the expense of the surrounding community."

United Airlines also commended Mayor Hahn for his decision to move forward with his plan to modernize Los Angeles International Airport.

"United looks forward to active and direct involvement in the refining of this project so as to provide our customers with greater convenience and efficiencies, and to ensure that LAX continues to occupy its rightful position as the leading economic engine of this area," said Mark Liberman, United Airlines Vice President-Western Region.

The reconfiguration of LAX is critical to the regional economy. Worldwide, LAX ranks third in tons of air cargo handled, with 2.2 millions tons of freight shipped in 2000. LAX also contributes more than 400,000 jobs to the region. Those numbers are expected to multiply with the airport's makeover.

"A key factor is planning for future growth in international airline traffic, especially in accommodating the next generation of long-haul jets," said Jack Kyser, from the Los Angeles Economic Development Corporation. "Our future relies on the international market place. We must make sure that we have the most efficient door to the market, because if we don't there are a lot of other areas that will grab our business."

"The new alternative Mayor Hahn has proposed appears to be a good step in the right direction to modernizing LAX and spreading air traffic throughout Southern California. This plan reflects much of what the community has been calling for at LAX," said Los Angeles County Supervisor Don Knabe, who represents the LAX area.

Hahn's plan for LAX also received support from the local Chapter of the Association of Flight Attendants.

"The Mayor's alternative for LAX looks to the future of the aviation industry and has provided for the space needed to provide a secure structure for employee parking, which includes a separate security checkpoint for all employees. This will streamline the procedure for those who work here and, most importantly, standardize it," said Holly Hightower, Secretary Treasurer for the Los Angeles Chapter of the Association of Flight Attendants.

News

NEWS RELEASE

MAYOR JIM HAHN RELEASES ENVIRONMENTAL ANALYSIS AND DETAILS OF HIS ENHANCED SAFETY & SECURITY ALTERNATIVE FOR LOS ANGELES INTERNATIONAL AIRPORT MASTER PLAN

7/9/03

CONTACT : Hilda Marella Delgado
Office of the Mayor
(213) 978-0605

(Los Angeles, California -- July 9, 2003) Delivering on his pledge to make Los Angeles International Airport (LAX) the safest and most secure airport in America, Mayor Jim Hahn today announced the release of the environmental analysis and further details of his plan to modernize LAX as an integral part of a Southern California regional air transportation system.

"The goal of creating this Enhanced Safety and Security Master Plan is to modernize LAX to protect one of Los Angeles' key economic engines," Mayor Hahn said. "At the same time, the plan addresses community interests and concerns by designing the facility to serve only LAX's fair share of the total regional air service market."

Mayor Hahn was joined by representatives of business, labor, airlines, government and the community at the announcement of the public review and comment period for the Supplement to the Draft Environmental Impact Statement/Environmental Impact Report (SDEIS/EIR), including his LAX Enhanced Safety and Security Master Plan (Alternative D).

Mayor Hahn announced that the public review period on the LAX Master Plan will be held through August 25, 2003. Nine public hearings will be conducted throughout the region between August 11 and August 23. The Master Plan is a joint effort of the City of Los Angeles, Los Angeles World Airports (LAWA) and the Federal Aviation Administration (FAA).

The LAX Master Plan was placed on a federal streamlining list earlier this year to help facilitate the environmental review process at the federal level.

Mayor Hahn, who serves as the Chair of the U.S. Conference of Mayors Airport Safety and Security Task Force, announced his intention to prepare an alternative to the LAX Master Plan on October 8, 2001. Since then, planners, engineers and environmental consultants have been working with airport officials to further develop the plan and analyze its environmental impact.

Airport officials and Mayor Hahn's staff held more than 100 stakeholder meetings with airline representatives, chambers of commerce, elected officials and community members across the region as the plan evolved, briefing approximately 2,800 people in the last year alone.

"I am looking forward to continue seeking community and stakeholder input in the coming months," said Mayor Jim Hahn. "We are working together to make every effort to keep LAX safe and secure."

The plan designs the future airport to accommodate approximately 78.9 million annual passengers and 3.1 million annual tons of cargo. These traffic volumes are consistent with the goals established in the Southern California Association of Governments 2001 Regional Transportation Plan to promote growth of underutilized airports in outlying areas and to achieve a more decentralized distribution of future air traffic around the region.

Mayor Hahn said the approximately \$9-billion plan would be designed and constructed in phases over an 11-year period beginning in late 2004. The program would be financed through a combination of airport funding mechanisms, including revenue bonds, grants, concession revenues, Passenger Facility Charges, leases and landing fees. Mayor Hahn pledged that no taxpayer dollars would be expended from the City's General Fund.

The construction of airport improvements suggested in the plan would create nearly 49,000 direct construction-related jobs, pumping millions of dollars into the local economy. Mayor Hahn said it would be the largest public works project in America to require Project Labor Agreements (PLA).

The plan addresses four crucial areas: (1) airfield, including runway and taxiway safety improvements; (2) ground access (roadways, transit), automobile parking and rental cars; (3) terminal facilities; and (4) security concerns.

AIRFIELD IMPROVEMENTS

The North and South dual runway complexes would be modified to improve safety through the addition of center parallel taxiways between the runways. The FAA's latest airport design criteria would be applied to all new facilities developed as part of the plan. The North and South airfield usage would be balanced by lengthening the North runways.

These airfield modifications would improve aircraft maneuvering, reduce taxi delay, and increase airfield safety.

GROUND ACCESS

Airport traffic congestion is significantly reduced through new internal airport roads capable of handling passenger volume and expanded direct transit access, as well as proposed mitigation measures calling for direct freeway access.

Alternative D uses the area bounded by Aviation Blvd., Arbor Vitae St., La Cienega Blvd., and Imperial Hwy, as a comprehensive on-airport access area. This area would provide access to the new Ground Transportation Center and Intermodal Transportation Center, and add 36-lane miles of new airport access roads to improve the flow of traffic. Proposed mitigation measures would provide direct connection from the I-405 and I-105 Freeways with grade-separated roadways into the new internal airport roadway system.

The development of a Consolidated Rental Car Facility further reduces airport area traffic congestion. Each of these new ground access facilities would be connected to the airport terminal area by an Automated People Mover System. The automated people mover trains would operate to the Central Terminal Area from stations at each of the nodal points with an average 2-minute frequency.

- ***Ground Transportation Center (GTC)***

The GTC is proposed as the pick-up and drop-off place for LAX travelers. It would replace the curbside drop-off area in the Central Terminal Area (CTA). The GTC would have eight separate 1400-foot long curbsides connecting arrival and departing passengers to two separate and redundant people mover train stations. The curbsides would be identified through electronic signage designating airline and function. Curbside check-in would be available at the departing curbs for those needing or desiring this service.

Hourly structural parking would be available adjacent to the train stations to encourage greeters and well-wishers to stay with or meet passengers in the CTA. The GTC would also provide 7,500 structural parking spaces for long- and short-term use.

Airport security screening of passengers and baggage would be conducted at the GTC. The facility would be designed to accommodate security mechanisms such as limitations on the size and type of vehicles allowed at the curbs and in the parking garages, uniformed and plain-clothes officers, canine patrol units, advanced technology devices and behavioral observation. The GTC would have the space and flexibility to normalize airport operations even while responding to heightened security needs.

- ***Intermodal Transportation Center (ITC)***

The ITC would be the LAX connecting point for the Metro Rail Green Line light rail, regional transit buses, and future Metropolitan Transit Authority (MTA) rapid buses. The ITC would have a direct connection by a power walkway to the Green Line light rail station at Aviation Blvd. and Imperial Highway.

The ITC would also provide 9,100 structural parking spaces. An adjacent lot would offer 5,500 surface parking spaces. Structural parking would be for daily (less than seven days) business travelers and surface parking would likely be used by long-term and weekly travelers. The ITC would be conveniently connected to the CTA by the airport Automated People Mover System.

The same airport security screening used in the GTC would also be employed at the ITC.

- **Consolidated Rental Car Facility (RAC)**
All on-airport rental car companies would have their facilities in a single, consolidated location. Ready and return structural spaces would abut a people mover station to facilitate easy roll-on or roll-off, non-stop service to the CTA. Rental car quick turnaround service areas, personnel offices, maintenance facilities and car storage lots would radiate from the ready and return spaces for maximum rental car company efficiency. The consolidation into one rental car center would facilitate directional signage for RAC customers to and from adjacent interstate highways and local streets.

The same airport security screening used in the GTC and ITC would also be employed at the RAC prior to passengers boarding the Automated People Mover System.

- **Automated People Mover System (APM)**
The new facilities would be built with People Mover Stations that service the CTA. Service would be available every 2 minutes with an average wait of just one minute. The APM would provide non-stop service from the GTC to the CTA in approximately 5 minutes. Service from the ITC to the CTA, with just one stop at the RAC, would be less than 8 minutes.

Each APM station would have two tracks and be designed in a flow-through manner, whereby entering and exiting passengers use opposite sides of the car. The People Mover trains would be designed to easily and efficiently accept both roll-on luggage and baggage. The APM would operate on elevated structures so as not to interfere with existing roadways.

REDEVELOPED CENTRAL TERMINAL AREA (CTA)

Today, LAX serves its passengers through a combination of less than 4 million square feet of terminal landside and airside buildings. This well-used space is inadequate by today's standards and prevents the flexibility to respond to changing security needs.

The LAX Master Plan proposes to bring LAX's terminal facilities into the 21st Century by creating a new central landside terminal in the space now occupied by the CTA parking structures. Passenger and baggage screening conducted by the Transportation Security Administration (TSA) would take place in this facility and in close proximity to the aircraft gate areas. This new passenger terminal would be connected to a new North Linear Concourse replacing Terminals 1, 2, 3 and the north side of the Tom Bradley International Terminal (TBIT). The Bradley Terminal would be redesigned to add a new passenger concourse and aircraft gate area on its existing west face. A new Satellite Concourse would be constructed west of TBIT and would be connected to the main terminal by a secure underground people mover. Existing Terminals 4, 5, 6, 7 and 8 would be refurbished, as necessary, and connected to the new main terminal building.

The new terminal and passenger concourses would occupy more than 6.5 million square feet of space and bring LAX's passenger facilities up to today's international and domestic standards for all functional spaces.

NORMALIZED OPERATIONS UNDER HEIGHTENED SECURITY

The focus of Mayor Hahn's plan for LAX is to normalize passenger operations under any security circumstance. Meeting security requirements at LAX today are expensive and disruptive to the daily movement of people and goods through the airport and on local area streets. The Master Plan improvements would create the space and separation needed to balance the needs of airport users with the facilities, systems and tactics necessary to protect lives and airport infrastructure from those who aim to disrupt and destroy commerce in the U.S. The plan provides the space and flexibility necessary to meet the evolving federal security requirements.

The plan would employ the latest evolving technologies to identify and intercept all threats through checked and carry-on baggage. It would also eliminate the possibility of major disruptions to airport operations by removing all non-essential vehicles from the Central Terminal Area/central processing area of the airport.

A security analysis of the Enhanced Safety and Security Alternative performed by Science Applications International Corporation (SAIC) is included in the Draft Master Plan Addendum. It concludes that Alternative D is "overwhelmingly a better plan for LAX than the No Action/No Project Alternative. The ability of Alternative D to be flexible to meet future security needs is an optimal, forward thinking design." SAIC is the nation's largest employee-owned research and engineering company, providing information technology, systems integration and eSolutions to commercial and government customers.

The SDEIS/EIR and Draft Master Plan Addendum is available to the public for review in a variety of ways. Copies are available in 50 local and regional libraries, at the LAX Master Plan Public Reading Room located at the Imperial Terminal/Flight Path Learning Center at 6661 Imperial Highway and other locations across the region. The documents can also be viewed in their entirety on the Internet at www.laxmasterplan.org or purchased in various formats, including CD-ROM, by contacting Printco Graphics at (323) 727-6668.

Following the conclusion of the public comment period, the FAA, airport staff and its consultants will respond to comments and make any needed revisions based on the public input. The result will be a Final Environmental Impact Statement/Environmental Impact Report that will be forwarded to the Board of Airport Commissioners, the Los Angeles City Planning Commission, and then the Los Angeles City Council for review and action. Following City approvals, the plan will be forwarded to the FAA for coordination of final review and issuance of a Record of Decision.

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CITY OF INGLEWOOD CALIFORNIA
ONE MANCHESTER BOULEVARD / P.O. BOX 6500 / INGLEWOOD, CALIF. 90301

FAX (310) 412-8788



November 4, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan/Room 218
P.O. Box 92216
Los Angeles, CA 90009-2216

Mr. David B. Kessler, AICP, AWP 611.2
Federal Aviation Administration
P.O. Box 92007
World Way Postal Center
Los Angeles, CA 90009-2007

Re: Draft and Supplemental Draft Environmental Impact Report/Environmental Impact Statement, Los Angeles International Airport Proposed Master Plan and Master Plan Addendum - Comments of the City of Inglewood

Dear Mr. Ritchie and Mr. Kessler:

The following constitute the comments of the City of Inglewood ("Inglewood") concerning the Draft ("DEIR") and Supplemental Draft Environmental Impact Report/Environmental Impact Statement ("SEIR") for the Los Angeles International Airport ("LAX") Master Plan ("Master Plan") and Master Plan Addendum ("Addendum") (together "Project"), submitted pursuant to the requirements of the California Environmental Quality Act, *Public Resources Code* § 21000, *et seq.*, ("CEQA"), its implementing Guidelines, 14 Cal.Code Regs. § 15000, *et seq.* ("CEQA Guidelines") and the National Environmental Policy Act, 42 U.S.C. § 4321, *et seq.*, ("NEPA").

It should be noted at the outset that the body of this letter emphasizes evaluation of new Alternative D as set forth in the SEIR. However, LAX has chosen a format that purports to integrate the analysis of Alternative D into the platform of the original DEIR which is predicated on analysis of Alternatives A-C. While Inglewood believes this format is not optimal in achieving the goal of informing the public and decision makers of the Project's potential impacts, as set forth below, it has attached comments specific to the analyses of Alternatives A through C, as contained in the DEIR, to the extent they remain applicable, as Attachment 1 to this letter. If

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should be further noted that issues raised in Attachment 1 with regard to the analytic adequacy of the DEIR with respect to Alternatives A through C may impact the adequacy of the SEIR's analysis of Alternative D. With that caveat, the issues raised with respect to Alternative D fall generally into six categories:

(I) The SEIR's Project definition is improperly attenuated in that: (a) its baseline for analysis is 1996, almost 10 years before scheduled commencement of Project construction. While arguably reflective of physical environmental conditions in the vicinity of the Project when the Notice of Preparation ("NOP") for the DEIR was published in 1997, a 1996 baseline cannot faithfully represent environmental conditions 10 years later; and (b) the SEIR's purported 15 year term, from the year 2000 to the year 2015, does not take into account the four to five year delay in Project implementation from 2001 to at least 2005-6, and, thus, leaves the final five (5) years of the 15-year term of Project implementation, from 2015 to 2020, and the environmental impacts that may arise during those years, unanalyzed;

(II) Alternative D does not represent a meaningful constraint on capacity because it does not consider the capacity enhancing capability of new large aircraft or the Project's airfield reconfiguration designed to accommodate them;

(III) As a result, the SEIR's noise analysis fails to fully reveal the Project's aircraft and traffic noise impacts on homes and schools, the vast bulk of which fall on Inglewood, or to provide adequate measures to mitigate those impacts;

(IV) The SEIR's air quality methodology and resulting analysis does not adequately portray the emissions impacts of construction vehicles, aircraft and ancillary Ground Support Equipment ("GSE") or truck traffic associated with the Project;

(V) The SEIR's traffic analysis understates the Project's traffic impacts;

(VI) The SEIR's proforma discussion of environmental justice does not fully address the skewed distribution of the Project's impacts which fall almost entirely upon the minority/low income citizens of Inglewood, or offer adequate measures to avoid, minimize or mitigate the maldistribution of Project impacts.

I. THE SEIR'S PROJECT DEFINITION IS INCOMPLETE.

The SEIR's Project definition is improperly circumscribed by: (1) the utilization of the vehicle of a "supplemental" EIR, where a complete new EIR, encompassing Alternatives A through D would have been appropriate; (2) the utilization of a 1996 baseline, dating back seven years from the publication of the SEIR, where data indicates that the correct baseline would have been the full year 2001; and (3) the utilization of the years 2000 to 2015 as the 15-year term of

the Project, even though the Project, under the most optimistic circumstances, is not scheduled to begin until 2005 and, thus, a fifteen year Project term will end in the year 2020, leaving the environmental impacts of the Project arising during the last five years of the Project term, from 2015 to 2020, unanalyzed.

A. The SEIR Improperly Attenuates Analysis of the "Whole" Project.

A "project" for CEQA purposes, "means the whole of an action, which has the potential for resulting in either a direct physical change to the environment, or a reasonably foreseeable indirect physical change in the environment . . ." CEQA Guidelines § 15378(a). "Project" is "given a broad interpretation so as to maximize protection of the environment." See, e.g., *McQueen v. Board of Directors of the Midpeninsula Regional Open Space District*, 202 Cal.App.3d 1136, 1143 (1988). "In general, the lead agency must fully analyze each "project" in a single environmental review document." *Remy, Michael, Guide to the California Environmental Quality Act*, 10th Ed.1999, p. 75. "Thus, in performing its analysis, the agency should not split a project into two or more segments", *Id.*, thus insuring "that environmental considerations do not become submerged by chopping a large project into many little ones . . ." *Burbank-Glendale-Pasadena Airport Authority v. Hensler*, 233 Cal.App.3d 577, 592 (1991).

That dissection of a large project into several smaller ones is, however, precisely what seems to have happened here. Although the SEIR purports to relate Alternative D to DEIR Alternatives A through C, in reality the two documents are not directly comparable. The principal goal of the DEIR is capacity expansion and elimination of delay. [". . . [I]f LAX does not increase capacity to accommodate some of the projected increase in demand for air travel services, the demand will be met by other airports in the region or elsewhere in the Western United States." The principal goals of Alternative D are, however, very different, *i.e.*, (1) to enhance the safety and security at LAX for users and to protect the airport infrastructure; (2) to encourage the development and use of regional airports to serve local demand by constraining the facility capacity to approximately the same aviation activity levels identified in the no action/no project alternative; (3) to maintain LAX as the international gateway to Southern California; and (4) to mitigate the environmental impacts of LAX's continued operations, SEIR, Section 2, pp. 2-1, 2.

Even though the SEIR maintains that "purpose and need for the LAX Master Plan has not changed since the publication of the DEIR", Executive Summary, p. ES-1, it is clear that adequate analysis of the two sets of alternatives involves different data, methodology and assumptions. As a consequence of the failure to incorporate the analyses of all alternatives into a single document, structured by the same goals, assumptions and methodologies, the conclusions concerning Alternative D's relationship to the other alternatives, as well as to the environment, are suspect at the outset.

Moreover, the SEIR exceeds the proper scope of a supplement as set forth in the CEQA Guidelines. A supplement only “augments a previously certified EIR”, CEQA Guidelines § 15163, Discussion, and only where “minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation.” CEQA Guidelines § 15163(a)(2). Neither of these conditions exists here. The DEIR was never certified. Further, the changes to the Master Plan contained in the SEIR are far from minor. In fact, they constitute a new “preferred alternative”, supported by new goals, objectives, methodological approaches, and data, as well as resulting comparisons and ultimate conclusions.

The legislature and the public resources agency charged with CEQA’s implementation have taken the position that, prior to ultimate certification, a single project must be analyzed in a single comprehensive document. The rationale for this position becomes clear with reference to the SEIR. The isolation of a single alternative, Alternative D, and the consequent welter of cross-references to the previous DEIR, a two year old document, its technical reports and appendices, as well as to the SEIR, its technical reports and appendices, is a nearly insurmountable challenge to the public and to decision makers, even if the analytic framework of the DEIR and SEIR were comparable, thus defeating CEQA’s principal goals of “informed decision-making and informed public participation.” *Save Our Peninsula Committee v. Monterey County Board of Supervisors*, 87 Cal.App.4th 99, 118 (2001).

B. The Use of the Years 1996 and 2015 as the Project’s Temporal Parameters is, in Practical Terms, Inappropriate.

Despite the distinct justification and framework of analysis for Alternative D, the SEIR links Alternative D to the DEIR through the use of the same 1996 environmental baseline and 2015 Project end date. While the 1997 date for publication of the NOP (or 1996, the last full year of data before publication) theoretically constitutes the correct environmental baseline, CEQA Guidelines § 15125(a),¹ it does not in this case, for at least two reasons. First, the 1996 baseline used in the DEIR does not accurately reflect the physical conditions in the vicinity of the Project even at the time of the publication of the NOP in July 1997 (see Attachment 1, pp. 3-6). Second, even if 1996 did accurately reflect conditions applicable to the DEIR, it does not do so where, as here, a complete new comprehensive EIR containing equivalent analyses of all alternatives is required. The new EIR would have required publication of an NOP sometime after the year 2001, when the DEIR was originally circulated. Thus the years 2001 or 2002, the

¹ CEQA Guidelines § 15125 states, in pertinent part: “An EIR must include a description of the physical and environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.” CEQA Guidelines § 15125(a).

likely last full years of data before the publication of the new EIR, would have been the appropriate base years for the analysis contained in the SEIR.

Nevertheless, the SEIR avoids the use of 2001/2002 by introducing a year 2000 baseline “for informational purposes only”, predicated on “the most recent normal year for which a complete data set is available.” SEIR, § 3, p. 3-5. The rationale behind the choice of the year 2000 was apparently that, due to the terrorist attacks of September, 2001, “2001 is an anomalous year that would be inappropriate to use for a comparison to the Draft EIS/EIR’s baseline year.” SEIR § 3.2.1, p. 3-5, and “similarly, aviation activity in 2002 is also considered to be an anomalous year due to the effects of September 11, 2001.” SEIR, § 3.2.1, p. 3-5.

Neither the SEIR’s conclusions nor its rationale are convincing. SEIR, App. S-B acknowledges that, with respect to the year 2001 “the typical month for the design day schedule (August) would be unaffected by September 11, 2001.” App. S-B, p. 1 [emphasis added]. Nevertheless, the SEIR further opines “the ratio of peak month activity to annual activity is exceptionally high, due to the overwhelming fourth quarter decline in activity,” App. S-B, p. 2, although the SEIR contains no data to support that contention. However, review of OPSNET statistics for the years 1996 through 2002 reveals that operations for the full year 2001 at LAX declined by only 50,000, to 738,679 from the seven year high of 783,684 reached in 2000. The data also demonstrates natural annual fluctuations of almost 20,000 operations between 1996 (approximately 763,000 operations) and 2000 (approximately 783,000 operations). Thus, use of 2001, with requisite caveats, would have constituted at least as accurate a picture of the environmental circumstances in the vicinity of the Project as did the year 1996, seven years in advance of the publication of the SEIR.

The practical impact of utilizing the year 2001, rather than 1996, as a base year, is manifest. As there were fewer operations in 2001, and, thus, potentially fewer environmental impacts from them, a comparison with the Project years would have resulted in greater apparent impacts from the Project, than when compared to 1996, with a larger number of operations and concomitant impacts.

Finally, the use of the year 2015 as the end point of the Project is confounding at best. The SEIR’s purpose and need statement includes the need to “respond to local and regional demand for air transportation during the period 2000 to 2015”. SEIR, p. ES-1. From that statement, it can be reasonably deduced that LAX looks to a 15 year Project period. The problem is that the Project will not now commence construction, let alone full implementation, until in or after 2005. This would bring the end point of the Project period to the year 2020. 2020 is, however, outside the DEIR’s, as well as the SEIR’s, scope of analysis. In other words, the SEIR appears to leave the environmental impacts which may arise during the last five years of the Project’s implementation entirely unevaluated.

II. ALTERNATIVE D DOES NOT REPRESENT A MEANINGFUL CONSTRAINT ON CAPACITY, AND, THUS, WILL CAUSE IMPACTS IN EXCESS OF THOSE ANTICIPATED FROM THE "NO PROJECT" ALTERNATIVE.

One of the SEIR's stated goals is to "encourage the development and use of regional airports to serve local demand by constraining the facility capacity at LAX to approximately the same aviation activity levels identified in the no action/no project alternative." In support of that goal, the SEIR proposes a purported reduction in the available number of loading gates and spaces from 163 to 153; reduction in the linear feet of terminal frontage; and maintenance of cargo warehouse space at 3.1 million square feet. Despite these changes, the SEIR does not meet its goal of constrained capacity.

A. The New Runway Configuration Encourages Access for New Large Aircraft.

First, the reduction in available gates will not meaningfully constrain capacity because of the evolution toward higher utilization of New Large Aircraft ("NLA"), including the A380. With increasing use of NLAs, the airport will be able to accomplish more throughput with fewer gates, although of a larger size. The close to doubling in terminal capacity as between the 1996 baseline and Alternative D (from 3,997,000 square feet to 6,550,000 square feet) will also serve to accommodate the apparent projected increase in passengers resulting from introduction of NLA's.

NLAs are not however included in the projected fleet mix for the Project (SEIR, App. SC-1, Table S7), although it is apparent that the real aim of the Project is to accommodate them. The reconstruction and separation of Runways 7R/25L and 7L/25R in the south complex, and the addition of parallel taxiways (SEIR, Section 3, p. 3-48), as well as the ultimate extension of Runway 6R/24L to 1,280 feet to the east, to a total length of 11,700 feet and the extension of Runway 6L/24R 1,495 feet to the west, for a total length of 10,420 feet (SEIR, Section 3, p. 3-41) confirm that conclusion.

B. The Separation of Runways and Additional Taxiways Will Encourage Increased Capacity for Conventional Aircraft.

Second, even without NLAs, capacity would increase. Staggered runway ends (SEIR, Figure S3-8), permits simultaneous arrivals and departures in Visual Flight Rule (clear) weather, as do increased runway separations. The construction of two parallel taxiways between existing sets of runways will also allow an increase in the number of operations the airport can accommodate. Aircraft will be able to land with minimal separation and will be able to hold on taxiways between arrival and departure runways. Aircraft will then be able to land on one parallel runway and depart on the other without interruption. Multiple aircraft can be held between runways crossed to the terminal when there is no departure demand. This changed

configuration is a striking contrast to today's situation where there is not room to hold multiple smaller aircraft between the runways. If an aircraft is holding at a runway exit, the landing aircraft must now proceed to another exit. This requires increased separation between arrivals as there is not sufficient room to hold the aircraft exiting the runways.

Finally, the proposed limitation on increase in cargo handling facilities to 3.1 million square feet, as a means to control capacity, is entirely beside the point. Many cargo carriers at LAX are in the business of "same day" delivery, requiring fast turn around, but no warehousing. Where warehousing is required, off-site warehousing is available.

C. Alternative D Does Not Appear to Materially Further the Twin Goals of "Safety and Security".

In stark contrast to the SEIR's unstated goal of capacity increase, its stated goals of increased safety and security are elusive. With respect to the alleged Project safety goal of remedying runway incursions, obviously the proposed runway taxiway configuration will help. In the last analysis, however, six billion dollars is a steep price to pay, where significant improvements could be achieved by better airport signage, increased controller and pilot education, and strict enforcement of regulations and relevant provisions of operations handbooks.

With respect to security, Alternative D is an anachronism. By the time it is completed in 2015 or after, the world situation and/or technological progress will likely have rendered the security rationale for restructuring whole terminals and parking structures as well as freeway access to make them even more remote from aircraft and difficult for passengers to access, obsolete. While the goal is noble, Alternative D vastly exceeds current security requirements, developed and administered by the Transportation Security Agency, which the SEIR acknowledges are currently being met at LAX. On the other hand, the SEIR fails to address security issues such as: (1) the potential threat directly posed by airport employees and vendors who cannot, by virtue of their jobs, be funneled through the GTC; (2) the near term additional Federal security requirements such as the requirement for screening of cargo; and (3) the potential for attack on the GTC itself, where thousands of passengers will be concentrated, instead of disbursed, as they are now, through a number of terminals.

In summary, the final goal of Alternative D, to make LAX an international hub, is the dominant one, although somewhat inconsistent with Alternative D's other goals, because it can only be accomplished through the significant increases in capacity brought about by the reconfiguration of the airfield to allow the introduction of NLA capable of carrying large numbers of passengers long distances. Capacity increases are inevitably accompanied by increases in air quality, noise and related impacts. Therefore, the theme that flows throughout the

SEIR, that the characteristics and impacts of Alternative D are more or less the same as those of the "No Project" alternative is, at minimum, an overly optimistic assessment.

III. ALTERNATIVE D'S NOISE IMPACTS ARE, AT BEST, UNVERIFIABLE AND, AT WORST, UNDERSTATED.

Alternative D's noise impacts in general, and on Inglewood specifically, appear significantly understated. As a consequence, the mitigation measures set forth in both SEIR, Sections 4.1, Noise, and 4.2, Land Use, are inadequate to compensate for its impacts.

A. The SEIR Appears Methodologically Flawed.

One of the most notable issues from a methodological perspective is, as set forth above, the absence of the NLA, the A380 aircraft, from the fleet mix from which the noise analysis was derived (see SEIR, App. SC-1, Table S7). If, as set forth above, the NLAs are the principal beneficiaries of Alternative D's proposed reconfiguration of the airfield, their operation should be anticipated from a noise perspective. As it stands, however, Inglewood, and other affected communities, remain in the dark regarding the potential noise impacts of the larger, heavier, and potentially noisier aircraft. And, as Inglewood is the principal recipient of arrival noise, the size and shape of the contour over Inglewood may be materially affected by the omission of the A380 and other NLAs from the Project fleet mix.

The second issue arises out of the bifurcation of the analyses of DEIR Alternatives A through C, from SEIR Alternative D. SEIR App. S-C1 states that the DEIR was prepared with the INM 6.0 model, and the SEIR with the INM 6.0c model. As the two model versions use slightly different databases, it is not possible to ascertain whether the comparisons contained in the SEIR between alternatives are, in fact, accurate.

Similarly the flight track assumptions in the DEIR and SEIR diverge. SEIR, App. SC-1, Exh. S2, contains what purports to be existing flight tracks to the west for the noise analysis of Alternatives A through C, showing multiple turns originating immediately at the ends of the runways. SEIR, App. SC-1, Exhibit S4, however, reveals accurate flight tracks which do not begin to diverge until at or about the shoreline. The use of flight tracks that diverge immediately after takeoff, and prior to the shoreline, results in noise contours artificially expanded to the north and south along departure routes in areas west of the airport. Had the actual flight tracks represented in SEIR, App. SC-1, Table S4 for Alternative D, been used in the DEIR noise analysis of Alternatives A through C, the noise contours to the north and south depicted in the DEIR for Alternatives A through C would have been nearly identical to those in the SEIR for the analysis of Alternative D. As a result, the purported beneficial change to communities north and southwest of the airport from implementation of Alternative D may not exist if the correct

baseline for noise analysis is used. Absent defensible inputs, it is not possible to ascertain with any certainty the integrity of the comparative results of the noise modeling.

Further, the apparent contradictory information set forth in SEIR, App. SC-1 [“Reserve runway 6L/24R for arrival traffic only, during normal operating conditions . . .” See, *e.g.*, § 3, p. 3-42, and Tables S-2 and S-8, which appear to demonstrate the use of both outboard runways for both arrivals and departures at all times of the day (see also Section 3, p. 3-42 [“occasional departures would continue off the outboard runway 6L/24R during peak departing period. . .”], obscures both Alternative D’s capacity enhancing and consequent noise enhancing potential. Departures over Inglewood on Runway 6L/24R at night could substantially change the noise contours in ways not already analyzed or disclosed in the SEIR. In addition, SEIR, App. SC-1, Project 2.1.4, states that a 3 degree glideslope has been assumed for all approaches. While this is the normal default option, the SEIR does not: (1) validate the assumption with use of actual data from LAX operations; or (2) disclose the noise impacts of the 3 degree glideslope, when combined with the extension of Runway 6L/24R over 1,000 feet to the east. A preliminary calculation reveals that the combination may result in aircraft between 125 and 250 feet lower in altitude over Inglewood, with concomitantly higher noise impacts on arrival not disclosed in the SEIR.

The same lack of validation impacts flight track and operations data in several ways. First, SEIR, App. S-C1, Section 2.1, states that the LAX software automatically assigns an aircraft to a flight track and to an INM aircraft type. However, the SEIR is not clear as to whether there any radar tracking data to verify the INM assigned flight tracks, nor is it clear that the aircraft types are being assigned properly (*e.g.*, “light” vs. “heavy” aircraft). Second, SEIR, App. S-C1, Section 2.1.5 states that the average number of aircraft operations by aircraft type and time of day were estimated on proportional basis, using the 85% of operations that were actually monitored by the LAX software. The Appendix does not reveal, however, whether this approach yields data that is consistent with actual operations at the airport. Third, SEIR App. SC-1, Table S-15, which purports to identify the anticipated L-MAX noise levels generated by aircraft operations provides no comparison with the results from noise monitoring stations surrounding LAX to determine the accuracy of the INM model in predicting L-MAX levels.

Fourth, SEIR App. SC-1, Table S14, portrays the aircraft noise analysis results in terms of DNL not CNEL. As DNL is a less stringent measure which omits additional weighting to noise events that occur in the evening hours from 7:00 to 10:00 p.m., a conversion factor must be applied to DNL results in order to accurately portray CNEL impacts. As a consequence, the CNEL impacts identified in SEIR, App. SC-1, Table S20, cannot be corroborated.

Last, and potentially most crucial, SEIR App. SC-1, Section 2.1.7 states that the INM underpredicts the CNEL by 0-3 dB based on noise monitoring around LAX. As the INM model uses SEL values to calculate L_{eq} and CNEL, it may be reasonably concluded that the SEL and L_{eq}

analyses for Alternative D are also underpredicted by the same 0-3dB. Although a deviation of 3 dB CNEL is significant, as alluded to in the SEIR significance criteria used for assessing airport noise impacts, the SEIR contains no attempt to investigate the accuracy of the input data for the INM model for the purpose of calibrating the model to actual measurements at LAX, or verifying the results of the noise analysis.

B. Alternative D Does Not Fully Assess the Noise Impact on Inglewood Schools.

It is above dispute that, in general, the potential impacts of airport noise on children, and particularly children in a learning environment, are of critical importance, not only to the children and their families, but to society as a whole. Of particular importance to Inglewood, however, is that, as set forth in SEIR, App. SC-1, Alternative D will result in 12 additional schools in Inglewood exposed to single event noise levels sufficient to disrupt classes, as compared to noise levels in 1996. Nevertheless, the SEIR disaffirms significant impact from the increased exposure. SEIR Section 4.1.2.1.2, Project 4-11. ["no reliable statistical relationship between the amount of aircraft noise exposure present and the degree of learning difficulty experienced by children at affected schools" has been established.]

The treatment of the noise methodology used to evaluate noise impacts on schools reflects this conclusion. For example, SEIR Section 4.1.2.1.2, states that the peak hour of airport operations during school hours was used to assess the impact of aircraft noise on the schools. While this would be the proper approach (based on the threshold of significance established for the Project), SEIR, App. S-C1 reveals that instead of the peak hour, an average of 8 school hours was used in the analysis.

Moreover, the L_{eq} metric used in SEIR, App. SC-1, Table S33 appears incorrectly calculated. The average L_{eq} for the 8 hour school day in Table S33 is obtained by adding 10 log (3) to the 24 hour L_{eq} calculated by the INM model. The basis for this calculation appears to be that the 8 hour school day is 1/3 of the 24 hour day. However, this methodology is not correct since flights are not evenly distributed throughout the day. The result of the analysis is an average L_{eq} that is too low because most flights at LAX occur during the daytime. It should be further noted that, as set forth above, the model is acknowledged to underpredict L_{eq} values by 0 to 3 dB in any event. This underprediction, as well as the diminution in L_{eq} values caused by averaging were apparently not considered in the analysis or assessment of impact which should have been based on the peak, not average, hour, as acknowledged in SEIR Chapter 4.1.

Finally, while Section 4.1.2.1.2 also states that the "time above" was used as a threshold to evaluate noise impacts on schools, "time above" was not identified as a significance criterion in SEIR, App. S-C1. In fact, as set forth in SEIR Section 4.4.1.1, it is not clear whether the "time above" criterion is cumulative for a school day or for the peak hour, or whether it applies to each individual aircraft event. If it is cumulative, it can take many aircraft disruptions to achieve the 3

second “time above” criterion level used in the SEIR to establish disruption, thus creating an unrealistically high hurdle to the establishment of noise impacts on school populations.

C. Because of the Under Calculation of Noise Impacts, Measures Offered to Mitigate Noise Impacts on Schools are Inadequate.

Just as the analysis of noise impacts on schools is incomplete, so are the mitigation measures to remedy those impacts. Mitigation measures applicable to noise impacts on schools are limited to MM-LU-3 [“conduct study of the relationship between aircraft noise levels and the ability of children to learn”, SEIR Section 5, Project 5-21], and MM-LU-4 [“provide additional sound insulation for schools shown by MM-LU-3 to be significantly impacted by aircraft noise”, SEIR Section 5, Project 5-21 [emphasis added]]. The former involves the conduct of a study to determine if any measurable relationship exists between aircraft noise levels and the ability to learn. The latter is contingent upon the outcome of the former. The proposed measures are both legally and practicably inadequate.

First, it does not take a “comprehensive study”, or a mathematical relationship, to establish what is, at minimum, intuitively obvious - that an increase in airport noise of the type and magnitude portrayed in the SEIR will not be beneficial to learning. Second, it is improper for lead agencies to “defer formulation of possible mitigation programs by simply requiring future studies to see if mitigation may be feasible.” *Fairview Neighbors v. County of Ventura*, 70 Cal.App.4th 238, 244 (1999). Indeed, it is only where “after a thorough investigation, a lead agency finds that a particular impact is too speculative for evaluation, [that] the agency should note its conclusion and terminate discussion of the impact.” *Los Angeles Unified School District v. City of Los Angeles*, 58 Cal.App.4th 1019, 1026 (1997).

In *Los Angeles Unified School District*, a case only five years old, and involving the City of Los Angeles, proprietor of LAX, the court found that noise impacts on several schools from the proposed Warner Center Development in the San Fernando Valley were not too speculative for determination as claimed in the EIR, where “the authors of the EIR took precise measurements of existing traffic noise around Canoga Park High School and then used a Federal Highway Administration computer model to predict noise levels under alternative versions of the plan.” *Id.* On that ground, as well as a second ground, that sufficient reliable data had been developed to permit development of noise mitigation measures for residences in the area, *Id.* at 1028, the Court found that Los Angeles had failed to establish the reason why the same could not be done for the schools.

The same situation exists here. The SEIR contains what its authors, the lead agency, consider to be appropriate significance criteria based on several existing studies of classroom disruption, and analyzed in the INM, a Federal Aviation Administration model. Moreover, the SEIR contains what purports to be a definitive evaluation of noise impacts on residences, which

is accompanied by a number of mitigation measures, some of which are to be applied immediately upon Project implementation, and based on the determinations contained in the SEIR. There is, therefore, no cognizable reason, and the SEIR provides none, why reasonable, feasible mitigation measures to allay the impact of airport noise on children in 12 Inglewood schools should not be set forth in the SEIR.²

D. The SEIR's Analysis of Newly Awakened Population is Unclear and Potentially Inaccurate.

The SEIR reveals that the vast bulk of the population newly exposed by Alternative D to noise sufficient to awaken it on a regular basis, *i.e.*, 17,030 persons,³ lives in Inglewood, while all other affected jurisdictions, including the City of Los Angeles, Los Angeles County and El Segundo will experience a net decrease of up to 19,000 residents in population exposed to SEL levels sufficient to awaken. SEIR, Table 4.2-29. For that reason alone, Inglewood has a deep concern that the analysis of Alternative D's sleep impacts be accurate, understandable, and that proposed mitigation measures be adequate to mitigate those impacts. Thorough review of the SEIR and its Appendices fails to disclose relevant answers.

1. The Methodology Employed to Analyze Sleep Impacts of Aircraft Noise is Unclear and Leads to a Potentially Inaccurate Conclusions.

² To further complicate the issue, SEIR, Section 6.2.3, based eligibility for school noise mitigation on CNEL levels, a much higher, cumulative hurdle than the SEL criteria used to assess noise impacts on schools in SEIR Section 6.2. The SEIR should be revised to apply the relevant SEL criteria consistently to both the determination of noise impacts on schools and the eligibility for mitigation of those noise impacts.

³ When the population removed from the noise affected area by change in airfield configuration and resultant shift in the noise contour is considered, the net population in Inglewood exposed to regular awakening is 12,800 persons.

The SEIR uses a 94 dB SEL “noise contour” as a metric to measure aircraft noise sufficient to awaken. SEIR § 6.1.2 contains a description of the methodology used to calculate the location of the 94 dB SEL noise contour. That description is, however, unclear. The 94 dB level represented in SEIR Section 6.1.2 is based on a study that states that 10% of the population exposed to this level of noise will be awakened no more than once every 10 days. To establish a noise contour for operations that would occur once every 10 days, it appears that the methodology only considered aircraft operations that occur at least 0.1 times per day (or once every 10 days). If this is a correct understanding of the methodology, then the methodology is in error. If the methodology includes only aircraft that have at least 0.1 operations per day, then some operations have been excluded from the analysis. This could mean for example, that infrequent takeoffs to the east under Santa Ana conditions were not considered in the analysis. This omission would, of course, have a significant effect on Inglewood.

In effect, what is plotted in the SEIR is the 94 dB SEL contour (*i.e.*, the contour for 10% awakenings) for a subset of the total operations occurring at the airport. Therefore, the resulting analysis will be incorrect for two reasons: (1) It underpredicts the contour because it does not include all the flight operations at the airport; and (2) As the SEIR acknowledges that the model underpredicts SEL values by 0 to 3 dB, the resulting 94 dB SEL contour may also be underestimated by that amount. Finally, it is unclear from SEIR Section 6.1.2 whether the analysis of nighttime awakenings only included aircraft operations or also included ground runup operations which, in some instances, can be extremely noisy.

2. The Measures Proposed to Mitigate Awakenings are Incomplete and, Thus, At Least Partially Ineffective.

As a threshold matter, Inglewood appreciates the intent expressed in mitigation measure MM-LU-2, SEIR, Section 5, Project 5-20, to “incorporate residential dwelling units exposed to single event awakenings threshold into aircraft noise mitigation program.” However, SEIR Section 5 clouds that commitment by predicating the calculation of affected units on a comparison with “1992 65 CNEL contour”. Inglewood’s problem with that approach is twofold. First, the relevant baseline comparison throughout the SEIR for CEQA purposes is 1996. To suddenly employ 1992 contours as a baseline for comparison, without further explanation, renders the conclusion derived from that comparison suspect.

Inglewood is aware that the rationale for use of the 1992 contour is that, according to explanations offered in other forums, the 1992 contour represent the noisiest recent year due to the level of operations and the relative preponderance in the fleet of Stage 2 aircraft at that time. Nevertheless, neither the 1992 contour, nor data from 1992, are presented anywhere in the SEIR or relied upon in other sections. Therefore, further analysis of 1992 operations, noise levels, and

resulting contours, as compared to those for 1996 and 2000, the designated baselines for analysis in the SEIR, is required to justify use of 1992 contours in this isolated instance.

Moreover, the results of the comparison of Alternative D with 1992 contours is inconsistent with the results derived from comparison with the designated 1996 baseline. While the comparison with 1992 purports to result in 4,140 dwelling units and 13,170 residents of Inglewood newly exposed to nighttime awakenings, the comparison with 1996 results in 6,010 dwelling units and 17,930 residents newly exposed. Clearly, a measure that excludes 1,870 units and 4,760 residents will only incompletely mitigate Alternative D's noise impacts.

Second, while Inglewood appreciates the time and effort devoted to an application to the FAA for enforceable noise restrictions under 14 C.F.R. Part 161, that measure will also result in only incomplete mitigation. As SEIR, App. S-C1, Section 3.1.6 indicates, the Part 161 application will only eliminate gratuitous use of nighttime takeoffs to the east. For safety reasons, takeoffs to the east will still occur during Santa Ana conditions or when coastal fog limits visibility. As acknowledged in SEIR, App. S-C1, Section 3.1.6, these safety reasons account for the great majority of takeoffs to the east. Therefore, the mitigation measure that is the subject of a Part 161 application will be only intermittently applicable, and, thus, may provide little relief to the residents of Inglewood. Finally, SEIR, App. S-C1, Section 6.1.3 states that the Part 161 application will only apply to eastbound takeoffs between midnight and 6:30 a.m. However, SEIR, App. S-C1, Section 6.1 states that the analysis of nighttime awakenings applies to the hours between 10:00 p.m. and 7:00 a.m. Therefore, the proposed mitigation measure will not cover a period of two and one-half hours each night.

In the last analysis, the gravamen of the mitigation for nighttime awakenings is the sound insulation program identified in SEIR, App. S-C1, Section 6.1.3. However, without further clarification concerning the extent of the units and population that will be covered by the sound insulation program, the program appears inadequate to mitigate the full noise impacts of Alternative D.

E. The Expansion of the ANMP Contemplated in Mitigation Measure MM-LU-1 May Provide Only Limited Relief to Inglewood Residents Newly Exposed to Noise in Excess of 65 dB CNEL.

The SEIR makes painfully clear that the vast bulk of the population newly exposed by Alternative D to noise in excess of 65 dB CNEL will be in Inglewood. Specifically, Alternative D is projected to increase the number of Inglewood residents impacted by noise in excess of 65 dB CNEL by 4,190, when compared to the 1996 baseline (as opposed to zero in El Segundo, 790 in the City of Los Angeles, and 380 in Los Angeles County). Nevertheless, the scope of MM-LU-1's applicability to these newly affected populations is not clearly defined.

For example, while MM-LU-1 proposes to expand the existing ANMP to “mitigate land uses that would be rendered incompatible by noise impacts associated with implementation of the LAX Master Plan”, SEIR, 5-19, it also imposes criteria for inclusion in the ANMP that require the existing ANMP to be completed before expansion to newly impacted residences. As the current ANMP already involves thousands of units in Inglewood alone, not to speak of other communities; and as the process of sound insulation construction can be a lengthy and complex one, the almost 5,000 newly impacted residents of Inglewood may have to wait in line behind other residents of Inglewood and other communities for up to 10 years, all the while suffering the debilitating impacts on sleep, learning and living in general caused by Alternative D.

Moreover, as an alternative to insulation, MM-LU-1 proposes “acquisition of properties within the highest CNEL measurement zone” as well as those with “high concentrations of residents and other noise sensitive occupants . . .” SEIR, Project 5-19, 20. MM-LU-1, however, fails to identify the manner in which the housing needs of newly exposed residents will be accommodated after their properties are acquired. In fact, the SEIR, Section 4.4.3, rejects the necessity of acquisition, and consequently ignores the need for attendant relocation. [“Under Alternative D, there would be a substantial reduction in property acquisition compared to the other build alternatives. No residential acquisition is proposed . . .” SEIR, p. 4-333] Nor is there any discussion of the way in which, in the tight and expensive L.A. housing market, decent affordable housing will be provided, or made available through new construction.

In light of the size of the potentially affected population, most of which are in Inglewood, and its heavily low income and minority characteristics, MM-LU-1 is sorely inadequate to mitigate the impacts of any of the proposed alternatives.

F. The Data and Metrics Used in the SEIR’s Analysis of Alternative D’s Traffic Noise Impacts Are Inconsistent With Those Used in the Evaluation of its Aircraft Noise Impacts.

The methodology used in the SEIR’s analysis of Alternative D’s traffic noise impacts is unclear as to the data used in the evaluation of peak hour traffic noise, as well as inconsistent as between the metrics used to assess traffic and aircraft noise. These inconsistencies may render the SEIR’s conclusions regarding Alternative D’s cumulative noise impacts questionable.

The SEIR states that peak noise hour data, *i.e.*, data for the noisiest one hour period of the day, were used in the analysis of traffic noise. SEIR § 4.1.2.1.3. However, based on review of SEIR, App. SC-2, Roadway Noise Data, it appears that, in fact, either peak a.m. or p.m. traffic

data were used. These are not typically the noisiest hours of the day since traffic slows due to congestion. Thus, the SEIR's traffic noise analysis may not have captured the true extent of the Project's traffic noise impacts.⁴

⁴ It appears, although it is by no means certain, that the data in SEIR, App. SC-2 takes this into account by reducing traffic speeds for future years. However, a more accurate way of dealing with the problem would be to start with the correct data in the first instance.

Further, the metrics used to measure aircraft and traffic noise are inconsistent. The SEIR's aircraft noise analysis depends on the cumulative CNEL metric.⁵ The SEIR's significance criterion for traffic noise, however, is the 24 hour L_{eq} metric which is a predicate to, but not identical with, the CNEL significance criterion. Where the SEIR purports "for information purposes", to combine aircraft and traffic noise to estimate the total experienced noise, Section 4.1.2.1.3, p. 4-12, it does so by converting both traffic and aircraft noise to a 24 hour L_{eq} metric, rather than converting traffic noise to a CNEL metric. The result is a comparison of "apples and oranges", that deprives the public of the simplicity of a consistent metric. If using the L_{eq} metric would result in a more accurate characterization of the Project's noise impacts, its use would be acceptable. However, the SEIR does not claim that this is so.

In short, while the SEIR states that the computation of the combined noise impacts of traffic and aircraft are for "information purposes" only, the reality is that noise in the vicinity of the project will have multiple components, two of which are aircraft and traffic, and another, construction noise as set forth below. The SEIR has an affirmative responsibility to fully and accurately depict the cumulative impacts of all three.

G. The Impact of Construction Noise From the Proposed GTC on Residents of Inglewood Has Not Been Adequately Evaluated.

SEIR Section 4.1.6.4.3 states, in pertinent part, that: (1) as the closest noise sensitive uses to the GTC are more than 1,000 feet to the east across La Cienega Boulevard and the I-405 in the City of Inglewood; (2) because construction equipment noise of 86 dBA L_{eq} would dissipate to approximately 66 dBA L_{eq} at that distance; and (3) because the road traffic and other noise would mask any construction noise, the impact of construction noise on homes in Inglewood would be less than significant. In reaching that conclusion, the SEIR relies on a theory conclusively rejected by the court in *Los Angeles Unified School District, supra*, 58 Cal.App.4th at 1025.

In its EIR in that case, as in the SEIR here, Los Angeles reasoned that "the noise level around the schools is already beyond the maximum level permitted under Department of Health Guidelines so even though traffic noise from the new development will make things worse, the impact is insignificant." *Id.* After characterizing Los Angeles' position, the court rejected it, relying on *Kings County Farm Bureau v. City of Hanford*, 221 Cal.App.3d 692, 720 (1990).

"This ratio theory, the court explained, 'trivialized the project's impact' by focusing on individual inputs, not their collective significance. . . [T]he relevant issue to be addressed in the EIR on the plan is not the relative amount of traffic noise resulting from

⁵ The exceptions to the use of the CNEL metric is to assess noise impacts on schools and awakenings.

the project when compared to existing traffic noise, but whether any additional amount of traffic noise should be considered significant in light of the serious nature of the traffic noise problem already existing around the schools.” *Id.* quoting *Kings County Farm Bureau, supra*.

The SEIR’s analysis of the construction noise impacts of Alternative D is predicated upon precisely the same impermissible “ratio theory” as that rejected in *Los Angeles Unified School District*. The SEIR opines both that construction equipment noise would dissipate to a less than discernable level at a distance of 1,000 feet from Inglewood and that road traffic noise would mask any construction noise. While some analysis exists in the SEIR to support the former, none whatsoever exists with respect to the latter. In other words, it is yet to be determined whether traffic noise, when calculated using peak noise hour data, as well as peak traffic data, will sufficiently exceed the level of construction noise, the peak hours of which may be entirely different, to mask or obliterate its impacts on residents less than a fifth of a mile away. As the court held in *Los Angeles Unified School District*, “we do not know the answer to this question but, more important, neither does the City”. *Id.* at 1026. Without those answers respecting the Project’s cumulative traffic, aircraft and construction noise impacts, the SEIR is potentially inadequate.

IV. THE SEIR DOES NOT FULLY DISCLOSE THE PROJECT’S AIR QUALITY IMPACTS.

The SEIR’s air quality analysis is of questionable accuracy where: (1) the methodology employed in the analysis understates baseline emission concentrations, thus leaving substantial headroom within which to make the finding that the Project increases emissions without violating ambient air quality standards (“AAQS”); (2) understates emissions from aircraft; (3) overstates emissions benefits from electrification of aircraft ground support equipment and the use of gate-based power, and understates emissions impacts from construction equipment; (4) omits heavy duty construction and transport truck emissions from the analysis; and (5) improperly defers the conformity analysis required for all Federally funded projects pursuant to the conformity provisions of the Clean Air Act, 42 U.S.C. § 7506, *et seq.*

A. The Methodology Used in the Calculation of Background Pollutant Concentrations Leads to Understatement of Impacts.

To varying degrees, the determination of the Project’s environmental impacts is dependent upon the background environment with which the Project impacts are compared. With respect to a determination of air quality impacts, the accurate calculation of background concentrations is particularly crucial, because it is upon that base that the compliance of Project specific emissions with regional air quality standards is determined. If that base is

underestimated, the overall effect of airport improvements on AAQS compliance will be similarly understated. Here, it appears that the baseline concentrations upon which Alternative D's compliance is predicated are calculated through a methodology that artificially lowers background emissions levels so as to allow room for Project emissions to fall below maximum applicable AAQS.

The SEIR employs a methodology whereby future year background concentrations, excluding PM_{10s}, are determined by adjusting base year concentrations by the ratio of future south coast regional emissions to current south coast regional emissions. For PM₁₀, the process is similar but is based on the ratio of estimated future year PM₁₀ concentrations to current PM₁₀ concentrations in central Los Angeles. Both methods seem likely to produce optimistic (too low) background concentrations for LAX.

First, both methods assume that regional reductions affect all areas of the region equally. However, background concentrations, as well as future emission reduction influences are constrained by geography around LAX. Since the prevailing wind is from southwest to northeast, the Pacific Ocean represents a physical constraint and it is unlikely that background pollutant concentrations coming into LAX will be reduced in proportion to emission reduction occurring downwind. In addition, the emissions based approach assumes that fully 100% of the background can be reduced, *i.e.*, if emissions go to zero, ambient concentrations go to zero. While this may be true in an idealized situation, transport and biogenic emissions represent a floor below which air quality cannot be locally reduced. For example, emissions associated with shipping may represent a floor for background NO_x and SO₂ at LAX. The SEIR does not provide enough data from which to make that determination.

The SEIR does, however, provide additional evidence to support the conclusion that the Project's baseline concentrations are artificially reduced. For example, the SEIR's methodology assumes that emissions from LAX are already included in background concentrations, and, thus, they must represent conservative background pollutant concentration baselines for air quality analysis, as LAX emissions will be added on top of a background that already includes those same LAX emissions. This assumption is based on data concerning baseline short-term (sub-annual) background concentrations measured at an on-site monitoring station located just east of the southern runway configuration, and annual concentrations based on data collected at a SCAQMD monitoring facility in Hawthorne, located near, but southeast of LAX. Because, as set forth above, the prevailing wind direction for LAX area is southwest to northeast, the bulk of airport activity, including all terminal and motor vehicle operations, occur under the influence of a prevailing wind plume that is further north than the onsite monitoring station. While certain aircraft takeoff and queuing emissions are undoubtedly accounted for in the on-site baseline concentrations, these represent only a small fraction of overall airport emissions.

National Weather Service data for 1984 through 1992 at LAX demonstrates the likelihood that these monitoring data are not significantly impacted by LAX emissions. Winds are out of the west or southwest $48 \pm 6\%$ (or approximately $\frac{1}{2}$) of all hours in that period. To get a better idea of the significance of this distribution, if a circle were centered at LAX and split into 16 equal "slices", the wind would be blowing off the ocean through only two of those 16 slices for fully $\frac{1}{2}$ of all hours. Moreover, these winds would be blowing in a direction such that LAX emissions would have no influence on the off-site monitoring station and little, if any, influence on the on-site measurement. Perhaps most tellingly, winds moved in a prevailing south to north direction (from the bottom half of the circle to the top half) $82 \pm 3\%$ of all hours between 1984 and 1992. Thus, only during $9 \pm 2\%$ of all hours did wind move from the northwest quadrant of the circle toward the southeastern quadrant (*i.e.*, in the direction necessary to influence either the on-site or off-site monitors). Therefore, whatever influence LAX has on either site is clearly modest since the off-site station is located south of LAX and the on-site station is on the southeastern corner of the airport. Consequently, there is little influence from LAX on the off-site concentrations used as background, and only a slight influence on the on-site based background concentrations.

In summary, as a result of employing the specified methodology, 2015 background concentrations are potentially reduced by 50% for NO₂, 60% for CO, and 30-80% for PM₁₀. Clearly, these reductions provide substantial "headroom" for local emissions increases within the confines of the AAQS. Furthermore, these reductions appear to represent the most significant influence on forecasted pollutant concentrations in the years 2005 and 2015.

The overall sensitivity of the air quality analyses to the background concentration reduction is perhaps best recognized in examining the forecasted 2015 pollutant concentrations. Despite the 50% background concentration reductions for NO₂, annual average on-site NO₂ concentrations are forecasted to increase between 1996 and 2015. While the forecasted increase is not sufficient to cause a violation of the NO₂ AAQS, that may be entirely the result of the reduced background concentrations resulting from the flawed methodology employed. Clearly, the integrity of the AAQS compliance status hinges on the proper demonstration of background concentration propriety. Since this is the case, it is critical that assumed background concentrations be supported with appropriate analyses, and those analyses are currently lacking in both the DEIR and SEIR.

B. The SEIR Understates Aircraft Emissions.

Aircraft emissions are understated in the SEIR through utilization in the analysis of: (1) incorrect aircraft PM₁₀ factors; (2) incorrect taxi times; (3) incorrect default aircraft engine assignments; and (4) omission to consider reverse thrust emissions.

1. The SEIR Air Quality Analysis Utilizes Incorrect Aircraft PM₁₀ Emission Factors.

As set forth in Attachment 1 to this letter, the DEIR's air quality analysis was based on incorrect PM₁₀ emissions factors. As nothing has changed in the SEIR, this issue is again worthy of note. PM₁₀ emission factor estimation in the DEIR shows that the basic estimation approach yields an emission factor that only considers the basis nonvolatile portion of the particulate. An adjustment factor (that varies with fuel sulfur content) should be used to correct the estimate to total PM. As set forth in Attachment 1, this factor is estimated to be approximately 2.6 for low sulfur (about 70 PPMW) jet fuel and 14.7 for high sulfur (about 675 PPMW) jet fuel. As EPA data demonstrates that U.S. jet fuel averages about 600 PPMW sulfur, the appropriate adjustment factor for the SEIR would be about 13.2. However, as the SEIR uses unadjusted emissions factors, PM₁₀ emissions are underestimated by a factor of 13.

This alternative approach to PM emission factor estimation is based on a strong statistical relationship between measured PM and the inverse of measure NO_x (with co-efficients significant at 99+% confidence levels). With such a relationship, the entire existing database of aircraft NO_x emissions rates can be evaluated to develop aircraft engine and operating mode specific PM emissions rates. This approach produces PM emissions rates that range from 4 to 37 times higher (depending on operating mode) than those used in the DEIR and SEIR. The smallest differentials are observed at the highest thrust modes. For a typical landing/takeoff ("LTO") cycle at LAX (*i.e.*, using local times in mode), the SEIR appears to underpredict the aggregate PM emission factor by a factor of about 17. The effect on related PM air quality analysis is obvious.⁶

Interestingly, if the appropriate carbon-to-total PM emission factor correction of 13.2 is applied to the emissions rates used in the DEIR and SEIR, the differential between the two emissions factor estimation approaches is dramatically reduced, from a factor of 17 to a factor of 13. However, even this differential is worthy of investigation since mode specific differences are

⁶ Inglewood acknowledges that the available PM emissions testing database is both small and dated. It does not, however, agree with the DEIR that the age of available testing data renders it valueless. While engine technology has advanced relative to the engines represented in the database, the fundamental combustion characteristics that give rise to PM formation have not. Further, the claim that the existing aircraft emissions factors are not of value since they reflect total PM as opposed to PM₁₀ is also without merit. Virtually 100% of combustion related PM is PM₁₀, so any error resulting from the substitution of total PM for PM₁₀ is insignificant relative to the analysis errors contained in the DEIR and SEIR. Ironically, the PM emission factor estimation approach employed in both the DEIR and SEIR requires the very same assumption of equivalency between total PM and PM₁₀.

in and of themselves significant and the overall air quality impact depends on how individual mode significance changes over time.

2. The SEIR Inaccurately Represents Aircraft Taxi Times.

The DEIR did not present any aircraft to taxi/queue times. The SEIR, however, does present a single set of taxi/queue times that are stated to have been “used to estimate aircraft emissions for all alternatives in both horizon years”. SEIR, App. S-E, p. 10. However, based on analysis of the data set forth in SEIR App. S-E, this statement does not appear to be accurate. As shown in Table 1 below, the main benefit ascribed to Alternative D is a reduction in taxi times.

TABLE 1

	NO _x (tpy)	VOC(tpy)	CO(tpy)	SO ₂ (tpy)	PM-10(tpy)
Taxi Emissions - NA/NP Alternative	723.3	794.9	4,381.6	89.9	17.8
Taxi Emissions - Alternative D	659.2	707.6	3,956.6	80.9	14.6
Taxi Emissions Difference	-64.1	-87.3	-425	-9	-3.2
Aircraft Emissions - NA/NP Alternative	5,154.9	1,204.1	6,668.7	232.5	70.2
Aircraft Emissions - Alternative D	5,171.7	1,111.2	6,240.7	223.7	62.0
Aircraft Emissions Difference	16.8	-92.9	-428.0	-8.8	-8.2
Percent of Total Difference Due to Taxi	-382%	94%	99%	102%	39%

As also shown in Table 1, with the exception of PM₁₀, changes in taxi related emissions account for virtually 100% of the claimed reductions in aircraft emissions from Alternative D. Therefore, it would be methodologically unlikely that the same taxi times were used for all airport alternatives, because if that were so, the differences between the alternatives would be far less distinguishable.

As the bulk of aircraft VOC and CO emissions are generated during taxi; and although NO_x emissions rates are low during taxi, the amount of time spent in taxi mode results in a significant contribution to overall aircraft NO_x emissions, it is important that taxi time be accurately modeled. The SEIR contains insufficient information to allow an appropriate evaluation.

3. The SEIR Utilizes Incorrect Default Aircraft Engine Assignments.

The SEIR sets forth the assumed aircraft engines for all modeled airframes. It appears that these assumptions reflect the EDMS version 4.11 Default Engine Assignments without exception. While such an assumption would not affect the relative impacts of the various LAX

alternatives, it can have a significant impact on the absolute level of aircraft emissions and the magnitude of associated ambient concentrations. The EDMS default engine reflects the “most popular” engine for an airframe based on total airframe sales. For a particular airport, total airframe sales may or may not be an accurate indicator of local conditions due to variations in airline specific activity (e.g., local vs. national). Different airlines favor different airports and the associated traffic into and out of those airports is biased toward local airline distributions. Thus, aircraft engine assignments should, at a minimum, be conducted on the basis of the local airline mix, which is unlikely to be consistent with EDMS default assumptions. The SEIR does not contain an analysis based on local airline mix and, thus, its conclusions with regard to aircraft emissions are not definitive.

4. The SEIR Air Quality Analysis Does Not Include Reverse Thrust Emissions.

The SEIR, like the DEIR, omits from its air quality analysis emissions from aircraft reverse thrust operations, on the ground of lack of adequate emissions factors and short usage times. Both of these claims are, however, misleading. Reverse thrust is essentially a high thrust operating mode and emissions factors for such modes (*i.e.*, climb out and takeoff) are readily available. Common practice utilizes takeoff emission factors. It is true that the time in mode for reverse thrust operations is short. However, high thrust modes produce very high NO_x per unit time relative to other operating modes such as aircraft taxi. For example, at a commonly utilized reverse thrust mode time of 15 seconds, overall effective takeoff time would increase by approximately 25% (approximately one minute standard takeoff time plus 0.25 reverse thrust minutes vs. one minute without reverse thrust). This, in turn, increases NO_x by 25% relative to takeoff alone. Since takeoff accounts for about 35% of total aircraft NO_x under all alternatives, including the No Project alternative, the overall aircraft NO_x inventory could increase by about 10% simply due to the inclusion of reverse thrust related emissions. Without some enforceable measure prohibiting reverse thrust operations, there is no supportable rationale for excluding reverse thrust emissions from the air quality analysis.

C. The SEIR Overstates Emissions Benefits from Electrification of Aircraft Ground Support Equipment and the Use of Gate Based Power.

As a threshold matter, emissions factors employed in the DEIR for off road engines, including, but not limited to, construction equipment and aircraft GSE were significantly underestimated by the use of outdated emissions factor sources. The SEIR purports to have corrected that flaw though the use of emissions factors for off road construction equipment derived from the California Air Resources Board (“CARB”) OFFROAD Emission Factor Model. This would be the correct approach. However, it is not possible to confirm that the revised emissions factors are derived from the OFFROAD model, as the SEIR contains only an aggregate emissions summary (as opposed to the DEIR’s actual emissions factors for comparison).

With respect to GSE, the SEIR relies on emissions factors derived from the latest version of the FAA's EDMS model (updated since the DEIR). While the emissions factors in the SEIR also appear consistent with those contained in EPA's NONROAD Emission Factor Model, the SEIR still raises significant concerns regarding the overall propriety of the GSE emissions analysis.

1. The SEIR Does Not Validate the Assumptions Contained in FAA's EDMS Model with Real Data.

Like the DEIR, the SEIR continues to rely on the FAA's EDMS model to estimate the LAX GSE population and equipment characteristics (*e.g.*, horsepower, hours of use, load factor). Given that the current GSE population and most of the associated operating parameters for LAX are already known, it is appropriate to validate the EDMS model assumptions with actual LAX conditions. Ideally, the current assumptions should be replaced in their entirety with known LAX data. At a minimum, consistency should be demonstrated. The FAA has facilitated the use of actual airport data through their latest release of the EDMS model (Version 4.11, identical to that used to support the SEIR) by allowing users to replace aircraft based GSE activity assumptions with airport specific "census" data. The analysis in the SEIR should take advantage of this opportunity to establish the air quality analysis' accuracy.

2. The SEIR's Assumption That Alternative D Will Involve GSE Electrification and the No Project Alternative Will Not is Groundless.

Like the DEIR, the SEIR posits a wide spread GSE electrification program under all four build alternatives, while retaining a large percentage of fossil fuel powered GSE under the No Project alternative. While this GSE electrification program is asserted to be the most effective mitigation measure set forth in the SEIR, there are no grounds to assume that GSE will not be similarly electrified under the No Project alternative, thus, eliminating any differential resulting from the use of fossil fuel powered GSE between the No Project and build alternatives.

First, its is arbitrary to apply GSE electrification only to the build alternatives, as there are no specific constraints to implementation under the No Project alternative. Moreover, electrification of GSE is cost effective from a market standpoint today so whatever incentive or mandate will be offered under the build alternatives to move toward electrification could just as easily be applied today to generate emissions reductions under a No Project alternative.

Even ignoring the tenuous relationship between the build alternatives and GSE electrification as a mitigation measure, by far the most troubling issue is that GSE electrification appears to be accounted for in the "unmitigated" emission estimates for all build alternatives. If this is a correct assessment, no additional emissions reductions will be achieved through GSE

electrification. For example, unmitigated GSE emissions for Alternative D and the No Project alternative (from SEIR App. S-4, Attachment N), are virtually identical in terms of aircraft and, thus, GSE activity. Although there is no reason set forth in the SEIR to expect GSE to emit any differently between an unmitigated implementation of Alternative D and the No Project alternative, the data in Attachment N demonstrates that Alternative D presents a substantial reduction in emissions of all pollutants over the emissions in the No Project alternative.

TABLE 2

	NO _x (tpy)	VOC(tpy)	CO(tpy)	SO ₂ (tpy)	PM-10(tpy)
NA/NP Alternative	618.7	240.4	5,685.9	11.4	24.0
Alternative D	135.5	88.1	1,523.2	1.4	30.8
Percent Change	-78%	-63%	-73%	-88%	28%

There are only two possible explanations for the reported differences. Either the Table in Attachment N is incorrectly labeled, and actually reflects mitigated emissions differentials, or the GSE electrification is included in the “unmitigated” emissions from the Project.

In the final analysis, it is clear that the reason air quality impacts under Alternative D are reported to be less than those of the No Project alternative can be traced almost entirely to emissions reductions associated with GSE and aircraft taxi times. In fact, impacts for all other emissions sources under Alternative D are either null or negative compared to the No Project alternative.

TABLE 3

	NO _x (tpy)	VOC(tpy)	CO(tpy)	SO ₂ (tpy)	PM-10(tpy)
NA/NP Alternative	6,278.8	1,775.0	14,413.1	251.8	170.0
Alternative D	5,746.5	1,625.0	9,660.3	246.4	187.1
Total Emissions Difference	-532.3	-150.0	-4,752.8	-5.4	17.1
GSE Emissions Difference	-483.2	-152.3	-4,162.7	-10.0	6.8
Percent of Total Difference Due to GSE	91%	102%	88%	185%	40%
Aircraft Taxi Difference	-64.1	-87.3	-425.0	-9.0	-3.2
Percent of Total Difference Due to Taxi	12%	58%	9%	167%	-19%
Percent of Total Difference Due to GSE and Taxi	103%	160%	97%	352%	21%

If that conclusion is correct, then all air quality benefits accruing from GSE electrification in Alternative D could just as readily be applied to the No Project alternative, rendering any air quality benefits from Alternative D ephemeral at best.

4. The SEIR Overstates the Emissions Benefits of Gate Based Power and Understates the Potential for Auxiliary Power Unit Emissions.

Like the DEIR, the SEIR assumes that 100% of air carrier gate power and conditioned air needs will be satisfied by gate-based electrically powered systems, as opposed to fossil fuel powered Auxiliary Power Units ("APU") or GSE. This assumption is overly optimistic because, even under conditions where gate based equipment is available, not all airlines or aircraft will utilize it consistently. Although the assumption of 100% availability and usage affects the No Project alternative and build alternatives equally, it is necessary to account for the full range of expected emissions in order to determine AAQS compliance. Without some enforceable policy requiring that gate base systems (both air and power) be used, and that any onboard APU be shut down until needed for main engine startup, a more realistic assumption for aircraft emissions purposes would be to base the fraction of aircraft that rely on gate base systems on the system usage rate for currently equipped gates at LAX.

Moreover, perhaps as a result of the assumption of universal use of gate based power, the SEIR assumes an emission factor of zero for all APU. While the impact of this assumption is buffered by the assumption of limited APU usage, APUs are still assumed to operate for seven minutes, at the time of main engine startup and shut down, and emissions during this period should be fully considered. Further, if the APU usage rate is corrected to better reflect actual gate based system usage, APU emissions could increase to 40 minutes or longer for a wide bodied aircraft, a level which would more properly reflect maximum short term emissions rates and maximum short term ambient concentration impacts. Without inclusion of APU emissions, it appears that the SEIR's air quality analysis is flawed.

5. The SEIR Relies on Outdated Load Factors for Off Road Equipment.

While the SEIR utilizes revised emissions factors derived from ARB's OFFROAD Model to assess the emissions impacts of off road construction and other equipment, it does not similarly employ revised operational load factors. Instead it relies on load factors derived from the CEQA Air Quality Handbook published in 1993. As considerable information has been collected in the last decade, relying on load factors from 1993 is likely to skew the air quality analysis in ways it is not possible to anticipate without the provision of relevant data.

6. The SEIR's Air Quality Analysis Omits Heavy Duty Trucks From Its Fleet Mix.

Perhaps the most surprising omission from the SEIR's air quality analysis is from the assumed fleet mix for vehicles on all airport roadway links, set forth in SEIR, App. S-4, Attachment J, which lacks any accounting for heavy duty truck travel. As Alternative D includes 3.1 million square feet of cargo space on airport property, not to speak of the cargo space that may be utilized off airport by cargo carriers; as Federal Express and other cargo carriers operate substantial fleets of heavy duty diesel trucks; and as heavy duty diesel trucks are large emitters of NO_x and other pollutants, omission of heavy duty trucks from the on road fleet mix will have a substantial impact on the estimation of NO_x emissions from Alternative D and other build alternatives which may render the SEIR's air quality analysis inadequate.

D. The SEIR, Like the DEIR, Improperly Defers the Requisite Conformity Analysis.

The SEIR acknowledges the applicability of Federal conformity requirements, as set forth in Clean Air Act, 42 U.S.C. § 7506, and its implementing regulations, but, like the DEIR, defers both the conformity analysis and potential conformity determination to a final EIR/EIS. Such an approach makes it impossible for the public to comment constructively on either potential emission mitigation measures or the conformity process, since these processes and their result will be released for comment only after the underlying decision making has been finalized.⁷

Moreover, the absence of a draft conformity analysis in the SEIR has more fundamental impacts. The Clean Air Act specifies, in pertinent part, that "no department, agency, or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license or permit, or approve, any activity which does not conform to an implementation plan after it has been approved . . ." Clean Air Act § 7506(c)(1). Without at least a preliminary conformity analysis, it is impossible to document Alternative D's potential compliance or noncompliance with state air quality implementation plan (or verification that the project is already included in the State Implementation Plan). Absence of at least a draft conformity analysis at this stage of the Project's documentation violates the most fundamental goal of CEQA, *i.e.*, "to encourage informed public information and decision making," and, consequently, may constitute a fatal flaw in the SEIR.

V. THE SEIR'S ANALYSIS OF SURFACE TRAFFIC IMPACTS IS INCOMPLETE.

The SEIR's analysis of Alternative D's surface traffic impacts, like the more global analysis of Alternatives A through C in the DEIR: (1) omits analysis of certain critical intersections, and reaches conclusions based on data absent from the SEIR, or inconsistent with data contained in other planning documents for the same areas; (2) omits analysis of the traffic impacts, either beneficial or detrimental, of proposed off airport FlyAway terminals; (3) provides

⁷ Inglewood hereby reserves its right to comment on the Draft and Final Conformity Analyses and/or determination for the Project.

incomplete explanation of the Project's trip generation potential, including trip distribution and its potential impact on Inglewood; (4) fails to explain the way in which the proposed mitigation for the traffic impacts of construction, and the ultimate buildout of the Northside project, will be effectively implemented; and (5) fails to address the direct as well as cumulative traffic and parking impacts on Inglewood of the construction and subsequent utilization of the GTC.

A. The SEIR's Analysis of Baseline, as Well as Current, Intersection Traffic Levels Lacks Analytic Support.

The SEIR's analysis of 1996 and 2001 updated baseline intersection traffic levels, for comparison with Alternative D's influence on traffic impacts at selected intersections, omits or obscures critical information which makes verification of the SEIR's conclusions difficult, if not impossible.

1. The SEIR's Conclusions Regarding the Continuing Relevance of the 1996 Baseline for Traffic Purposes is Unsupported.

SEIR, Section 4.3.2.3 contains an analysis of 38 intersections, updating traffic conditions reflected in the 1996 environmental baseline, apparently for the purpose of determining the continuing applicability of the 1996 base year. The updated data purportedly show a "combined" average annual growth rate for all intersections analyzed of "approximately 1.5%" and "1% for the a.m. and p.m. peak hours respectively." SEIR, Section 4, p. 4-244. On that basis, the SEIR concludes that: (1) the traffic growth rate is consistent with general population growth rate in the area; (2) that it is a "small" growth rate; and (3) 1996 is still the applicable environmental base condition.

The above conclusions are problematic. First, no background data are provided to support them. Second, the analysis purports to be of "combined intersections", but no methodology is set forth to explain the means by which the intersections were "combined" for statistical purposes, or, more fundamentally, the meaning of the term "combined" (*e.g.*, statistically, arithmetically, other). Since the essence of traffic analysis is the determination of differential traffic impacts at different intersections, and as no such analysis is set forth in the SEIR, the integrity of this "combined" approach remains unestablished.

Third, as a result, there is no data with which to verify the SEIR's conclusion regarding consistency with the growth rates of the surrounding area, nor can the SEIR's conclusion that this is a small growth rate be substantiated. In fact, assuming the 1% growth rate in a.m. and p.m. peak hours is accurate; and assuming (for ease of computation only) the "combined" traffic at all 38 intersections totals 10,000 cars in each peak hour, the increase in the number of cars over the designated five year period is 510, or over 5%. Thus, even if 5% is deemed "small", if the total number of peak hour vehicles substantially exceeds 10,000, which it is more than likely to do, the

actual traffic growth will not be small, casting doubt on the utility of the 1996 baseline for traffic comparison purposes.

2. The SEIR's Analysis of Traffic Impacts at Individual Off-Airport Intersections Conflicts with That of Other Contemporaneously Prepared Environmental Documents for Other Projects in the Same Area.

The SEIR was not prepared in a vacuum. It acknowledges that other projects are being planned and will be carried out contemporaneously with Alternative D. The environmental documentation for one of those cumulative projects, the Village at Playa Vista, was published as late as August, 2003. A comparative analysis of the Playa Vista EIR with the SEIR reveals significant discrepancies between the analyses of what are substantially the same relevant areas.

For example, the Playa Vista EIR identified two intersections not mentioned in the SEIR: (1) Centinella at La Brea; and (2) La Brea at Manchester, both apparently within the analysis area for the SEIR. Both intersections were identified as level of service F for both a.m. and p.m. hours, even without the Project. Since both the LAX and Playa Vista projects are geographically proximate, the baseline traffic analysis should use substantially the same assumptions and data, with the same results.

However, even intersections that are analyzed in both the SEIR and the Playa Vista EIR had notably different volume to capacity ratios and levels of service. The SEIR contains a table of the projected traffic in 2008 for Alternative D. The Playa Vista EIR provides similar information for the horizon year 2010. The following Table compares the levels of service for those two projections.

TABLE 1 COMPARISON LEVEL OF SERVICE PROJECTIONS

Intersection	A.M. Peak		P.M. Peak	
	LAX	Playa Vista	LAX	Playa Vista
Aviation - Arbor Vitae	D	B	B	D
La Cienega - Arbor Vitae	E	B	E	C
Aviation - Manchester	F	F	D	E
La Cienega - Manchester	C	E	D	E
Interstate 405 NB - Century	B	F	A	B

The discrepancies in projected levels of service, *i.e.*, the lower levels of service reflected in the Playa Vista EIR, are not explained by any data or analysis contained in the SEIR.

B. The SEIR Contains No Analysis of the Traffic Impacts of the “FlyAway” Terminals.

The SEIR indicates that a series of new “FlyAway” locations are incorporated into Alternative D. Section 4.3.2.9.2 states that “the development of several new FlyAway away remote terminals is proposed to reduce the amount of vehicle traffic associated with travel to and from LAX,” and that development of the “FlyAway” remote terminals would depend largely on the existing use and land use setting of the proposed site. The SEIR does not, however, designate the location of those proposed “FlyAway” remote terminals, nor does it analyze their impacts on traffic, either at LAX, or at their remote sites. Further, the SEIR does not indicate the amount of traffic which would be diverted from LAX by the use of these remote facilities.

Finally, the SEIR does not acknowledge that the use of remote sites does not eliminate the effects of traffic, but simply moves them to another location. As one of the suggested locations for a “FlyAway” terminal is in Inglewood, Inglewood has a cognizable interest in the anticipated traffic impacts of the use of remote sites, and as they are an integral strategy of Alternative D, the designated information is not “too speculative” to provide for public review at this point.

C. The SEIR Fails to Adequately Analyze the Trip Generation Potential of Alternative D, its Construction, or its Projected Ancillary Development At, among Others, LAX Northside.

The SEIR fails to address at least three issues fundamental to the analysis and projection of Alternative D’s trip generation potential.

First, the SEIR does not explain why, with roughly the same passenger and cargo activity, the No Project alternative and Alternative D generate different trip levels. The EIR states that facilities that comprise Alternative D were designed to serve an activity level similar to the scenario adopted by Southern California Association of Governments for the 2001 Regional Transportation Plan. This is an activity level of 78.9 million annual passengers. The No Project alternative assumes 78.7 million annual passengers. Nevertheless, even with the roughly equivalent numbers of passengers, a.m. and p.m. peak hour traffic volumes with Alternative D are projected to decrease, while they are projected to increase under the No Project alternative.

Second, the SEIR fails to explain the way in which a fundamental traffic mitigation measure, the trip cap on the Northside project, can be effectively implemented. The entire off-airport surface traffic assessment turns on the conclusion that there will be less traffic in the future as a result of the Project than there will be if the Project is not approved. The basis for this prediction is the reduction in traffic for “collateral trips”. For example, for

Alternative D, p.m. peak hour passenger and related trips are anticipated to increase by 1,198. However, there is a projected reduction of 7,825 collateral trips, resulting in a net decrease in trips of 6,627.

The source of the collateral trip reduction is, apparently, the change in the land use for the projected Northside and Continental City projects. SEIR, Appendix S-2b provides the basis for the projected reduction in collateral trips.

	A.M. Peak			P.M. Peak		
	No Project	Alt. C	Alt. D	No Project	Alt. C	Alt. D
Northside	7,217	3,922	3,922	7,131	4,423	4,421
Continental City	5,323	0	0	5,348	0	0
Manchester Square	0	212	212	0	233	233
TOTAL	12,540	4,134	4,134	12,479	4,656	4,654

The issue associated with the “collateral trip” reduction is the discretionary actions needed to modify the allowable land uses on the Northside and Continental City properties.

SEIR Section 4.2, Land Use, sets forth a “master plan commitment” that states:

“to the maximum extent feasible, all [Q] conditions from City of Los Angeles Ordinance No. 159.526 that address the LAX Northside project area will be incorporated by LAWA into the Zoning Code Amendment and LAX Master Plan implementing Ordinance for the Westchester south side project. Accepting that certain conditions may be updated, revised, or determined infeasible as a result of changes to the LAX Northside project, the final [Q] conditions for the Westchester south side project will insure that the level of environmental protection afforded by the full set of LAX Northside project [Q] conditions is maintained.”

“CEQA requires agencies to implement feasible mitigation measures or alternatives identified in the EIR.” *Fairview Neighbors, supra*, 70 Cal.App.4th at 243. Further, as set forth above, “it is improper for lead agencies to defer formulation of possible mitigation measures by simply requiring future studies to see if mitigation may be feasible.” *Id.* at 244. Thus, the suggestion that the trip cap on the Northside project, the principal mitigation measure for Alternative D’s off airport surface traffic impacts, may, at some future time, for reasons as yet undisclosed, be deemed infeasible, is unacceptable under CEQA.

In fact, it is readily ascertainable even now that the trip cap may not, in fact, be feasible. First, both the Northside and Continental City projects have approved entitlements, allowing 4.5 million square feet of development in the Northside project alone. Alternative D has no impact on this entitlement. Thus, the SEIR's projection that the Northside project, while remaining at the same density but, in some undisclosed manner, generating fewer trips than it would have before Alternative D, is unsupported.

Finally, the SEIR appears to double count the traffic benefits of the trip cap. On the one hand, the SEIR relies on the mechanism of "land acquisition" for a reduction in traffic of 2,150 vehicles per hour in the a.m. peak hour, and 1,973 vehicles per hour in the p.m. peak hour. On the other hand, the SEIR contemplates that "space would be available in the LAX Northside development to accommodate compatible businesses displaced by Alternative D [land acquisition]", SEIR, p. 3-49. The SEIR, thus, subtracts traffic from peak hour totals due to land acquisition; relocates the "compatible" businesses to the Northside project; and, ultimately, imposes a trip cap that allegedly accounts for additional traffic reduction, even though the reduction in traffic attributable to the acquisition of certain businesses is apparently mooted by their relocation to the Northside development. By that means, the SEIR takes advantage of two potential mitigation measures: (1) the traffic reduction due to elimination of certain businesses; and (2) the traffic reduction due to the Northside project trip cap, neither of which, the SEIR acknowledges, may ultimately be realized.

D. The SEIR Fails to Adequately Document the Mitigation of Off-Airport Construction Traffic Impacts.

The SEIR is emphatic that "... the project would be managed to ensure that there would not be any notable construction-related traffic generated by the project during those critical [a.m. and p.m. peak] hours." SEIR, p. 4-264. [Emphasis added.] In fact, the SEIR claims that construction traffic would be actually eliminated during the a.m. and p.m. peak hours, and virtually eliminated during the airport peak hour.

The SEIR, however, contains no discussion of the way in which "management" ensures this beneficial hourly redistribution of construction traffic. For example, there is no explanation of the way in which 2,449 employee trips will arrive by 7:00 a.m. but there will be no truck arrivals or departures until 11:00 a.m. Similarly, there is no explanation of the way in which "management" will ensure that there are no truck trips between 4:00 p.m. and 7:00 p.m., while allowing 120 trips per hour between 7:00 p.m. and midnight. Further, there is no indication of the way in which "management" will ensure that construction related truck trips will not divert onto residential surface streets in the vicinity of the project, absent constant monitoring by police or other kinds of security.

In short, the mitigation measures for construction related traffic are conceptual at best. Absent more information concerning the way in which they will be implemented and enforced, proposed mitigation measures, while generous in origin, must be considered largely infeasible.

E. The SEIR Does Not Address the Way in Which Traffic Impacts from Utilization of the GTC Independently, or Cumulatively With Construction Traffic, Will be Mitigated.

The SEIR acknowledges that the GTC is located as close as 1,000 feet across the I-405 freeway from residences in the City of Inglewood, and, further, that the GTC will be the “primary access point for all passenger drop-off and pick-up and vehicle parking”, SEIR, p. ES-19, under the assumptions of Alternative D. The SEIR further acknowledges that vehicles would access the GTC from, among others, eastbound Century Boulevard, and that direct access to Century Boulevard would be available for west bound traffic. SEIR Section 4.3.1.6.1.2, p. 4-226, 227. It is, therefore, reasonable to assume that the greatest preponderance of all LAX-bound traffic (847,394 vehicles in the year 2000, SEIR, Table S4.3.1-2) will terminate as close as 1,000 feet from the homes of Inglewood citizens. Moreover, the SEIR further acknowledges that demand for parking will exceed parking capacity under Alternative D, SEIR, Table S4.3.1-7, p. 4-235. Nevertheless, the SEIR gives short shrift to the potential surface street impacts of travelers looking for parking in lots that are already full, as well as those reluctant to pay the price of parking on City owned lots, or attempting to avoid delays in accessing crowded parking facilities.

As important, the SEIR fails to fully address the construction traffic impacts on proximate surface streets in Inglewood. While it acknowledges that “when the ITC comes on line, there is expected to be a substantial shift in airport traffic patterns”, SEIR, Section 4.3.2.6.2.2, p. 264, and that “the SEIR’s general approach and methodology does not account for construction traffic for the three primary peak hours”, SEIR, Section 4.3.2.6.2.2, p. 264 [emphasis added], the SEIR does not similarly acknowledge the same potential impact resulting from the opening of the GTC. Instead, it states only that “the facility is not expected to be opened until after 2008, at which time most of the final mitigation plan should be in place.” SEIR, Section 4.3.2.6.2.2., p. 264 [emphasis added].

The SEIR misses the point. The only mitigation offered is that “the project would be managed to ensure that there would not be any notable construction related traffic generated by the project during those critical hours.” SEIR, Section 4.3.2.6.2.2., p. 4-264, 265. Therefore, the SEIR does not offer sufficient firm mitigation to compensate for the potential adverse impacts arising from the normal but unanalyzed operation of the GTC, let alone the cumulative surface traffic impacts arising from Project construction, which is anticipated to last a minimum of seven years and perhaps as many as 12-13 years after the 2008 anticipated completion of the GTC.

In summary, the SEIR ignores Alternative D's surface traffic impacts on Inglewood, arising not only from traffic accessing the GTC, but from parking and construction traffic as well.

VI. THE SEIR'S ATTEMPT TO COMPLY WITH THE FEDERAL ENVIRONMENTAL JUSTICE PROGRAM IS PATENTLY INADEQUATE.

The Environmental Justice Section [Section 4.4.3] of the SEIR falls far short of the mark for compliance with the Federal Environmental Justice Program. Executive Order 12898 and the Department of Transportation's ("DOT") implementing order, DOT Order 5610.2, require that, in the planning and development of any program or activity receiving Federal financial assistance, project proponents must not only identify disproportionately high and adverse environmental and health risk effects of the project on minority and low-income populations, but also ensure that those effects are avoided, minimized or mitigated. [DOT Order 5610.2, 5.d; 6.b.(2)]

DOT Order 5610.2 further mandates that DOT programs and activities that will have a disproportionately high and adverse effect on populations protected by Title VI be carried out only if, among other things: (1) alternatives that would avoid or reduce the disproportionately high and adverse effects are not practicable, taking into account the social, economic and environmental effects of avoiding or mitigating the adverse effects [DOT Order 5610.2 §7.c]; and (2) alternatives that would have less adverse effects on protected populations (and still satisfy the need for the program) would either (i) have other adverse social, economic, environmental or human health impacts that are more severe, or (ii) involve increased cost of extraordinary magnitude. [Order 5610.2. §7.d.(2)]. "The findings, determinations and/or demonstration made in accordance with [DOT Order 5610.2, Section 7] must be appropriately documented, normally in the environmental impact statement . . ." DOT Order 5610.2 § 7.(f.)

The SEIR acknowledges that the LAX Master Plan Project will have overwhelmingly disproportionate Land Use and Relocation, Airport Noise, Air Quality and Health Risks impacts on minority and low-income communities located east of LAX, specifically including the City of Inglewood. [SEIR, Section 4.3.3]. However the SEIR: (1) fails to address project alternatives that would reduce or avoid those impacts; (2) incorrectly concludes that construction noise impacts will not fall disproportionately on minority and low-income communities east of LAX; (3) fails to propose a viable jobs benefit program to compensate for the Project's adverse environmental impacts including those of construction which will in fact fall disproportionately on minority and low-income communities; and (4) fails to explore mitigation measures which would have fewer disproportionate adverse environmental impacts on minority and/or low-income communities located east of the Airport. In addition, Section 4.4.3.4 states that no Master Plan Commitments for environmental justice are proposed. [SEIR, p. 4-138]

In Section 4.4.3.6, the SEIR states that LAX will work with the FAA and affected communities to develop mitigation programs and if, after those programs receive further input, the FAA concludes that disproportionately high and adverse human health and environmental effects on minority and low-income populations would still occur, “findings under the DOT Order would have to be made prior to project approval and the Final EIS/EIR would disclose those findings.” [p. 4-335] However, as set forth above, it is “improper for lead agencies to defer formulation of possible mitigation programs by simply requiring future studies to see if mitigation may be feasible.” *Fairview Neighbors, supra*, 70 Cal. App. 4th at 244. Moreover, the SEIR does not need additional studies as it already concludes unequivocally that, despite the proposed mitigation, the adverse environmental and human health impacts of the Project, under any alternative, will fall disproportionately on minority and low-income communities east of the Airport. [See, e.g., SEIR, pp. 4-321, 4-323, 4-424, 4,329]

Finally, the SEIR relies in part on a Memorandum of Understanding (“MOU”) between Los Angeles and Inglewood for compliance with the mitigation requirements of the Environmental Justice Program [p. 4-337]. The SEIR does not disclose, however, that the MOU, which addresses measures involving residential noise insulation, air conditioning and studies to improve compliance with over-the-ocean takeoff and night-time over-ocean procedures, is terminable at will, by either City, and will expire by its own terms in February, 2011, at least four, and more likely 10 years before final implementation of the Project. Therefore, MOU, like the remainder of the suggested mitigation measures, does not create a sufficient commitment to Inglewood to comply with the mandates of Executive Order 12898 and DOT Order 5610.2.

A. The SEIR Fails to Adequately Address Avoidance or Minimization of the Project’s Adverse Environmental and Health Risks Impacts Which Would Fall Disproportionally Low Income and Minority Communities Including Inglewood.

The SEIR acknowledges that the Project will have overwhelmingly disproportionate adverse impacts on Inglewood, a predominately minority and low-income community, in the areas of Land Use and Relocation, Airport Noise, Air Quality and Health Risks. The SEIR fails, however, to address avoidance or minimization of those impacts.

Environmental Justice Section 4.4.3.5.1 acknowledges that noise impacts associated with all alternatives will fall disproportionately on minority and low-income communities and that, under Alternative D, by Year 2015, approximately 93 percent of those newly exposed to high noise levels [4,030 residents] will be minority and/or low-income residents [SEIR, p. 4-324], and 85 percent of those newly exposed to single event noise awakening [15,340 residents] would be located within minority and/or low-income communities. [SEIR, p. 4-324].

The effects of aircraft noise on public schools will also fall on schools located predominately within minority and/or low-income communities. Eleven of the 12 public schools that will be newly exposed to the adverse impacts of increased aircraft noise levels or the 94 dB SEL noise contour by 2015 are located within the Inglewood Unified School District. [SEIR, p. 4-324]

Despite recognition of these severely disproportional noise impacts on minority and low-income communities, including Inglewood, and an acknowledgment that proposed mitigation will be inadequate where, after sound insulation, minority and low-income communities will still be faced with adverse effects of high outdoor noise levels [SEIR, p. 4-329], the SEIR does not address avoidance or minimization of those impacts, as required by the Federal Environmental Justice Program.

For example, Environmental Justice Section 4.4.3.5.5.1, Relocation of Residences or Businesses, states that, under Alternative D, "No residential acquisition is proposed, and the number of businesses that would need to [be] acquired and relocated would be reduced to 38." [emphasis added]. In that terse sentence, the SEIR eliminates from consideration a viable means for avoiding Project impacts on low-income and minority communities. As neither LAX nor its surrounding communities can be conveniently moved, the feasible option is to move those residents who are adversely impacted.

Moreover, the SEIR is internally inconsistent on this issue. Land Use Mitigation Measure MM-LU-1 calls for mitigation of land uses that would be rendered incompatible by the noise impacts of the Project by means of sound insulation or acquisition of residences, schools, hospitals and churches within the highest CNEL measurement zone. [SEIR, p. 5-19] Mitigation Measure MM-RBR-2 calls for coordination with Inglewood to identify residential land uses where acquisition and conversion to compatible uses is contemplated or deemed appropriate. [SEIR, p. 4-339] Acquisition of residences for the purpose of converting residential to more compatible uses, and thus avoiding noise impacts on affected minority communities, necessarily implies relocation of displaced residents of the acquired properties.

Further, Mitigation Measure RBR-1, which applies to all alternatives, proposes preparation of a Residential and Business Relocation Plan and expansion the current relocation program. [SEIR, p. 5-6] The SEIR's relocation objectives include informing Project area residential occupants [in Spanish and other languages] about matters such as relocation assistance and benefits, replacement housing and housing referrals, notices to vacate, displaced persons assistance, applications and claims for relocation benefits, evictions and property management, and grievance procedures for relocatees. [SEIR, pp. 5-6 - 5-7] In direct contradiction to RBR-1, however, Section 4.4.3.5.5.1 disclaims any residential relocation plans, and fails to mention, much less address, avoidance or minimization of relocation impacts on minority and low-income residents, as required by Federal Environmental Justice statutes.

Finally, Section 4.4.3.5.2 states that the environmental impacts of air quality under Alternatives A, B and C have not materially changed, but, that under Alternative D, airport activity would be focused in areas at the east side of the airport, resulting in greater emissions east of the airport [SEIR, p. 4-329]. Most of those effects would remain adverse following implementation of proposed mitigation measures. Specifically: minority and low-income populations may be more severely affected because they may be more susceptible to asthma and other chronic respiratory illnesses trigger by the high O₃ levels in the area; children within minority communities may be particularly susceptible to health effects of PM₁₀, ozone and NO₂, and thus may be more severely affected than other communities exposed to equivalent level of those pollutants; and children living in poverty who lack access to adequate health care may be especially at risk. [SEIR, p. 4-330]

Despite these acknowledged severe project impacts, and perhaps because of the further claim of the purported utility of proposed aggregate air quality mitigation measures, the SEIR fails to explore further minimization of specific effects, by feasible means such as committing to air condition homes and schools affected, see *Los Angeles Unified School District, supra*, 58 Cal.App.4th at 1029-30, or relocating impacted populations.

B. The SEIR's Proposal to Provide Job Benefits to Minority And/or Low-Income Communities Is Inadequate Where it Is Contingent on FAA Approval of the Use of Airport Revenues and Ignores the Projected Decrease in LAX Related Jobs under Alternative D.

DOT Order 5610.2 § 6.b.(2) requires that measures be proposed to provide offsetting benefits and opportunities to enhance communities, neighborhoods and individuals affected by DOT programs. The "Benefits" section [unnumbered] of the SEIR states that jobs are one of the economic benefits directly and indirectly attributable to LAX [p.4-339], and that LAX is working to create job recruitment, job training and job placement programs that will enable local youths and adults to more easily access jobs at and around LAX in the future. [SEIR, p. 4-339 - 4-340] However, the jobs related proposal is a house of cards where: (1) adoption and implementation of job recruitment, training and placement programs are subject to FAA approval of the use of airport revenue to fund such activities; and (2) even if use of airport revenues is approved for recruitment and job training, job placement under Alternative D will be difficult, where the SEIR acknowledges that Alternative D would have no meaningful contribution to job growth. [SEIR, p. 4-351]

The SEIR proposes to expand existing programs and create new programs at its Jobs Outreach Center which would be primarily focused on minority and/or low-income residents located east of LAX, including Inglewood. [SEIR, p. 4-340] Inglewood, as acknowledged in the SEIR is already disadvantaged with respect to employment at LAX, where only 2,304 (3.9%) of the 59,000 badged employees at LAX reside in Inglewood. [SEIR p. 4-339, fn. 100]. The

SEIR's job creation proposal contains some giant loopholes. For example, funding for the proposed jobs related programs is totally contingent upon FAA approval of diversion of airport revenues for that purpose. The SEIR contains no evidence that LAX has made application for FAA approval, provides no information to the public on the likelihood that FAA approval will be granted, and offers no alternative plan for funding jobs programs if the FAA does not approve the use of airport revenues for jobs programs. In other words, if the FAA does not approve the use of airport revenues, the entire jobs program collapses.

Even if funds are approved by the FAA, and local minority and low-income residents are trained in aviation related skills, job placement under Alternative D will be difficult, where Alternative D would result in a net decrease of approximately 23,000 jobs within a ten-mile radius of LAX by 2015 [SEIR, p. 4-339]. Alternative D is projected to support roughly the same level of employment as the No Action/No Project Alternative in 2015, and would have no meaningful contribution to job growth [SEIR, p. 4-351].

C. The SEIR's Conclusion That Construction Impacts Would Not Fall on Minority Communities Is Unsupported by Any Analysis of the Project's Cumulative Noise Effects.

The SEIR's conclusion that construction noise effects would not fall on minority and/or low-income communities [SEIR, p. 4-333] is unsupported by any analysis of the cumulative effects of the Projects's ground traffic, aircraft and construction noise on communities located east of LAX. In reaching that conclusion, the SEIR makes the erroneous assumption, as set forth in detail above, that road traffic and aircraft noise will drown out construction noise, and that construction noise impacts on Inglewood residents will therefore be less than significant. However, as also set forth in more detail above, the SEIR's reliance on this "ratio theory" to discount the effects of construction noise improperly masks the palpable adverse impacts of Project construction on communities to the east of the airport, particularly where Alternative D proposes more construction on the eastern portion of the airport, which, in turn, results in hitherto unanalyzed construction noise, air quality and traffic impacts.

D. No Effective Mitigation is Provided to Ameliorate the Project's Adverse Impacts.

Despite the SEIR's acknowledgment that the project will have a grossly disproportionate impact on minority communities, it contains few measures, and no certain, binding commitments to ameliorate impacts of construction or Project implementation on affected communities including Inglewood. Such measures should include, but not be limited to:

1. OPERATIONAL MITIGATION.

In addition to all other operational mitigation specified in the DEIR and SEIR, the Part 161 Application to the FAA should be expanded to provide that no operations shall take place

over Inglewood between the hours of 11:00 p.m. and 6:30 a.m.; and that where "over-water" operations are not feasible for reasons of wind, weather or other safety related conditions during those hours, operations will either be held in place, in the case of departures, or sent to other airports in the case of arrivals.

2. NOISE COMPATIBILITY PLANNING AND IMPLEMENTATION.

(a) COMPLETION AND EXPANSION OF RESIDENTIAL SOUND INSULATION PROGRAM - A firm, binding commitment to: (1) provide funding to complete the existing residential sound insulation program provided in the ANMP and MOU between Inglewood and Los Angeles; (2) expand that program to include residences in the 60 CNEL contour and the 94 dB SEL "awakening" contour as set forth in the SEIR; and (3) maintain 45 dB interior noise levels over time in all properties subject to the residential sound insulation program, including, but not limited to, replacement of equipment and improvements that malfunction due to age or environmental factors, or become obsolete due to increases in noise levels applicable to the properties.

(b) RELOCATION OF SCHOOLS - A firm, binding commitment, not contingent on the results of future studies, to relocate schools currently and newly impacted by noise resulting from the implementation of the project to sites specified by Inglewood;

(c) IMMEDIATE SOUND ATTENUATION OF ALL SCHOOLS, CHURCHES AND OTHER PUBLIC PLACES THAT CANNOT BE RELOCATED - A firm, binding commitment to sound attenuate, not contingent on further studies, all of the schools identified as impacted by the project in any way that cannot be relocated, as well as noise impacted churches and other public gathering places including medical and rehabilitation facilities;

(d) LOCATION OF A FLY AWAY FACILITY - A firm, binding commitment to locate a fly away facility at the proposed location of the corner of Prairie Avenue and Century Boulevard in Inglewood;

(e) ADDITIONAL ROAD AND STREET IMPROVEMENTS - A firm, binding commitment to improve streets used heavily for access to LAX and the new remote fly away facilities including, but not limited to, Century Boulevard, Manchester Boulevard, Arbor Vitae Street and Florence Avenue;

(f) GENERAL PLAN - Binding commitment to provide funding for the development of a General Plan for the City of Inglewood to supercede its currently outdated land use element, and enable Inglewood to plan compatibly with airport operations;

(i) CENTURY BOULEVARD SPECIFIC PLAN -

Development of a Specific Plan for the half mile length of Century Boulevard between La Cienega Boulevard and Inglewood Avenue in order to exploit its unique location to create a focused airport-patron environment predominantly composed of hotel and restaurants, with supportive retail and office uses, thus enhancing the primary portal into LAX from the freeway;

(ii) FUNDING FOR CENTURY BOULEVARD CORRIDOR IMPLEMENTATION PROJECT - A firm, binding commitment to provide funding to complete the major study and improvement design for the Century Boulevard corridor, particularly between La Cienega and Prairie Avenue, including conversion of currently noise impacted single and multi-family residential buildings to commercial uses;

(iii) BUSINESS PARKS - A firm, binding commitment to provide planning and development funds for business and industrial parks, consistent with the development study currently underway by HNTB and the recently completed economic impact analysis by Kosmont Partners, along Century Boulevard between I-405 and Prairie Avenue, with specific emphasis on the area closest to the new GTC;

(iv) PUBLIC PARKS, GOLF COURSE, NATURE CENTER - A firm, binding commitment to provide funding for conversion of incompatible residential and other uses, other than those redeveloped for commercial purposes to public parks, a municipal golf course, and/or nature center;

(v) BRANDING, SIGNAGE AND WAY FINDING - A firm, binding commitment to provide adequate signage for those accessing LAX and the amenities of the City of Inglewood including Hollywood Park and Daniel Freeman and Centinella Hospitals.

(vi) LIBRARIES - A firm, binding commitment to fund the replacement of libraries to be impacted by the project, and the expansion of Inglewood's library system to accommodate increased student populations;

(vii) YMCA - A firm, binding commitment to fund the replacement of the existing YMCA at 102nd Street and Prairie Avenue;

(viii) HEAD START CHILD DEVELOPMENT FACILITIES - A firm, binding commitment to fund the development of new childcare and education centers in compliance with the requirements of the new General Plan;

(ix) SENIOR CITIZEN HOUSING - a firm, binding commitment to fund new senior housing and assisted living communities consistent with the requirements of the new General Plan.

(g) PROVISION OF FUNDS FOR ACQUISITION AND RELOCATION - A firm, binding commitment to provide funding for the acquisition of all properties falling within any of the criteria of significant noise impact in the SEIR and of funding for relocation housing and expenses;

(h) JOB TRAINING - A firm, binding commitment to begin immediate training of Inglewood residents in: (a) construction related skills necessary to participate in the construction phase of the project; and (b) skills necessary to obtain long term employment at LAX, including, but not limited to, the creation of a new vocational school dedicated to preparing students for careers in aviation industries and emerging hi-tech industries of aviation maintenance, as required in concept by the MOU;

(i) FUNDS FOR JOB TRAINING - A firm, binding commitment to provide local funding for jobs training programs, either to augment Federal funds provided for training, or to fund the training program in its entirety if the FAA does not authorize the use of airport revenue for training purposes;

(j) MODIFICATION OF THE MOU - A firm, binding commitment to extend the MOU at least through the year 2015, concurrent with the implementation of the LAX Master Plan, including, but not limited to, the abrogation of the requirement to dedicate aviation easements; acknowledgment that easements as yet unrecorded will not be re-recorded at the expiration of the MOU, and the reconveyance of all easements previously recorded.

3. ADDITIONAL RESEARCH.

In addition to all other studies specified in the DEIR and SEIR, a study be conducted of the incidence of air pollutants, resulting from aircraft operations, traffic and other sources related to LAX, and their health effects, both generally and on residences of the City of Inglewood specifically.

November 4, 2003

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In summary, while Inglewood appreciates the efforts that have been made by Los Angeles to cope with the difficult problems of limitation of airport operations and environmental compatibility with surrounding communities, more clearly needs to be done to remedy the problems that fall squarely on the shoulders of Inglewood and particularly its low income and minority residents. Inglewood looks forward to continuing its ongoing cooperation with Los Angeles in fostering both economic growth and improved quality of life for all citizens of Los Angeles and its neighboring communities.

Inglewood thanks Los Angeles for this opportunity to comment.

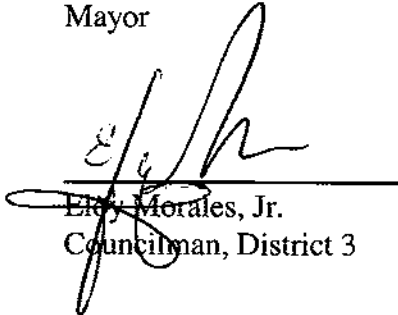
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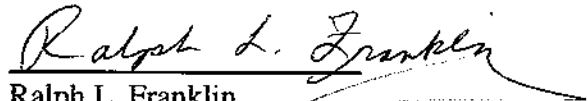
Roosevelt F. Dorn
Mayor



Curren D. Price, Jr.
Councilman, District 1



Eloy Morales, Jr.
Councilman, District 3



Ralph L. Franklin
Councilman, District 4

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ATTACHMENT 1

DRAFT ENVIRONMENTAL IMPACT STATEMENT/
ENVIRONMENTAL IMPACT REPORT,
LOS ANGELES INTERNATIONAL AIRPORT
PROPOSED MASTER PLAN IMPROVEMENTS -
COMMENTS RE: ALTERNATIVES A THROUGH C

The following constitutes comments, pursuant to the requirements of the California Environmental Quality Act, Public Resources Code § 21000, et seq., (“CEQA”) and the National Environmental Policy Act, 42 U.S.C. § 4321, et seq., (“NEPA”), concerning the Draft Environmental Impact Statement/Environmental Impact Report (“Draft EIS/EIR”) for the Los Angeles International Airport (“Airport”) Proposed Master Plan Improvements (“Project”), prepared jointly by the Federal Aviation Administration (“FAA”) and the City of Los Angeles (“Los Angeles”),¹ and Alternatives A through C presented therein.

The issues raised by these comments fall into seven general categories, although they are not limited only to those categories:

- (I) the baseline used in the Draft EIS/EIR, against which the various environmental impacts of the Project are compared, is not properly designated;
- (II) the discussion of the Project’s surface traffic impacts is misleading;
- (III) the noise impacts of the Project are inadequately addressed;
- (IV) the potential air quality impacts of the Project are not fully disclosed;
- (V) the Draft EIS/EIR does not explore all reasonable alternatives, and, thus, paves the way for its ultimate conclusion that expansion of the Airport’s airside and groundside facilities are the sole way to meet future demand;
- (VI) the LAX Master Plan and Draft EIS/EIR fail to satisfy applicable law because they do not conform to other relevant plans;

¹ The FAA and Los Angeles shall, for the remainder of these comments, be referred to collectively as “Project Proponents”.

(VII) the Draft EIS/EIR fails to adequately specify mitigation measures or methods to enforce them;

(VIII) the recently articulated project goal of increasing safety obscures the Project's clear capacity-enhancing purpose. As a result of these defects, the Draft EIS/EIR cannot meet the high standards of disclosure that are the gravamen of both CEQA and NEPA;

(IX) the Draft EIS/EIR does not meet environmental justice requirements; and

(X) the Draft EIS/EIR fails to adequately account for human health risks.

I. THE DRAFT EIS/EIR DOES NOT PROPERLY DESIGNATE THE BASELINE FOR ANALYSIS.²

The specification of a baseline for comparison with Project impacts is a critical component of analysis under CEQA, because without an accurate specification of the baseline, "analysis of impacts, mitigation measures and project alternatives becomes impossible." County of Amador v. El Dorado County Water Agency, 76 Cal.App.4th 931, 953 (1999). A central concept of CEQA is that "a baseline figure must represent an environmental condition existing on the property prior to the project." Save Our Peninsula Committee, et al. v. Monterey County Board of Supervisors, et al., 87 Cal.App.4th 99, 124 (2001). The regulations implementing CEQA, 14 Cal. Code Regs. § 15000, et seq., ("CEQA Guidelines") are specific as to the definition of "prior to the project":

"An environmental impact report must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the Notice of Preparation is published, or, if no Notice of Preparation is published, at the time the environmental analysis is commenced . . . This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." CEQA Guidelines § 15125(a).

² Later sections II, III and IV more fully discuss the pitfalls arising from the use of the three separate and distinct baseline assumptions used in that analysis; Environmental Baseline, Adjusted Environmental Baseline, No-Project/No-Action.

While the courts have taken the position that the “date for establishing a baseline cannot be a rigid one”, Save Our Peninsula Committee, *supra*, 87 Cal.App.4th at 125, they have also held unequivocally that “an EIR must focus on impacts to the existing environment, not hypothetical situations”, County of Amador, *supra*, 76 Cal.App.4th at 955. The baseline for analysis in the Draft EIS/EIR does not meet these tests.

A. The Draft EIS/EIR’s Base Year Does Not Reflect the Physical Conditions on the Project at the Time of the Publication of its Notice of Preparation.

The Airport Master Plan, November, 2000, Technical Analysis (“Master Plan”) is the basis of the analysis contained in the Draft EIS/EIR (Master Plan, Preface, page i). The analyses contained in Master Plan, Chapter II, Existing Conditions Working Paper, 4/19/96, use data from the base year 1994 (see, e.g., § 2.3.1, page II-2.1, re: Annual Weather Conditions; Figure II-2.17, page II-2.53, re: Design Day Hourly Distribution of Operations and Tables following). The Notice of Preparation, however, was published in July, 1997 (Draft EIS/EIR, page ES-2), almost three years after the conditions reflected in the original Master Plan data and analysis. Courts have consistently taken the position that a baseline should not “be set a number of years earlier than the commencement of the current project”. Save Our Peninsula Committee, *supra*, 87 Cal.App.4th at 127.

Moreover, the Master Plan and Draft EIS/EIR contain multiple inconsistent base years such that it is impossible for the public to ascertain which base year is used for a given purpose. On the one hand, the Draft EIS/EIR (page ES-2) states that the environmental analysis normally describes existing conditions as of the July, 1997 date on which the Notice of Preparation was published (even though none of the data in the Master Plan upon which the Draft EIS/EIR is based reflects a 1997 origin). On the other hand, the Draft EIS/EIR states that, where a full year’s worth of data is needed, data from 1996 is used (see, e.g., Draft EIS/EIR Technical Report on Surface Traffic), and sometimes earlier years [unspecified], and sometimes even data from the later years 1999 and 2000 (even though these latter are more than two years after the publication of the Notice of Preparation). Additionally, the Master Plan is unclear as to whether 1994 or 1995 data is used. Finally, different base years are used for different components of the analysis, e.g., 1996 for surface traffic and noise, 2000 for water resources.

Such selective shifting of baselines has substantive consequences. For example, the use of a 1994 (or even 1996) baseline in analysis of aircraft noise impacts artificially elevates the baseline for analysis by incorporating noise from the larger numbers of Stage 2 aircraft in the fleet in 1994/96. These aircraft were totally phased out of the United States fleet by the year 2000. Further, the use of a 1994 (or 1996) baseline year in the air quality analysis potentially overstates the baseline level of criteria pollutants in the L.A. region which has since come into attainment for all criteria pollutants except Ozone and Particulate Matter.³ In short, the

³ The Draft EIS/EIR also states that its use of earlier years results in a more “conservative” analysis, because there were fewer passengers and operations in earlier years, and, thus, less noise and fewer emissions to compare against those generated by the Project. This

nonspecificity of both the Master Plan and Draft EIS/EIR with respect to the base year for analysis renders the results of their analyses questionable.

B. The Master Plan and Draft EIS/EIR Baseline Analyses Are Based On Incomplete and/or Inaccurate Data.

The Master Plan defines the capacity of the Airport's existing airside facilities as "the number of aircraft operations, arrivals and departures, that the Airport can accommodate with a reasonable amount of aircraft delay." (Master Plan, § 2, page II-2.1) The correct determination of existing airside capacity is critical to identification of the Airport's potential to accommodate future air traffic demand and plan future airport's development. (Master Plan, Chapter 2, page II-2.1) Various independent variables are used in the modeling of existing airport capacity, including, but not limited to: (1) runway operating configurations; (2) noise abatement procedures; (3) airspace operating assumptions; and (4) airfield operating assumptions. (Master Plan, § 2.3, page II-2.21) Delay is also apparently a contributing variable. The relationships within the model are such that, if the definition of a given variable, or the value assigned to it, are questionable, the capacity determination resulting from the model is prejudiced.

Here, even if, for argument's sake, the Draft EIS/EIR had specifically and accurately designated a base year, critical data used in the Master Plan baseline demand/capacity/delay analysis is incomplete or in some cases inaccurate.

As a threshold matter, the Master Plan demand/capacity/delay analysis is predicated on Aircraft Communications, Addressing and Reporting System ("ACARS"), and Official Airline Guide ("OAG") data sources. These two data sources exaggerate, or, inaccurately characterize, true (airport capacity related) delay. The Master Plan defines delay as "the difference between the actual time it takes an aircraft to perform an arrival or departure and the normal time it would take to perform the same operation with no interference from other aircraft." (Master Plan, § 2.1, page II-2.2) ACARS data is generated by the airlines, and is based on activities such as push back, parking at the gate, or opening or closing cabin doors. ACARS data includes information about on-time performance, based on the arrival and departure times developed by each airline for each segment of flight. Since the data is airline-generated, airline definitions of delay are automatically built into the report.⁴

claim is inaccurate at least with respect to noise and air quality analyses as set forth below. In any event, it does not account for the opposite effect of using later years 1999/2000 as the baseline, which would, by the logic used in the Draft EIS/EIR, artificially elevate the baseline and, consequently minimize the environmental impacts of the Project. As neither the Master Plan nor Draft EIS/EIR are specific as to the distribution of various baseline years throughout the analysis, it is impossible to ascertain the degree of distortion that may have occurred through the use of these alternate baselines.

⁴ When an aircraft pushes back from the gate or closes the cabin door, the aircraft could be late for a variety of reasons. Many delays are due to factors that are airline-controllable

such as late boarding of passengers, customer service delays, maintenance delays, late arriving equipment, catering, fueling, baggage and the unavailability of crew members, to name but a few. Other types of delay would be attributable to airport, runway or taxiway design, airport acceptance rates, airport construction, noise abatement regulations, air traffic control restrictions and weather. These items are also introduced and incorporated into the ACARS report as a delay factor.

Further, the OAG is published for the express purpose of identifying the arrival and departure times of various airlines. When the airlines set up their schedules, they factor in the average delay for each leg of flight between city pairs. Thus, the OAG also builds delay into the departure and arrival times based on each airline's historical data and operating experience for each flight segment.

In summary, ACARS data is not original source data but is the product of third party intervention. It is manipulated by various airline functionaries before a final report is released. Similarly, OAG data is manipulated to include delay not after, but before the fact. Therefore, because both sources of data already include a delay factor, their use in the Master Plan's modeling, as set forth below, is likely to cause a double counting of delay.⁵

Instead of ACARS or OAG data, the Master Plan should have relied on radar data. Radar data is a memorialization of the movement of arriving aircraft from a specified distance outside the terminal control area until touchdown and, conversely, for departing aircraft, from the aircraft's lift-off from the runway to the same distance outside the airport's control area. Every operation is tracked in real time without the intervention of third party interpretation, manipulation, or extraneous factors, unrelated to the operational capacity of airport infrastructure.

The effects of this confounding of substantive with non-substantive delay factors are reflected in the Master Plan's modeling of demand/capacity/delay. The FAA's Simulation Model ("SIMMOD"), Version 2.1, was apparently used in the Master Plan's demand/capacity/delay analysis. SIMMOD simulates the movement of arriving and departing aircraft from their entry/exit into the Los Angeles Terminal Air Traffic Airspace through approach and landing phase, or taxi and takeoff, to their exit from the terminal air traffic airspace. Proper calibration of SIMMOD is essential since the resulting statistics depend upon the data used to develop the baseline assumptions and operating instructions for the model. In this case, ACARS and OAG data were used to calibrate SIMMOD. Because of the potential double counting inherent in these data sources, and the consequent exaggeration of delay in the model, the principal conclusion that is drawn from SIMMOD is that the only way to remedy delay is to build additional airport infrastructure. The most obvious flaw of such an analysis is that it eliminates, at the outset, opportunities to gain efficiency through improvements in

⁵ In addition, the Master Plan analysis relies on numerous sources other than ACARS or OAG data including personal observations, a small sampling of users and an unique determination of aircraft speeds and routes, none of which is suitable, let alone optimal, for developing baseline analyses or formulating assumptions. (See, e.g., Master Plan, § 2.1.3, pages II-2.5 - II-2.6)

operating practices and minor modifications to the air traffic system. Thus, what seems like a relatively minor data collection/designation problem pervades the demand/capacity/delay modeling upon which the Draft EIS/EIR's environmental analysis is based, and subtly biases the results.

C. The Draft EIS/EIR is Based on Implausible Modeling Assumptions.

The accuracy of SIMMOD's results depends on an accurate "description" of the "airport's operating environment". (Master Plan, § 2.1, page II-2.2) Both the Master Plan and Draft EIS/EIR acknowledge that the "description" is made up not merely of data purporting to represent actual current conditions, but also assumptions arising from that data (see, e.g., Master Plan, § 2, page II-2.1). Therefore, to the extent data and assumptions are incorrect or incomplete, so too will be the results of the model. In addition to the data problems specified above, SIMMOD, as used in the Master Plan, incorporates implausible, or biased, assumptions which, in turn, call into question the integrity of its output.

1. Assumptions Concerning Aircraft Delay Are Unexplained and Unsupported.

The Master Plan's (and Draft EIS/EIR's) definition and description of the delays at the existing (pre-Project) Airport are based on consultants' opinions and not on factual information. First, while the Master Plan acknowledges that "a standard definition of acceptable delay is not used in the industry" (Master Plan, § 2.1.3, page II-2.5), it then concludes that "delay levels of six to ten minutes indicate the need for additional facilities"; that "as average aircraft delay increases above six minutes, passengers tend to perceive service reliability problems"; "as delay approaches ten minutes per operation, further increases in demand are limited", and, "flight cancellations were assumed when delays exceed 20 minutes per average annual aircraft operation." (Master Plan, § 2.1.3, pages II-2.5 - II-2.6) These assumptions are apparently based on information derived from prior studies by the Master Plan consultants at airports other than Los Angeles, in years as early as 1988. In other words, the delay standards relied upon in the Master Plan are based on outdated data concerning potentially irrelevant subject airports. All of these have unique characteristics that may have influenced creation or perception of delay, and none of them are discussed in the Master Plan or Draft EIS/EIR.

Further, these unsupported assumptions do not reflect an understanding of the diverse ways in which delay is determined by the airlines, Air Traffic Control and the Department of Transportation. First, a typical airline will develop performance criteria for each phase of flight based on company goals and performance percentages, including arrival and departure delay. Airlines use "zero variance" as a standard for "on time" performance (i.e., zero difference between arrival and/or departure times and published schedules). The percentage goal for each activity will be based on the level of performance the airline hopes to, or, in some cases, must attain in order to remain competitive. Some airlines track on time performance plus five minutes and most will track on time performance plus 14 minutes.

FAA Air Traffic Control, on the other hand, computes delay based on actual delay time en route. An arriving aircraft is considered delayed only if the aircraft is held en route to the destination for 15 minutes or more at any given moment during the flight. It is possible that these aircraft could be held at more than one interval during a flight. However, if each holding period does not exceed the 15 minute threshold, no delay is recorded, even though the total delay might well be in excess of 15 minutes. Further, inbound delay is kept separate from outbound delay. A departing aircraft is not counted as delayed until: (1) the average taxi time for the airport; (2) the time from the gate to the runway; and (3) 15 minutes have cumulatively elapsed. Air Traffic Control delays do not consider airline schedules or internally generated delays in their reporting system. The majority of Air Traffic Control delays are as a result of weather and not system capacity. Finally, the Department of Transportation grades airline performance on the time of arrival at the destination airport within 14 minutes of the scheduled arrival time. The Master Plan utilizes none of those benchmarks. Thus, the Master Plan fails to adequately explain the basis for its demand/capacity/delay analysis.

2. The Master Plan's Assumptions Concerning Turboprop Operations are Manifestly Inaccurate.

Referring to its analysis of existing noise abatement procedures as they pertain to the creation or maintenance of demand/capacity/delay, the Master Plan states that "based on actual information obtained by the Los Angeles Noise Management Bureau, turboprop departures were permitted to turn slightly earlier than jet departures at the Airport VOR, which is located between runways 7L and 7R, west of Pershing Drive" (Master Plan, § 2.3.3, page II-2.31). In addition, Figures II-2.11 and II-2.12 indicate that, when the Airport is operating on a west flow, turboprop aircraft turn at the VOR.

These representations are inaccurate and lead to incorrect assumptions about flight paths. In fact, if such a turn were permitted, it would occur prior to the shoreline, contrary to current noise abatement procedures. Turning the turboprops early allows faster aircraft to depart behind the turboprops at a more accelerated rate than is currently allowed, thus allowing more aircraft to depart in a given interval. The results of this inaccurate assumption are that: (1) the baseline departure capacity is artificially elevated to a level higher than would be realized had actual air traffic data been used and the noise abatement procedures modeled as they are actually used; and (2) turboprops, as depicted in the Master Plan and Draft EIS/EIR, are directed over noise sensitive areas not previously overflown, and, as a result, elevate the baseline noise levels, thereby concomitantly reducing the apparent noise impacts of the Project.

3. The Master Plan's Flight Schedule Assumptions Are Outdated.

The Master Plan reports the results of a SIMMOD analysis conducted in 1994, using 1994 data and 1994 assumptions. In addition to this obsolete data, the ACARS data upon which the SIMMOD analysis is based includes less than 51% of commercial operations and more than

46% of the total operations in the design day flight schedule. As: (1) operational configurations long pre-date the commencement of the environmental process; (2) current schedules were not used (although available), the assumptions concerning a typical day's traffic are substantially unsupported; and (3) not all of the aircraft operators were considered, the assumptions concerning a typical day's traffic are substantially unsupported.

4. The Master Plan's Fleet Mix Assumptions are Inaccurate.

The Master Plan relies on a fleet mix distribution derived from "August 11, 1994 OAG, NMB Do Daily Operations Records and LADOA 1994 Monthly Air Traffic Volumes" (Master Plan, Table II-2.16, page II-2.58). This 1994 fleet mix distribution is outdated and, thus, inadequate for use in SIMMOD. Specifically, it includes a large number of Stage 2 aircraft which are no longer in operation at the Airport. Not only are Stage 2 aircraft noisier, but they have different emissions characteristics from the newer high bypass ratio, Stage 3 aircraft. If a more recent base year had been selected, the proportion of Stage 2 aircraft would have been smaller, and the noise baseline lower, and, thus, more accurate.

5. The Master Plan's Assumptions Concerning Aircraft Speed Are Inaccurate.

The Master Plan's assumptions concerning aircraft speeds were apparently inflated to fit the underlying assumption of unconstrained aircraft flows. The Master Plan model calls for all aircraft to operate at the same constant air speed before proceeding to the Airport and landing. The model further assumes that all aircraft exit the runway at the same point and within the same amount of time in order to reach the modeled flow rate. In actual conditions, the speeds of the aircraft vary, with high airspeed greatly reduced as the aircraft approaches the airport. Nor would all aircraft exit the runway at the same location. In short, this assumption of high constant speed will have an as yet unascertained impact on the model's results but would tend to overstate capacity of the existing facility, and, thus, the baseline for comparison with the Project's improvements.

D. The Master Plan's Model Omits Critical Variables.

Another crucial issue revolves around variables the Master Plan fails to include in its model. Specifically these include: (1) the capacity of the airspace beyond the Airport Terminal Control Area ("TRACON"); and (2) gate capacity for future scenarios.

1. The Master Plan Should Have Considered Airspace Capacity Beyond The Airport's Terminal Area Airspace.

According to the Master Plan, airspace considerations were limited to entry (and exit) from the Airport's TRACON airspace. (Master Plan, § 2.1.1, page II-2.3) The failure to consider airspace capacity beyond that point is a material omission from the analysis. This is

because the majority of aircraft delays are absorbed in the en route environment before an aircraft arrives in TRACON airspace. By modeling only the terminal area, the results of the model are skewed for both arriving and departing aircraft. For departing aircraft, if the model does not consider the inherent constraints of the en route air traffic system, including differences in aircraft performance and the impacts of other air traffic transiting the area for other airports, the departure flow pictured in the model will remain unconstrained and aircraft can take off at a constant, predetermined rate. When reaching the boundary, the aircraft are dropped from the scenario, and the model does not further consider constraints of the en route system which naturally impact the TRACON airspace. Unfortunately, this unconstrained flow scenario is not normally possible in today's complex air traffic control system.

Similar problems exist in modeling arrivals without consideration of airspace outside the TRACON. Inbound aircraft are assumed, in the Master Plan model, to be at the entry point of terminal airspace when required by the model. Aircraft proceed inbound at a set speed, reduce speed at a predetermined point, land and proceed unimpeded to their gate. This is not a reasonable representation of a typical aircraft arrival. In fact, there is almost no likelihood that aircraft can be delivered to the terminal inbound fix at a rate consistent with the model's assumptions.

Instead, the Master Plan's arrival model appears to have been developed to insure that an arriving aircraft would be at the inbound fix at the specific time required in order to maximize the arrival rate for the airport. Although Air Traffic Control consistently tries to keep the aircraft sequenced as closely as possible "intrail", it is not possible to consistently space aircraft a set distance apart for extended periods of time. The availability of aircraft to fit into the sequence, aircraft speeds, the mix of large and small aircraft, a lack of demand, aircraft deviations due to weather, intrail restrictions though an en route sector or intrail restrictions required for an airport approach control facility and other variables cause the in trail spacing of arrival aircraft to be inconsistent. As a result of these and many other factors, there is unused capacity in each of these arrival sequences. In summary, the Master Plan's failure to adequately consider constraining factors outside the TRACON airspace calls into question the validity of the model's result.

2. The Master Plan Should Have Modeled Gate Capacity.

The Master Plan did not include in its modeling aircraft gate operations for future activity levels, allegedly because of the inability of the existing gate facilities to accommodate the higher activity levels.⁶ (Master Plan, § 2.5.3, page II-2.104) The Master Plan disclaims the importance of this omission ["The inability to model gate operations in detail does not impact the results of

⁶ Performance measures contained in the Master Plan, § 2.5.1, include "outbound ground delay" which, in turn, appear to include gate related variables such as "gate push-back delay". This performance measure was apparently used in the modeling of existing gate operations but not future ones. (Master Plan, § 2.5.1, page II-2.97)

the airside capacity analysis since at higher activity levels the runway system tends to be the primary constraint . . .” Master Plan, § 2.5.3, page II-2.110]. The Master Plan is in error.

If an aircraft cannot get to the gate unimpeded, the resulting delay must be factored into the analysis. In the Master Plan, taxi patterns are consistent and aircraft are dropped from the model when they reach the gate area. The model does not capture any delays in the gate area or any delays that might occur in reaching the gate due to congestion on the ramp. The same is true for departing aircraft. If a departing aircraft cannot leave the gate due to inbound traffic or other traffic in the gate area, the departure demand at the airport may not be as regular as is assumed in the Master Plan’s model.

The importance of this omission is that it precludes development of a clear picture of the delay reduction, and consequent capacity enhancing, attributes of the Project. Without estimation of the potential groundside/terminal structure constraints on operations (capacity), the actual delay reducing, and capacity enhancing, benefits of the Project as a whole cannot be accurately ascertained.

3. The Master Plan Should Have Considered Currently Implemented Air Traffic Procedures.

While the Master Plan acknowledges the existence of the current Dual Civet Arrival procedure, it fails to analyze its delay reducing, or consequent capacity enhancing efficiencies. The procedure is mentioned, then drops off the “radar” screen. The Dual Civet Arrivals, however, have so greatly reduced arrival delay at the Airport that no national delay program for the airport has been established since the procedure’s implementation. Ignoring the impacts of Dual Civet Arrivals results in an exaggeration of existing delay and a consequent exaggeration of the Project’s delay reducing, and capacity enhancing benefits.

E. Demand, as Defined in the Master Plan, is an Identity with Capacity.

Inaccurate data and assumptions are not alone in influencing the outcome of a modeling effort. Inadequate specification of a variable may also lead to an unrepresentative result. In this case, the independent variable, demand, as defined, is not independent but is virtually synonymous with, or surrogate for, the dependent variable, capacity. Thus, the demand variable has an interactive relationship with the dependent variable which influences the model’s outcome in significant ways.

For example, the Master Plan defines aircraft demand as “a 24-hour flight schedule representative of design day activity.” (Master Plan, § 2.1.2, page II-2.3) The “24-hour flight schedule” definition is almost identical to the definition of “capacity”, “the number of aircraft operations, arrivals and departures, that the Airport can accommodate with a reasonable amount of aircraft delay.” (Master Plan, § 2, page II-2.1) The two variables, therefore, vary together, i.e., as “capacity” increases, “demand” will also increase, rendering demand useless as a

predictor of capacity. The precise degree in which the interaction of the independent and dependent variables in the model affect the analysis cannot be ascertained at this point without re-running SIMMOD. Suffice it to say that a new surrogate for demand, derived, for example, from airline market surveys, or annual enplanements, is necessary to insure the integrity of the model's results.

II. THE DRAFT EIS/EIR DOES NOT FULLY ANALYZE THE PROJECT'S OFF-AIRPORT SURFACE TRAFFIC IMPACTS.

While the Draft EIS/EIR's off airport surface traffic analysis adequately depicts some aspects of the Project's surface traffic generation potential, it is notably deficient in the following ways: (1) the use of the Adjusted Environmental Baseline for comparison with the Project's surface traffic impacts creates a misleading picture of the magnitude of those impacts; (2) the Draft EIS/EIR improperly equates the direct and cumulative impacts of surface traffic; (3) the Draft EIS/EIR provides inadequate information regarding the Northside/Westchester Southside Project; (4) the Draft EIS/EIR transportation planning horizon is improperly attenuated; and (5) the Draft EIS/EIR lacks a mitigation monitoring program detailing implementation of mitigation measures for the impacts of surface traffic.

A. The Use of the Adjusted Environmental Baseline for Comparison With the Project's Surface Traffic Impacts is Misleading.

Three scenarios were used as baselines against which to evaluate the surface traffic effects of the proposed Master Plan improvements: (1) Environmental Baseline; (2) Adjusted Environmental Baseline; and (3) the No-Project/No-Action alternative. The Environmental Baseline is the existing condition pre-project. It includes existing roadways and land uses, and the current airport configuration. The year used in this baseline changed during the development of the Master Plan. At the initiation of the Master Plan process, the baseline year used was 1994. Information is reported in different Master Plan sections for 1994 and 1995. For the third iteration of the Master Plan, the baseline became 1996. The technical reports for the Draft EIS/EIR used 1996.

The Adjusted Environmental Baseline uses the current airport configuration but assumes that future off airport roadways and land uses already in the pipeline will be completed (see Section B.1 below). As with the Environmental Baseline, the definition of Adjusted Environmental Baseline changed with the development of the Master Plan. The existing condition section of the Master Plan (Chapter IV, Section 7) used horizon years of 2000 to 2015. The "constrained" alternatives section (Chapter V, Section 3) used the years 2005 and 2015. Finally, the No-Action/No-Project Alternative is the converse of the Adjusted Environmental Baseline and assumes that off-airport development will remain constant, but currently approved airport projects will be completed.

There are at least two issues of importance raised by reliance on the Adjusted Environmental Baseline: (1) accuracy of the Adjusted Environmental Baseline and its resulting projections; and (2) applicability of the Adjusted Environmental Baseline to the environmental impact analysis.

1. The Uncertain Definition of the Adjusted Environmental Baseline Makes the Results of its Comparison With Project Impacts Questionable.

The initial question about the Adjusted Environmental Baseline is the accuracy of the definition of “Existing Condition/Environmental Baseline” on which it is purportedly based. There are significant differences between the 1995 data concerning the “Existing Condition/Environmental Baseline” contained in the proposed Master Plan and the 1996 data contained in the Draft EIS/EIR. A comparison of Master Plan, Table II-7.2 and Draft EIS/EIR, Table 4.3.2-24, for the a.m. peak hour, shows changes in the “Existing Conditions/Environmental Baseline” between 1995 and 1996. As illustrated in the following Table, some intersections got significantly better and some significantly worse. In all but one case, the difference in V/C ratios between 1995 and 1996 exceeds thresholds used for determining significance in the Draft EIS/EIR.

Intersection	Master Plan Table II 7.2 1995 V/C*	EIS/EIR Table 4.3.2-24 1996 V/C	V/C Difference
Aviation/El Segundo	0.981(E)	0.835(D)	-.146
Aviation/Rosecrans	0.915(E)	1.121(F)	.206
Highland/Rosecrans	0.714(C)	1.069(F)	.335
Sepulveda/El Segundo	0.840(D)	0.869(D)	.029
Sepulveda/Mariposa	0.776(C)	0.730(C)	-.046
Sepulveda/Rosecrans	1.238(F)	1.220(F)	-.018
Vista Del Mar/Grand	0.755(C)	0.749(C)	-.006
Vista Del Mar/Imperial	0.821(D)	0.465(A)	-.356

* In Master Plan Table II 7.2 the first column heading is apparently mislabeled

Moreover, the “adjustments” to the “Existing Conditions/Environmental Baseline” involved adding additional roadways and additional traffic to the system based on anticipated projects. The definitions of these “adjustments” is not consistent within the Draft EIS/EIR, or between it and the Master Plan. For example, the Draft EIS/EIR states that: “A list of approved development projects were developed . . . (Draft EIS/EIR, page 4-279)” [Emphasis added.] The traffic technical report on which the Draft EIS/EIR is based states: “A list of planned development projects was developed . . .” (Technical Report, § 3b, page 2-3)” [Emphasis added.] Master Plan, Table IV-8.3; Master Plan, Chapter V, Appendix L; and Technical Report,

3b, Table 2-3, present projected regional roadway improvements. Master Plan, Chapter V, Section 2.6 indicates that the future roadway network used in the analysis includes those projects “. . . currently funded and approved or which have a high probability for completion by 2015 . . .” Clearly, the distinction between “approved” and “planned” projects is critical to a functional definition of Adjusted Environmental Baseline. The baseline will be set much higher (and the consequent relationship of the Adjusted Environmental Baseline with the Project’s impacts much lower) if all planned projects are included in addition to all approved projects.

Finally, Chapter IV of the Master Plan (Table VI-8.1, page IV-8.5) provides a “preliminary list of related projects” that differs from the list presented in Table 2.2 of the Draft EIS/EIR Traffic Technical Report, 3b. While differences are to be expected between the 1996 version of the Master Plan and the Updated 2000 version of the Traffic Technical Report, one difference may be more crucial than others - the projected size and resulting traffic impact of the Playa Vista Project. For example, according to the Master Plan, Table IV-8.1, the Playa Vista Project will contain 13,156 single-family units and 8,262 multi-family units. Master Plan, Chapter V, Appendix L, and the Draft EIS/EIR Traffic Technical Report specifies 13,085 multi-family units and no single-family units for the same Project. There is no explanation for the change, nor any reference to the source of either number. The difference is crucial because the traffic analysis assumed three people for each single-family home, and only two for each multi-family residence. The change therefore results in a significant diminution in traffic if the latter multi-family numbers are correct. Considering the potential of over 13,000 housing units for traffic generation, a complete explanation is needed to render the Draft EIS/EIR surface traffic analysis.

2. The Applicability of the Adjusted Environmental Baseline to the Draft EIS/EIR Traffic Analysis is Questionable.

As set forth above, the off airport surface traffic analysis in the Draft EIS/EIR uses the Adjusted Environmental Baseline as “the basis of comparison under CEQA for future mitigation for the three build alternatives” (Draft EIS/EIR, page 4-276). The Adjusted Environmental Baseline reflects projected conditions in the years 2005 and 2015 with off airport land use activities completed and regional circulation improvements in place, but without any increased use of the airport. This approach minimizes the potential direct impact from the adoption of the proposed Master Plan because: (1) the future traffic volumes without the Project increase thereby reducing the proportional effect of the added airport traffic from the Project and (2) additional circulation system improvements provide additional capacity. While it is reasonable to assess particular impacts at the time at which they might occur, relying on this approach requires assurances that the projected circulation improvements will actually be in place. No such assurances are provided in the Draft EIS/EIR.

The Off Airport Technical Report lists circulation system improvements that were included in the modeling process. This listing provides an indication of when certain improvements are anticipated. Without these improvements, the circulation system for the

Adjusted Environmental Baseline would, apparently, be the same as for the 1996 condition, and many more intersections and roadway segments would be subject to significant adverse impacts as a result of the proposed Master Plan. It is important, therefore, that the Draft EIS/EIR traffic analysis include projected phasing of the anticipated improvements relative to the additional traffic resulting from airport use. This should include a discussion of the phasing of airport improvements as they pertain to traffic generation with respect to the circulation improvements used in the Adjusted Environmental Baseline. Limitations should be placed on airport traffic generation if anticipated circulation improvements off-airport do not occur. Once the Adjusted Environmental Baseline is accepted as accurate and the conditions to achieve it are assured, the next issue concerns the significance of surface traffic impacts and the mitigation measures needed to reduce those impacts.

B. The Direct and Cumulative Impacts of Surface Traffic Are Improperly Equated.

The surface traffic analysis uses traffic volumes from airport and non-airport projects. (See, e.g., Master Plan § 2.6.2, page V-2.279). Therefore, it is at least partially a cumulative impact analysis.⁷ Because the surface traffic analysis is based on cumulative traffic volumes, the significance of the direct impacts and the cumulative impacts are equated. However, the use of the Adjusted Environmental Baseline makes this equation between direct and indirect effects inappropriate. While comparing the Project to the adjusted future conditions may be appropriate for assessing direct impacts, the cumulative impact is the impact of all traffic relative to the existing condition, not expected future conditions as contained in the Adjusted Environmental Baseline.

The result of this improper equation of direct and indirect effects is material. The following Table (derived from Draft EIS/EIR, Table 4.3.2-24) for the a.m. peak hour illustrates the problem. The reported change in congestion between the existing conditions and Alternative C, the preferred project alternative, is often significant, while the comparison of Alternative C with the Adjusted Environmental Baseline (which incorporates future conditions) is not.

⁷ “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the Project when added to other closely related past, present, and reasonably foreseeable probable future projects.” (CEQA Guidelines, § 15355(b))

Intersection ⁸	Existing Adjusted		Alternative C	Difference	Difference
	V/C(LOS)	Baseline (w/mit) V/C(LOS)	V/C(LOS)	(w) Existing	(w) Adjusted
Aviation/El Segundo	0.835(D)	1.097(F)	0.865(F)*		
Aviation/Rosecrans	1.121(F)	1.164(F)	1.171(F)	+0.050	+0.007
Highland/Rosecrans	1.069(F)	1.211(F)	0.947(E)	-0.122	-0.264
Sepulveda/El Segundo	0.869(D)	1.190(F)	1.161(F)	+0.292	-0.029
Sepulveda/Mariposa	0.730(C)	0.772(C)	0.803(D)	+0.073	+0.031
Sepulveda/Rosecrans	1.220(F)	1.275(F)	1.243(F)	+0.023	-0.032
Vista Del Mar/Grand	0.749(C)	0.918(E)	0.729(C)	-0.02	-0.189
Vista Del Mar/Imperial	0.465(A)	1.098(F)	0.903(E)	+0.438	-0.195

* Apparent error in Table 4.3.2-24 of the EIS/EIR (page 4-340)

Using this concept of the Adjusted Environmental Baseline, the result is that the cumulative impacts of the Project are often significant and not mitigated even when the Project's direct effects have been.⁹

C. The Draft EIS/EIR Inadequately Documents the Northside/Westchester Southside Project.

The Draft EIS/EIR's impact analysis for off airport surface traffic is dependent upon the assumption that there will be a substantial reduction in the number of trips generated from the Northside Project. By "reconstituting" the Northside Project into the Westchester Southside Project, the Draft EIS/EIR projects that there will be a significant decrease in collateral trips with the adoption of the proposed Master Plan.

⁸ Change in V/C Rates of .01 defines significant impact for intersections at LOS F (Draft EIS/EIR, p. 4-291).

⁹ Note that if the comparison had been between Alternative C and the No-Project/No-Action Alternative, the difference would have been even greater, as the No-Project/No-Action Alternative provides for on-airport, potentially capacity-enhancing, improvements, but not off-airport surface traffic impact mitigation.

The source of the collateral trip reduction is the change in the land use for the Northside Project and Continental City Project. Attachment A of Technical Report 3b provides the basis for the reduction in collateral trips.

	AM PEAK			PM PEAK		
	Adjusted Baseline	No Project	Alternative C	Adjusted Baseline	No Project	Alternative C
Northside	0	7,217	3,922	0	7,131	4,423
Continental City	0	5,323	0	0	5,348	0
Manchester Square	0	0	212	0	0	233
Total	0	12,540	4,134	0	12,479	4,656

The issue here is the same as that concerning the Adjusted Environmental Baseline, i.e., the actions needed to insure that the reduction is achieved. The principal question is what specific discretionary actions are required to modify the allowable land uses in the Northside Project and in Continental City property, and how will compliance be assured?

The land use component of the Draft EIS/EIR and Condition LU-1 in Chapter V, Environmental Action Plan, presents a “Master Plan commitment” that:

“To the maximum extent feasible, all [Q] conditions . . . from the City of Los Angeles Ordinance No. 159,526 that address the Northside project area will be incorporated by LAWA into the Zoning Code Amendment and LAX Master Plan Implementing Ordinance for the Westchester Southside Project. Accepting that certain conditions may be updated, revised, or determined infeasible as a result of changes to the LAX Northside project, the final [Q] conditions for the Westchester Southside Project will ensure that the level of environmental protection afforded by the full set of LAX Northside projects [Q] conditions is maintained.” (Draft EIS/EIR, Chapter V, page 5-2).

Since this traffic reduction is critical to the projected Master Plan trip generation, the detail associated with this property needs to be firmly established. It is unacceptable to assume that certain conditions may be “updated, revised or determined infeasible” if they are necessary to bring about the decrease in collateral trips upon which the Master Plan projections are based. While there are some discussions of the Northside/Westchester Southside Project in the Draft EIS/EIR’s purpose and need chapter and Master Plan, Appendix Q, these are brief, general presentations lacking in specificity as to the actions needed to commit the City to limit these uses.

The importance of this lack of specificity in the definition of Project actions, as they relate to the Northside/Westchester Southside Project, is that there is no commitment by Los Angeles to insure that the traffic reduction represented by the changes in allowable land use will occur. The surface traffic capacity for the Project claimed through the reduction of traffic generation from the Westchester Southside Project is significant. Without a more adequate demonstration of the Master Plan's ability to achieve that reduction, and a concrete commitment to meeting those goals, the Draft EIS/EIR will remain inadequate.

D. The Transportation Planning Horizon Used in the Draft EIS/EIR is Improperly Shortened So As To Minimize the Full Build Out Surface Traffic Impacts of the Project.

The Draft EIS/EIR modeled future conditions for the years 2005 and 2015. The current regional transportation plan, however, uses 2025 as the horizon year. The use of a later year between 2015 and 2025 for analysis is proper in light of the fact that the Project is anticipated to take 16 years to complete.¹⁰ If the Project commences as early as 2002, it will not be completed until 2018, three years after the 2015 horizon has expired. With the year 2013 being the second greatest peak construction year (Draft EIS/EIR, page 4-270), the proposed Master Plan improvements will not be complete by the time the present horizon year of 2015 is reached. The import of the choice of 2015 as horizon year, before the Project is completed, is that the full build-out ("worst case") impacts of the Project will remain unanalyzed.

Further, while the impacts resulting from the adoption of the proposed Master Plan are generally evaluated against the Adjusted Environmental Baseline, much of the Draft EIS/EIR's discussion of surface traffic is compared to the No-Project/No-Action alternative (i.e., the alternative that assumes growth in operations and passenger demand at the Airport, along with completion of improvements already planned, but no off airport traffic or other development improvements). The comparison of the Project with two separate baselines in the years 2015 presents a misleading picture. While the reconstitution of the Northside Project may provide a reduction in the traffic generated in 2015, the existing airport improvements clearly permit growth beyond that currently possible. Therefore, the further into the future conditions are projected, the greater the effect of the proposed Master Plan improvements on traffic.

¹⁰ The Draft EIS/EIR, Purpose and Need Section (Chapter 2, pages 2-12 through 2-13) indicates that the Project will be implemented in two phases. The first phase will last six years and the following phase 10 more years.

E. The Impacts of Construction Traffic Are Largely Ignored.

While the Project's construction will stretch over a period of 14 years, the impacts of the numerous construction vehicles that will be in use during that period remain unexplored. First, the Draft EIS/EIR acknowledges a volume of construction vehicles which includes 2.8 trucks per minute, 10 hours per day, 6 days per week, or 1.2 trips per minute, 20 hours per day in a 7 day work schedule (Draft EIS/EIR, page 4-319). While the Draft EIS/EIR purports to address mitigation by recommending that trucks trips be divided among four locations on the construction site, that purported mitigation does not consider the trucks' impacts on surrounding arteries even a short distance from the construction site.

Moreover, the Project will admittedly coincide with the construction of Playa Vista, located approximately 2 miles north of the airport (Draft EIS/EIR, page 4-320). The Draft EIS/EIR contains little or no analysis of the cumulative impacts of the construction of these two projects on surface traffic on surrounding arteries and the San Diego Freeway. Moreover, the mitigation offered is slight. The Draft EIS/EIR offers to expand the ". . . Traffic Coordination Office . . ." to minimize the impacts of construction traffic (Draft EIS/EIR, page 4-320). This purported mitigation measure, even when combined with other assurances including that "construction traffic . . . can be managed . . ." (Draft EIS/EIR, page 4-320), and "traffic patterns around the airport for the general public would be largely maintained . . ." (*Id.*), does little, if anything, to assure that the manifest impacts of construction will be mitigated. The Draft EIS/EIR admits as much where it states "however, even with these commitments in place, the Project would still cause sufficient construction-related traffic to cause notable disruption of normal traffic flows near the airport." (*Id.*) Since construction is planned to last more than 14 years, the Draft EIS/EIR is basically stating that for that entire period, traffic is expected to be disrupted, and the Project's purported mitigation will be insufficient to restore stability.

Finally, the Draft EIS/EIR pays little or no attention to the traffic impact of vehicles used by construction workers. It states that construction employees will work in three shifts, and that the second shift will arrive before the first shift ends (Draft EIS/EIR, page 4-319). Using simple math, it appears that at some points during the day, parking would have to be provided for more than 8,000 workers when these two shifts overlap. While remote parking areas are suggested for construction employees, they are as far away as Palmdale, Van Nuys and Ontario (*Id.*). The likelihood of construction workers using such remote parking is slim to none. Therefore, the mitigation measure is largely useless. However, even if remote parking were utilized to any extent, the Draft EIS/EIR fails to discuss the traffic impacts of the shuttles which would bring the construction workers from these remote locations to the airport. In short, even though construction is expected to last for 14 years, the Draft EIS/EIR contains little, if any, analysis of the impacts of construction worker traffic which will take place on the entire street/freeway system 6 or 7 days a week during that period.

In summary, while "the general construction concept is to have many of the transportation improvements completed within the first five years after construction begins . . ." (Draft EIS/EIR,

page 4-318), the LAX Expressway and northeastern portion of the ring road from the San Diego Freeway to Sepulveda Boulevard would not be available to traffic until well after the first five years (Draft EIS/EIR, Table 4.3.2-18, page 4-318). Therefore, there would be no new routes available for mitigating the above impacts during the heaviest construction period.¹¹ As a consequence of the above omissions, the Draft EIS/EIR's analysis of construction traffic impacts is materially deficient.

F. The Draft EIS/EIR Lacks a Mitigation Monitoring Program.

The Draft EIS/EIR, Chapter V is entitled "Environmental Action Plan". It is not specific as to whether this constitutes a Mitigation Monitoring Program required by CEQA (CEQA Guidelines § 15091(d)). If it does represent a Draft Mitigation Monitoring Program, it is inadequate. The Section lacks a clear statement of the party responsible for implementing the mitigation, the mechanism for enforcement of the mitigation and the timing of implementation. Moreover, it lacks detailed explanation of the way in which the diminution of traffic from the Northside Project, as well as other surface traffic mitigation measures will be achieved.

III. THE DRAFT EIS/EIR NOISE ANALYSIS UNDERSTATES THE PROJECT'S AIRCRAFT NOISE IMPACTS.

A. The Draft EIS/EIR minimizes the Project's noise impacts by artificially inflating the Environmental Baseline.

As noted earlier, a threshold issue in environmental analysis is the establishment of a "baseline". The function of a "baseline" is to provide a benchmark of existing conditions against which the environmental impacts of a project may be measured. If the baseline is incorrectly designated at too high a level, the impacts of the Project will be improperly minimized. In this case, the Draft EIS/EIR utilizes three separate and distinct baselines for analyzing the impacts of the Project: (1) the Environmental Baseline (1996), i.e., the purported conditions in existence before implementation of the Project; (2) "No-Project" baseline for 2005 (and 2015) which includes "natural" growth on the airport resulting from implementation of already approved airport projects continued in the current Master Plan that purportedly would have occurred even if the Project is not implemented; and (3) Adjusted Environmental Baseline predicated on projected conditions in the years 2005 and 2015 with off-airport land use activities completed

¹¹ The Draft EIS/EIR states that Phase 1 of the Project would be 5-6 years long and end in 2005. As the Draft EIS/EIR cannot be approved before late 2001, at the earliest, and Phase 1 of the construction could not then begin before 2002, Phase 1 could not end until at least 2007 or 2008. Similarly, Phase 2 which is estimated to extend 10 years past the completion of Phase 1, would end in 2017 not 2015, as assumed in the Draft EIS/EIR. This is important because the impacts of construction, and associated traffic, will now be extending well past the period anticipated in the Draft EIS/EIR.

and regional circulation improvements in place, but without any improvement to airport facilities.

The Draft EIS/EIR chooses 1996 (i.e., the Environmental Baseline) as the base year for evaluation of aircraft noise impacts, and states that in 2015, the Project's horizon year, Alternative C "would reduce the total number of people exposed to aircraft noise above 65 CNEL compared to current conditions as represented by the Environmental Baseline year." (Draft EIS/EIR, page 4-11) **By using 1996 as the benchmark, the Draft EIS/EIR's noise analysis artificially minimizes the apparent growth in noise impacts associated with the Project. This is because, in 1996, many noisy Stage 2 aircraft remained in the fleet (which were then phased out in late 1999). When the Notice of Preparation was published in July 1997, the Project proponents knew with certainty at that time that some of the noisiest aircraft in its fleet would not operate after December 31, 1999, and that the removal of these aircraft from the fleet serving the Airport would reduce the size of the airport's noise exposure contours. The Draft EIS/EIR concedes that the "reduction in noise exposure is the result of a federally mandated phase out of older, noisier Stage 2 jets," and not the implementation of the Project. Despite that fact, the Draft EIS/EIR consciously skews the analysis by using 1996 as the Base Year for its noise analysis.**

The Draft EIS/EIR disregards the fleet mix changes brought about by the Stage 2 phase out. The Draft EIS/EIR's "Average Annual Day Operations and Fleet Mix - Environmental Baseline" (Draft EIS/EIR, Appendix D, page 11) includes a total of 139 noisy Stage 2 aircraft in the daily operations mix. In other words, nearly 7% of the aircraft included in the calculation of the baseline noise contour analysis are high noise producing aircraft the inclusion of which will increase the size of the baseline noise contours and, thereby minimize the apparent impacts of the Project.

Courts have displayed flexibility in dealing with cases involving complex long term environmental review. They have agreed that, for lengthy environmental review such as that at issue here, the analysis of such impacts as surface traffic (and aircraft operations) which normally fluctuate over time are properly assessed against a later baseline than the time of the publication of the Notice of Preparation. (Save our Peninsula Committee, *supra*, 87 Cal.App.4th at 125-126) Therefore, Project proponents are not tied to the 1996 baseline, the last full year of data before the year of Notice of Preparation Publication, but should, more properly, have used a year no earlier than 1999, the last full year of data available before publication of the Draft EIS/EIR. Moreover, that data should have been updated with available data from the year 2000. Absent such an update, the Draft EIS/EIR noise analysis is incomplete and, thus, inadequate.

B. The Draft EIS/EIR Fails to Satisfy Applicable Law Because it Improperly Analyzes the Health Effects of Aircraft Noise.

1. The Draft EIS/EIR Must Consider the Health Effects of Aircraft Noise.

The Draft EIS/EIR must fully consider all of the adverse health effects of aircraft noise. LAWA admits that its LAX Master Plan will create increased noise impacts upon the residents of the City of Inglewood. "Under Alternative C, which does not add a new runway, a decrease in noise exposure would occur in the City of El Segundo and the community of Del Aire with increases in portions of the community of Westchester and the City of Inglewood." Draft EIS/EIR Section 4.24.2 page 4-1040. There is strong scientific evidence of the adverse health effects of noise pollution on humans. Studies have shown clear health effects on animals, and these studies indicate the certainty of such effects on humans as well.

"A study sponsored by the EPA, constituting one of the most notable studies of animal noise exposure, examined cardiovascular effects of noise on monkeys. This research demonstrated that monkeys subjected to industrial noise at levels between 85 to 90 dba for several months developed significant elevations of systolic and diastolic blood pressure. It is particularly notable that these changes persisted long after exposure ceased, demonstrating that noise has a chronic effect on blood pressure."

Fred M. Svinth, Illingworth & Rodkin, Inc. "The Effects of LAX Aircraft Noise on Local Communities," January 2001, p. 9, attached hereto as Exhibit "I". LAWA admits that such studies exist and that noise has effects, but refused to seriously consider such reports. Instead, LAWA simply concludes that such studies are controversial and, therefore, that no in-depth analysis is required.

"Some studies suggest that there are indicators that high noise levels, particularly from aircraft, may have a detrimental effect on the cardiovascular system, mortality rates, birth defects, achievement scores, psychiatric admissions, sleep disturbance, and overall psychological well being; others show no conclusive evidence of these effects. However, the results of such studies continue to be controversial and are not accepted by the general scientific community at this time. Specifically, the scientific community has cited methodological and epidemiological problems with the studies and none of the studies has gained the universal acceptance from researchers that would allow them to be used as a basis for impact assessment."

Draft EIS/EIR Section 4.24.2 page 4-1041.

However, LAWA argues that it is impossible to "quantify" the relationship between noise and adverse human health effects. LAWA argues that no "threshold of significance" exists:

“Although there is consensus that noise has some health effects, there is no agreement as to the degree of the effects or the level at which they become significant. The scientific community and regulatory agencies have not developed numerical thresholds beyond which the health effects of noise are considered to be significant.”

Draft EIS/EIR Section 4.24.2 page 4-1046.

In other words, LAWA takes the position that the absence of a specific threshold absolves it from having to address this issue in any meaningful way in the Draft EIS/EIR. Instead, LAWA focused on overall noise exposure caused by its expansion plan. “Since it is not possible to quantify noise health impacts for a population, such as the people who live in the vicinity of an airport, this analysis focused by necessity on quantifying overall noise exposure.” Draft EIS/EIR Section 4.24.2 page 4-1039.

LAWA’s admitted inability to fully analyze the Health Effects of Aircraft Noise itself renders the planned expansion violative of existing law. LAWA improperly fails to consider the admitted potentially significant adverse health effects of noise. “Significant and unavoidable impacts associated with aircraft noise are expected to occur. Such noise exposure is considered to pose a potential significant and unavoidable impact relative to health effects of noise, to the extent there is such a relationship between the two.” Draft EIS/EIR Section 4.24.2 page 4-1050.

“The U.S. Environmental Protection Agency (USEPA) has taken the following position: ‘Research implicates noise as one of several factors producing stress-related health effects such as heart disease, high blood pressure and stroke, ulcers and other digestive disorders. The relationship between noise and these effects has not yet been quantified.’”

Draft EIS/EIR Technical Report 14b. Health Effects of Noise Technical Report. No Master Plan Commitments for the health effects of noise are proposed. Draft EIS/EIR Section 4.24.2 page 4-1046. LAWA must fully examine the health effects of aircraft noise in order to fulfill the requirements of NEPA and CEQA.

2. The Draft EIS/EIR NEEDS TO ADDRESS Aircraft Noise Interference with Classroom Activities and Sleep.

The Draft EIS/EIR fails to adequately address the interference of aircraft noise upon classroom activities and sleep. Interference with classroom activities and sleep are two of the most sensitive impacts of aircraft noise. LAWA admits the problem of interference with

classroom activities, but fails to analyze this problem to the degree required under CEQA. According to LAWA:

“Interference with classroom activities and learning from aircraft noise has been the subject of much recent research. Several studies have been performed, including studies at LAX, London’s Heathrow Airport, and Munich International Airport. These studies indicate that a relationship between aircraft-related noise and learning effects does exist, but that additional research is required to clarify how close the relationship is and at what noise levels the relationship appears. The relationship has been particularly difficult to document due to the confounding factors of background noise, school quality, and socioeconomic status. Additional research is being performed to try to account for these factors.”

Draft EIS/EIR Section 4.24.2 page 4-1043. Similarly, LAWA admits but dismisses summarily the very real problem of sleep disturbance caused by aircraft noise. LAWA states:

“Generally, laboratory studies have shown considerably more disturbance than field studies, perhaps due to the subject’s lack of familiarity with the location and experience. Sleep disturbance studies have also involved the collection of cumulative data from subjects.... A review of existing studies and literature indicates that additional research is required to clarify the relationships between aircraft-related noise and sleep disturbance.”

Draft EIS/EIR Section 4.24.2 page 4-1044.

LAWA tries to minimize the sleep disturbance caused by aircraft operations at LAX. LAWA states, “LAX undertakes a different operational procedure for takeoffs and landings between midnight and 6:30 a.m. These ‘over-ocean’ procedures route both arrivals and departures over Santa Monica Bay, directing aircraft noise away from residential areas to the east of LAX during nighttime hours.” Draft EIS/EIR Section 4.24.2 page 4-1045. However, due to constraints caused repeatedly by weather conditions, residents of Inglewood and other nearby communities are subjected to late night overflights. The Draft EIS/EIR fails to adequately analyze these issues.

IV. THE DRAFT EIS/EIR AIR QUALITY ANALYSIS IS INADEQUATE.

The Draft EIS/EIR's air quality analysis exhibits serious deficiencies, not the least of which is the total absence of a formal air quality conformity analysis required under federal law where, as here, the Project's air quality impacts are not claimed to be insignificant (see 42 U.S.C. § 7506¹²). The absence of a conformity analysis necessarily renders the following comments preliminary.

A. The Baseline for the Draft EIS/EIR Air Quality Analysis is Not Appropriately Estimated.

¹² “No department, agency, or instrumentality of the federal government shall engage in, support in any way or provide financial assistance for, license, permit or approve any activity which does not conform to an implementation plan . . .” (42 U.S.C. § 7506(c)(1))

The Draft EIS/EIR assumes that annual aircraft operations will be essentially identical regardless of whether the Preferred Alternative is implemented (Draft EIS/EIR, page ES-9). Under the No-Action/No-Project Alternative, total operations are expected to be 98 percent of operations under the preferred expanded capacity scenario (Alternative C). Furthermore, air passenger operations activity will actually be *higher* under the No-Action/No-Project Alternative. At the same time, the Preferred Alternative moves about 15 percent more passengers through higher aircraft load factors. Basic economic theory, however, dictates that under free market conditions, demand will reach equilibrium for a given level of supply at a certain market cost (including time costs associated with delays, congestion, etc.). If the supply curve (for air transportation) is then shifted, as would occur under an increased capacity situation such as that proposed,¹³ the supply/demand equilibrium for the same level of market cost will shift to a point of higher demand. This shift is often referred to as induced demand, and analyses which do not consider this effect (or which assume demand levels counter to market behavior as appears to be the case with the Draft EIS/EIR) are not accurate in general, or specifically with respect to future air quality conditions under any of the various alternatives. Viewed from a practical rather than theoretical perspective, the Draft EIS/EIR presumes that the Airport will support over 391,000 aircraft landing and takeoff (LTO) cycles in 2015 by doing nothing other than carrying through with those projects already adopted. Although operations without the Project would be constrained by greater delays as well as excessive times to reach the airport, the Draft EIS/EIR does not account for the discouraging effects of these delays, and assumes that under the Preferred Alternative, specifically designed to relieve these problems of congestion and delay, the total number of annual LTOs will increase by less than 2 percent (to 398,000) over the No-Action/No-Project Alternative. There are only two possible explanations for this relationship: (1) either usage under the No-Action/No-Project baseline is overstated; or (2) usage under the Preferred Alternative is understated. Correspondingly, either emissions for the No-Action/No-Project baseline are overstated or emissions for the Preferred Alternative are understated. The result is an artificial (and erroneous) minimization of the difference in emissions between baseline conditions and those of the Project.

This same issue affects stationary source emissions. Increased airport capacity can be expected to attract associated industrial and commercial activity into the area. This attraction would not occur without the increased capacity and, therefore, must be accounted for if a true assessment of airport emission impacts is to be determined. Note that this commercial development is distinct from currently planned commercial development, in that it occurs due to airport capacity expansion, but outside the formal planning process of the airport. One must recognize that the estimates of reduced emissions under the action alternatives (either the preferred or alternative scenarios relative to a No-Action/No-Project scenario) are due almost entirely to “flow” improvements in the form of reduced taxiway congestion and improved traffic

¹³ The Preferred Alternative lengthens and reconfigures runways, adds a new West Terminal, and improves traffic flow.

movement both on and offsite. If these congestion reductions are eliminated or reduced through increased air travel or associated demand that is not properly accounted for in the Draft EIS/EIR, the predicted emissions impacts will not be accurate.

B. Future Background Pollutant Concentrations Are Not Appropriately Estimated.

Background pollutant concentrations are required to accurately estimate the impact of the proposed Airport expansion on National Ambient Air Quality Standards/California Ambient Air Quality Standards (“NAAQS/CAAQS”) compliance. These concentrations must account for the combined impacts of the universe of emission sources not explicitly accounted for in the airport analysis. In effect, the background concentrations determine the emissions baseline upon which Airport emissions are placed. If this base is underestimated, the overall affect of airport expansion on NAAQS/CAAQS compliance could be similarly understated. Alternatively, if the base is too high, the Draft EIS/EIR analysis could be conservative. While the Draft EIS/EIR presumes the latter (Draft EIS/EIR, Technical Appendix G, page 46), it contains no data to support such a conclusion and some reason to believe that the converse may be true.

Current short term (sub-annual) background concentrations for the Draft EIS/EIR are based on measurements taken at an onsite monitoring station located just east of the southern runway configuration. Current annual concentrations are based on data collected at a South Coast Air Quality Management District (“SCAQMD”) monitoring facility (Hawthorne) located near, but southeast of the Airport (Draft EIS/EIR, Technical Report 4, Attachment A, page 3). On the premise that measurements from these sites inherently include emissions from the Airport, the Draft EIS/EIR concludes that such emissions represent conservative background concentration baselines for air quality analysis (since Airport emissions will be added on top of a background that already includes Airport emissions).

However, the prevailing wind direction for the Airport area is southwest to northeast (Draft EIS/EIR, Technical Report 4, Attachment A, page 3). Therefore, there is probably little influence from the Airport on the offsite concentrations used as background, as well as only moderate influence on the onsite-based background concentrations. The bulk of airport activity, including all terminal and motor vehicle operations occur under the influence of a prevailing wind plume that crosses Airport property to the north of the onsite monitoring station. While certain aircraft takeoff and queuing emissions are undoubtedly accounted for in the onsite baseline concentrations, these represent only a small fraction of overall airport emissions. Comparative data for concentrations from both monitoring stations could demonstrate the validity of the claim of conservatism, (i.e., do the observed concentrations for identical monitoring periods show a higher background at the onsite station?), but the Draft EIS/EIR apparently contains no data for the offsite monitoring station (other than the specific background concentrations used in the Draft EIS/EIR and associated documents, which are not comparable to the data for the onsite monitoring station).

More importantly, the emissions inventory rollback techniques used to forecast future background concentrations (Draft EIS/EIR, Technical Appendix G, pages 45-46) are of questionable validity for the Airport area. Background concentrations as well as future emission reduction influences around the Airport are constrained by geography. Since the prevailing wind flows from the southwest to the northeast, the Pacific Ocean represents a physical constraint that may significantly influence emission reduction impacts on background concentrations. In effect, the implemented rollback procedure to estimate future background concentrations reduces current background concentrations in proportion to expected *regional* emission inventory reductions over the same time period. Therefore, this procedure inherently assumes that inventory reductions are homogeneous throughout the region in terms of their influence on background concentrations. This is perhaps a viable assumption in instances where one part of a region has similar source characteristics with another, but the Airport region is clearly constrained to those source characteristics along the Pacific coastline to the immediate south of the Airport. It is the expected reductions from these sources in particular that should be used to adjust Airport background concentrations.

Generally background concentrations for 2005 are reduced 30 to 40 percent while concentrations for 2015 are reduced 50 to 60 percent from the current measured data (Draft EIS/EIR, Technical Report 4, Attachment A, page 4). Clearly this assumes significant emission reductions will affect coastal monitoring sites and provides substantial headroom for emissions increases within the confines of the NAAQS/CAAQS. These reductions probably represent the most significant influence on forecast pollutant concentrations in 2005 and 2015. It is critical that the propriety of the assumed background concentrations at least be supported by comparative analysis of current Airport and offsite monitoring data as well as analysis of emissions source classifications for the area immediately to the south of the Airport with the remainder of the air basin. This comparison will either provide the proper support for the currently implemented approach or suggest a more appropriate alternative.

C. Reverse Thrust Emissions from Aircraft Are Not Included in the Draft EIS/EIR Air Quality Analysis.

The Draft EIS/EIR makes an affirmative determination not to address emissions from aircraft reverse thrust operations, ostensibly on the basis of inadequate emission factors and short usage times (Draft EIS/EIR, Technical Appendix G, page 4). Both of these claims are misleading. First, reverse thrust is essentially a high thrust operating mode and emission factors for such modes (i.e., climbout and takeoff) are readily available. Common practice is to use takeoff emission factors. Second, it is true that the time in mode for reverse thrust operations is short, however high thrust modes produce very high unit time NO_x. For example, at a commonly utilized reverse thrust mode time of 15 seconds, increased NO_x emissions would be equivalent to the NO_x produced by increasing overall takeoff time by 35 percent (0.7 minutes plus 0.25 minutes versus 0.7 minutes). Since takeoff accounts for about 35 percent of total aircraft NO_x (Draft EIS/EIR, Technical Report 4, Attachment C), the overall aircraft NO_x inventory could increase by nearly 13 percent simply due to the inclusion of reverse thrust-related emissions

alone. Without some affirmative determination that such operations will be prohibited under the action alternatives, reverse thrust emissions should be included in the Draft EIS/EIR air quality analysis.

D. The Applicability of the Construction Equipment NO_x Standard is Overstated.

The Draft EIS/EIR states that only construction vehicles meeting a 2.5 grams per brake horsepower-hour (g/bhp-hr) NO_x standard will be used for airport construction projects by 2005 (Draft EIS/EIR, Technical Appendix G, page 3). Furthermore, this requirement will be phased in between 2001 and 2005, beginning at 20 percent of vehicles and increasing at a rate of 20 percent per year. This "requirement" raises several concerns as it is applied to the construction equipment emissions analysis in the Draft EIS/EIR.

First, the 3.0 g/bhp-hr NMHC+NO_x standard (that is the basis for the 2.5 g/bhp-hr NO_x assumption) for construction vehicles does not take effect until 2005 for 300-750 horsepower (hp) engines, 2006 and 2007 for 100-300 hp engines, or not at all for engines of other hp. Mandating this equipment for Airport work at an accelerated schedule beginning in 2001 may or may not be successful, but clearly requires some statement of commitment by the regulated parties. Voluntary, so-called "Blue Sky Series," engines can be certified by manufacturers before 2005 but there is no requirement to do so (and little incentive since these engines cannot be used in the emissions averaging programs associated with non-Blue Sky engines, averaging programs which are currently relied on by all heavy duty engine manufacturers for emissions standards compliance). In reality, construction firms will only be able to provide equipment that is available on the market and it is dubious that the number of engines meeting the suggested standard in the required years will be significant.

Second, the mandatory "clean engine" standards that do begin in 2001 require NO_x at levels around 4.0 g/bhp-hr (an exact value is not possible since the standard is again expressed as NMHC+NO_x, in this case 4.8 g/bhp-hr). However, these standards also only apply to 300-750 hp equipment. While a number of construction equipment engines fall into this category, many others range from as low as 25 hp up through 300 hp. For these lower hp categories, standards do not begin until 2003 or 2004 and get progressively less stringent as engine size decreases (to 5.6 g/bhp-hr for engines below 100 hp).

Third, even if this low emissions requirement could be enforced (i.e., allow use of only new Blue Sky Series engines at the Airport), an assumption of 100 percent in-use compliance is overly optimistic. While it is not possible to say with certainty what fraction of equipment may operate at emissions levels above certification standards, experience has demonstrated that engines employing sophisticated engine management strategies and aftertreatment controls (as is expected for engines meeting these stringent standards) are subject to both malperformances and malmaintenance effects. For first generation engines, such problems are usually exacerbated. What can be stated with certainty is that construction emissions impacts will be larger than the level acknowledged in the Draft EIS/EIR.

E. General Emission Factors for Offroad Equipment are Understated.

In general, it appears that the emission factors employed for offroad engines, even in the absence of the 2.5 g/bhp-hr issue noted above, are significantly underestimated. This underestimation affects not just construction equipment, but both baseline and ongoing aircraft Ground Support Equipment (“GSE”) operations, and results from the fact that outdated emission factor sources were utilized. The net effect is that airport emission and air quality impacts are underestimated.

Offroad engine emissions knowledge is currently in a state of rapid development and estimation techniques need to maintain currency with the latest methods. In California, this would imply use of the California Air Resources Board’s (“CARB”) OFFROAD emission factor model, while nationally a similar model termed NONROAD has been developed by the U.S. Environmental Protection Agency (“EPA”). While development continues on both, they clearly represent the most up-to-date compendiums of current offroad engine emissions estimation techniques. For example, these models employ the most recent emission factor test data, emissions deterioration test data, and equipment size and activity factors. References cited in the Draft EIS/EIR (Draft EIS/EIR, Technical Report 4, Attachment A), such as the EPA’s AP-42 and Procedures for Emissions Inventory Preparation documents as well as the SCAQMD’s CEQA Handbook, employ less developed and, in many cases, seriously outdated data.

An example of the magnitude of the emissions underestimation can be derived by comparing emission factors across the alternative methods. The Draft EIS/EIR relies on the use of the FAA’s Emissions Dispersion and Modeling System (“EDMS”) to generate GSE emission estimates. However, EDMS includes significantly outdated GSE emissions data.¹⁴ A quick comparison indicates that CARB OFFROAD model and EPA NONROAD model GSE (average) emission rates (for the same equipment activity distribution assumed in the EIS/EIR) are, for diesel equipment, from 7 to 13 times greater for VOC, 5 to 10 times greater for PM, 5 to 9 times greater for CO, 4 to 5 times greater for NO_x, and 4 to 5 times greater for SO₂. For gasoline GSE, the models produce average emission rates 10 to 20 times greater for VOC, 1 to 6 times greater for PM, 15 to 16 times greater for CO, 6 to 9 times greater for NO_x, and 2 to 4 times greater for SO₂. The impact of using outdated emission rates is clearly significant and should be reevaluated if realistic air quality impacts are to be derived.

¹⁴ This situation may be improved in the latest version of EMDS, which was released subsequent to the completion of the Draft EIS/EIR.

F. Ground Support Equipment Populations Are Not Appropriately Specified.

As stated above, the Draft EIS/EIR uses the FAA's EDMS model to estimate GSE emissions (Draft EIS/EIR, Technical Report 4, Attachment A). Inherent within this approach is an assumption that EDMS properly estimates GSE populations. Since the current GSE population at the Airport is known, it would be appropriate to determine whether EDMS assumptions are consistent with the Airport's actual population and use-hour statistics. This would provide support for the validity of EDMS equipment estimation algorithms and allow for a more appropriate assessment of the accuracy of the GSE emissions estimates and air quality impacts of the Draft EIS/EIR.

G. Emissions Benefits of Conversion of GSE to Electric, Hybrid, and Alternative Fuels are Overstated.

The Draft EIS/EIR contemplates a widespread GSE replacement program under all three of the action alternatives, while retaining primarily fossil fuel powered GSE for the No-Action/No-Project Alternative (Draft EIS/EIR, Technical Report 4, Attachment L). While this could be construed as a mitigation measure and, in fact, is listed as the single most effective mitigation measure on the list of potential mitigation measures included in the Draft EIS/EIR (pages 4-514 through 4-519), it is arbitrary to apply the measure only to the action alternatives, as there are no specific constraints to such substitution today or under the No-Action/No-Project Alternative. Electric GSE is cost effective from a market standpoint today. Therefore, whatever incentive or mandate will be offered under the action alternatives to move toward electrification could just as readily apply today. Required infrastructure modifications are relatively modest, with no dependency on the expansions associated with any of the action alternatives. But by far the most troubling issue is that the replacement program already appears to be accounted for in the "unmitigated" emission estimates for all three action scenarios. If this is the case, no additional emission reductions will be achieved through GSE electrification as is claimed in the proposed list of mitigation measures.

H. Incorrect Aircraft PM Emission Factors Are Used in the Draft EIS/EIR Air Quality Analysis.

Two issues exist with respect to the aircraft PM analysis that result in an underestimation of the Project's potential air quality impacts. First, it appears that the Draft EIS/EIR is based on the incorrect emission factors from the supporting analysis undertaken to develop those factors (Draft EIS/EIR, Technical Report 4, Attachment H). Second, it appears that the approach used to

develop PM emission factors for aircraft¹⁵ produces estimates that are not consistent with previous PM emission testing results.¹⁶

Analysis of PM emission factor estimation reveals that the basic estimation approach used in the Draft EIS/EIR yields an emission factor that only considers the basic non-volatile portion of particulate. An adjustment factor (that varies with fuel sulfur content) exists and should be used to correct the estimate to total PM (Draft EIS/EIR, Technical Report 4, Attachment H). This factor is calculated to be about 2.6 for low sulfur (about 70 ppmW) jet fuel and 14.7 for high sulfur (about 675 ppmW) jet fuel.¹⁷ Since existing EPA data demonstrates that U.S. jet fuel averages about 600 ppmW sulfur, the appropriate adjustment factor for the Draft EIS/EIR would be about 13.2. However, from figures presented in the Draft EIS/EIR, it appears that the unadjusted emission factors were used for all emissions analysis. If so, PM emission impacts are significantly underestimated and should be reassessed after applying an adjustment to increase the PM emission rate by a factor of 13.

In addition there is a potential deficiency in the approach employed to estimate PM emission factor data. The underlying need for a statistical estimation technique such as that employed cannot be disputed as the available aircraft PM emissions testing database is both small and dated. However, the Draft EIS/EIR (Technical Report 4, Attachment H) statement that the age of that data renders it valueless are questionable. Engine technology has advanced relative to the engines represented in the test database, but the fundamental physical and chemical combustion characteristics that give rise to PM formation have not. The additional claim that the existing aircraft emission factors are not of value since they reflect total PM as opposed to PM-10 is also without merit. Virtually 100 percent of combustion-related PM is PM-10, so any error resulting from the substitution of total PM for PM-10 will be insignificant.

¹⁵ The International Civil Aviation Organization (“ICAO”) emissions certification process for aircraft does not include PM, so alternative emission factor estimation approaches are required.

¹⁶ Adjustments not employed in the Draft EIS/EIR may compensate for most of this deficiency.

¹⁷ This calculation is based on data presented in the Draft EIS/EIR (Technical Report 4, Attachment H).

In fact, the PM emission factor estimation approach employed in the Draft EIS/EIR requires just such an assumption of equivalency between total PM and PM-10 (as stated in Technical Report 4, Attachment H).

If relationships between aircraft PM and another routinely measured pollutant can be developed for one or more of the standard aircraft operating modes, then measured values for this “independent” pollutant can be used to estimate PM emission rates in that mode (or modes). Such a statistical approach can take advantage of the limited existing PM emissions database, while at the same time recognizing the substantial progress that has been made in aircraft engine performance. It is, however, critical that such relationships consider possible operating mode-specific differences in any identified PM relationship, as engine and combustion efficiency vary substantially across modes. For example, one would expect PM emission rates to be inherently low in high efficiency (high NO_x) modes of operation since the same high temperature, high pressure conditions that give rise to high NO_x also favor more complete fuel combustion. Conversely, PM would be expected to be high in low efficiency combustion modes. In short, it should not be expected that the significance of any inter-species relationship(s) is/are invariant across the full range of operating modes.

A very strong statistical relationship between measured PM and the inverse of measured NO_x is observed in three of the four standard aircraft operating modes (approach, takeoff, and climbout), with coefficient t-statistics all significant at 99-plus percent confidence. A strong coefficient can also be observed for the taxi mode, but it explains virtually none of the observed variation in PM and NO_x (whereas variance explanatory significance exceeds 99 percent confidence for the other three modes). The magnitude of the relationship coefficients varies from 28.4 in takeoff mode to 45.0 in climbout mode, and is 33.0 in approach mode. While all three modes exhibit significant relationships, takeoff mode serves as the best basis for an overall relationship, as it statistically produces the smallest root mean square error based on regression data (an error 35 to 40 percent lower than those of climbout and approach modes). Using this takeoff mode PM-to-NO_x relation as a means to estimate aircraft takeoff PM emission rates for each of the engines with NO_x measurements in the overall ICAO emissions database, PM emission rates for the other three operating modes (climbout, approach, and taxi) can be developed based on observed statistical relationships between mode-specific PM and takeoff PM (i.e., PM-to-PM regressions across modes). Linear coefficients for all three modes (1.42 for climbout, 1.53 for approach, and 3.10 for taxi, all in pounds per thousand pounds fuel burned space) are significant at 99-plus percent confidence, with adjusted correlation coefficients for climbout and approach at 0.78 and 0.83 respectively. Taxi mode correlation is poor, but the PM-to-PM relation does account for observed variance at greater than 99 percent confidence.

Using existing ICAO emissions measurement statistics, this alternative approach produces PM emission rates that are 4 to 37 times higher than those used in the Draft EIS/EIR. The smallest differentials are observed at the highest thrust modes. The differentials grow with reducing thrust possibly because the Draft EIS/EIR approach does not take operating efficiency differentials between modes into consideration. Nevertheless, for a typical LTO cycle (as per

Draft EIS/EIR times-in-mode), the aggregate aircraft PM emission factor will be underpredicted by a factor of 17 using the Draft EIS/EIR approach. The effect on PM air quality analyses is obvious.¹⁸

I. Aircraft SO₂ Emissions are Underpredicted.

The Draft EIS/EIR relies on version 3.2 of the EDMS model to predict aircraft SO₂ emissions (Draft EIS/EIR, Technical Appendix G, page 4). This model underestimates aircraft SO₂ emissions by a factor of two due to reliance on an incorrect AP-42 emission factor (the emission factor was developed without accounting for the factor of two ratio between SO₂ mass and fuel sulfur mass). To the extent that the Draft EIS/EIR already demonstrates potential ambient SO₂ concerns, those concerns will be exacerbated by this underprediction.

J. The Assumption of Gate-Based Power and Air for All Aircraft is Questionable.

The Draft EIS/EIR assumes that 100 percent of air carrier gate power and conditioned air needs will be satisfied by gate-based electrically powered systems as opposed to fossil fuel powered auxiliary power units (APU) or GSE (Draft EIS/EIR, Technical Appendix G, page 10). Experience has shown that even under conditions where gate-based equipment is available, not all airlines or aircraft will utilize it consistently. This seems to be especially true for quick-turnaround airlines such as Southwest. Although the assumption of 100 percent availability and usage affects the no action and action scenarios equally, it is important from an ambient air quality perspective to account for the full range of expected emissions. Without some definitive airport policy that gate-based systems (both power and air) be used and that any on-board APU be shut down until needed for main engine startup, the Draft EIS/EIR would present a more realistic assessment of aircraft emissions if it adjusted the percentage of gate-based system usage to match currently observed use rates at the Airport.

K. APU Emission Factors for SO₂ and PM Not Considered.

¹⁸ Interestingly, if the appropriate carbon-to-total PM emission factor correction of 13.2 is implemented as suggested in the support material for the Draft EIS/EIR (Technical Report 4, Attachment H), the bulk of the emission factor differentials between the two estimation approaches virtually disappear (i.e., a correction factor of 13 versus an underestimation factor of 17 for an aggregate LTO). Nevertheless, significant differences would still exist on a mode specific basis.

APU emission factors for both SO₂ and PM are assumed to be zero. This results from deficiencies in the EDMS model and should be corrected to properly estimate aircraft-related air quality impacts. SO₂ emissions are a function of fuel sulfur content, so that emission rates can be readily calculated and applied. APU PM emission rates can be developed using the same methodology applied to main aircraft engines. The potential impacts of this deficiency would be magnified were the Draft EIS/EIR to properly attribute some fraction of gate power and air support to APU.

L. Aircraft Taxi Times are Not Included in the Draft EIS/EIR or Supporting Data.

Aircraft taxi-idle times are not included in the Draft EIS/EIR, its technical appendices or supporting documentation.¹⁹ It can be deduced from the included emissions estimates for aircraft taxiing that those emissions decrease substantially under the action scenarios, but the actual times should be included to allow the public an opportunity to better evaluate their propriety. In addition, the ability of SIMMOD to accurately estimate aircraft taxi times must be demonstrated by comparing SIMMOD predictions for current conditions at the Airport to observed taxi times at the Airport. The issue of aircraft taxi times is critical. The bulk of Aircraft VOC and CO emissions are generated during taxiing. In addition, although NO_x emission rates are low during taxiing, the amount of time spent in taxi mode results in a significant taxi contribution to overall NO_x emissions. Most critically, it is expected that virtually all of the aircraft emissions differential between the project baseline and the project alternatives is due to assumed reductions in aircraft idle time. Clearly, it is important that taxi times be accurately modeled. However, sufficient information is not included in the Draft EIS/EIR to determine that accurate modeling was performed.

¹⁹ The Draft EIS/EIR contains references to the development of the taxi/idle times using SIMMOD, but no actual indications of what those times were.

M. The Project's Conformity Cannot Be Determined from Data and Analysis Contained in the Draft EIS/EIR.

Even without consideration of the various issues noted above, the Draft EIS/EIR presents several air quality concerns relative to the NAAQS/CAAQS under the Preferred Alternative. Although a series of mitigation measures are discussed and preliminary emission reduction estimates presented, these estimates are not documented and therefore, the calculation methodologies cannot be evaluated. The Draft EIS/EIR defers formal review of potential mitigation measures until a Final EIS/EIR is developed (Draft EIS/EIR, page 4-459). Similarly, the Draft EIS/EIR acknowledges the applicability of federal conformity requirements, but defers both the conformity analysis and a proposed conformity determination to the Final EIS/EIR (Draft EIS/EIR, page 4-460). Unfortunately, such an approach makes it impossible to comment constructively on either potential emission mitigation measures or the conformity process, since these processes will be released for comment only after the underlying decision-making has been finalized.

N. The Draft EIS/EIR Fails to Satisfy Applicable Law Because it Does Not Adequately Address the Impact of Toxic Air Pollutants.

1. The Draft EIS/EIR Lacks A Proper Baseline Regarding Air Toxics.

The Draft EIS/EIR does not contain a proper baseline for air toxics emissions from LAX and LAX-related sources. As a result, it does not adequately address the effects of toxic air pollutants upon human health, including the health of the residents of the City of Inglewood.

CEQA requires that an EIR includes a description of the environment in and around the project at the time of the Notice of Preparation. CEQA Guidelines §15125(a). Such a description, or baseline, serves as the basis for the EIR's analysis of the environmental impacts of a project. CEQA also requires that detailed analysis of the potential environmental impacts from each of the projects contained in the aviation alternatives cannot be deferred to subsequent environmental documents. Public Resources Code § 21100; Stanislaus Natural Heritage Project v. County of Stanislaus (1996) 48 Cal.App.4th 182. The Draft EIS/EIR does not contain an adequate basis from which to determine the current impact on human health of air toxics emitted by LAX. "The HHRA did not evaluate impacts of toxic air pollutants associated with current airport operations." Calkins Phase I Report, p. 8. As noted by Mr. Calkins, this oversight means that LAWA does not provide a sufficient baseline from which to draw later conclusions. Without a baseline, LAWA cannot adequately assess the environmental effects of its plans to expand LAX.

2. LAWA Failed To Properly Study Toxic Air Emissions.

The Draft EIS/EIR does not properly study toxic air emissions related to LAX. LAWA's Health Risk and AirToxics evaluation is deficient due to the failure to organize and complete a study, such as the Air Quality and Source Apportionment Study, prior to the release of the Draft

EIR/EIS. The Air Quality and Source Apportionment Study are not yet complete. This study will shed important information on the health impacts to the surrounding community as well as identify mitigation measures. It will also determine the contribution of various airport-related activities on selected air pollutant concentrations in relation to those pollutants caused by other, non-airport sources in the surrounding community without the Source Apportionment study. LAWA cannot assess the incremental impact of LAX operations on local air quality. Therefore, LAWA has failed to investigate this area fully before preparing the Draft EIS/EIR. A prudent course of action would be to place any LAX expansion plans on hold until completion of this study. This would allow proper consideration of the serious human health issues addressed in this study. Without this study, the Draft EIS/EIR will not withstand scrutiny under CEQA and NEPA.

3. LAWA's Health Risk Assessment Does Not Adequately Factor Time as a Variable.

The Health Risk Assessment in the Draft EIS/EIR should be extended to consider a longer time period. There do not appear to be any tables or data in the Draft EIS/EIR on cancer and non-cancer health risks for any year after 2015. However, the operation of the expanded airport during those latter years may well have continuing impacts on the residents of the surrounding communities. Health impacts are often seen in the resident population over a much longer time span than the 15-20 years assessed in the Draft EIS/EIR tables. Other major planning assessments, such as the RTP (2025) and the AQMP (2030), examine impacts of their action over a much longer time frame. Calkins Phase II Report p. 22. The Health Risk Assessment in the Draft EIS/EIR should be extended to conform to this model.

4. LAWA's Study Of Air Pollutants Fails to Consider Relevant Issues.

It is unclear in the Draft EIS/EIR what LAWA's criteria are for determining net change in chronic and acute hazard indices for air pollutants. LAWA does not include the criteria pollutants in this analysis, and this is a critical, indeed fatal, omission. The results of the Source Apportionment study, which was only recently initiated, would have provided valuable input to assessing criteria (NAAQS) as well as various toxic air pollutant impacts on health, if it were available to the LAWA at the time of preparation of the Draft EIS/EIR. The Draft EIS/EIR also appears to ignore the incremental cancer and non-cancer risks to people who do not "receive a certain hazard level criterion." Calkins Phase II Report p. 22. These issues must be addressed and resolved in the Draft EIS/EIR.

V. THE DRAFT EIS/EIR DOES NOT MEET THE REQUIREMENTS FOR ALTERNATIVES ANALYSIS OF EITHER CEQA OR NEPA.

A. The Draft EIS/EIR Alternatives Analysis Does Not Conform to the Requirements of CEQA.

The LAX Master Plan and Draft EIS/EIR fail to conform to CEQA because they do not properly consider alternatives to expansion at LAX. Proposals that entail expansion at other airports instead of LAX should have been analyzed and considered. Instead of considering only three “build” alternatives, each of which called for massive expansion of LAX (in comparison to a flawed No Action/No Project Alternative), LAWA and the FAA should have considered alternatives that included expansion and/or construction at Ontario Airport, El Toro Marine Corps Air Station, Palmdale Airport and March Air Force Base.

In discussing alternative locations for a project, the CEQA Guidelines state, “The key question and first step in analysis is whether any of the significant effects on the project would be avoided or substantially lessened by putting the project in another location.” CEQA Guidelines § 15126.6(f)(2). The CEQA Guidelines further state:

“An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. The range of alternatives required in an EIR is governed by a ‘rule of reason’ that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.”

CEQA Guidelines §§ 15126.6(a), (f).

According to LAWA, its “preferred” alternative, Alternative “C”, causes fewer substantial impacts to the environment surrounding LAX than its other alternatives, “A” and “B.” However, the impacts that it does cause are substantial. Moreover, the analysis does not consider whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location, as required by CEQA Guidelines, Section 15126.6(f)(2) cited above. The CEQA Guidelines state that alternatives that cause less environmental harm must be considered. Accordingly, inasmuch as the Draft EIS/EIR fails to consider another location, i.e., Ontario, Palmdale, El Toro, etc., the Draft EIS/EIR fails to follow the CEQA Guidelines.

Feasible alternatives to massive expansion of LAX do exist. The Guidelines set forth a number of factors to consider when determining whether or not an alternative is feasible.

“Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional

boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent).”

CEQA Guidelines section 15126.6.

Considering these feasibility factors in connection with expansion at LAX illustrates why the LAX Master Plan and the Draft EIS/EIR are not consistent with CEQA. LAX is located in the midst of a heavily populated residential area. The area is not well suited for the airport operations that currently exist, let alone massive expansion. LAX is economically viable, but expansion of LAX offers little, if any, additional economic benefit regionally when compared to other expansion scenarios considered by the planning body for Southern California, the Southern California Association of Governments (“SCAG”). “Southern California Aviation Industry Impact Analysis,” CIC Research, Inc., July 11, 2000, p. v, attached hereto as Exhibit “C”. The LAX Master Plan contemplates massive construction at LAX because, as it stands today, the infrastructure at LAX is not sufficient to handle the expanded operations in the plan. In reality, however, this places LAX in a similar position to that of every other airport in the area. If LAX is to expand, massive construction will have to take place. The LAX Master Plan is simply not consistent with other plans, in particular SCAG’s 2001 Regional Transportation Plan (“RTP”) (see below for further discussion) and the 1999 and 2001 Air Quality Maintenance Plan’s (“AQMP’s”). Lastly, the LAX Master Plan virtually ignores the regional approach to airport expansion, by failing to fully analyze any alternative that does not call for massive expansion at LAX. Given the fact that LAWA owns several of the other airports in the region meets or exceeds the feasibility of expansion of LAX, when considering the factors mandated by CEQA.

B. The Draft EIS/EIR’s Alternatives Fail to Satisfy the “Purpose and Need” for the Project.

The mandate to evaluate and compare alternatives is the “heart” of an EIS (CEQ Guidelines, § 1502.14). FAA Order 1050.1D, paragraph 63, implementing NEPA, mandates that an EIS “shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.” The FAA Order further requires that the EIS Alternatives analysis include a rigorous exploration and objective evaluation of all reasonable alternatives. Courts have concluded that to be reasonable, the suggested alternatives must meet the goals of the proposed action.²⁰

The Draft EIS/EIR’s alternatives analysis fails to meet the stated goals of the Project. The Draft EIS/EIR states that the general “[p]urpose and objectives of the Master Plan are to

²⁰ See, generally, City of Carmel-By-The-Sea v. United States DOT, 123 F.3d 1142 (1997); National Wildlife Federation v. Federal Energy Regulatory Commission, 912 F.2d 1471 (1990).

provide... sufficient airport capacity for passengers and freight in the Los Angeles region to sustain and advance the economic growth and vitality of the Los Angeles region.” (Draft EIS/EIR, volume 1, pg. 2-1) More specifically, the Draft EIS/EIR outlines three objectives which the Project needs to satisfy: (1) “to respond to the local and regional demand for air transportation during the period 2000 to 2015, taking into consideration the amount, type, location, and timing of such demand”; (2) “to ensure that new investments in airport capacity are efficient and cost-effective, maximizing the return on existing infrastructure capital”; and (3) “to sustain and advance the international trade component of the regional economy and the international commercial gateway role of Los Angeles.”²¹

²¹

Id.

It is not clear, however, that the proposed runway improvements that form an integral part of Alternative C, the Preferred Alternative, constitute a superior, or even an efficient way to accomplish the Project's stated purposes. For example, all three of the Project's objectives could potentially be, at least partially, achieved through airspace/air traffic modifications, both within the terminal airspace and in the en route system. This alternative is neither acknowledged nor explored in the Draft EIS/EIR. Nevertheless, this conclusion is supported by the fact that the Dual Civet arrival configuration has reduced arrival delay for operations from the east significantly since 1998 and has resulted in an average time-savings of 4.4 minutes per Civet turbojet arrival aircraft. In fact, since the Dual Civet arrival procedures were implemented, there have been no national delay programs set up for the Airport, since delay has not been an issue. However, the Draft EIS/EIR does neither address nor incorporate the capacity or delay reduction efficiencies gained through this procedure in any of its modeling.²²

²² Where the Master Plan does address air traffic procedures, it is in error. The Master Plan states that the Departure Sequencing Program (DSP), a program that provides the capability to sequence departures from Los Angeles basin airports, would enhance capacity at the Airport. (Master Plan, § 2.6.1.3, page II-2.137) However, the DSP program has been cancelled by the FAA due to a lack of benefit. Essentially, the Southern California TRACON consolidation effort occurred many years ago and the references to it in the Master Plan and the Draft EIS/EIR are outdated. Many innovations and changes in airspace and procedures at the TRACON over the past few years have occurred, and none are referenced or adequately considered in the Draft EIS/EIR. Basically, the Draft EIS/EIR does not address the changes in airspace design or the new routes that have been developed as a result of airspace enhancements in Southern California.

Moreover, a closer examination of the Master Plan and the Draft EIS/EIR reveals that the Draft EIS/EIR may have ignored relatively inexpensive improvements in air traffic procedures in favor of very expensive, physical changes to the airfield. This is apparently because the Project's true purpose does not include the first two claimed in the Draft EIS/EIR, i.e., the broad ones of providing "sufficient airport capacity for passengers and freight in the Los Angeles region" (Draft EIS/EIR, Volume 1, page 2-1), in an "efficient and cost effective" way (Draft EIS/EIR, page 2-1). Instead, the Project's principal purpose is the narrow and singular one of accommodating "New Large Aircraft" ("NLA") that, with their long haul capabilities, would potentially serve the Airport in order to "sustain and advance the international trade component of the regional economy." (Draft EIS/EIR, page 2-1)²³

This conclusion is substantiated by the fact that the current aircraft fleet does not require 12,000 feet of runway to take off. Even today's heavy aircraft such as the B-747-400 and the B-777-400 only need 8,000 - 10,000 feet of runway for take-off and landing (under the weather conditions prevailing at the Airport). The Airport's existing runways are 8,295-feet, 10,285-feet, 12,091-feet, and 11,096-feet in length. Thus, even the shortest runway at the Airport can accommodate the heaviest and largest aircraft in the fleet under prevailing circumstances today.

The result of the Draft EIS/EIR's failure to acknowledge the Project's primary purpose, i.e., to increase the proportion of super long-haul aircraft in the fleet, is a concomitant failure to analyze the full range and magnitude of environmental impacts that may arise from the desired change in fleet mix. While it is, as yet, early in the NLA development process, some technical facts about the aircraft are already known, sufficient to make at least some educated projections concerning its impact. For instance, ascertaining the projected climb rate will enable an estimate of whether the NLA can meet current airport noise abatement operational requirements; or whether those will have to be altered; or whether the NLA will, ultimately, overfly noise sensitive communities at lower (or higher) altitudes, resulting in higher (or lower) noise levels over those communities. Similarly, preliminary data concerning engine type and emissions characteristics would

²³ The Draft EIS/EIR comes close to admitting as much: "Development of NLA aircraft is driven by increasing demand and constrained international gateway airports around the world, including LAX ... Development of the NLA will allow these airports to continue to meet the growing demand for travel between primary trading partners. As one of the three major (and busiest) gateway airports in the nation, LAX would be one of the first airports to be served by NLA." (Draft EIS/EIR, page 2-11)

enable at least a preliminary analysis of the air quality impact of the NLA, as well as the GSE needed to support it, if different from those categories already in use. Finally, the Draft EIS/EIR should have included the capacity/delay impacts from the increased use of NLA. As the Draft EIS/EIR fails to model ground operations in detail, the delay impacts that may result are not considered in developing an accurate analysis of arrival and departure flows and the congestion which may ensue even after Project implementation.

In summary, because the alternatives analysis is the “heart” of the NEPA process; because the Draft EIS/EIR fails to consider, or analyze, the impacts of eminently reasonable alternatives such as airspace changes to meet the Project’s stated purposes; because Alternative C does not alone meet the Project’s stated purposes; and because the most significant result of implementing Alternative C, the increased capacity to accommodate NLAs, remains unanalyzed from an environmental perspective, the Draft EIS/EIR’s alternatives analysis is seriously flawed.

VI. THE LAX MASTER PLAN AND DRAFT EIS/EIR FAIL TO SATISFY APPLICABLE LAW BECAUSE THEY DO NOT CONFORM TO OTHER RELEVANT PLANS.

Federal regulations require that all airport development conform to local plans. The FAA’s Airport Environmental Handbook clearly states that any airport plan must conform to the local air emissions plans:

“Section 176(c) of the Clean Air Act Amendments of 1977 states in part that no Federal agency shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to a State Implementation Plan after it has been approved or promulgated under section 110 of that Act. It is FAA’s responsibility to assure that Federal airport actions conform to state Plans for controlling area wide air pollution impacts.”

Airport Environmental Handbook, Chapter 5, p. 12. In addition, the Airport Environmental Handbook states that the 1982 Airport Act requires that Airport Improvement Program applications for projects involving airport location, runway location, or a major runway extension shall not be approved unless the governor of the state in which the project is located certifies that there is a “reasonable assurance” that the project will be located, designed, constructed, and operated in compliance with applicable air and water quality standards. Airport Environmental Handbook Chapter 5 p. 14. Finally, the FAA’s Airport Environmental Handbook states that all airport development must conform to local plans:

“For all airport development there shall be evidence to support the following Airport Improvement Program grant assurances as required by the 1982 Airport Act.

- (a) The project is reasonably consistent with existing plans of public agencies for development of the area (section 509(b)(1)(A));
- (b) Fair consideration has been given to the interest of communities in or near the project location (section 509(b)(4)); ...
- (d) Appropriate air and water quality certificates have been or will be obtained for projects involving airport location, runway location, or a major runway extension (section 509(b)(7)).”

Airport Environmental Handbook, Chapter 9, p. 3.

The LAX Master Plan and Draft EIS/EIR fail to conform to two key local plans. How the Master Plan and EIS/EIR fail to conform is discussed in the two paragraphs that immediately follow. However, it should be noted as an initial point that since the Master Plan and EIS/EIR fail to conform to two key local plans, they violate Section (a) referred to immediately above.

First, the LAX Master plan fails to conform to the relevant Air Quality Maintenance Plan. Mr. David Calkins, an expert in air emissions planning and compliance issues, reviewed the LAX Master Plan and Draft EIS/EIR. His reports are attached hereto as Exhibits “E” and “F”. In his report, Mr. Calkins states, “Review of Chapter 4.6 found several inconsistencies in LAWA’s reference to the conformity and SIP planning process.” Calkins Phase I Report, p. 11.

Second, Mr. Calkins has found that the Draft EIS/EIR fails to conform to the Regional Transportation Plan (“RTP”) in at least eight different ways. These differences are discussed in detail below. In addition to the Federal law requirements discussed above, under CEQA an EIR must discuss any inconsistencies between the proposed project and applicable general plans and regional plans. CEQA Guidelines § 15125(d). The Draft EIS/EIR fails to meet these requirements.

A. The LAX Master Plan Fails to Conform to the Air Quality Maintenance Plan.

The LAX Master Plan does not conform to the local air pollution reduction plan. Southern California is designated a “non-attainment area”²⁴ under the 1990 Clean Air Act.

²⁴ A “non-attainment area” has monitored air pollution levels in excess of the National Ambient Air Quality Standards (“NAAQS”).

Therefore all major projects must be constructed with assurance to the Federal Government that the project fits into the current air pollution reduction plan, known as the Air Quality Maintenance Plan (“AQMP”). See Calkins Phase II Report pp. 11-12. Mr. Calkins has determined that the LAX Master Plan Draft EIS/EIR fails to conform to the relevant AQMP in regards to the following:

1. Emission Inventory - the 2001 AQMP, currently in development, will require changes to the Draft EIS/EIR’s emission inventory.
2. Mitigation Measures - LAWA’s failure to commit to specific mitigation measures in the Draft EIS/EIR inhibits development of the 2001 AQMP.
3. Baseline Issues - use of the “adjusted” environmental baseline for off-airport traffic impacts does not allow comparison of the Draft EIS/EIR alternatives with current conditions, but actually compares the alternatives to a future condition.
4. Aircraft Mix - the Draft EIS/EIR assumes an aircraft mix of mostly jumbo airliners, in conflict with the adopted 2001 RTP calculations, which will cause differences in projected emissions between the Draft EIS/EIR and the AQMP.
5. Stationary Source Emissions - LAWA’s alternatives do not take into account the increase in nearby, off-airport stationary source emissions, despite LAWA’s assertions to the contrary; thus, it cannot conform to the regional plan.
6. Ground Support Equipment - LAWA failed to follow the California Air Resources Board’s (“CARB”) latest off-road emission model when concluding that emissions for future Ground Support Equipment would be zero.

Calkins Phase II Report at 13-14. These are serious conformance problems that must be first detailed, then remedied by LAWA before any action can be taken on the LAX Master Plan or its Draft EIS/EIR.

B. The LAX Master Plan Fails to Conform to SCAG’s 2001 Regional Transportation Plan.

The LAX Master Plan does not conform to the local Regional Transportation Plan (“RTP”). The Southern California Association of Governments (“SCAG”) is the main planning body for Southern California. At least every three years, SCAG adopts a RTP for the area, which sets forth its plan for the foreseeable future, usually 25 years. SCAG adopted a new RTP in April 2001. This RTP replaced SCAG’s previous plan, which was adopted in 1998. The Final RTP has not yet been formally released, but its contents in most areas relevant to LAX are known.

As discussed in the Calkins Phase II Report, attached as Exhibit F, the LAX Master Plan Draft EIS/EIR fails to conform to the RTP as follows:

1. Projected Passenger Load - the LAX Master Plan Draft EIS/EIR projects LAX handling over 92 million annual passengers (“MAP”) in 2015; the RTP limits LAX to handling what is considered to be its current physical capacity of 78 MAP.
2. On-Road Emissions Factors - The Draft EIS/EIR utilizes EMFAC2000, but the RTP uses emission factors based upon EMFAC7G. This inconsistency makes it quite difficult to compare the air quality impacts of the Draft EIS/EIR upon the RTP.
3. Different Model Years - The Draft EIS/EIR models years 2005 and 2015, but the RTP models 2025 as its model year.
4. Market Incentives - There are significant differences between the two plans in choice of market incentives, which causes potential conflicts between the two plans.
5. Aircraft and Passenger Characteristics - These differ in regards to projected aircraft types and passenger growth during the relevant periods.
6. Cargo Handling Projections - The Draft EIS/EIR projects much larger cargo handling for LAX than that planned for in the RTP.
7. High Speed Rail Projections - The Draft EIS/EIR rejects this project as too speculative, but the RTP bases projections on passenger and cargo demand in part upon the inclusion of this transportation mode.
8. Funding Projections - The RTP does not include the Ring Road, 105 Freeway extension, or 405 Freeway Connector Projects in its funding projections. The Draft EIS/EIR plans for funding of all these projects, presumably from Federal Highway funds.

Calkins Phase II Report at pp. 9-10.

LAWA’s failure to even discuss these issues is a serious deficiency in the Draft EIS/EIR. The Draft EIS/EIR cannot be acted upon until it is modified to conform to the RTP, assuming that is possible to do without simply scratching the entire analysis and starting over. If it is possible to salvage some small part of the plan, such as the mitigation measures, then the Draft EIS/EIR must be reissued for public comment.²⁵

²⁵ When new significant information becomes available after the public review period, Public Resources Code Section 21092.1 and CEQA Guidelines Section 15088.5 required

VII. THE DRAFT EIS/EIR DOES NOT ADEQUATELY SPECIFY MITIGATION MEASURES OR METHODS TO ENFORCE THEM.

CEQA requires that agencies identify the environmental impacts of a project, and implement mitigation measures to lessen the adverse environmental impacts. (CEQA Guidelines §15002 (a)(3)). However, the Draft EIS/EIR fails to comply with CEQA by (1) failing to provide a complete list of mitigation measures, and (2) failing to specify, at a minimum, a Draft Mitigation Monitoring Program to inform the public of how the project proponents intend to ensure the implementation of mitigation measures.

A. The Draft EIS/EIR Delays Disclosure of the Full List of Mitigation Measures Until the Final EIS/EIR.

CEQA Guidelines §15126.4(a)(1)(B) mandates that the “[f]ormulation of mitigation measures should not be deferred until some further time.” **While the Draft EIS/EIR acknowledges the existence of significant unmitigable impacts, it also states that, “A final package of design features, Master Plan Commitments, and Mitigation Measures will be developed ... The resulting Environmental Action Plan will be published in the Final EIS/EIR.”** (Draft EIS/EIR, Executive Summary, pg. ES-30) **By deferring to the Final EIS/EIR to reveal the mitigation measures, the public’s opportunity comment will have been attenuated.**

B. The Draft EIS/EIR Fails to Provide a Draft Mitigation Monitoring Program.

California Public Resources Code §21081.6 requires that a public agency “adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation.” (Cal. Pub. Resources Code §21081.6 (a)(1)). If an EIR “identifies one or more significant environmental effects of the project,” CEQA Guidelines §15091(a) requires an agency to “make one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding.” With these findings, the CEQA Guidelines mandate that “the agency shall also adopt a program for reporting on or monitoring the changes which it has either required in the project or made a condition of approval to avoid or substantially lessen significant environmental effects. These measures must be fully enforceable through permit conditions, agreements, or other measures.” (CEQA §15091(d))

re-circulation of an EIR prior to certification.

The Draft EIS/EIR violates CEQA Guidelines §1509(d) and California Public Resources Code § 21081.6 in that it fails to set forth a program that monitors or reports on each mitigation measure. Although the Draft EIS/EIR cites some mitigation measures to combat the environmental impacts of the Project, it makes no mention of the “permit conditions, agreements, or other measures” (CEQA Guidelines § 15091(d)) which would ensure compliance with mitigation measures. In other words, it does not specify the steps necessary to ensure compliance, the responsible party to ensure compliance, or the resulting consequences should compliance not occur.

VIII. THE UNRELATED ISSUE OF “SAFETY” SHOULD NOT BE USED AS A SMOKE SCREEN TO PUSH THE CAPACITY-DRIVEN DRAFT EIS/EIR FORWARD.

In recent public statements, the FAA and LAWA have introduced the notion that because of its high number of runway incursions, the Airport is unsafe, and that the Project’s “improvements” are critical to remedying the adverse safety conditions.

Contrary to the FAA’s contention, however, runway incursions are largely a function of pilot or air traffic controller error, not airport layout and design.²⁶

²⁶ A pilot might enter a runway without proper authorization or clearance; a pilot is unfamiliar with an airport, does not hear an instruction, or fails to acknowledge an instruction to hold short of an active runway; a pilot, when approaching an active runway, crosses the hold line for that runway; a controller may clear an aircraft onto an active runway without ensuring that there are no other aircraft operating on that runway; the controller may fail to coordinate an aircraft crossing a runway with the controller who has the responsibility for approving all operations on that runway; a controller may clear an aircraft to cross a runway and the pilot may take an excessive amount of time crossing and may interfere with another aircraft; and the controller may fail to exercise the proper oversight of the operation and allow two aircraft to occupy an active runway resulting in a runway incursion.

In fact, the Airport can eliminate runway incursions only if it builds runways with no entrances and no exits. However, simple solutions such as enhanced marking and lighting for runways, increased awareness and training for pilots and controllers, improvements in communications and procedures, and resolving management issues at the FAA²⁷ are all basic and available measures that should be implemented at the Airport. In addition, affordable incursion-reducing technologies currently available to the Airport such as the Airport Movement Area Safety System (presently in use at the San Francisco International Airport), which uses radar to alert controllers to potential collisions, would minimize the problem as well.²⁸ In fact, even the FAA has even pressed the need for instituting technological improvements at airports to combat the runway incursion issue.²⁹

While recent incidents have made runway incursions a “hot button” in the eyes of the public, Congress, and aviation organizations, this recently surfaced “safety” issue cannot serve as justification for a project which otherwise fails to meet environmental standards.

²⁷ Transportation Department Inspector General Kenneth M. Mead recently told a House subcommittee that the “FAA’s director of runway safety has little authority over FAA employees who work on runway safety projects. Result: Almost every FAA runway safety project runs years late at more than double the anticipated cost, often failing to meet original expectations.” The Washington Post Company, “Runway Alert”, page A22, July 7, 2001.

²⁸ “It’s the first surface detection equipment that really gives an alert to the controller and allows the controller to prevent a collision.” CNN, “Close Calls on Runways Alarm Aviation Experts”, June 27, 2001.

²⁹ The Director of the FAA’s Runway Safety Office, Mr. Bill Davis, expressed that “he needs additional authority to coordinate and speed up technological improvements.” The Washington Post Company, “Runway Alert”, page A22, July 7, 2001.

IX. THE DRAFT EIS/EIR IS INSUFFICIENT AS A MATTER OF LAW BECAUSE IT DOES NOT SATISFY ENVIRONMENTAL JUSTICE REQUIREMENTS.

A. The Master Plan and EIS/EIR Unfairly Burden the Minority and Lower-Income Communities Surrounding LAX in Violation of Federal and California Law.

Federal law requires that each federal agency “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” (Executive Order 12898, February 11, 1994). Environmental Justice is also a requirement of California law. Cal. Pub. Res. Code §72000-72001. Under California law Environmental Justice means “the fair treatment of all people of all races, cultures, and incomes with respect to the development, adoption, implementation and enforcement of environmental laws, regulations, and policies.” Cal. Pub. Res. Code § 72001. The California Environmental Protection Agency is charged with the responsibility to “[P]romote enforcement of all health and environmental statutes within its jurisdiction in a manner that ensures the fair treatment of people of all races, cultures, and income levels, including minority populations and low-income populations of the state.” Cal. Pub. Res. Code §72000(b). These requirements imposed on LAWA the responsibility to consider the impacts of LAX expansion on lower income and minority communities.

Several of the communities surrounding LAX, and to the east of LAX, in particular, contain predominantly minority populations and lower income populations. The Draft EIS/EIR contains a demographic analysis of the communities surrounding LAX that will be impacted by the LAX Master Plan. LAWA analyzed seventy census tracts, comprising parts of the City of Los Angeles, El Segundo, Inglewood, Hawthorne, and unincorporated areas of Los Angeles County. Draft EIS/EIR, Appendix F, Environmental Justice Technical Report, pp. 5-6. Fifty-four of the seventy census tracts within the study area are considered to be predominantly minority. A tract is so defined when more than fifty percent of the population is minority. *Id.* at 10.

Similarly, thirty-three of the seventy census tracts within the Impact Study Area are considered to be low-income. Low-income is defined as having more than 15% of the resident population below the poverty level. *Id.* Thirty-two of the thirty-three census tracts identified as low-income are predominantly minority. *Id.* at 15.

LAWA’s analysis shows that the distribution of minority and non-minority populations may cause differential impacts between these two groups:

“This data reveals a readily discernible pattern of minority and low-income communities in the areas surrounding LAX. While the areas to the north and south of LAX are predominantly non-

minority, the area east of I-405 within the study area is predominantly minority. Furthermore, within these areas east of I-405 minority populations are heavily concentrated: 39 of the 70 minority census tracts with the study area have minority percentages greater than 90 percent. The uneven distribution of minorities throughout the study area, as evidenced by the data showing that most census tracts have less than 20 percent or greater than 90 percent minorities, increased the potential for differential impacts on minorities and non-minorities.”

Id.

Minority and low-income populations are and have been disproportionately burdened by the impacts of LAX long before the massive expansion planned under the LAX Master Plan:

“[M]inority and low-income residential communities within the study area are currently concentrated east of LAX, separated from the airport by predominantly commercial and industrial airport-related land uses and the I-405 freeway. In contrast, residential areas of El Segundo and Playa Del Rey/Westchester, to the immediate north and south of the airport, do not have high concentrations of minority and low-income populations. LAX has always had an east-west runway configuration to take advantage of the prevailing wind pattern and to maximize efficient use of airspace. The combination of the long-standing runway orientation and more recent changes in the demographic patterns in the area around LAX means that minority and low-income residential communities are directly under the primary arrival flight path. The primary impacts on minority and low-income communities from current airport operations are therefore most associated with aircraft noise and air emissions. While residential areas of El Segundo and Playa Del Rey/Westchester directly adjacent to the airport are also exposed to high levels of side-line noise, the areas of exposure are much smaller in comparison to the noise-impacted residential communities to the east.”

Id. at 16.

Inglewood is one of the predominantly minority communities located east of LAX which receives a disproportionate share of the impacts of LAX. Inglewood’s population is 46.4% African-American, 46% Hispanic, 4.1% White, 1.6% Multi-racial, 1.1% Asian, 0.3% Pacific Islander, 0.2% Native American, and 0.2% Other. California Department of Finance, Demographic Research Unit, California State Census Data Center, Census 2000, “Table Two,

Population by Race/Ethnicity, Incorporated Cities by County, p. 5, attached hereto as Exhibit "A". In addition, a large percentage of the low-income census tracts in LAWA's study area are located in Inglewood. Draft EIS/EIR, Appendix F, Environmental Justice Technical Report, Figure 3, "Low-Income Census Tracts Within the Study Area."

LAWA's plan for massive expansion of LAX unfairly burdens the minority and lower-income communities surrounding LAX. LAWA failed to consider alternatives that would have shifted burdens away from minority or low-income populations, or that would at least have distributed the burdens and benefits of expansion more equitably. Instead of planning for massive expansion of LAX, LAWA should have considered alternatives to massive expansion of LAX.

LAWA admits that its Master Plan for expansion of LAX imposes a disproportionate burden of noise impacts upon persons of color and/or low income, and that it does not know if the Plan also imposes a disproportionate burden of toxic air emissions on those same groups. LAX Master Plan Draft EIS/EIR, Chapter 4.4.3 Environmental Justice, p. 4-395. As discussed in the report of Dale Hattis, PhD., attached hereto as Exhibit "B," if LAWA had chosen to seriously consider alternatives that did not include massive expansion at LAX, LAWA would have been able to consider alternatives that would reduce the human health risk overall and spread the environmental burden more equitably among the general population of Southern California. Hattis Report p. 3. Dr. Hattis observes:

"The framing of the options for analysis in the current draft is exclusively focused on engineering changes. Future "demand" for air services is estimated from a single set of assumptions about future population and economic growth in Southern California, and future national average costs of air travel in revenue per seat-mile, and then "build" options are designed to meet this projected "demand" either in full or in part. There is no apparent recognition or analysis of the possibility that at least some of the growth in "demand" for air services could be shifted to outlying airports downwind of major population concentrations (or out of the South Coast Air Basin entirely, in the case of connecting flights) by changes in economic pricing such as airport user fees. Such economic measures might not completely avoid the need to expand capacity at LAX, but they seem worthy of explicit consideration at least as supplements to the existing engineering options..."

Hattis Report p. 3.

For these reasons, LAWA should have considered alternatives to massive expansion of LAX. Dr. Hattis notes three specific reasons why such an analysis of alternatives should take place: (1) User fees, in addition to re-directing demand, could be used for mitigation measures;

(2) This approach would allow LAWA to slow growth at LAX, which would allow expansion at a much slower pace, which, in turn, will reduce congestion and, therefore, the significant impacts on the environment from construction; and (3) without such fees the real beneficiaries could be the airlines rather than the flying public. Hattis Report p. 3. LAWA should immediately and seriously consider other alternatives and analyze them to the same degree that it analyzed Alternatives A, B, and C in its current Master Plan. Anything less fails to adequately address Environmental Justice, as required by law.

B. The EIS/EIR Fails to Disclose LAWA's Economic Gain from the Proposed Expansion at the Expense of Surrounding Minority and Low Income Populations.

The LAX Master Plan Draft EIS/EIR fails to disclose the increased revenues that LAWA and the City of Los Angeles expect from the massive expansion plan, or that it comes at the expense of local low income and minority communities. As Dr. Hattis notes:

"[T]here are some glaring omissions of important effects from the economic impact analysis. Economic impacts are assessed in terms of changes in employment, and overall economic activity, for the South Coast as a whole, Los Angeles County, and the City of Los Angeles. Changes in on-airport employment are also described, as are the expected capital costs of the various policy options. Unaccountably, there does not seem to be any readily locatable presentation of expected effects on operating revenues and costs for the major economic actors that are directly affected by the proposed project LAWA itself, the City of Los Angeles as owner and taxing authority, and the airlines. Projections of these expected impacts must exist. Moreover, they are highly relevant to judgments of the equity (fairness) of the distribution of expected good and bad effects on the different policy options for different groups, including an expanded Environmental Justice analysis."

Hattis Report p. 6.

LAWA and the City of Los Angeles stand to reap tremendous financial benefits from LAX expansion. Since these benefits are not specified, the comparative benefit to local low income and minority communities--or the lack thereof--cannot be and has not been evaluated. LAWA must disclose these figures for a meaningful analysis of the relative benefits and burdens to be considered.

C. The Master Plan Creates a Disproportionate And Unfair Distribution of Incremental an Total Direct Job Impacts.

The LAX Master Plan does not fairly distribute new jobs among local minority and low-income communities. According to LAWA's own economic analysis, cities in the "Primary LAX Area" (El Segundo, Hawthorne, Inglewood, Del Aire and Lennox) receive only 3.8% of the incremental "direct jobs" at LAX due to expansion. LAX Master Plan Draft EIS/EIR, Economic Impacts Technical Report, Table 46, "Distribution of Incremental Direct Job Impacts of the LAX Master Plan Alternatives, By County and City, 1996-2015", p. 95. This same area also receives only 3.4% of the total direct job impacts from LAX in 2015. LAX Master Plan Draft EIS/EIR, Economic Impacts Technical Report, Table 47, "Distribution of Total Direct Job Impacts of the LAX Master Plan Alternatives, By County and City, 2015," p. 96. Compared to the year 1996, the City of Inglewood shows a net increase of only 489 jobs in "LAX- Related Employment" if LAWA adopts Alternative C. LAX Master Plan Draft EIS/EIR, Economic Impacts Technical Report, Table 48, "LAX-Related Employment in the South Bay and North Bay Cities and Communities For the LAX Master Plan EIS/EIR Alternatives, 1996, 2005, and 2015," p. 97. Conversely, the environmental burdens of LAX fall most directly upon those living in its immediate vicinity, like Inglewood. LAWA should make firm commitments to take all reasonably practical steps to ensure that a proportionate share of the economic benefits of LAX also reach those communities. Under the LAX Master Plan, according to LAWA's own jobs projections, that does not occur.

D. The Economic Benefits Of The LAX Master Plan Are Not Proportionate to the Environmental Burdens it Imposes on Surrounding Minority and Low Income Communities.

LAWA should share the economic benefits that flow from LAX with the surrounding communities to the same degree that the environmental burdens are borne by those communities. Offsetting environmental burdens with economic benefits is an important part of Environmental Justice: "In making determinations regarding disproportionately high and adverse effects ... mitigation and enhancement measures ... and all offsetting benefits to the affected minority may be taken into account." Department of Transportation Order 5610.2 -Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, April 15, 1997. Firm commitments in this regard should be made by LAWA in the Draft EIS/EIR. For example, regarding increased cargo capacity at LAX, the Draft EIS/EIR states:

"It is possible that some of the increased demand [for cargo handling] could be met nearby in Inglewood where the City's General Plan indicates a priority for expanding existing industrial firms and providing increased employment opportunities while mitigating residential areas significantly impacted by aircraft noise."

Draft EIS/EIR "Induced Socio-Economic Impacts," Section 4.5, page 4-446.

Although it acknowledges the potential symbiosis of cargo expansion for LAWA and Inglewood, the Draft EIS/EIR fails to incorporate a reasonable and proportionate distribution of

the economic benefits of LAX expansion. If the burdens of LAX expansion are to be thrust upon the City of Inglewood, fair treatment requires that efforts be made to direct potential benefits to the communities impacted by those effects--effects that are significant and cannot and will not be mitigated. The proposed redevelopment along Century Boulevard is a good first step in this direction; however, more needs to be done. LAWA should make concrete commitments to address this issue, and its failure to do so renders the EIS/EIR insufficient as a matter of law.

X. THE DRAFT EIS/EIR FAILS TO SATISFY APPLICABLE LAW BECAUSE IT IMPROPERLY MEASURES HUMAN HEALTH RISKS.

A. LAWA's Study does not Adequately Factor Time as a Variable.

LAWA analyzes environmental health impacts for two years - 2005 and 2015; however, the environmental health impacts will occur over time. Accordingly, LAWA's analysis inaccurately minimizes certain risks and fails to consider numerous cumulative impacts.

Further, as noted by Dr. Hattis, "2005 does not represent even the peak year for construction-related impacts." Hattis Report p.4. In fact, emissions of particulate matter in year 2004 are expected to be more than twice those in 2005 (approximately 44,000 lbs/day versus 19,000 lbs/day). For a proper analysis, LAWA should "analyze and express impacts in terms of both peak-year and integrated bottom-line measures of effect over a reasonably foreseeable extended time over which the facilities will be built and operated." Hattis Report p. 4.

B. The Draft EIS/EIR Fails to Adequately Delineate Health Risks.

The increased health risks associated with the LAX Master Plan should be set forth with more clarity and specificity in the Draft EIS/EIR. Impacts are expressed primarily in terms of "significance" of effects for the most exposed individual, or, when considering certain carcinogenic effects, in terms of the areas or numbers of people exposed to concentrations expected to exceed a 1/100,000 lifetime incremental cancer risk criterion or an unusual criterion for non-cancer effects of a hazard index of 5. Hattis Report p. 4. However, the usual criterion used in many impact assessments under other environmental statutes, including Superfund, is a hazard index of 1.5.³⁰ Id. Dr. Hattis notes:

³⁰ The difference between a hazard index of 1 and 5 is fivefold in the toxicity-weighted concentrations of the pollutants covered by the index in terms of risk. The fraction of people who suffer irritation and other non-cancer effects is likely to be larger than fivefold, depending on the shape of the dose response relationship.

"These ways of expressing health impact results are of some relevance because they help the audience judge the fairness of the burden of extra risk imposed for residents of the areas most affected by the project options. However, exclusive definition of impacts in terms of the area or number of people who receive an increment of risk or (for non-carcinogenic agents) exposure to pollutants from LAX-related sources alone that is deemed to exceed a single bright line of 'significance' ignores the incremental cancer and non-cancer risks to people who do not happen to be moved across such a criterion level. Further, these ways of summarizing impacts can not, by themselves, give decision-makers and the public a sufficient description of the overall health impacts to arrive at a reasoned judgment of whether the mix of economic, human health, and environmental impacts of the proposed "build" option is more desirable overall than the comparable impacts of other options. The current analysis of economic activity describes projected aggregate changes in jobs and overall economic activity for the City of Los Angeles, Los Angeles County, and the whole Southern California area. To be comparable with these aggregate economic impacts, aggregate measures of health impacts must be created and the current artificial limitation of the study area for quantifying air pollution impacts must be transcended."

Hattis Report pp. 4-5.

Decision-makers and the public should be informed of the differences among options in overall cases of cancer that are expected to arise over the lifetimes of the individuals exposed over particular periods of construction and operation of the proposed facilities. This should be done for the entire geographic area of the South Coast Air Basin that receives incremental changes in exposures. Hattis Report p. 5. Human health impacts can and should be expressed in aggregate incremental cancer cases, aggregate incremental deaths, aggregate incremental hospitalizations and aggregate incremental asthma effects for the entire Los Angeles basin associated with the LAX Master Plan. Hattis Report p. 5. These calculations are certainly feasible and would inform the decision makers and the public of the true human health effects of the project. Until this is done, the document is deficient in addressing this topic.

C. The Draft EIS/EIR Fails to Consider Health Risks on a Regional Basis.

The Draft EIS/EIR's human health risk assessment should study risks created by the Master Plan in the entire Southern California region, not simply in those areas immediately surrounding LAX. Failure to do so conceals the advantages in terms of health risks from expanding other airports instead of LAX. As Dr. Hattis notes:

"Were the analysis expanded to include some options shifting additional air service to outlying airports (as recommended above), continued use of the more localized health impact analysis method would cause analysts to miss important benefits that would accrue from placing emissions downwind rather than upwind of the major population centers of the Los Angeles area."

Hattis Report p. 5. Restricting the environmental impact analyses to the immediate LAX area and the options considered only to expansion of LAX prevents considering the relative burdens of LAX expansion on minority and lower-income communities versus expansion of air service at other airports. The City of Inglewood appears to be substantially included in the existing boundaries of the air dispersion modeling study, but it is important to have impacts broken down by various political jurisdictions covering the most affected communities. Hattis Report pp. 5-6. LAWA's current approach on this risk assessment fails to fully capture all relevant data.

D. LAWA Failed to Conduct a Sensitivity Analysis of Its Human Health Risk Assessment.

LAWA failed to conduct a sensitivity analysis of its health risk assessment. This failure means that the health risk assessment does not attempt to assess and communicate uncertainties in a quantitative way. Whether through sensitivity analysis, or use of a more sophisticated model, such analysis can be and is used to inform interested parties of the uncertainties in key results. Hattis Report p. 6. One aspect of the modeling that needs such analysis is the assumed behavior responses of airlines to increasing delays as the intensity of usage of airport facilities increases. *Id.* This variable affects "capacity" calculations, emissions estimates and economic results. LAWA should perform such sensitivity analysis of its methods and conclusions.

XI. CONCLUSIONS.

Based on the above analyses, the Draft EIS/EIR does not serve its most fundamental purpose as an "environmental alarm bell" to "alert the public and responsible officials to environmental changes before they have reached ecological points of no return." (See, e.g., County of Inyo v. Yorty, 32 Cal.App.3d 795, 810 (1993).) Among other things, the varying baselines, selectively applied to areas of potential impact so as to artificially diminish the apparent impacts of the Project; and the lack of consideration of imminently reasonable alternatives, including air traffic alternatives, to the expenditure of billions of dollars in what are ultimately only marginally effective airfield improvements, require substantial analytic revisions to the Draft EIS/EIR. Absent further revision of the analyses set forth in the Draft EIS/EIR as set forth above (Center Sensible Planning, Inc. v. Board of Supervisors, 122 Cal.App.3d 813, 822 (1981)), the public will have been denied its statutorily mandated opportunity to test, assess and

evaluate the new data and conclusions contained in the Draft EIS/EIR, and to make informed judgments as to their validity, in direct contravention of CEQA requirements.



Inglewood Unified School District

Response and Comments on the Supplement to the Draft Environmental Impact Statement



**INGLEWOOD UNIFIED SCHOOL DISTRICT
401 South Inglewood Avenue
Inglewood, CA 90301**

**RESPONSE AND COMMENTS ON THE
SUPPLEMENT TO THE DRAFT
ENVIRONMENTAL IMPACT STATEMENT/
ENVIRONMENTAL IMPACT REPORT**

**TO: United States Department of Transportation
Federal Aviation Administration**

**City of Los Angeles
Los Angeles World Airports**

DATE: November 6, 2003

PREPARED BY:

**Orbach & Huff LLP
1901 Avenue of the Stars, Suite 575
Los Angeles, CA 90067**

In consultation with:

**The Phylmar Group, Inc.
2342 Manning Avenue
Los Angeles, CA 90064-2208**

**Martin Newson & Associates LLC
501 Santa Monica Boulevard,
Suite 508
Santa Monica, CA 90401**

**Iris Environmental
1615 Broadway, Suite 1003
Oakland, CA 94612**

**Professor Gary W. Evans
Director of Graduate Studies
Cornell University
E306 Martha Van Rensselaer Hall
Ithica, NY 14853-4401**

**Austin-Foust Associates, Inc.
2020 North Tustin Avenue
Santa Ana, CA 92705**

**Sage Institute Incorporated
2801 Townsgate Road, Suite 213
Westlake Village, CA 91361**

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INTRODUCTION

On September 21, 2001, the Inglewood Unified School District submitted its response to the original Los Angeles International Airport ("LAX") Draft Environmental Impact Statement/Environmental Impact Report ("Original EIS/EIR"). The Inglewood Unified School District now respectfully submits its Response to the Supplement to the Draft LAX Environmental Impact Statement/Environmental Impact Report ("SEIS/EIR") prepared by the City of Los Angeles, Los Angeles World Airports ("LAWA") and the Federal Aviation Administration. (The Original EIS/EIR and SEIS/EIR are referred to collectively as "EIS/EIR".)

Pursuant to applicable provisions of the California Environmental Quality Act ("CEQA") and the National Environmental Policy Act ("NEPA"), due to its proximity to LAX and the significant environmental impacts LAX has upon Inglewood schools, the Inglewood Unified School District is an interested party with whom LAWA must consult regarding the SEIS/EIR. (14 *California Code of Regulations* § 15086(a)(4).) Accordingly, the Inglewood Unified School District reviewed and analyzed the SEIS/EIR as well as retained qualified experts in the fields of aircraft noise assessment, the effects of noise on human health, behavior and learning, air emissions, regulation and planning, human health risk assessment, traffic engineering and planning, public policy, environmental and real property law. The work product of these experts is incorporated in the body of this Response.

Although the Inglewood Unified School District has undertaken the task of providing this Response, it believes it to be procedurally incorrect and financially unfair for a school district of extremely encumbered financial resources to be burdened with the costs of conducting the initial research and analysis required to be in the SEIS/EIR but omitted.

To the extent new facts and issues are raised in the SEIS/EIR, the Inglewood Unified School District provides its Response below. To the extent that the SEIS/EIR relies upon or is consistent with the Original EIS/EIR, the Inglewood Unified School District incorporates its September 21, 2001 Response and Comments by reference herein. This Response also incorporates the exhibits from the September 21, 2001 Response, and continues numbering the exhibits from that document.

Based upon its review and analysis of the Original EIS/EIR and the SEIS/EIR, the Inglewood Unified School District respectfully submits the EIS/EIR fails to satisfy the requirements of either CEQA or NEPA. Accordingly, the Inglewood Unified School District respectfully requests LAWA substantially revise its EIS/EIR to: (1) include additional alternatives that address LAWA's new paramount safety and security objectives; (2) specifically address the impacts of the Alternative D discussed herein, as well as the other alternatives contained in the Original EIS/EIR; and (3) provide for proposed mitigation at Inglewood Unified School District schools for the benefit of the disproportionately affected children in attendance.

DISCUSSION

PART ONE

THE ENVIRONMENTAL JUSTICE ANALYSIS OF THE SUPPLEMENT TO THE DRAFT EIS/EIR VIOLATES CEQA

All of the alternatives presented by LAWA in its EIS/EIR, including Alternative D presented in the SEIS/EIR, disproportionately impact minorities. The students of the Inglewood Unified School District receive an unfair share of the burdens of Alternative D, including educational and health impairments.

1. The SEIS/EIR Is Bound by Environmental Justice Considerations.

LAWA is mandated by federal and state law to identify and address environmental justice issues in its environmental review. *Executive Order 12898* requires that each federal agency "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." ("Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," *Executive Order 12898*, February 11, 1994, Exhibit 15.)

State law similarly requires consideration of environmental justice issues in environmental impact reports. (California *Public Resources Code* § 71110 *et seq.*) The California Environmental Protection Agency is obligated to "[p]romote enforcement of all health and environmental statutes within its jurisdiction in a manner that ensures the fair treatment of people of all races, cultures, and income levels, including minority populations and low-income populations of the state." (California *Public Resources Code* § 71110(b).)

Thus, the SEIS/EIR must (1) identify disproportionate, adverse environmental and health effects on minority and low income populations and (2) present mitigation measures to alleviate the unfair effects of its project alternatives upon minority and low income populations.

2. Alternative D Unfairly and Disproportionately Burdens Minority Schools.

The Southern California Association of Governments concluded in its 2001 Regional Transportation Plan, ". . . limiting further expansion of LAX is the best possible Plan outcome from an environmental justice perspective. This is due to the relatively high concentration of low-income and minority populations in the vicinity of LAX."

The SEIS/EIR admits the following:

"Effects on public schools associated with aircraft noise exposure would fall on schools that are located predominantly within minority and/or low-income communities . . . [U]nder Alternative D, three public schools would be newly exposed to 65 CNEL or greater aircraft noise levels or exposed to an increase of 1.5 dBA

or greater within the 65 CNEL contour by 2015. These schools (Beulah Payne Elementary School, Hillcrest Continuation School, and Inglewood High School) are all within minority and/or low-income areas and are within the Inglewood Unified School District. Furthermore, based on a supplemental analysis of classroom disruption ..., three public schools (Beulah Payne Elementary School, Inglewood High School, and Morningside High School) would be exposed to noise levels that could be disruptive to classroom activities which are similarly located within minority and/or low-income areas and are within the Inglewood Unified School District. Therefore, Alternative D would have a disproportionate effect on minority and/or low-income communities with regard to schools that are newly exposed to aircraft noise and schools that are exposed to high single event noise levels." (SEIS/EIR, *Environmental Justice*, Section 4.4.3, p. 4-324.)

Given the acknowledged burden placed on the schools which are impacted by Alternative D, options that address the situation need to be set forth in the EIS/EIR.

a. Significant impacts of increased noise on education in Inglewood Unified School District schools.

As with the alternatives proposed in the Original EIS/EIR, Alternative D would have a significant adverse impact on the education of students in the Inglewood Unified School District. Table S17 of the *Supplemental Aircraft Noise Technical Report* of the SEIS/EIR presents data which provides an indication of the time that the increased airplane overflights under Alternative D will take out of each school day. When considering these numbers, it is important to note that, not only does the interruption lasts at least six seconds (SEIS/EIR, *Noise*, Section 4.1.6.1.5.4.2, p. 4-66), but there is anticipation time as the deafening noise immediately approaches, as well as time spent settling back into instruction after the disruption has receded.

For example, Table S17 suggests Beulah Payne Elementary School will lose a total of 12.1 minutes of instructional time each day once Alternative D is implemented. What real impact will this 12.1 minutes have on actual instruction? Approximately 40 times per day, instruction, reading and/or test taking will be stopped or interrupted in the classrooms at this school.¹

Under Alternative D, at Inglewood High School and Morningside High School, the impact is worse - instruction will be interrupted at least 45 times per day.

¹ Assuming overflights occur at a constant rate over a 24 hour day (which, of course, they do not - rather they occur more frequently during the time of instruction): 12.1 minutes = 726 seconds; 726 seconds divided by 6 second intervals = 121 occurrences; 121 occurrences divided by 24 hours = 5 occurrences per hour; 8 hours of instruction during the day = 40 occurrences per day during the time of instruction.

Moreover, Oak Street Elementary School suffered from an unimaginable 140 interruptions of instruction per day - - over 17 per hour - - in 1996. Children in classes have consistently had to disengage and reengage to classroom instruction, or simply failed to hear the teacher, every few minutes during each and every class, every day of school. This is, of course, a conservative extrapolation - - the actual number of classroom interruptions is probably far higher. This already inordinate number of classroom interruptions increases under Alternative D.

A total of 33.9% of the students in the Inglewood Unified School District are "English Learner" students, who are not proficient in English. (Education Data Partnership ("Ed-Data"), "Fiscal, Demographic, and Performance Data on California's K-12 Schools," <http://www.ed-data.k12.ca.us>.) Additionally, 68.8% of students at Beulah Payne Elementary School and 57% of the students at Oak Street Elementary School do not speak English as their first language. (*Id.*)

These noise interference numbers are substantially similar to those suggested by Table S31, *Supplemental Aircraft Noise Technical Report*, Section 6.2.2, p. 151.

In surveys of Inglewood Unified School District teachers and staff, the vast majority stated that the current airplane noise levels substantially interfere with their teaching; that students are frequently distracted by the aircraft noise; that the schools' outdoor activities are frequently disrupted by the aircraft noise; and that aircraft noise is a "significant problem" at their schools. (Gerson/Overstreet Architects, *Draft Final Report: Noise Impact Analysis Study and Mitigation Measures*, December 5, 2000, Original EIS/EIR Response Exhibit 1.) These educational impacts will only worsen with implementation of Alternative D.

b. Significant impacts of increased noise on students, teachers, staff and administration.

As noted by the World Health Organization, noise interference with speech comprehension results in a large number of personal disabilities, handicaps and behavioral changes. Children in the process of language and reading acquisition are noted to be particularly vulnerable. Problems with behavior, concentration, fatigue, uncertainty and lack of self-confidence, irritation, misunderstandings and a decrease in work capacity have been reported by researchers. (World Health Organization, *Environmental Health Information, Guidelines for Community Noise*, "Adverse Health Effects of Noise," Section 3, April 2001, Original EIS/EIR Response Exhibit 2.)

A study conducted in 1976 in Highline School District looked at the relationship between school test scores for school grades 3-7 and 5-10 for children attending schools exposed to high levels of aircraft noise and other children attending quiet schools. (Maser, A. L., Sorensen, P.H., Kryter, K.D., and Lukas, J.S. *Effects of Intrusive Noise on Classroom Behavior: Data From a Successful Lawsuit*. West. Psychol. Assoc. San Francisco. April 1978, Original EIS/EIR Response Exhibit 3.) While high academic-aptitude students in schools exposed to aircraft noise scored as well in standardized tests as their counter-parts in quiet schools, middle and especially low academic-aptitude students in noisy schools showed progressive deterioration in tests with continued school attendance relative to the students of equal aptitude in quiet schools. (*Id.*)

A study of the impact of various levels of freeway noise on reading test scores highlighted the cumulative adverse effect of noise exposure on school children. (Lukas, J.S., DuPree, R.B. and Swing, J.W. *Effects Of Noise On Academic Achievement And Classroom Behavior*. FHWA/CA/DOHS-81/01 Office of Noise Control, California Dept. Of Health Services, Sacramento. 1981, Exhibit 16.) An apparent degradation in reading achievement with classroom noise that was noted for third-graders, was accelerated by the sixth grade. (*Id.*)

Other research has demonstrated the link between chronic exposure to aircraft noise and many adverse effects including learning, motivational deficits, a significant decrease in total quality of life, increase in psychophysiological stress and susceptibility to helplessness. (Gary Evans and Lorraine Maxwell, "Chronic Noise Exposure and Reading Deficits. The Mediating Effects of Language Acquisition." *Environment and Behavior*, Vol. 29 No. 5, September 1997 [learning deficits], Original EIS/EIR Response Exhibit 4; Cohen S., Krantz, D.S., Evans G.W., Stokols D., and Kelly S., "Aircraft noise and children: Longitudinal and cross-sectional evidence on adaptation to noise and the effectiveness of noise abatement." *J. Pers. Soc. Psychol.* 40: 331-345, 1981 [learning deficits], Exhibit 17; Bullinger, M., Hygge, S., Evans, G.W., Meis, M. and von Mackensen, S., "The Psychological Cost of Aircraft Noise for Children," *Zentralblatt fur Hygiene und Umweltmedizin*, 202:127-138, 1977 [quality of life decrease], Original EIS/EIR Response Exhibit 5; Gary W. Evans, Monika Bullinger and Staffan Hygge, "Chronic Noise Exposure and Physiological Response: A Prospective Study of Children Living Under Environmental Stress." *Psychological Science*, Vol. 9, No. 1, January 1998 [psychophysiological stress], Original EIS/EIR Response Exhibit 6; World Health Organization, *Guidelines, supra.* [helplessness].)

A 1980 study showed elevated blood pressure of children attending schools under the LAX flight paths compared to children in quiet schools. (Cohen S., Krantz, D.S., Evans G.W. and Stokols D., "Physiological, motivational, and cognitive effects of aircraft noise on children: Moving from the laboratory to the field." *American Psychologist*, 35: 231-243, 1980, Exhibit 18.)

The SEIS/EIR does not suggest that conditions resulting from implementation of Alternative D will result in different circumstances than those discussed in the above-referenced studies. Again, the SEIS/EIR fails to provide for any remediation for the known impacts of Alternative D on Inglewood Unified School District students.

c. Significant impacts of increased pollution on students, teachers, staff and administration.

As noted by the United States Environmental Protection Agency ("USEPA"), exposure to ambient criteria and toxic pollutants resulting from anthropogenic emissions can result in a wide variety of health impacts. (USEPA, *The Benefits and Costs of the Clean Air Act, 1970 to 1990*. Prepared for U.S. Congress, October 1997, Original EIS/EIR Response Exhibit 7.) Short-term health impacts can include eye, nose, and throat irritation; losses in hand-eye coordination (compensatory tracking); vigilance (detection of infrequent events); visual system sensitivity; and increased asthma attacks. (Seinfeld, John H., *Atmospheric Chemistry and Physics of Air Pollution*. New York, John Wiley & Sons, 1986.) Long-term exposures can result in increased

mortality, susceptibility to pulmonary bacterial infection, irritation of the alveoli, emphysema, chronic bronchitis, reduced pulmonary function, losses in IQ, and cancer. (*Id.* and USEPA, *Benefits, supra.*)

Furthermore, there is good reason to believe that children could be more vulnerable to these effects. Because of growing concerns regarding children's increased susceptibility to environmental contaminants, the California Legislature passed the Children's Environmental Health Protection Act (SB 25), which requires the California Environmental Protection Agency ("Cal/EPA") to specifically consider children in setting Ambient Air Quality Standards and developing criteria for Toxic Air Contaminants ("TACs"). The law will require Cal/EPA to specifically evaluate available information on children's increased susceptibility to each of the TACs, and develop a list of up to five TACs that potentially have disproportionate impacts on infants and children.

As stated by Cal/EPA, children are considered to be at increased risk because of the rapid growth and development of their nervous, immune and reproductive systems, and because their organs and tissues are rapidly maturing. (Cal/EPA, *Air Pollution and Children's Health*. Fact Sheet by Office of Environmental Health Hazard Assessment, March 2001, Original EIS/EIR Response Exhibit 8.) In addition, children experience greater exposure to ambient pollutants relative to their body weight, and children's specific activity patterns may contribute to an increased exposure to toxicants resulting from increased exercise and sporting activities. (*Id.*) Asthma has also been identified as a major problem in children, and some of the chemical emissions from LAX have been identified by Cal/EPA as resulting in an exacerbation of asthma (e.g., formaldehyde and acrolein). (*Id.*)

Furthermore, recent studies suggest that particulate matter ("PM") may exacerbate asthma and cause coughs and other respiratory symptoms in children. (*Id.*) Recent studies also suggest that prolonged exposure to PM may also affect the growth and functioning of children's lungs. (*Id.*) Researchers found that as children grow up in smoggier areas, there is a notable lag in lung function growth. (*Id.*)

Because of the anticipated environmental and related health impact of noise and pollution on the schools, students could potentially fall behind in their schooling, one class grade or more. Several students could have an impaired ability to retain information as a result of the impact. These students may not be able to grasp as much as other students and would not be able to process more advanced concepts taught in high school that build upon what they were supposed to, but did not, learn in elementary school. More children would have asthma and allergies than they would without the implementation of Alternative D. Children may also have an increased risk of heart attacks and death.

Children in Inglewood Unified School District schools may have permanent learning disabilities that limit their career choices and quality of life. Furthermore, they may have shorter lifespans and worse general physical health than other children at other non-impact schools. Inglewood Unified School District students may have lifelong psychological weaknesses that would affect every aspect of their lives.

These adverse health impacts are real. These are the impacts that will disproportionately and significantly affect minority and low income communities.

3. The SEIS/EIR Violates CEQA by Failing to Consider Alternatives that Equitably Distributes Burden Among Populations.

Because of the significant and unmitigatable impact of all of the proposed alternatives, including Alternative D, on minority and low impact communities, other alternatives must be explored.

California *Public Resources Code* § 21002 states, in pertinent part:

“The Legislature finds and declares that it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.”

California law requires the SEIS/EIR to consider feasible alternatives that would substantially lessen the disproportionate and significant environmental effects of the project on minority and low-income communities. LAWA failed to do so.

4. The SEIS/EIR Violates CEQA By Failing to Provide Mitigation Measures for the Significant Environmental Justice Impacts.

The SEIS/EIR is required to mitigate the environmental justice burden imposed by Alternative D to the extent feasible. (California *Public Resources Code* §§ 21002, 21002.1.) The SEIS/EIR, however, fails to describe any mitigation measures to alleviate its impacts on schools. Instead, it proclaims that it will *only* provide mitigation measures in those schools not deemed to be Title 21 compliant. (See *Environmental Justice*, Section 4.4.3.5.1.2, p. 4-329; *Supplemental Aircraft Noise Technical Report*, Section 6.2.3, p. 154.) This rationale is flawed for two reasons: (1) it over-estimates the effect of the Settlement Agreement (See Part Two *infra*); and (2) it fails to address the independent obligations of CEQA.

Feasible mitigation programs exist that would address the noise issues in minority and low income schools. Sound insulation can alleviate noise impacts inside classrooms. To the extent that the significant noise impacts in Inglewood Unified School District schools are unmitigatable, the SEIS/EIR should address the option of relocating those schools.

The same mitigation analysis must be conducted for air quality and other significant impacts of the proposed project upon minority and low-income populations.

To the extent feasible, LAWA is obligated to mitigate its impacts on the Inglewood Unified School District. (14 *California Code of Regulations* § 15126.4.) The SEIS/EIR fails to do so. The failure to include such mitigation measures in the body of the SEIS/EIR violates CEQA. (*Id.*) Accordingly, this SEIS/EIR is fatally inadequate and must, before further action is taken, be revised to comply with CEQA.

PART TWO

THE SEIS/EIR IMPROPERLY RELIES UPON AND OVER ESTIMATES THE EFFECT OF THE SETTLEMENT AGREEMENT

The Original EIS/EIR states in one volume:

“In the mid-1970’s, the City of Los Angeles ... [settled] a noise lawsuit. Under the terms of the settlements, each school in the public ... systems that had participated in the lawsuit agreed to allow an aviation easement, deeming the school to be compatible with the airport under Title 21.” (EIS/EIR, *Land Use*, Section 4.2, pp. 4-95, 4-96.)

In a separate volume, the Original EIS/EIR states:

“As presented in Technical Report 1, *Land Use*, four public schools would be exposed to significantly high levels of noise by 2015 within the City of Inglewood. For those impacted schools not already considered compatible pursuant to California Code of Regulations, Title 21, mitigation in the form of sound insulation or acquisition and relocation would be provided.” (Original EIS/EIR, *Schools Technical Report*, Section 17, p. 11.)

“As presented in Technical Report 1, *Land Use*, eight public schools would be exposed to significantly high levels of noise by 2015 within the Inglewood Unified School District and Lennox Elementary School District. For those impacted schools not already considered compatible pursuant to California Code of Regulations, Title 21, mitigation in the form of sound insulation or acquisition and relocation would be provided.” (Original EIS/EIR, *Schools Technical Report*, Section 17, p. 15.)

The SEIS/EIR picks up on these points when discussing mitigation of noise impacts on schools. (See, for example, *Environmental Justice*, Section 4.4.3.5.1.2, p. 4-329; *Supplemental Aircraft Noise Technical Report*, Section 6.2.3, p. 154.)

Thus, the SEIS/EIR both addresses and dismisses further consideration of the impacts upon Inglewood Unified School District schools solely based upon the existence of the 1970’s Settlement Agreement. (*Amended Judgment and Final Order in Condemnation*, Original

EIS/EIR Response Exhibit 10; the operative "Judgment and Final Order" is actually entitled Amended Judgment and Final Order in Condemnation, and referred to herein as "Settlement Agreement.") It is apparent LAWA has no intention of providing mitigation in any form to Inglewood Unified School District schools as part of Alternative D. As set forth below, this deficient approach (1) fails to even consider the entirety of the terms of the Settlement Agreement; (2) fails to consider other surcharges which would be caused by an expansion not provided for by the express grant of the avigation easement in the Settlement Agreement; and (3) inappropriately avoids and dismisses a proper CEQA analysis.

1. The SEIS/EIR Fails to Consider All Possible Surcharges on the Avigation Easements.

As with the Original EIS/EIR (Original EIS/EIR, *Land Use*, Section 4.2, p. 4-95, fn. 72.), when discussing the historically high noise levels affecting the Inglewood Unified School District, the SEIS/EIR refers to and relies solely upon the Settlement Agreement which granted LAWA an avigation easement over Inglewood Unified School District schools. (SEIS/EIR, *Supplemental Aircraft Noise Technical Report*, Section 6.2.3, p. 154.) The SEIS/EIR concludes:

"LAWA has established agreement with most public and a few private schools in the airport environs related to the amount of cumulative noise that may be generated from airport operations over each. Where those cumulative noise levels are exceeded (measured in decibels of CNEL), addition of the facility to the list of sound insulation eligibility may be warranted." (*Id.*)

This conclusion is incomplete and misstates the Settlement Agreement (discussed further in Part II.2 and II.3 *infra*). The Settlement Agreement provides that the purpose of the air easements granted to LAWA are for "noise, vibrations and fumes" over the schools. (Settlement Agreement, page 3, lines 18-21.) The Settlement Agreement further provides:

"Vibration and fume levels are not quantitatively described for the purpose of the distribution of the air easements but it is agreed that those levels of vibration and fumes which accompany the agreed-to CNEL values shall not be a burden of the easements." (Settlement Agreement, page 11, lines 1-5.)

In other words, LAWA may only contend that the avigation easement is not surcharged if "levels" of vibration and noise are the same as in 1970. What the Settlement Agreement does not discuss, does not preclude, and leaves open is whether a surcharge may occur when the *frequency* of vibrations and fumes is increased from the frequency of vibrations and fumes occurring in 1970.

Paragraphs 4.a and 7 of the Settlement Agreement make clear it was the intent of the parties not to further burden the avigation easements by an increase or "deviation" in frequency

of flight operations over Inglewood Unified School District schools. Rather such deviations were only permitted if "temporary and not permanent." (Settlement Agreement, page 13, line 14.)

2. The Impacts of the Alternate D Will Constitute a Surcharge on the Avigation Easements.

Under California law, the extent of an easement is determined by the terms of its grant. (California Civil Code § 806.) As stated by the California Supreme Court, an owner of an easement may not increase the use of the easement in any manner that imposes a new or greater burden on the servient tenement without the consent of the servient owner. (*Colegrove W. Co. v. City of Hollywood* (1907) 151 Cal. 425, 429.) Further, "...it is well settled that 'both parties have the right to insist that so long as the easement is enjoyed it shall remain substantially the same as it was at the time the right accrued, entirely regardless of the question as to the relative benefit and damage that would ensue to the parties by reason of a change in the mode and manner of its enjoyment. [Citation omitted.]'" (*Whalen v. Ruiz* (1953) 40 Cal.2d 294, 302.)

In fact, "California courts have set their faces firmly against ... increases in the burden upon the servient tenement." (*Wall v. Rudolph* (1961) 198 Cal.App.2d 684, 694.) Accordingly, "[t]he requirement that the easement involve only a *limited* use or enjoyment of the servient land is a corollary of the nonpossessory character of the interest. If a conveyance purported to transfer to A an *unlimited* use or enjoyment of [a parcel of land], it would be in effect a conveyance of ownership to A [of the parcel of land], not of an easement." (*Id.*, at p. 697; emphasis in original.)

The avigation easement granted by the Inglewood Unified School District to LAWA was based upon criteria which have been far exceeded. For example, the number of take-offs and landings identified in Exhibit F in 1970 (used as two of the three elements to establish the CNEL contours) has dramatically increased as of 2003. In 1970, the total of take-offs and landing events per day was 1,061. (Settlement Agreement, Exhibit F, Figures 6, 7.) The total number of take-offs and landing events per day in 2003 is over 1,700, an increase in flight frequency of over 62%. (Los Angeles World Airports, *Traffic Comparison*, May 28, 2003.) This will increase even further to 2,148 under Alternative D, that is, over 100% more than anticipated by the avigation easement. (SEIS/EIR, *Executive Summary*, Table ES-1.)

Moreover, the avigation easement anticipated an *increase* in aircraft operations at LAX up to 40,000,000 passengers annually. (Settlement Agreement, Exhibit F, paragraph B.) LAX is currently operating at over 51,000,000 passengers annually. (Los Angeles World Airports, *Traffic Comparison*, May 28, 2003.) Alternative D predicts an increase in aircraft operations to accommodate at least 78,900,000 passengers annually, once again, almost 100% more than anticipated by the Settlement Agreement. (SEIS/EIR, *Executive Summary*, Table ES-1.) In addition, the amount and frequency of airplane traffic will also necessarily increase under Alternative D to accommodate the predicted increase in cargo tons per year by 50% over today's traffic alone. (*Id.*)

Perhaps most significant, however, is the *decrease in altitude* of air traffic over Inglewood Unified School District schools proposed by Alternative D due to the eastward extension of runway 24L and its direct impact on “levels” of noise, vibration and fumes. (See, SEIS/EIR, *Noise*, Sections 4.1.6.1.5.3 and 4.1.6.1.5.4.2, pp. 4-64 and 4-66, respectively.)

Thus, the increase in *frequency* of air traffic through the avigation easement proposed by Alternative D will constitute a material surcharge upon the easement. This increased frequency results in an increase in not only the number of noise events, but in the number of *vibration* and *fume events* as well.

This burden on the easement will, at the very least, require the Inglewood Unified School District’s consent, and realistically also require further mitigation in the form of additional sound attenuation measures at each of the affected school sites.

Therefore, the SEIS/EIR must further consider, and LAWA must mitigate, the impact upon the existing or future incompatible land use resulting from implementation of Alternative D, as the Judgment and Final Order will not, as suggested, conclusively control the question given the anticipated substantial surcharge upon the avigation easement and resulting burden to the servient tenement, Inglewood Unified School District schools.

3. The Existence of the Settlement Agreement is Irrelevant to Whether LAWA Must Comply With CEQA.

The existence of an avigation easement alone does not render a school “Compatible” under Title 21. Throughout the SEIS/EIR, LAWA implies that those schools which entered into avigation easements with LAWA are automatically deemed “compatible” uses, and therefore do not require mitigation. The regulatory definitions of “compatible” and “incompatible” uses do not support this contention.

The definition of incompatible land uses includes:

“[P]ublic and private schools of standard construction for which an avigation easement for noise has not been acquired by the airport proprietor *or* that do not have adequate acoustic performance to ensure an interior CNEL of 45 dB or less in all classrooms due to aircraft noise.” (Emphasis added.) (21 *California Code of Regulations* 5014(b).)

The definition stated in the disjunctive is not of “compatible” land uses, but of “incompatible” land uses. Thus, public schools with an interior CNEL of 45 dB are plainly “incompatible” land uses, with or without an avigation easement. The accepted rules of statutory construction simply do not allow any other interpretation or extrapolation to be made by LAWA.

Under the basic tenets of statutory construction, courts will,

“ascertain the intent of the drafters so as to effectuate the purpose of the law [by] . . . first examin[ing] the words themselves, giving

them their usual and ordinary meaning and construing them in context. When statutory language is clear and unambiguous, 'there is no need for construction and courts should not indulge in it.' [Citations omitted.]" (*Esberg v. Union Oil Co.*(2002) Cal.4th 262, 268.)

In this case, the plain meaning of the regulation does not present any ambiguity. The use of the word "or" in a regulation indicates an intention to use it disjunctively so as to designate alternative or separate categories. (*Piet v. U.S.* (1959) 176 F. Supp. 576, 583.)

Therefore, those schools that do not have adequate sound insulation to ensure an interior CNEL of 45 dB or less, are incompatible uses for purposes of Title 21 and *are entitled* to mitigation irrespective of whether LAWA holds aviation easements for those schools.

Even if LAWA successfully maintains Alternative D is not a surcharge on the aviation easement granted by Inglewood Unified School District, and, despite the foregoing, is nonetheless "compliant" with Title 21, LAWA must still identify the need for and then provide for the implementation of mitigation measures. Under California law:

"Any one may waive the advantage of a law intended solely for his benefit. But a law established for a public reason cannot be contravened by private agreement." (*California Civil Code* § 3513.)

The California Environmental Quality Act ("CEQA") is a state environmental law applicable to public agency decisions to authorize projects that could have an adverse impact on the environment. The purpose of the CEQA Environmental Impact Report requirement is to provide the information needed to make informed decisions in the selection and authorization of projects. (*California Public Resources Code* §§ 21001(g), 21002, 21061; 14 *California Code of Regulations* § 15121.) Without question, CEQA and its requirements are "established for a public reason." Therefore, under both sound principles of law as well as fundamental considerations of fairness and justice, the existence of the aviation easement (a private agreement between two public agencies) cannot "waive" the requirement of mitigation of the significant impacts upon students and teachers associated with Alternative D.

Thus, appropriate project alternatives, significant impacts and related mitigation measures must be analyzed in the SEIS/EIR. (*California Public Resources Code* §§ 21002.1, 21100.) In this instance, the SEIS/EIR must identify measures that would mitigate the impacts of Alternative D on Inglewood Unified School District in general and impacted school facilities in particular. (*Id.*) Without this analysis, the selection process is flawed and an informed decision cannot be made.

The Settlement Agreement between the City of Los Angeles and various school districts does not affect this state mandated analysis. The SEIS/EIR claims that the Settlement Agreement operates to mitigate significant impacts upon schools and students. (*Environmental Justice*, Section 4.4.3.5.1.2, p. 4-329; *Supplemental Aircraft Noise Technical Report*, Section 6.2.3, p. 154; See also, EIS/EIR, *Land Use*, Section 4.2.) This claim is in direct contradiction to

the requirements of CEQA (14 California Code of Regulations § 15126.4) and Civil Code §3513.

CEQA requires LAWA to conduct and publicly disclose its analysis of impacts upon affected schools and of measures that can mitigate those impacts, if any. (*Id.*) Thus, the SEIS/EIR must be revised to conduct a thorough analysis of impacts upon schools and of measures that can be taken to mitigate those impacts. (*Id.*)

PART THREE

THE NOISE ANALYSIS OF THE SEIS/EIR IS INADEQUATE²

1. The SEIS/EIR Under-predicts Noise Impacts to Inglewood Unified School District Facilities by Omission.

There appears to be no specific mention of the following Inglewood Unified School District educational facilities within the SEIS/EIR:

- Inglewood Adult School, located at 106 East Manchester Blvd. Given its proximity to Inglewood High School (which is identified as a noise impacted school, within the SEIS/EIR) this lack of reference to Inglewood Adult School appears to be an oversight.
- City Honors School, which is located on the Morningside High School Campus.
- The following schools are not mentioned., This may be because they are not impacted, but the Inglewood Unified School District would request some acknowledgement of the existence of these schools within the Final EIS/EIR to provide reassurance that these schools have not merely been overlooked in the analysis:

Bennett/Kew Elementary School, located at 1170 South Cherry Avenue.

La Tijera Elementary School, located at 1415 North Tijera Boulevard.

Parent Elementary School, located at 5354 West 64th Street.

²For the purpose of these comments, the use of the terms "Decibel", "dB" and "dBA" are all intended to mean A-weighted decibels.

2. The SEIS/EIR Under-Predicts Noise Impacts on Inglewood Unified School District Facilities by Relying on Noise Modeling Results Which Are Acknowledged Within the Report to under-Predict Actual Aircraft Noise Levels.

As discussed in the *Supplemental Aircraft Noise Technical Report* (page 15) the INM used for all noise predictions in the SEIS/EIR under-predicts aircraft noise in comparison to real measured noise levels. The study's under-prediction of noise levels is likely to lead to an under-prediction of the number of schools at which the 2015 aircraft noise levels exceed certain noise thresholds of significance. The Inglewood Unified School District recommends that the Final EIS/EIR include detailed analysis of the likely real noise impact upon Inglewood Unified School District schools.

3. The "Single Event" Noise Analysis Presented in the SEIS/EIR is Incomplete.

The Inglewood Unified School District's comments on the Original EIS/EIR pointed out potential disruption to speech communication within classrooms associated with "single events," i.e., the noise associated with individual aircraft flyovers. The Inglewood Unified School District is pleased to see that single events are now considered within the SEIS/EIR. The District remains concerned, however, that the issue of the applicable threshold(s) of significance has not been resolved within the SEIS/EIR.

Mitigation measure MM-LU-4, which incorporates specific noise mitigation measures for schools, is "subject to modification" based upon the results of further study. Details of the proposed 'further study' are not, however, provided for our comment.

4. The Limited 'Single Event' Noise Analysis Presented in the SEIS/EIR Substantially Under-predicts Impacts to Inglewood Unified School District Facilities in a Number of Ways.

a. The indoor classroom L_{max} thresholds are set too high.

The *Supplemental Aircraft Noise Technical Report* proposes a 55 dBA L_{max} threshold of significance for teaching classes. According to Page 149 of this report, this threshold was derived from Table 3.3 of a 1992 FICON publication, using a speaker-to-listener distance of 20 feet and assuming a raised voice level. Reference to the FICON 1992 publication shows that the table in question was reproduced from the 1973 EPA publication, "Public Health and Welfare Criteria for Noise," ("EPA Report") as Figure 6.1 of the EPA Report.

The EPA Report qualifies the data in a number of important ways. The qualifications include the following:

- Figure 6.1 published by EPA in 1973 was for an outdoor noise environment. Page 6-7 of the EPA Report states that the data "is not valid to assess the intrusion of the outdoor levels on the reception of speech indoors because of the reverberant build up of sound by reflections from the walls of the room. . .

The data in the pertinent literature suggests that, for most instances, a reasonable value for the design of rooms where oral communication is important is somewhere in the range 40-45 dBA.”

- Page 6-7 of the EPA Report goes on to state, “Lower noise levels would be required if the talker has imprecise speech (poor articulation) or if the speaker and listener speak different dialects.” Considering the fact that (1) the speaker in the classroom is occasionally the student, and (2) the student’s first language is often not the same as that of the teacher, these qualifications are certainly applicable in Inglewood Unified School District schools.
- Page 6-7 of the EPA Report also states that the data in its Figure 6.1 represents conditions for young adults and that “adequate speech communication with children requires lower noise levels than are required for adults”. This qualification also applies to most Inglewood Unified School District schools.
- Pages 6-7 to 6-8 of the EPA Report also state, “Persons with hearing losses require more favorable speech-to-noise ratios than do those with normal hearing.” Given that all pupils will not all have perfect hearing at all times, due in great part, but not exclusively, to frequent childhood ear infections, this qualification is also pertinent.

The EPA qualifications of the data were not contemplated in the SEIS/EIR analysis. Appropriate consideration of these qualifications would result in a lower threshold for the application in question.

On the above basis, the Inglewood Unified School District believes the 55 dBA L_{\max} indoor criterion used in the SEIS/EIR to be incorrectly derived. A lower criteria based upon consideration of all relevant factors, including: talker-to-listener distances greater than 20 feet, noise effects in indoor environments, the need for a higher signal-to-noise ratio for children, children’s propensity to temporary hearing loss, and children with limited English proficiency should be utilized by LAWA.

b. Classroom interior noise levels based upon assumed 29 dBA out-to-in aircraft noise reduction do not adequately protect a large enough proportion of classroom users in the Inglewood Unified School District.

According to the *Supplemental Aircraft Noise Technical Report*, the 29 dBA out-to-in noise reduction for aircraft noise intrusion to classrooms is the average result of sample measurements conducted at “several schools” by LAWA. (p. 149.) Insufficient details were provided in the SEIS/EIR to assess whether the sampling was applicable to Inglewood Unified School District classrooms. Furthermore, since the 29 dBA is an average result, several classrooms in the study must have lower sound attenuation levels. It is therefore likely that sound insulation for some Inglewood Unified School District classrooms would be lower than 29 dBA.

Deriving an indoor noise impact threshold using the 29 dBA average would not adequately protect the occupants of those classrooms with worse than average sound isolation. For example, as is common in Southern California, the Inglewood Unified School District utilizes 'bungalow'/'modular' type classrooms. These would not generally be expected to provide such a high level of out-to-in noise reduction for aircraft noise. The noise threshold for mitigation should be designed to protect actually impacted classrooms, not just the 'average' case.

- c. **The SEIS/EIR's proposed 84 dBA L_{max} outdoor single event noise threshold is too high to assess single event noise impact upon classrooms, leading to a severe under-reporting of existing and future noise impacts.**

The World Health Organization ("WHO") states that for speech to be intelligible when listening to complicated messages, such as in schools, interfering noise should not exceed 35 dBA. (World Health Organization, *Guidelines, supra.*) Assuming the classrooms in question operate with closed windows and doors (which would assume the existence of air-conditioning in the classrooms) and have been provided with sound attenuation to achieve a minimum noise level reduction of 25 dB (as required under the Land Use Compatibility Guidelines of the Federal Aviation Regulations for schools exposed to aircraft noise in the CNEL 65 to 70 range), this would suggest that occurrence of outdoor noise levels exceeding 60 dBA, which is much lower than the 84 dBA threshold, would result in speech interference within classrooms.

Even using the upper limit of the EPA's suggested range (see item 4 a., above) of 45 dBA as being a threshold above which interference with typical speech becomes noticeable indoors, and again assuming 25 dBA out-to-in sound insulation, such a conservative analysis would suggest speech disturbance would be noticeable when outdoor noise levels exceed 70 dBA. Again this is a much lower threshold than 84 dBA.

Table S17 of the *Supplemental Aircraft Noise Technical Report* presents results for time above 75 dBA outdoors. Reviewing the range of thresholds for speech interference discussed above, it is highly likely that aircraft noise levels exceeding 75 dBA at a school result in speech interference within classrooms. (As discussed above, the appropriate threshold is probably lower than 75 dBA.) Table 1 below, presents "time above" data in minutes, projected for the year 2015 unless otherwise indicated, for Inglewood Unified School District schools extracted from Table S17 of the *Supplemental Aircraft Noise Technical Report*.

Table 1 - Aircraft Noise Time above 75 dBA in Minutes, for the year 2015 unless otherwise stated.

School	1996	No Project	Alt. A	Alt. B	Alt. C	Alt. D
Beulah Payne Elementary School - PBS017	3.6	9.0	13.8	2.1	5.0	12.1

Clyde Woodworth Elementary School - PBS026	9.4	9.8	12.6	19.3	10.1	19.2
Crozier Middle School - PBS028	0.2	0.3	4.9	0.5	0.4	0.2
Hillcrest High School - PBS047	31.5	39.8	45.9	47.6	43.5	37.3
Claude Hudnall Elementary School - PBS048	1.9	1.4	4.0	6.7	6.8	3.1
Inglewood High School - PBS050	7.6	11.1	16.1	30.3	32.7	13.6
Kelso Elementary School - PBS059	32.5	42.6	44.8	43.0	38.3	38.3
Oak Street Elementary School - PBS105	42.1	53.6	63.9	51.0	50.4	48.3
Warren Lane Elementary School - PBS117	0.2	0.9	0.7	1.1	1.2	0.9
Worthington Elementary School - PBS127	0.1	0.1	0.7	1.3	0.1	0.1
Morningside High School - PBS140	12.6	12.8	19.7	18.6	13.8	13.7
Albert Monroe Middle School - PBS201	3.9	4.6	6.6	23.6	4.3	4.1

The results presented in Table 1 suggest that the cumulative duration of speech interference in classrooms per day for all of the above Inglewood Unified School District schools will increase from "1996 baseline" levels under nearly every project alternative scenario. Given the amount of speech disturbance at 1996 levels indicated by the conservative analysis presented above, any further increase in cumulative duration of speech disturbance is of serious and immediate concern. The *Supplemental Aircraft Noise Technical Report's* reliance on analysis using a time above 84 dBA outdoor noise level clearly understates the existing and future aircraft noise disturbance at Inglewood Unified School District facilities.

When speech interference occurs in the classroom, students suffer a loss of learning time. Other possible outcomes include students failing to understand important information from the teacher, loss of concentration during study, or interference with standardized testing. (See Part One, Section 2b., *supra*.) The predicted increase in the duration of speech interference in Inglewood Unified School District classrooms gives rise to serious noise impacts that do not receive adequate attention in the SEIS/EIR.

d. The main body of the SEIS/EIR should consider significantly increased cumulative duration to excessive noise levels as a significant noise impact.

The *Supplemental Aircraft Noise Technical Report* introduces three thresholds of significance for single event impacts upon classrooms (55 dBA L_{max} , 65 dBA L_{max} and 35 dBA L_{eq} (1 hour)). It states, "Each school listed on the tables may, for CEQA purposes, be considered single event impacted if its noise level exceeds any of the three thresholds of significance . . ."

(SEIS/EIR, *Supplemental Aircraft Noise Technical Report*, Section 6.2.2, p. 150.) The main body of the SEIS/EIR, however, appears to only consider *new exposure* to levels above these thresholds (as opposed to all levels in excess of these thresholds) as the threshold of significance. This is in clear contrast to the pronouncements in the *Supplemental Aircraft Noise Technical Report*. No justification has been provided in the SEIS/EIR for its failure to acknowledge these impacts.

This can be illustrated by the example of Oak Street Elementary School. According to the *Supplemental Aircraft Noise Technical Report*, the classrooms at this school are exposed to instantaneous indoor noise levels exceeding 55 dBA for a cumulative duration of 2.7 minutes per day (comprising of 45.9 individual noisy events) based upon the 1996 baseline. Under Alternative D, in 2015, this cumulative duration would increase to 8.6 minutes per day (comprising of 98.3 individual noisy events). This is a more than 300% increase in cumulative daily exposure to classroom noise levels above 55 dBA, yet the main body of the SEIS/EIR, which uses *new exposure* to any event louder than 55 dBA levels as the threshold of impact for single events, fails to acknowledge a noise impact at this school.

The *Supplemental Aircraft Noise Technical Report*, in Table S33, also includes analysis of the increases in the cumulative duration above the threshold of 35 dBA L_{eq} in classrooms. Under Alternative D, the following schools are all predicted to suffer increases to the cumulative duration in 2015 compared to the 1996 baseline:

Kelso Elementary School
Oak Elementary School
Beulah Payne Elementary School
Clyde Woodworth Elementary School
Monroe Middle School
Hillcrest High School
Inglewood High School
Morningside High School

However, since only the latter two schools are *newly exposed* to levels above 35 dBA L_{eq} , an impact has not been declared for the other schools. The somewhat arbitrary nature of the *newly exposed* requirement for a significant impact is illustrated by the fact that Morningside High School is considered as significantly impacted, whereas immediately adjacent schools Clyde Woodworth Elementary School and Monroe Middle School are not.

It should also be noted that all the schools listed above are, according to the SEIS/EIR, already (based upon the 1996 baseline) exposed to noise levels above the 35 dBA L_{eq} threshold for at least 30 minutes per school day. Given the substantial amount of existing speech disturbance, any increase in cumulative duration of speech disturbance is considered troubling and again, use of the *newly exposed* requirement leads to an understatement of the noise impact associated with all of the project alternatives considered.

5. The Project Alternatives Included in the EIS/EIR Do Not Appear to Satisfy CEQA or NEPA Requirements.

According to Title 14 *California Code of Regulations*, Chapter 3, Guidelines for Implementation of CEQA:

“An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.”
(15 *California Code of Regulations* § 15126.6(a).)

Significant noise impacts are predicted for Inglewood Unified School District schools under each alternative considered, including the “No Action/ No Project” alternative. No alternative has been considered that would avoid or substantially lessen the noise impact upon Inglewood schools as required by CEQA.

According to the Council for Environmental Quality, a NEPA analysis:

“. . . shall inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment. . . [including]. . . reasonable alternatives not within the jurisdiction of the lead agency.”

In this context, a proper NEPA analysis should include at least one alternative whereby a significant noise impact was avoided in Inglewood schools by diverting the proposed increased heavy jet traffic to other airports.

6. The Analysis of Temporary Aircraft Noise Impacts Is Inadequate.

Table S4.1-5 of the main body of the SEIS/EIR shows that in the year 2008, under Alternative D, Beulah Payne Elementary School will be exposed to higher daily aircraft noise levels (67.2 dBA, compared to a 1996 baseline level of 58.6 dBA). It appears that there will be elevated aircraft impacts during portions of the construction phase.

This is acknowledged within the *Supplemental Aircraft Noise Technical Report* (see p. 26, for example), but the main body of the SEIS/EIR does not appear to provide any analysis of temporary aircraft noise impact on the other Inglewood Unified School District schools, a discussion of how long they might last, or a recommendation for any mitigation measures. As with all significant adverse impacts, these construction impacts must be described and analyzed and mitigation measures presented.

7. Inadequate/Mislabeled Data in Supplemental Aircraft Noise Technical Report.

The *Supplemental Aircraft Noise Technical Report*, which presents the specific noise calculation results relevant to Inglewood Unified School District schools, provides data labeled as 'DNL' in Table S14. It is unclear whether this data is actually CNEL data that has been mislabeled. Since the project thresholds of significance are set in terms of CNEL rather than DNL, providing DNL data prevents the reader from looking at predicted CNEL impacts on specific Inglewood Unified School District schools.

8. Specific Noise Mitigation Measures for Inglewood Unified School District Facilities Are Not Clearly Stated in the SEIS/EIR.

According to Title 14 *California Code of Regulations*, Chapter 3, Guidelines for Implementation of CEQA:

“An EIR shall describe feasible measures which could minimize significant adverse impacts...the discussion of mitigation measures shall distinguish between the measures which are proposed by project proponents to be included in the project and other measures proposed by the lead, responsible or trustee agency or other persons which are not included but the lead agency determines could reasonably be expected to reduce adverse impacts if required as conditions of approving the project. This discussion shall identify mitigation measures for each significant environmental effect identified in the EIR.” (14 *California Code of Regulations* § 15126.4.)

Mitigation measure MM-LU-4, which incorporates noise mitigation measures for schools, is “subject to modification” based upon the results of further study. Details of the proposed ‘further study’ are not, however, provided for review. The proposed noise mitigation measures (further study excluded, because study alone will not do anything to mitigate the predicted noise impact) are not therefore clearly stated in the report.

a. The SEIS/EIR’s analysis of the health effects of noise on students is flawed.

i. The SEIS/EIR improperly relies on a flawed FICON document.

The SEIS/EIR relies heavily on noise level standards from a document prepared by the Federal Interagency Committee on Noise (“FICON”) entitled “Federal Agency Review of Selected Airport Noise Analysis Issues.” This document is misrepresented in the report and should not be relied upon. The misrepresentation is to describe this document as a “study detailing the degree of speech understanding at various noise levels....” (SEIS/EIR, *Noise*, Section 4.1.2.1.2, p. 4-12.)

First, FICON is an interagency task force consisting of representatives from various government agencies. It does not consist of experts on noise or noise impacts on children who have appropriate scientific training and experience to critically evaluate and summarize a scientific body of literature.

Second, there are many individuals on FICON with clear conflicts of interest in assessing the scientific literature. The majority of FICON representatives work for federal agencies that are major producers of noise (e.g., Federal Aviation Administration ("FAA"), the U. S. military, National Aeronautics and Space Administration ("NASA").

Third, the entire FICON document devotes five pages to the topic of speech communication. No scientific analysis could "detail the degree of speech understanding" in such a limited manner. The uncritical acceptance of the FICON document reflects a serious lack of understanding and knowledge of the scientific literature on the effects of noise on children's learning and speech perception.

Fourth, some important data the FICON document relies upon are outdated and in some cases inaccurate. For example, Table 3.3 in the FICON document which is reprinted from a 30 year old Environmental Protection Agency ("EPA") document ("EPA Report") is widely rejected in the scientific community in its applicability to children's learning. Data from adults listening to a trained speaker conversing in the outdoors were used to develop this Table. It has long been known that children need a larger signal to noise ratio to comprehend speech than an adult, and noise effects in interior environments must take into account sound intensity and reverberation time (time for sound to decay). (American National Standards Institute, "Acoustical performance criteria design requirements and guidelines for schools.", ANSI S12.60-2002, Exhibit 19; World Health Organization, *Environmental Health Information, Guidelines for Community Noise*, 2000; Nelson, P. & Soli, S., "Acoustical barriers to learning: Children at risk in every classroom." *Language, Speech, and Hearing Services*, 31: 356-361, 2000; Picard, M., & Bradley, J.S., "Revisiting speech interference in classrooms." *Audiology*, 40: 221-244, 2001) The FICON document and the SEIS/EIR which relies primarily on the FICON document is replete with errors of this sort.

Fifth, the FICON document omits abundant research on airport noise and deficits in reading acquisition. More than 20 studies around the world (Evans, G.W. & Lepore, S.J., "Nonauditory effects of noise on children." *Children's Environments*, 10: 31-51, 1993; Kryter, K.D., "The handbook of hearing and the effects of noise." San Diego, Academic Press, 1994, Exhibit 20; World Health Organization, *Environmental Health Information, Guidelines for Community Noise*, 2001) including a dose response relationship (Green, K., Pasternack, B. & Shore, R., "Effects of aircraft noise on reading ability of school age children." *Archives of Environmental Health*, 37: 24-31, 1982, Exhibit 21) interventions to reduce noise (Bronzaft, A., "The effect of a noise abatement program on reading ability." *Journal of Environmental Psychology*, 1: 215-222, 1981) and most convincingly, a prospective, longitudinal study (i.e. the same children are compared before and after the opening of a major new airport) (Hygge, S., Evans, G.W., & Bullinger, M., "A prospective study of some effects of aircraft noise on cognitive performance in school children." *Psychological Science*, 13: 469-474, 2002, Exhibit 22), show significant deficits in reading from transportation related noise exposure.

ii. The SEIS/EIR Ignores the Scientifically Confirmed and Well Established Link Between Noise Exposure and Children's Learning.

The SEIS/EIR relies heavily on FICON's flawed logic in developing its basic arguments. The SEIS/EIR states that "there is no reliable statistical relationship between the amount of aircraft noise exposure present and the degree of learning difficulty experienced by children at affected schools. . ." (SEIS/EIR, *Noise*, Section 4.1.2.1.2, p. 4-11.) First unless the SEIS/EIR consulting team includes individuals trained in statistics and research design methodology, this claim is suspect prima facie. Second, because there is very little data (consisting of one airport study (Green, K., Pasternack, B. & Shore, R. "Effects of aircraft noise on reading ability of school age children." *supra*) and one road traffic study (Lukas, J.S., DuPree, R.B. and Swing, J.W. *Effects Of Noise On Academic Achievement And Classroom Behavior, supra.*) to be exact, not zero as stated by FICON and uncritically repeated in the SEIS/EIR) showing a dose-response relationship between noise levels and learning deficits, the report presumes therefore there is no evidence to support a link between noise exposure and learning difficulties. This is patently false.

There are multiple sources of evidence to demonstrate a relationship between airport noise exposure and significant deficits in children's learning. Many studies show that aircraft noise is significantly related to deficits in reading acquisition (see reviews in Evans, G.W. & Lepore, S.J., "Nonauditory effects of noise on children." *Children's Environments*, 10: 31-51, 1993, Exhibit 23; Kryter, K.D. "The handbook of hearing and the effects of noise." *supra*; World Health Organization, *Guidelines*, 2001, *supra.*). Not one of these studies is cited in the FICON document or the SEIS/EIR. This is a glaring omission in an SEIS/EIR that is mandated by state and federal law to consider potential health and welfare costs and benefits of a proposed project. The focus on speech and communication should be at least matched by an analysis of the noise and reading acquisition literature.

In contrast to the FICON document, the SEIS/EIR briefly notes a more recent American National Standards Institute ("ANSI") classroom standard criterion established in "Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools" *supra* (hereinafter referred to as "ANSI Report"). This document recommends lower levels of acceptable noise intensity in classrooms than FICON. The SEIS/EIR omits discussion of the World Health Organization ("WHO") noise criterion document, "Adverse Health Effects of Noise," Section 3, April 2001, (hereinafter referred to as the "WHO Report"), which predates the ANSI study by a few years. The WHO and ANSI standards converge on 35 dBA for an interior noise standard for elementary school classrooms. What is particularly important to understand is that unlike the FICON document, the ANSI and WHO reports were developed by scientists knowledgeable about noise and its human impacts. These reports are much more detailed and provide a thorough discussion and analysis of the evidence. In the case of the WHO Report, it represents a consensus statement of leading noise researchers in the world on the current level of knowledge about noise and its impacts and provides recommendations of acceptable noise standards to protect the public. Unlike the FICON document, the WHO and ANSI reports were also widely distributed to scientists in draft form for critical feedback, and then went through multiple iterations of revisions. There was substantially scientific peer review of the WHO and ANSI reports. This did not occur for the FICON document.

iii. The SEIS/EIR Entirely Neglects the Substantiated Link Between Noise and Other Adverse Learning and Health Effects on Children.

The SEIS/EIR also does not consider evidence of other adverse learning and health effects on children chronically exposed to aircraft noise. These are widely available in the scientific literature. Children chronically exposed to noise suffer from motivational deficits. They persist less in achievement related contexts. Both laboratory (Glass, D.C. "Behavior patterns, stress, and coronary heart disease." Hillsdale, NJ: Erlbaum, 1977,) and field studies of noise (Bullinger, M., Hygge, S., Evans, G.W., Meis, M. and von Mackensen, S., "The Psychological Cost of Aircraft Noise for Children," *supra.*; Evans, G.W., Hygge, S. & Bullinger, M., "Chronic noise and psychological stress." *Psychological Science*, 6: 333-338, 1995, Exhibit 24) show that children are less likely to continue efforts in problem solving if they have been exposed to uncontrollable noise. These motivational deficiencies are believed to be caused by the uncontrollable nature of ambient noise exposure.

Constant exposure to a noxious, uncontrollable stressor like noise produces learned helplessness (Peterson, C., Maier, S. & Seligman, M.E.P., "Learned helplessness." NY: Oxford Press, 1993). Individuals learn that regardless of their efforts to cope with an adverse environmental condition, they cannot do anything about it. The outcomes of their behaviors are noncontingent on their behaviors. It is worth noting that the most common way learned helplessness is produced in human laboratory studies, is to expose individuals to uncontrollable noise. There is very strong evidence from human experiments that exposure to uncontrollable noise can produce significant decrements in task persistence. Field studies with children indicate parallel trends from chronic exposure to aircraft noise (See for reviews Cohen, S., "Aftereffects of stress on human performance and social behavior: A review of research and theory." *Psychological Bulletin*, 88: 82-108, 1980, Exhibit 25; Evans, G.W., "Environmental stress and health." In A. Baum, T. Revenson & J.E. Singer (Eds.), *Handbook of Health Psychology*. Mahwah, NJ: Erlbaum, 2001, Exhibit 26; Glass, D.C., & Singer, J.E., "Urban stress: experiments on noise and social stressors." NY: Academic Press, 1972; Peterson, C., Maier, S. & Seligman, M.E.P. "Learned helplessness.," *supra.*)

Additionally, there are several studies documenting links between chronic noise exposure in children and elevated blood pressure. There are no dose response data, but several studies with different research designs (cross-sectional, intervention, longitudinal) show that airport noise exposure is associated with higher blood pressure in children. (See for reviews Evans, G.W. "Environmental stress and health." *supra.*; Ising, H. Babisch, W., & Kruppa, B., "Acute and chronic noise stress as cardiovascular risk factors." *Noise and Health*, 4: 37-48, 1999; World Health Organization, *Environmental Health Information, Guidelines for Community Noise*, 2001, *supra.*) A smaller number of studies also find evidence of elevated stress hormones from exposure to airport noise (Evans, G.W., Bullinger, M. and Hygge, S., "Chronic Noise Exposure and Physiological Response: A Prospective Study of Children Living Under Environmental Stress." *Psychological Science*, Vol.9, No.1, January 1998, Exhibit 27; Ising, H., et al. "Acute and chronic noise stress as cardiovascular risk factors.," *supra.*) It is well known that children with higher blood pressure will tend to have higher blood pressure as adults.

b. The SEIS/EIR's Proposed Noise Study is Inadequate.

i. LAWA May Not Postpone Its Proposed Noise Study Absent a Commitment by LAWA to Mitigate.

The California Environmental Quality Act requires that, whenever feasible, all impacts must be mitigated for any project that is carried out by or approved by a public agency. California *Public Resources Code* §§ 21002, 21002.1(b). Thus, significant effects on the environment must be either eliminated or *substantially* minimized where feasible. (*Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1355.)

According to the SEIS/EIR, LAWA will initiate a study of the relationship between aircraft noise levels and the ability of children to learn. (SEIS/EIR, *Land Use*, Section 4.2, p. 4-210.) Based upon this study, LAWA will set a new threshold of significance for classroom disruption. (*Id.*)

Nonetheless, the SEIS/EIR is vague, inconclusive and inconsistent with respect to actual mitigation. The SEIS/EIR makes no clear statement or commitment to mitigate the impacts even after establishing the new threshold of significance discussed above.

According to California law, LAWA must make a binding "commitment" to achieve a desired level of mitigation. (*Sacramento Old City Association v. City Council of Sacramento* (1991) 229 Cal.App.3d 1011, 1028.) One manner in doing so is to effectuate "specific performance criteria articulated at the time of project approval." (*Id.* at 1029.) Without either a binding commitment or a performance standard, the CEQA analysis is flawed.

For example, the SEIS/EIR states that "any schools found to exceed a newly established threshold of significance for classroom disruption shall be incorporated into the ANMP administered by LAWA." (SEIS/EIR, *Land Use*, Section 4.2, p. 4-210.) According to the SEIS/EIR, the ANMP performance standard is as high as 45 CNEL. (SEIS/EIR, *Land Use*, Section 4.2, p. 4-198.) Since the new threshold of significance will in all likelihood be lower than 45 CNEL, reliance on the ANMP performance standard would render the new threshold immaterial for mitigation purposes.

Also, conflicting language in the SEIS/EIR, creates ambiguity as to whether LAWA will provide substantial mitigation. The SEIS/EIR states that mitigation measures would "mitigate schools that are impacted by significant single event levels through further study of the relationship between the learning and aircraft noise exposure levels, and the subsequent sound insulation of schools where impacts are shown to be significant." (SEIS/EIR, *Noise*, Section 4.1, p. 4-80.) The *Supplemental Aircraft Noise Technical Report*, however, hedges by associating eligibility for mitigation with the CNEL levels in the Settlement Agreement. (Section 6.2.3, p. 154.) Additionally, it states that "the potential for additions to the sound insulation program for schools will be revisited as part of LAWA's continuing environmental management responsibilities." (*Id.*)

The SEIS/EIR does not state whether LAWA will mitigate to levels below significance (i.e. below the new threshold of significance). Nor does the SEIS/EIR provide a "standard of

performance” for noise mitigation. It also does not clarify whether this mitigation will occur in schools it believes are otherwise “compatible” under Title 21. (See, e.g., SEIS/EIR, *Environmental Justice*, Section 4.4.3.5.1.2, p. 4-329.)

Although the SEIS/EIR acknowledges the impact of aircraft noise on children’s learning, it does not commit to mitigation. The SEIS/EIR’s inconclusive approach circumvents the mitigation analysis called for by CEQA.

ii. A Deferred Noise Analysis Is Inappropriate.

Possible impacts must be studied as early as possible to avoid deferment of formulation of mitigation measures. (See, *Sundstrom v. County of Mendocino* (1988) 202 Cal. App. 3d 296, 307.) In general, “an environmental assessment, including a statement of the mitigation measures, may not be deferred until a future study or project.” (*Rio Vista Farm Bureau Center v. County of Solano* (1992) 5 Cal.App.4th 351.)

There is substantial evidence currently before LAWA that significant impacts of aircraft noise on children’s learning will occur. Despite this, LAWA is deferring the assessment of this impact. CEQA requires environmental review at the earliest feasible stage in the planning process. California *Public Resources Code* Section 21003.1; *Sundstrom v. County of Mendocino*, 202 Cal. App. 3d 296, 307.

In this case, there is no justifiable reason for delaying the study or not initiating the study at an earlier date. In September of 2001, in response to the Original EIS/EIR, the Inglewood Unified School District analyzed an abundance of studies and academic research regarding the relationship between aircraft noise and children’s learning, ‘learned helplessness’ and high blood pressure. LAWA does not present a satisfactory reason for its failure to conduct or initiate its proposed study at that time, nearly two years prior to release of the Supplement, or any time since then. Thus, the SEIS/EIR fails in its obligation to conduct the study at the earliest feasible stage in the process.

Also, as a result, the SEIS/EIR fails to meet the requirement of “completeness and a good faith effort at full disclosure.” (*Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1355.)

iii. Failure to Conduct a Study Prior to Publishing the SEIR/EIR Is Against Public Policy.

The oversight in failing to conduct a noise study in and of itself may seem inconsequential, however, in face of overarching public policy considerations, it is significant. Public policy dictates that, “in the absence of overriding circumstances, the CEQA process demands that mitigation measures be timely set forth, that environmental information be complete and relevant, and that environmental decisions be made in an accountable arena.” (*Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359, 1393-1394.) Otherwise, the process diminishes the influence of decisionmaking in CEQA by not allowing the public to review the environmental impacts and provide comments to the lead agency. “Public and agency review” has been called the “strongest assurance of the adequacy of the EIR. [Citations]” (*Sundstrom v.*

County of Mendocino (1988) 202 Cal. App. 3d 296, 308.) Absent this public review, LAWA is not accountable to mitigation measures for a significant impact caused by aircraft noise on children's learning.

Moreover, CEQA's very purpose "is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the EIR 'protects not only the environment but also informed self-government.' [Citations.]" (*Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1354.) The lack of early disclosure and public review completely disregards and undermines the CEQA process.

iv. The Proposed Noise Study Must Meet Stringent Scientific Standards to be Valid.

LAWA proposes to commission a study to determine a dose-response relationship between aircraft noise exposure and learning deficits in children. (SEIS/EIR, *Land Use*, Section 4.2, p. 4-210.) This is a worthy scientific endeavor that will entail a large, complex, and lengthy process that will cost an enormous sum of money. The proposed study will require considerable expertise, experience, and knowledge in formulating, conducting, analyzing and interpreting complex data. As currently described in the SEIS/EIR, it is impossible to evaluate the potential merits of the proposed study because major elements of the most basic scientific information are not presented about the study.

No scientific research proposal can be evaluated for its potential merit without a careful, even handed and critical review of the existing literature bearing on the topic. The current document provides an incomplete, outdated, and highly biased overview of the literature. It relies too heavily on one summary review (FICON). Furthermore no conceptual arguments are developed linking the literature overview with the proposed study. In scientific research, investigators must build a conceptual and methodological rationale for any proposed study. The current document does not do this.

The SEIS/EIR needs to include a statistical power analysis to estimate the number of participants to be included in the proposed study. Standard scientific review criteria for empirical research proposals call for statistical estimates of effect sizes from existing literature and their incorporation into research proposals. This power analysis would need to address the overall sample size for establishing a dose response function between noise and each learning outcome of interest. Furthermore, critical subsample power estimates would need to be incorporated such as ESL and non-ESL children, children suffering permanent and temporary hearing loss (a very common occurrence among elementary school children because of ear infections) and grade levels given likely age differences in susceptibility to adverse noise impacts on reading acquisition as well as speech perception. For example, according to ANSI:

"Limitations in vocabulary and in the ability to 'fill in the blanks' when partial communication occurs in difficult listening situations have been shown to reduce intelligibility for children with limited English Proficiency, again despite normal intelligibility in quiet environments. These children may require 2 to 5 dB more

favorable signal-to-noise ratios in difficult listening situations to achieve the same level of intelligibility as children with normal English proficiency. (Citations omitted.) (ANSI, "Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools.")

In addition, ANSI estimates that hearing impairments caused by ear infections are,

"estimated incidence as high as 25% to 30% among kindergarten and first grade children. . . . Signal to noise ratio improvements of 3 dB to 5 dB together with increases in absolute speech sound levels of 10 dB to 30 dB are necessary for children with these impairments to achieve the same level of speech intelligibility in classrooms with high background noise." (ANSI, "Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools.")

The research design of the proposed study would also need to address in detail how duration of exposure (e.g., months in residence) and home noise exposure would be incorporated into a study of schools varying in aircraft noise exposure.

Given a thorough statistical power analysis is needed to ensure that the appropriate number of participants are included overall and in critical subgroups in order to provide the necessary sensitivity to detect potential adverse effects, a thorough sampling plan also needs to be developed. The following issues must be addressed in the SEIS/EIR with respect to the proposed study: How and where will participants be sampled and what special sampling techniques will be used to ensure adequate representation of critical subgroups (e.g., ESL)? Will children with temporary or permanent hearing loss be included in the study and how will these classifications be determined? Will data be collected in one or multiple school districts and if the latter, how will differences in reading curricula be handled? Will data be collected only once, yielding a cross-sectional study or will a panel design be developed to monitor children's learning trajectories over time? If the latter research design is incorporated, at what ages would children be monitored and how often would data be collected? If a longitudinal design is incorporated, how will attrition be dealt with both in the research design and in data analysis?

No information is provided in the SEIS/EIR about the manner in which the proposed study would be conducted and what measures of learning would be incorporated. Is the primary focus on chronic or acute noise? This has dramatic implications for interpretation of the data and bears significantly on procedural conduct of the study itself. For example, reliance on archival records of standardized tests confounds chronic and acute noise exposure since the tests are taken during airport operational periods.

Outcome measures (e.g., reading acquisition, speech perception) need to be described, including at a minimum their basic psychometric properties (e.g., reliability, validity) and their appropriateness for use in a culturally diverse, multi-language sample.

How exactly will noise exposure be estimated and what metrics will be used? The SEIS/EIR glosses over critical distinctions in noise metrics such as L_{MAX} , L_{LEQ} , CNEL, and time above peaks. The authors of the proposed study need to say what metric(s) they would use and provide a rationale, discussing in depth the strengths and weaknesses of each alternative. How will reverberation time be monitored and incorporated into data analyses and interpretation. In interior settings, reverberation time influences speech intelligibility. The very difficult issue of exposure estimation also requires discussion. Where and when will noise exposure be measured? Children learn in the classroom, on the playground, and at home. A narrow focus on school noise level changes ignores the potential influence of changes in home noise levels caused by expanded airport operation.

There is no data analytic plan included in the study proposal detailing precisely how the results would be analyzed. Such a plan at a minimum would describe what statistical techniques would be used and how controls for factors with known covariation with noise and learning would be dealt with in the analyses. For example, how will the proposed study statistically or methodologically handle the co-mingling of income, ethnicity, noise exposure, and learning?

It is basic scientific practice to address the kinds of issues briefly summarized above in research proposals to obtain funding to conduct research. Scientific review panels for the National Science Foundation or the National Institutes of Health routinely consider and evaluate the scientific merits of proposals using such criteria. This is widely understood and supported by scientists. Major foundations that support scientific research subscribe to similar scientific review criteria as well. Written proposals that address the types of issues and questions raised above are typical, routine practice engaged in by scientists *prior to conducting research*.

Because the SEIS/EIR ties the proposed study to some critical policy decisions, it is critical to provide some additional material to the document under review. In particular, regulatory bodies and the public need to know more about how the results would be used to determine mitigation measures. For example, what indices of deficit would be considered significant and trigger mitigation? If reading acquisition is delayed on average by six months and for even longer for ESL children, would LAWA consider this sufficient to incorporate mitigation? What percentage of loss in speech perception is considered sufficient to warrant mitigation? Parallel questions need to be discussed for all health and welfare outcomes judged pertinent to the study design.

There is precedent in California and federal environmental regulatory procedures to incorporate a margin of safety in standards to protect vulnerable subgroups of the population. For example air pollution standards both in California and at the federal-level mandate protection for asthmatic children. (See Cal/EPA, *Staff Report: Public Hearing to Consider Amendments to the Ambient Air Quality Standards for Particulate Matter and Sulfates*. Air Resources Board and Office of Environmental Health Hazard Assessment, May 2002, <http://www.arb.ca.gov/research/aaqs/std-rs/pm-final/pm-final.htm>; see also, USEPA, *Review of the National Ambient Air Quality Standards for Particulate Matter: Policy Assessment of Scientific and Technical Information*. Office of Air Quality Planning and Standards, June 2001, <http://www.epa.gov/ttn/oarpg/t1/reports/pmstdrft.pdf>.) How will determinations be made of which groups of children are vulnerable and in need of additional protection from elevated noise

levels at school and in their homes? What margin of safety will be incorporated to protect these vulnerable subgroups, once determined?

Decisions about criteria for mitigation and protection of vulnerable subgroups in the population are both scientific and political. Since one of the major reasons for the proposed study in the SEIS/EIR is to determine mitigation procedures, government bodies with regulatory responsibility, as well as the public, must have the opportunity for discussion and review of the criteria that will be used to determine such critical policy decisions. The present document is silent on these issues therefore precluding regulatory and public scrutiny as mandated in CEQA and NEPA.

PART FOUR

THE EMISSIONS, MODELING, MITIGATION MEASURES AND HEALTH IMPACT ANALYSIS OF THE SEIS/EIR IS INADEQUATE

CEQA requires the EIS/EIR to "identify and focus on" significant environmental effects of proposed projects. (14 *California Code of Regulations* § 15126.2.) "Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects." (*Id.*) The EIS/EIR also must describe "feasible measures which could minimize significant adverse impacts." (14 *California Code of Regulations* § 15126.4.) The EIS/EIR fails to adequately do so.

1. The Emissions Estimations in the SEIS/EIR Violate CEQA.

The emissions estimates in the SEIS/EIR for jet aircraft and storage and handling of fuels may be underestimated. Correction of this underestimation will result in increased pollutant concentrations that may result in exceedances of the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) as well as increases in off-site cancer risks and noncancer hazard indices for off-site populations.

a. Jet Aircraft Emission Estimates May Be Underestimated As the Methodology Used to Estimate Particulate Emissions from Jet Aircraft Is Unclear and May Be Flawed.

To estimate particulate matter less than 10 microns (PM₁₀) emission rates from aircraft for the EIS/EIR, Los Angeles World Airports (LAWA) used information from three sources: 1) fourth edition of AP-42; 2) Whitefield and Hagen Study; and 3) the 1994 California FIP Docket (Original EIS/EIR, Technical Report 4, Attachment H). The emission rate data from these studies are combined; the combined data are plotted for each of the four aircraft operating modes. Based on these plots, a relationship between fuel usage and PM₁₀ emission rate is interpolated.

A review of the data shows the first and second studies to be in approximate agreement; the FIP Docket provides an alternate data set. As there is approximately an order of magnitude

more FIP Docket data, the data from this study dominate the results. If the FIP Docket data were removed from the combined data set, it is clear that the relationship between fuel usage and the PM₁₀ emission rates would change and the estimated total PM₁₀ emissions from aircraft would also change.

Based on the information presented in the EIS/EIR, it is unclear how the FIP Docket data are used in the PM₁₀ emission rate analysis. It appears that a relationship between PM₁₀ emissions and fuel usage is derived from a graphical representation of a relationship between particulate mass concentration and smoke number (i.e., from a plot of an equation relating PM concentration and smoke number).

There are two issues with this derivation. First, it is not clear how a relationship between fuel usage and PM₁₀ emissions is derived from a plot of particulate mass concentration versus smoke number. Second, because the particulate mass concentration versus smoke number data appear to be simply a plot of some unknown equation, the number of data points taken from this graph seems to be arbitrary. Since the number of points taken from this graph is approximately 10 times greater than the number of data points available from the other two studies, it appears that LAWA may have arbitrarily weighted the combined data set heavily towards the FIP Docket data and away from the AP-42 and Whitefield and Hagen data.

Aircraft emissions of PM₁₀ are potentially underestimated. An increase in PM₁₀ emissions will result in an increase in off-site concentrations of PM₁₀. As noted below, the potential noncancer health impacts associated with these PM₁₀ emissions have not been quantified in the EIS/EIR. Inclusion of additional PM₁₀ emissions may result in exceedance of the noncancer hazard index for off-site populations.

At a minimum, LAWA needs to clarify the approach used to develop the FIP Docket data; conduct a sensitivity analysis to determine the importance of the FIP Docket data to their results; and, if necessary, remove arbitrary weighing of FIP Docket data over other data sets, correct the PM₁₀ emission rates, and remodel off-site PM₁₀ concentrations.

b. Potentially significant evaporative emissions of toxic air contaminants resulting from the storage and handling of organic liquids may not have been quantified.

LAWA does not include volatile organic compound (VOC) emissions from organic liquid storage and transfer in their Industrial Source Complex Short Term 3 (ISCST3) modeling of toxic air pollutant emissions. They assume that: 1) storage emissions are almost exclusively from Jet A fuel; 2) emissions of Jet A vapor do not contain significant quantities of the toxic air pollutants modeled; and 3) limited future operations of gasoline fueling would include vapor recovery and therefore result in minimal emissions of air toxics.

There are three problems with this exclusion of VOC emissions. First, diesel fuel and gasoline are used at the airport. LAWA should provide data to show that storage and resulting emissions of these fuels are insignificant. Second, LAWA should provide justification for the assumption of no toxic air pollutants in Jet A vapor. Third, LAWA should provide some

screening calculations to validate their assumption that gasoline fueling would result in insignificant emissions of air toxics (especially benzene).

Toxic air emissions from storage and handling of organic liquids may have been underestimated. An increase in toxic air emissions will result in increases in off-site cancer risks and noncancer hazard indices for off-site populations.

At a minimum, LAWA needs to quantitatively demonstrate that emissions of toxics from storage and handling of diesel fuel and gasoline are insignificant; and provide a speciated chemical list for Jet A fuel.

2. The Modeling Approach of the EIS/EIR Violates CEQA.

The modeling approach presented in the EIS/EIR has several significant flaws that result in underestimation of both criteria and toxic pollutants impacts on nearby receptors. The analysis of the emission impacts is inadequate, the methodology used to estimate plume rise is flawed, the assumption of no downwash is not justified, the meteorological data used in the modeling is inadequate, the conversion of sulfur dioxide to sulfate is not addressed, and finally, secondary formation of toxic pollutants and deposition effects are ignored. These flaws result in an underestimate of ambient pollutant concentrations. Correcting these flaws will result in an increase in pollutant concentrations and may result in exceedances of the NAAQS and CAAQS as well as increases in off-site cancer risks and noncancer hazard indices for off-site populations.

a. The methodology used to estimate plume rise from jet aircraft is questionable and requires further justification.

LAWA determines the plume rise of hot exhaust gas from jet aircraft engines based on a heat balance to determine the heat flux and the equivalent exit velocity that would result (Original EIS/EIR, *Technical Report 4*, p. 19). To calculate this exit velocity, they make four critical assumptions. First, the jet engine exhaust gas temperature is fixed and unrelated to the heat flux. Second, as the exhaust gas from the jet engine begins to slow (in the horizontal plane) and begins to move vertically upward as a plume, the diameter of the plume (in the vertical plane) may be estimated by the wingspan of the jet.

Third, the temperature of the plume is equal to the jet engine exhaust gas temperature. As there are no ambient heat sources, this implies that the movement of the exhaust gas is adiabatic, isothermal, and there is no rapid expansion of exhaust gas. Finally, the temperature of ambient air is assumed to be 293 Kelvin (K). Calculated exit velocity, plume temperature, and plume diameter were then input into ISCST3 to determine plume rise.

There are three problems with this approach. First, the temperature of the plume is assumed equal to the temperature of the exhaust gas. Given isothermal movement, this is only true if the total mass per second of air leaving the jet engines equals the mass per second of air moving up in the plume. LAWA should check their calculations to be sure that this is true, otherwise the plume rise calculations may be in error.

Second, the implied assumptions of isothermal movement and slow expansion of exhaust gas are physically unrealistic. It is likely that exhaust gas will expand rapidly when exiting the jet engine and cooler, ambient air will be entrained into exhaust gas as it moves away from the jet engine. Both of these effects will tend to lower the temperature in the plume. LAWA should perform a sensitivity analysis to determine the quantitative influence of these phenomena on the resulting plume rise.

Finally, the temperature of the ambient air should be consistent with the average temperature data used in the ISCST3 model runs. LAWA should average the temperatures in the meteorological data set used in the model runs to determine the correct average ambient temperature.

Plume rise may be overestimated. If so, concentrations of NO₂, PM₁₀, and air toxics resulting from aircraft emissions may be underestimated. Increases in concentrations of these pollutants may result in exceedances of the NAAQS and CAAQS as well as increases in off-site cancer risks and noncancer hazard indices for receptor populations.

At a minimum LAWA needs to check their calculations to ensure conservation of mass; conduct a sensitivity study to determine the quantitative influence of rapid expansion of exhaust gas and entrainment of ambient air on plume temperature; and calculate the plume rise with the correct average ambient temperature.

b. The assumption that building downwash is negligible requires further justification.

LAWA believes that building downwash will not be significant based on their assumption that the nearest receptor is too far off-site (Original EIS/EIR, *Technical Report 4*, p 24). LAWA should validate this assumption by modeling the most conservative source-receptor geometry, with building downwash included, to ensure this statement is correct. These results should be presented in *Technical Report 4*.

Off-site impact from airport emissions may be underestimated. If so, concentrations of criteria pollutants and air toxics resulting from airport emissions may be underestimated. Increases in concentrations of these pollutants may result in exceedances of the NAAQS and CAAQS as well as increases in off-site cancer risks and noncancer hazard indices for receptor populations.

LAWA needs to conduct a sensitivity study to show that building downwash effects are negligible.

c. The meteorological data set used may be inadequate relative to EPA and SCAQMD recommendations.

LAWA used the most recent meteorological data collected at LAX. These data consist of hourly surface and upper air data from the LAX meteorological observation station operated by the SCAQMD for the 12-month period beginning March 1, 1996 and ending February 28, 1997.

As recommended by EPA, "five years of representative meteorological data should be used when estimating concentrations with an air quality model. (USEPA, *Guideline on Air Quality Models (Revised)*. Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711, EPA-450/2-78-027, 1986, August 1995 update.) Consecutive years from the most recent, readily available 5-year period are preferred." SCAQMD recommends the use of the 1981 dataset. Accordingly, LAWA should conduct their air modeling with either the most recent five years of data from the LAX station, selecting the most conservative year results as representative of maximum long-term pollutant concentrations resulting from emissions associated with LAX or use the 1981 dataset. Furthermore, this five-year data set or 1981 dataset should be used to estimate average temperature (plume rise), mixing heights (EDMS), and wind speed (volume source height) used in other calculations and analyses.

Pollutant ambient air concentrations may be underestimated. If so, concentrations of criteria pollutants and air toxics resulting from emissions associated with expansion of LAX may be underestimated. Furthermore, the location of the maximum off-site impacts may also change. Increases in concentrations of these pollutants may result in exceedances of the NAAQS and CAAQS as well as increases in off-site cancer risks and noncancer hazard indices for receptor populations.

At a minimum LAWA needs to (1) conduct a sensitivity study to determine which year of LAX meteorological data is the most conservative or use the SCAQMD designated 1981 year of data; (2) if different from the meteorological data used in their analysis, redo all air modeling with the correct meteorological data; and (3) use the most conservative meteorological data set to estimate meteorological data used in other calculations and analyses.

d. Atmospheric conversion of sulfur dioxide to sulfate may be significant and is not addressed.

LAWA has ignored production of sulfate from sulfur dioxide (SO₂) due to the complexity of sulfate-formation mechanisms. LAWA assumes that all sulfur emitted by sources remains in the atmosphere as SO₂. This assumption is not conservative; the California Ambient Air Quality Standard (CAAQS) for sulfate is more than six times lower than the CAAQS for SO₂ (6.2 parts per billion by volume (ppbv) compared to 40 ppbv).

Formation chemistry for conversion of nitrogen oxides (NO_x) to nitrogen dioxide (NO₂) is equally complex, if not more so. The Tier 2 Ambient Ratio Method (ARM) recommended by USEPA in the *Guideline on Air Quality Models* for converting total NO_x to NO₂ values may be modified to estimate formation of sulfate from SO₂. (USEPA, *Guideline on Air Quality Models*,

supra.) LAWA could gather the most recent years of data on the annual average SO₂-to-sulfate ratio near LAX and use this data to estimate the formation of sulfate.

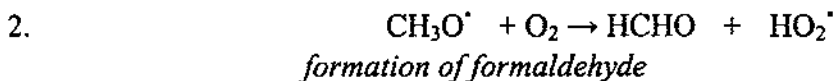
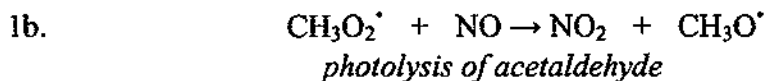
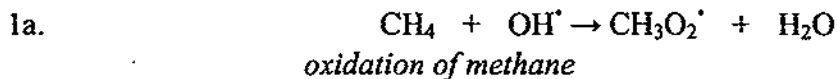
The concentration of sulfate in ambient air is underestimated. Increases in concentrations of sulfate may result in an exceedance of the CAAQS for sulfate. As exposure to sulfate causes respiratory irritation, underestimating the ambient sulfate concentration may significantly underestimate the numbers and types of respiratory illnesses that may be observed in nearby populations, particularly young children who may be especially sensitive to respiratory irritants.

At a minimum LAWA needs to develop an approach to model sulfate chemistry and estimate sulfate concentrations.

e. Secondary formation of toxic air pollutants may be significant and is not addressed.

LAWA has ignored the production of several toxic air pollutants formed in the atmosphere due to reactions among other pollutants (i.e., formed by secondary reactions). As outlined in the EPA's guidance on Air Dispersion Modeling of Toxic Pollutants in Urban Areas, these pollutants should be included in any air toxic analysis. (United States Environmental Protection Agency (USEPA), Draft Air Dispersion Modeling of Toxic Pollutants in Urban Areas - Guidance, Methodology and Example Applications. Emissions, Monitoring and Analysis Division (MD-14), Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711, EPA-454/R-99-021, July 1999, Original EIS/EIR Response Exhibit 12.) The pollutants formed by secondary reactions include formaldehyde, acetaldehyde and acrolein.

For example, formaldehyde may be formed in the atmosphere through photolysis or oxidation of other, directly-emitted hydrocarbon species:



An estimate of concentrations based on secondary reactions is needed and should be added to the ISCST3 output. LAWA should use EPA's OZIPR screening model to estimate the secondary formation of these pollutants. (USEPA, *Draft Air Dispersion Modeling, supra.*) Case studies provided in EPA's guidance document show secondary formaldehyde as the major component of total atmospheric formaldehyde (a ratio of 4 to 1 over primary formaldehyde).

If the total ambient formaldehyde concentration attributable to the project were increased by a factor of 5 to account for secondary formation, the contribution from formaldehyde to total absolute cancer and noncancer risks would increase by the roughly the same factor for all

years/alternatives. The absolute contributions of formaldehyde to total cancer and noncancer risks in different years/alternatives are not presented in the SEIS/EIR (see comment 4[f]).

The concentrations of formaldehyde, acetaldehyde and acrolein in ambient air are underestimated. Increases in concentrations of these pollutants may result in increases in off-site cancer risks and noncancer hazard indices for receptor populations. At a minimum LAWA needs to model formaldehyde, acetaldehyde and acrolein chemistry.

f. The exclusion of deposition effects from the multipath risk analysis is not justified.

LAWA has neglected to include deposition effects and associated multipathway risk analysis based on conclusions presented in the deposition report, included as Attachment Y to Original EIS/EIR *Technical Report 4*. In this report, LAWA claims that a direct correlation between airport operations and deposition could not be determined.

Nonetheless, LAWA goes on to state, "The limited monitoring duration [less than two weeks] and time of year, while required to meet project schedule requirements, were not optimal for dry deposition monitoring. The *limited nature* [italics added] of this study did not allow for the determination of summertime maximum deposition rates or provide data necessary to perform a mass balance analysis" (Original EIS/EIR, *Technical Report 4*, Attachment Y). LAWA is stating that the study was too short to make *any definitive conclusions* and further deposition sampling will be required before the deposition impact of airport emissions on off-site soils can be quantified. In other words, the study is incomplete.

If the study is limited and incomplete, there is no rational reason why LAWA should exclude deposition effects and the associated multipathway risk analysis. Furthermore, the deposition sampling locations selected for this study appear to be outside of the maximum particulate matter plume predicted by LAWA's ISCST3 modeling, further undercutting the already limited nature of this deposition study. Therefore, pending a more complete deposition study, LAWA should include deposition effects and a multipathway risk analysis in the EIS/EIR.

Deposition effects have been improperly excluded from consideration. Soil concentrations of pollutants sorbed to particulate matter have been underestimated. Increases in soil concentrations of these pollutants may result in increases in off-site cancer risks and noncancer hazard indices for receptor populations.

At a minimum LAWA needs to estimate concentrations of pollutants sorbed to particulate matter in soil based on emissions occurring over the duration of the project; and based on these soil concentrations, run a multipathway risk analysis to determine the health impacts of these soil concentrations.

3. The Mitigation Measures Proposed By The SEIS/EIR Violate CEQA.

- a. The mitigation measures proposed in the SEIS/EIR have not met all requirements outlined in the SCAQMD CEQA Handbook.**

The mitigation measures proposed in the SEIS/EIR have not met all requirements outlined in the SCAQMD CEQA Handbook. Before mitigation measures may be applied to total project emissions they must meet several criteria. The mitigation measures proposed in the SEIS/EIR have not demonstrated compliance with three of these criteria.

Several proposed mitigation measures do not meet the required criteria. Therefore, mitigated emission estimates may be too low. Increases in emissions of mitigated pollutants may result in exceedances of the NAAQS and CAAQS as well as increases in off-site cancer risks and noncancer hazard indices for receptor populations. Furthermore, without mitigation measures, the proposed project under Alternatives A, B, and C will result in exceedances of regulatory thresholds for criteria and/or toxic pollutants (SEIS/EIR Table 4.24.1-3).

At a minimum LAWA needs to (1) develop a matrix showing each mitigation measure and how it meets each of the three missing criteria identified above; and (2) improve documentation of the effectiveness of the selected mitigation measures used to reduce pollutant emissions.

- b. Mitigation measures, except those specific to construction activities, should be applied towards the No Action/No Project alternative in addition to Alternatives A, B, C, and D.**

Mitigation measures are defined in SEIS/EIR Section 4.6.8, including Table S.4.6-18. With the exception of those measures specific to construction activities, the identified measures may be implemented under the No Action/No Project alternative as well as Alternatives A, B, C, and D. For example, the following mitigation measures identified in Table S.4.6-18 are generally applicable to all alternatives including No Action/No Project:

Airside

Convert GSE to electric power

Clean Vehicle Fleets

Promote commercial vehicles/trucks/vans using terminal areas to install SULEV/ZEV engines

Promote "best-engine" technology for rental cars using on-airport RAC facilities.
Consolidate nonrental car shuttles using SULEV/ZEV technology

Energy Conservation

Cover any parking structures that receive direct sunlight to reduce volatile emissions from vehicle gasoline tanks and install solar panels on these roofs where feasible to supply electricity or hot water

Highways and Roadways

Link ITS with off-airport parking facilities, with ability to direct/divert trips to these facilities

Expand ITS/ATCS, concentrating on I- and I- corridors, extending into South Bay and Westside surface street corridors

Link LAX traffic management system with airport cargo facilities, with ability to reroute cargo trips to/from these facilities

Develop a program to minimize the use of conventional-fueled fleet vehicles during smog alerts

Landside

Contract with commercial landscapers who operate lowest emitting equipment

Parking

Provide free parking with preferential parking locations for ULEV/SULEV/ZEV in all (including employee) LAX lots; provide free charging stations for ZEV; include public outreach

Pay-on-foot (before getting into car) to minimize idle time at parking check out; include public outreach

Implement on-site circulation plan in parking lots

Promote employee rideshare opportunities

Encourage employee telecommuting

Provide video-conference facilities

Transit and Intermodal

Establish network of strategically placed, off-airport intermodal check-in terminals serviced by LAX-dedicated clean-fuel buses; provide low-priced parking to LAX users of off-airport intermodal terminal facilities; include public outreach

As noted in Part Four, Section (g), *infra*, the logical basis for evaluation of project significance under Alternatives A, B, C, or D in a future year (e.g., 2015) is the No Action/No Project alternative in the same future year. For such a comparison, it is appropriate that non-construction mitigation measures be applied towards both the build and no-build alternatives, as it is possible if not likely that these measures will be implemented regardless of which alternative is pursued. Application of non-construction mitigation measures to only the build alternatives, as is currently done, would incorrectly favor the build alternatives over the no-build alternative.

4. The Health Risk Analysis of the EIS/EIR Violate CEQA.

The flaws in the health risk analysis conducted for the EIS/EIR result in underestimated acute, cancer, and noncancer health impacts. Estimated cumulative cancer risks to school children are underestimated, cumulative cancer risks and noncancer hazards are incorrectly calculated, the significance threshold for noncancer health effects is too high, potential health impacts associated with exposure to lead are improperly calculated, potential health impact from jet engine particulate emissions are ignored, noncancer health risks to school children are underestimated, and acute health impact are not evaluated. These flaws result in an underestimation of the health impacts to receptors of concern.

- a. **Estimated cumulative cancer risks to school children have been underestimated due to underestimates in the total number of years children spend in school.**

The *Human Health Risk Assessment* (HHRA) estimated the potential incremental cancer risks for children attending schools by identifying the school with the highest projected concentrations of toxic air pollutants, and determining the total length of time that children would likely be at school. Approximately 20 schools were identified as being within one mile of LAX; Oak Street Elementary School was identified as one of the schools where the highest concentrations of Toxic Air Pollutants (TAPs) released from LAX were predicted.

Children ages 6 to 12 years old were evaluated in the HHRA, since "this age range includes the youngest school ages and it is sufficiently long for analysis of chronic exposures and risks" (Original EIS/EIR, *Technical Report* 14a, Attachment B, p. 42). Accordingly, children in school were assumed to be exposed to emissions from LAX for six years.

However, given that children will, in fact, be in school from ages 5 to 18 years (kindergarten through 12th grade), and that the future development of schools within the impacted area is unknown, it is very likely that children could be exposed to emissions from LAX for a 13-year period (corresponding to kindergarten through 12th grade). As estimates of cancer risk are directly proportional to the total time that an individual is exposed over the course of the lifetime, the assumption that school children are only exposed for six years is misleading, and results in an underestimate of the potential incremental cancer risks posed by children attending school.

Cancer risks for school children are underestimated in the EIS/EIR. Cancer risks should be recalculated for the school children to account for the potential that children could be exposed to emissions from LAX during their entire pre-school through high school years.

b. Significant flaws in the methods used to calculate cumulative cancer risks and noncancer hazards undermine the conclusions of the EIS/EIR and obscure actual health risks posed by the various alternatives.

The HHRA repeatedly touts the benefits of all build alternatives, stating that with mitigation, "all of the build alternatives would have lower (more favorable) human health impacts than those associated with the No Action/No Project Alternative" (Original EIS/EIR, p. 4-999). Many of the tables and text describing the incremental cancer risks and noncancer hazards actually present negative risks, indicating not only a reduction in risks below those associated with baseline conditions, but a "beneficial impact on LAX-associated cancer risks" (or noncancer hazards) (Original EIS/EIR, *Technical Report 14a*, p. 51). Such statements are not only misleading, they are technically inaccurate.

For example, some of the projected increase in cancer risk for some chemicals for Alternative D 2015 pre-mitigation conditions (SEIS/EIR, *Technical Report 9a*, Table S8) (e.g., diesel particulates, formaldehyde, benzene) is claimed to be offset by a projected decrease in cancer risk for other chemicals (arsenic, beryllium, and chromium).

The fundamental flaw in this logic is the assumption that a decrease in the concentration of one carcinogenic compound can offset the increase the concentration of another carcinogen. If the implementation of a given alternative results in lower concentrations of diesel exhaust than would occur under the baseline conditions, then the incremental contribution of diesel to the total cancer risk drops to zero. However, a net reduction in diesel is not "credited" against the likelihood that increases in other chemicals may cause cancer in exposed individuals.

To illustrate this point, assume two chemicals exist, say 1,3-butadiene and benzene, and the baseline cancer risks are 10×10^{-6} for each chemical. If the projected cancer risk under Alternative A is 13×10^{-6} for 1,3-butadiene and zero for benzene, the projected incremental cancer risk is $+3 \times 10^{-6}$ for 1,3-butadiene and the projected incremental cancer risk from benzene would be presented as -10×10^{-6} (indicating that the concentrations of benzene under Alternative A drop below the baseline concentrations), the cumulative risk from both compounds is NOT -7×10^{-6} , as would be presented in this HHRA, it is 13×10^{-6} . Independent of any projected improvement in diesel risks, 1,3-butadiene is still projected to cause an increase in cancer risk of $+3 \times 10^{-6}$.

In other words, if the projected incremental cancer risk posed by 1,3-butadiene is $+3 \times 10^{-6}$ and the projected incremental cancer risk from diesel is presented as -14×10^{-6} (indicating that the concentrations of diesel under the alternative drop below the baseline concentrations), the cumulative risk from both compounds is NOT -11×10^{-6} , as presented in this HHRA, it is $+3 \times 10^{-6}$. Independent of any projected improvement in diesel concentrations, 1,3-butadiene is still projected to cause an increase in cancer risk of 3×10^{-6} . (Data values taken from Original EIS/EIR, *Technical Report 14a*, Table 13, Alternative A, Adult Resident.)

Potential health impacts have been improperly summed. This fundamental flaw permeates the HHRA, and results in underestimates of the potential health impacts of all alternatives. As currently presented, it is impossible to evaluate each of the alternatives to

determine which alternatives may pose a significant health threat, or to ascertain whether the proposed mitigation measures will be sufficient to reduce the health risks to insignificant levels.

The Inglewood Unified School District recommends that LAWA correct these errors and recalculate the risks for all alternatives.

c. The basis for significance threshold for noncancer health effects is unclear and five times greater than the threshold typically used by regulatory agencies.

A significant impact relative to human health is defined in the Original EIS/EIR as a build alternative that would result in a total incremental chronic hazard index (HI) greater than 5 for any target organ system at any receptor location (Original EIS/EIR, p 4-1009). The basis for this significance threshold is unclear, is inconsistent with statements made in the *Human Health Risk Assessment Technical Report*, and is considerably less protective than acceptable thresholds established by regulatory agencies under various regulatory programs.

As described in the Original EIS/EIR, noncancer risk estimates are calculated by dividing the estimated exposure by the "reference dose," often referred to as the acceptable exposure level (Original EIS/EIR, *Technical Report 14a*, p 28). The ratio of the exposure to the reference dose is termed the hazard quotient (HQ). To assess the overall potential for noncarcinogenic effects posed by more than one chemical, the HQs for each chemical are summed, and the resulting value is referred to as the Hazard Index (HI).

As stated in the Original EIS/EIR, "a HQ greater than one indicates an exposure greater than that considered safe" (Original EIS/EIR, *Technical Report 14a*, p. 28). This conclusion is consistent with thresholds established by USEPA and Cal/EPA under the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA), and California's Toxic Hot Spots program (AB2588), respectively. Similarly, an overall HI of no greater than one is the threshold that is used by Cal/EPA in determining whether conditions at a site could potentially result in unacceptable adverse noncancer health effects. Sites for which the multichemical HI is greater than one typically trigger further investigation, and often remediation.

The significance threshold used in this EIS/EIR to evaluate the potential for adverse noncancer health effects is five times higher (i.e., five time less protective) than noncancer thresholds typically used by regulatory agencies under various state and federal regulatory programs. It is unclear how and why a different and less protective standard is being used to evaluate the potential health impacts associated with the various build alternatives. If the more standard noncancer HI threshold of one were used to evaluate the significance of the various alternatives, the conclusions of each of the build alternatives, and the corresponding need for mitigation, would be different than is currently presented.

For example, under Alternative B in 2015, "people living in an area immediately east of the north runways might be exposed to TAPs from LAX sufficiently to produce a hazard index above [5]. People living in a larger area extending east-northeast from the LAX theme building over 6 miles would be exposed to sufficient concentrations of TAPs to produce an incremental

hazard index between 1 and 5" (Original EIS/EIR, p. 4-1014). Thus, the number of people subjected to unhealthy levels of toxic chemicals may be greatly understated by the EIS/EIR.

The effect that establishing the threshold hazard index at 1 would have on the conclusions of the Alternative D analysis is unclear. The Inglewood Unified School District has commented elsewhere that the manner in which incremental risks under the project build alternatives are calculated and expressed in the EIS/EIR is inappropriate (i.e., use of negative risks, selection of 1996 as baseline, methodology for calculating baseline risks). If Alternative D risks were redefined and recalculated as suggested, and if the threshold index were established at 1 per standard practice, then estimated noncancer risks may exceed the significance threshold.

LAWA should rewrite the discussion of noncancer risks, and clearly identify those alternatives that would be considered significant based on the more appropriate noncancer significance threshold of one.

d. The EIS/EIR fails to consider and evaluate the potential health impacts associated with exposure to lead.

As described in the EIS/EIR, lead "may be released in significant quantities from LAX" (Original EIS/EIR, *Technical Report 14a*, Attachment B, p. 19). The potential impacts associated with exposure to lead are typically evaluated by using models developed by both USEPA and Cal/EPA to predict the blood-lead level that would result from a given exposure.

Because children are especially sensitive to the neurological effects of low levels of lead exposure, these models are used to estimate the blood-lead levels in children. The results from the model are then compared to the low blood-lead levels that have been demonstrated to result in subtle neurological damage in children, as established by the Center for Disease Control (CDC). The models are easy to use, have been used for more than eight years, and are considered the industry standard for evaluating lead exposures and determining whether such exposures could result in unacceptable health impacts.

Although the EIS/EIR notes that LAX may release significant quantities of lead, the EIS/EIR does not evaluate the impacts of such releases in accordance with the standard industry practice. Instead, the EIS/EIR compares the predicted concentrations of lead to the Ambient Air Quality Standard, and concludes that, because the concentrations are below the Ambient Air Quality Standard, lead is not a toxic air pollutant (TAP) of concern for the LAX Master Plan (Original EIS/EIR, *Technical Report 14a*, Attachment B, p. 12).

Such treatment of lead significantly diminishes the public health significance of this TAP, and does not allow for a fair determination as to the public health impacts that may result from the various build alternatives. Any risk assessment submitted to either Cal/EPA or the USEPA would be instantly rejected if conclusions about the public health significance of lead were based solely on a comparison to the Ambient Air Quality Standard.

Further, the EIS/EIR states that a cancer slope factor is not available for lead (Original EIS/EIR, *Technical Report 14a*, Attachment B, pp. 18-19). The Inglewood Unified School

District notes that the Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) has released a cancer slope factor for lead. The cancer slope factor, although not yet a promulgated standard, is available, and is being used by OEHHA to establish the No Significant Risk Level (NSRL) for lead under California's Proposition 65.

Health impacts resulting from lead in all years/scenarios, including Alternative D, may be underestimated. Because of the heightened public awareness to the risks associated with lead exposure and the plethora of information that exists describing the adverse health effects that can result from lead exposure, lead should be evaluated in this EIS/EIR in the most comprehensive manner that is reasonably practicable. Failure to do so is scientifically unjustifiable and is inconsistent with the more rigorous evaluations conducted for other chemicals included in the HHRA.

LAWA should rerun all health risk calculations to determine the human health implications of the increases in lead emissions that will result from all build alternatives.

- e. **Excluding particulate emissions from jet aircraft from the quantitative risk evaluation could significantly underestimate the potential for noncancer health impacts.**

Particulate emissions from aircraft were not quantified in the HHRA because "there is insufficient information regarding the nature and toxicity of total petroleum hydrocarbon (TPH) emissions associated with aircraft and toxicity criteria for these emissions are not available" (Original EIS/EIR, *Technical Report 14a*, p. 81). Particulate matter, in the form of diesel exhaust, is emitted from several ground sources (predominantly trucks and buses). Emissions of diesel exhaust from these ground sources have been included in the HHRA. However, the EIR states that because aircraft use a different fuel and a substantially different combustion process than diesel engines, the particulate emissions in jet exhaust are "not considered chemically, physically, or toxicologically similar to diesel exhaust" (Original EIS/EIR, *Technical Report 14a*, p. 12). Accordingly, the impact of such emissions have not been quantified in the HHRA.

This is the logic set forth in the EIS/EIR for excluding jet particulate emissions from the HHRA. The argument, however, for not being able to evaluate the toxicological effects of particulate exhaust from jets is flawed. Functionally, the methods used to evaluate the noncarcinogenic toxicity of "diesel" are based entirely on the particulate matter present in diesel exhaust.

According to USEPA, the systemic (non-cancer) toxicity of diesel emissions is due to the insoluble carbon core of diesel particles; when the exhaust is filtered to remove the particulate matter, the remaining exhaust mixture does not produce long-term toxicological effects in laboratory animals. The mechanism of toxicity of the carbon core relates to the deposition of the particles deep in the lung, and the accumulation and aggregation of these particles that result from the inability of the lung's normal clearance mechanisms to effectively remove the particles from the deep regions of the lung. The accumulation of particles sets off a pathogenic sequence that may result in the presence of pulmonary inflammatory, fibrotic, or emphysematous lesions.

(United States Environmental Protection Agency (USEPA), *Integrated Risk Information System*, On-line database maintained by USEPA, 2001.)

Because the noncancer toxicity associated with diesel exhaust is believed to be attributable entirely to the insoluble carbon core of the particulate matter, the noncancer toxicity factor would be equally applicable to other sources of particulate matter, such as jet fuel exhaust. If one can estimate the quantity of particulate matter that could be released from the exhaust of a jet engine, then use of the noncarcinogenic toxicity criteria for diesel is a scientifically defensible and appropriate method for evaluating the public health significance of the particulate emissions. Given the significant increase in the air traffic at LAX, failure to quantify potential impact associated with particulate emissions from jet aircraft could represent a significant omission from the estimated noncancer impacts.

The fact that particulate emissions from aircraft engines may be different than those from diesel engines is not adequate justification for ignoring the cancer health risks of aircraft particulate emissions entirely. It is reasonable to assume, given the lack of information to the contrary, that aircraft particulate emissions *are* similar to diesel emissions with respect to cancer effects. If this assumption were false, and aircraft particulates were in fact less carcinogenic than diesel exhaust, then the result would represent a conservative upper bound of the cancer risk posed by aircraft particulate matter. The existing estimate of risk posed by aircraft particulates, i.e. zero, could be considered a lower bound.

Data presented in Attachment W to *Technical Report 4* of the Original EIS/EIR indicate that aircraft contribute approximately 45 percent of total LAX operational PM₁₀ emissions within the LAX local area. If one makes the assumption that the cancer and noncancer toxicity of aircraft PM₁₀ emissions are similar to that of diesel particulates, they would conclude that the cancer and noncancer risks posed by operational PM₁₀ emissions may be underestimated by roughly a factor of 2 in all years/alternatives. The relative contributions of particulate matter to total cancer and noncancer risks in different years/alternatives are not presented in the SEIS/EIR (see Part Four, Section 4g., *infra*).

Health impacts from particulate matter may be underestimated. The Inglewood Unified School District recommends that LAWA recalculate all estimates of noncancer risk, and include in the evaluation the potential adverse health effects that can result from exposure to particulate emissions from jet aircraft.

f. Absolute cancer and noncancer risks are not presented in the EIS/EIR.

Cancer and noncancer risks are quantified solely on an incremental basis relative to 1996 risks, which themselves are not presented. The impression received is that presentation of absolute risk numbers is being avoided, presumably because they are large and may cause alarm.

- g. The EIS/EIR does not consider child-specific noncancer toxicity criteria which have been proposed by the State of California and are intended for use in the risk assessment of California school sites. Noncancer health risks to schoolchildren may be underestimated accordingly.**

Cal/EPA has issued proposed child-specific chronic reference doses (chRfDs) for six chemicals of particular concern to the health of schoolchildren: cadmium, chlordane, heptachlor, heptachlor epoxide, methoxychlor, and nickel (Cal/EPA, *Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(g): Proposed Child-Specific Reference Doses (chRfDs) for School Site Risk Assessment - Cadmium, Chlordane, Heptachlor/Heptachlor Epoxide, and Nickel*. Draft Report. Integrated Risk Assessment Section, Office of Environmental Health Hazard Assessment, June 2003, Exhibit 28). The proposed child-specific RfDs are generally more conservative than the US EPA RfDs used in the EIS/EIR health risk assessment, as shown in the following table.

Chemical	Proposed chRfD (mg/kg-d)	USEPA RfD (mg/kg-d)	Ratio
Cadmium	1 x 10 ⁻⁵	5 x 10 ⁻⁴	50
Chlordane	3.3 x 10 ⁻⁵	5 x 10 ⁻⁴	15
Heptachlor	3 x 10 ⁻⁵	5 x 10 ⁻⁴	17
Heptachlor epoxide	1.3 x 10 ⁻⁵	1.3 x 10 ⁻⁵	1
Methoxychlor	2 x 10 ⁻⁵	5 x 10 ⁻³	250
Nickel	3.7 x 10 ⁻³	2 x 10 ⁻²	5

The proposed chRfDs were developed by Cal/EPA specifically for the protection of schoolchildren and are intended for use in the risk assessment of California school sites. Thus, these toxicity criteria are appropriate for use in the EIS/EIR health risk analysis of noncancer impacts to offsite school children.

As the relationship between reference dose and noncancer health risk (hazard quotient) is linear, use of these chRfD values would result in an increase in the estimated noncancer health risk to school children from each of the listed chemicals, by the amount (ratio) given in the table. For example, the estimated noncancer health risk to school children posed by cadmium would be 50 times greater if the chRfD value were used.

Only one of the six listed chemicals is identified as a chemical of potential concern (COPC) in the EIS/EIR health risk assessment: cadmium. However, use of these RfD values may cause additional chemicals to be added to the group of COPCs. For example, an increase in the estimated health risk from methoxychlor by a factor of 250 may elevate this chemical to the status of potential concern.

At a minimum, the EIS/EIR health risk analysis should consider these toxicity criteria in an uncertainties section, and assess to what extent adoption of these criteria would affect the conclusions of the health risk assessment.

- h. Use of 1996 as basis for determining project significance is not explained and seems illogical.**

Significance of project impacts under build scenarios in future years is evaluated by comparison to 1996 "baseline" conditions and, in the SEIS/EIR, to 2000 conditions. The rationale for this is not clear. To evaluate project impacts for, e.g., Alternative D in 2015, it seems more logical to compare Alternative D 2015 conditions to No Action/No Project 2015 conditions. In this manner, the effects of the project may be directly quantified.

- i. Methodology for establishment of baseline (1996) impacts is poorly defined and highly suspect. All determinations of significance of Alternative D through comparison to 1996 baseline impacts are therefore questionable.**

According to the Original EIS/EIR, 1996/baseline impacts were not estimated directly but rather were derived by adjusting model predictions under the 2005 no-build alternative:

"Baseline conditions were not separately modeled. Instead, air quality for the baseline year (1996) was estimated from results of air dispersion modeling for the No Action/No Project Alternative for horizon year 2005...Thus, emissions estimates for 1996 were derived by subtracting out emissions associated with the No Action/No Project Alternative in 2005" (Original EIS/EIR, p. 4-1007).

The Inglewood Unified School District notes that the 1996 emissions inventory is the basis for all other inventories, including the 2005 No Action/No Project Alternative inventory, and therefore assumes that the final sentence in the above citation is a misstatement. It infers that 1996/baseline chemical concentrations were derived by scaling the chemical concentrations predicted by the air dispersion model for the 2005 No Action/No Project Alternative. The EIS/EIR does not document or support this scaling operation. The Inglewood Unified School District is unaware of any way in which a modeled concentration field may be scaled other than by uniform application of a constant factor (all values in a given chemical concentration field multiplied by the same factor). Therefore, it appears that any source-specific (i.e., spatial) differences between the 1996 and 2005 inventories were lost in the scaling process.

The EIS/EIR does not explain or support the rationale for not simply estimating baseline impacts directly, by using the 1996 inventory as input to the dispersion model. The indirect method apparently employed is inferior to direct modeling of 1996 impacts, because it results in a loss of spatial resolution of chemical emissions and resulting airborne concentrations. As the 1996/baseline impacts are the basis for determination of significance of the project, the process by which these baseline impacts were estimated should be thoroughly described. From the sparse and confusing discussion provided, it appears that the 1996 impacts were roughly fudged. Therefore, the Inglewood Unified School District holds significance determinations based on these 1996 impacts to be generally questionable.

- j. Alternative D post-mitigation incremental cancer risk to adult residents may be greater than 10 per million individuals.**

Table S4.24.1-5 of the SEIS/EIR indicates that the post-mitigation incremental cancer risk to adult residents is 2 per million individuals, below the significance threshold of 10 per million individuals. However, given that (see other comments) 1) cancer risk posed by secondary pollution is ignored, 2) cancer risk posed by aircraft particulate matter is ignored, 3) cancer risk posed by lead is ignored, and 4) the 1996 baseline cancer risk is highly suspect, the actual Alternative D post-mitigation incremental cancer risk may exceed the significance threshold of 10 per million individuals.

- k. Statement that acrolein noncancer risks are substantially overestimated in the EIS/EIR analysis is not supported by the arguments presented.**

"Emissions estimates for acrolein are based on available data that were generated from old aircraft engines not generally in use today and using military fuel that differs from fuel used at LAX" (SEIS/EIR, *Human Health Risk Assessment*, p. 4-615). This statement implies that newer aircraft using civilian fuel emit less acrolein than estimated. However, the implication is not supported by any other information.

"Acrolein is not generally recognized as a significant TAP in the South Coast Air Basin . . ." (p. 4-615). Prior recognition is not relevant or required. Further, this statement is contradicted by results of the USEPA study, which suggest that "hazard indices might fall in the range of 3 to 10 for chronic exposure to acrolein. . ." (SEIS/EIR, *Human Health Risk Assessment*, p. 4-619).

"A recent study near Chicago's O'Hare Airport failed to detect acrolein in essentially all samples taken in communities near the facility. . ." (SEIS/EIR, *Human Health Risk Assessment*, p. 4-615). Without discussion of sampling and analysis methods, especially of comparison of method detection limits to levels of concern, this statement is meaningless.

"The analysis presented for acrolein in the HHRA may substantially overestimate releases, and thus may overestimate possible chronic and acute impacts to human health. . ." (SEIS/EIR, *Human Health Risk Assessment*, p. 4-615). For the reasons noted above, the Inglewood Unified School District does not believe that sufficient evidence is presented in the EIS/EIR to justify this statement that acrolein impacts are overestimated in the HHRA.

- l. Use of different receptor/grid spacing when calculating pre- and post-mitigation impacts prevents assessment of mitigation effectiveness.**

"A greater number of endpoints were assessed for post-mitigation conditions than for pre-mitigation conditions to ensure that the highest post-mitigation impacts were identified. As such, post-mitigation risks and hazard estimates represent conservative estimates which are in some cases greater than pre-mitigation risks. . ." (SEIS/EIR, *Human Health Risk Assessment*, p. 4-617).

Increasing the receptor density does not *ensure* that the highest post-mitigation impacts are identified, it only increases the likelihood that they are identified. The additional data points likely include both lesser and greater values than would be predicted if only the smaller number of endpoints were considered. With both endpoint sets, it is possible, if not likely, that the greatest impacts (highest risk values) are not identified; however, this possibility is lower for the larger, post-mitigation endpoint set.

As noted, estimated post-mitigation risks in some cases are higher than pre-mitigation risks. This apparent increase in risk is likely an artifact caused by the larger number of endpoints used in the post-mitigation modeling. Comparison of pre- and post-mitigation impacts should be made with the same endpoint set (i.e., same group of receptors), to measure mitigation effectiveness.

PART FIVE

THE TRAFFIC IMPACT ANALYSIS IS INADEQUATE

To address traffic impacts of the LAX Master Plan on the Inglewood Unified School District, the SEIS/EIR should identify those locations where project traffic could cause significant impacts. In this regard it is typical for a traffic study to have clearly defined performance criteria with respect to how the study area is defined and the definition of "significant impact" within that study area. While the study area has been expanded since the Original EIS/EIR, it is not clear whether the expanded area of impact within Inglewood has been selected in this manner.

For example, it would seem that major roadway facilities such as Century Boulevard, Arbor Vitae Street and Manchester Boulevard would be affected in some manner by the Master Plan. All of these roadways, directly or indirectly, serve schools within the Inglewood Unified School District, and except for Prairie Avenue/Lennox Boulevard intersection no analysis was carried out east of La Brea Avenue. The traffic study is deficient in not addressing locations in this immediately adjacent area.

Even if the impacts are less than significant, there should have been some evaluation in the SEIS/EIR showing how the study area was selected and indicating findings of significance or no significance on roadways within the Inglewood Unified School District.

1. Lennox Interchange.

The addition of an interchange with I-405 at Lennox Boulevard is being proposed as a mitigation measure for Alternative D. The secondary impacts of this interchange on the Inglewood street system needs to be studied since the accompanying closure of Lennox Boulevard just east of the freeway will divert traffic to parallel streets such as Century Boulevard and Arbor Vitae Street.

2. Other Considerations.

There are numerous other issues related to the impact of Alternative D on the City of Inglewood and hence on the Inglewood Unified School District. Alternative D expands the airport complex to the east, and although the I-405 Freeway acts somewhat as a barrier with respect to direct impacts in Inglewood, there is the potential for indirect impacts that are difficult to quantify and therefore are either not addressed or only briefly addressed in the SEIS/EIR. Some examples are:

a. Freeway Avoidance Traffic.

Most of the freeway and freeway access mitigation measures will need to be the subject of further analysis as Caltrans Project Study Reports are prepared and more detailed designs are formulated. There is no assurance that desired freeway levels of service will be achieved when both project and cumulative impacts are considered. Under such conditions, "freeway avoidance" traffic could impact local streets and some of that freeway avoidance traffic will include airport trips (primarily employee and service related trips rather than air passenger trips). Actual conditions on the Inglewood street system could therefore be worse than portrayed in the SEIS/EIR. Ideally, some provision should be made for monitoring traffic conditions to determine the magnitude of such trips, and to establish some form of "second tier" list of improvements for locations that may be impacted in this manner with trigger points for implementing improvements.

b. Construction.

The SEIS/EIR discusses construction traffic routing as a mitigation measure for project construction. The Inglewood Unified School District should be involved in this process, and to the extent possible, include the Inglewood Unified School District in reviewing construction traffic routing to ensure that minimum impacts occur to schools, particularly those in close proximity to the airport.

c. Phasing.

The phasing of transportation improvements is an important issue. Some discussion is given in the SEIS/EIR based on a conceptual phasing plan for the Master Plan. That phasing will be a complex undertaking, and should be accompanied by a detailed disclosure of impacts and mitigation measures for each phase as the details of the phasing plan emerge. Inglewood's close proximity to the airport makes it vulnerable to any situation in which unanticipated traffic impacts of a particular phase causes problems on the local street system. Such impacts could well exceed those identified for the 2008 and 2015 time frames in the SEIS/EIR.

PART SIX

THE ENROLLMENT IMPACT ANALYSIS IS MISLEADING

The SEIS/EIR discusses the impact of Alternative D on enrollment as follows:

“Due to productivity increases (i.e., the production of more economic output per worker), Alternative D would result in a decrease of approximately 2,657 on-airport employees within the schools study area by 2015. As each on-airport employee is assumed to represent one household, the number of on-airport employee households within the schools study area would, therefore, decline by approximately 2,657.” (SEIS/EIR, *Schools*, Section 4.27, p. 4-764.)

As to student enrollment in the Inglewood Unified School District, the SEIS/EIR states:

“... [T]he maximum enrollment decline estimate ... between 1996/1997 and 2015 would be 225 students in the Inglewood Unified School District.” (SEIS/EIR, *Schools*, Section 4.27, p. 4-765.)

Thus, the SEIS/EIR concludes, this decrease in student enrollment as a result of Alternative D will not result in any impact to the Inglewood Unified School District. This conclusion is wrong.

The use of the 1996/1997 year as a baseline for the purposes of determining the impact on student enrollment is not justified and renders an artificially low result. Since 1996, student enrollment in Inglewood schools has increased by over 800 students. (See, e.g., Original EIS/EIR Response Exhibit 14 to Response, page 58.) Accordingly, is the actual effect of Alternative D upon student enrollment a decrease in over 1,000 students? It is impossible to conclude based upon the very brief analysis of Inglewood Unified School District enrollment in the SEIS/EIR, but this does appear to be the logical conclusion.

Whether the decrease in students is only 225 or in reality over 1,000, the impact on the Inglewood Unified School District will be substantial. The Inglewood Unified School District relies almost exclusively on Average Daily Attendance for its revenue. A loss of 225 students may mean the loss of over \$1,050,000 per year in student generated revenue. Should the decrease in student enrollment actually be over 1,000, it would mean the loss of over \$4,700,000 in student attendance generated annual revenue.

Either of these impacts would translate into significant impacts upon budgeting, employment, maintenance and operations within the Inglewood Unified School District, *must* be studied further, and mitigation measures must be developed to address these impacts.

PART SEVEN

THE SUBSTANTIAL SHIFT IN PROJECT OBJECTIVES REQUIRES LAWA TO EXAMINE AN ADEQUATE RANGE OF PROJECT ALTERNATIVES

Following the events of September 11th terrorist attacks, the basic objectives of the project have significantly shifted to an emphasis on security and safety over expansion. Several statements have been attributed to Mayor Hahn to this effect. However, Mayor Hahn's new objectives are only addressed in one alternative, Alternative D, the only alternative admittedly focused on enhanced safety and security measures.

The 1998 amendments to the CEQA Guidelines emphasized the importance of a clearly written statement of objectives. The following language was added for the requirements of the "project description,"

"A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project."
(14 *California Code of Regulations* 15124(b).)

A discussion of this section by the Governor's Office of Planning and Research provides further insight into this amendment - "Clear project objectives simplify the selection process by providing a standard against which to measure possible alternatives."

The standard by which to judge the range of alternatives required in an EIR is governed by the "rule of reason." 14 *California Code of Regulations* 15126.6(a); *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 565. In this case, LAWA completely changed its focus and objectives for the LAX project, yet only set forth one alternative in the SEIS/EIR to address these objectives. By only addressing one alternative, LAWA has effectively limited the public from meaningful public participation and informed decision making. It precludes the option of selecting a project that addresses the safety and security concerns of LAWA with less of an accompanying environmental justice impact. The notable lack of alternatives does not permit a reasoned choice and does not withstand the CEQA's "rule of reason."

When LAWA presented a 180 degree shift in its basic and central objectives, LAWA was required to comply with CEQA by discussing a reasonable range of alternatives. LAWA's failure to do so is fatal to the SEIS/EIR.

PART EIGHT

THE EIS/EIR VIOLATES CEQA READABILITY REQUIREMENTS

California *Public Resources Code* § 21003 states, in pertinent part:

“The Legislature further finds and declares that it is the policy of the state that:

“(b) Documents prepared pursuant to this division be organized and written in a manner that will be meaningful and useful to decision makers and to the public. . .

“(f) All persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment.”

Both the Original EIS/EIR and the SEIS/EIR violate this Code section.

a. Original EIS/EIR.

The Original EIS/EIR is inaccessible. It is 12,000 pages long and costs thousands of dollars to purchase. The CD version, although less expensive, is only accessible to people with computers. Many poorer residents of the most highly impacted areas do not have that technology. Additionally, the CD version contains many glitches, so entire sections are impossible to read or print. (See, e.g., EIS/EIR, CD Version *Technical Report 4*.)

Second, the Original EIS/EIR is so poorly organized that it is nearly impossible to find all of the pertinent information regarding a topic. Analysis regarding a particular topic is often spread among numerous sections of the “main document.” Several of the so-called “technical reports” contain substantive narrative that is not reflected in the report itself. The “appendices” often contain other important information. The document itself provides no logical explanation as to why its contents are distributed in this manner.

For instance, as expected, the *Noise* section of the Original EIS/EIR contains information regarding the noise impacts of LAX expansion upon Inglewood Unified School District schools. However, the *Noise Technical Report*, thousands of pages later, contains crucial noise impact information that is entirely absent from the *Noise* section of the main document. In addition, the *Noise Technical Report* is not contained on the CD entitled “Technical Reports”. Instead, it is on the “Appendices” CD, and is actually Appendix “D”. The reason for this is entirely unclear.

The *Land Use* section, a thousand pages from the *Noise* section and several thousand pages from the *Noise Technical Report*, essentially states that LAWA will not mitigate noise

impacts identified in the *Noise* section. (EIS/EIR, *Land Use*, Section 4.2, pp. 4-95, 4-96.) These few, critical sentences are not contained in the *Noise* section of the main document, nor the *Noise Technical Report*. This illogical placement of this crucial language suggests an intentional decision to obscure information that would raise "red flags" in respondents.

b. Addition of Supplement to the EIS/EIR.

The SEIS/EIR contains many of the same problems of the Original EIS/EIR. It is thousands of pages long and costs over a thousand dollars to purchase. Consistent with the Original EIS/EIR, the various *Supplemental Noise Technical Reports* and the *Environmental Justice Technical Report* are contained in the "Appendices" rather than with the "Technical Reports," as would make sense. Although the CD version of the document is less expensive, it is not accessible to those impacted citizens of Inglewood who do not have access to a computer and are not trained to utilize the complex programs required to read from the CDs.

In total, the EIS/EIR violate CEQA readability requirements, and are inaccessible to a significant portion of the population impacted by the project that is the subject of the EIS/EIR.

CONCLUSION

The individual and cumulative impacts of the EIS/EIR, including Alternative D, upon the education, health and safety of its students are of substantial concern to the Inglewood Unified School District. By law, LAWA must adequately consider and mitigate these impacts in its EIS/EIR. It fails to do so.

The EIS/EIR fails to adequately analyze the environmental justice, noise, health, pollution, traffic and enrollment impacts of the proposed project upon the Inglewood Unified School District. The EIS/EIR fails to propose adequate mitigation measures for these impacts. Furthermore, the EIS/EIR analysis of the cumulative impacts of the LAX expansion upon the Inglewood Unified School District is inadequate, both due to its own insufficiency and due to the inadequacy of its analyses of the underlying impacts.

For the foregoing reasons, the Inglewood Unified School District respectfully requests that LAWA revise the EIS/EIR to include alternative projects, further impact analysis and site specific mitigation information and proposals regarding the impacts on the Inglewood Unified School District.

TABLE OF EXHIBITS

- Exhibit 15 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," *Executive Order* 12898, February 11, 1994.
- Exhibit 16 Lukas, J.S., DuPree, R.B. and Swing, J.W. *Effects Of Noise On Academic Achievement And Classroom Behavior*. FHWA/CA/DOHS-81/01 Office of Noise Control, California Dept. Of Health Services, Sacramento. 1981.
- Exhibit 17 Cohen S., Krantz, D.S., Evans G.W., Stokols D., and Kelly S., "Aircraft noise and children: Longitudinal and cross-sectional evidence on adaptation to noise and the effectiveness of noise abatement." *Journal of Personality and Social Psychology*. 40: 331-345, 1981 [learning deficits].
- Exhibit 18 Cohen S., Krantz, D.S., Evans G.W. and Stokols D., "Physiological, motivational, and cognitive effects of aircraft noise on children: Moving from the laboratory to the field." *American Psychologist*, 35: 231-243, 1980.
- Exhibit 19 American National Standards Institute, "Acoustical performance criteria design requirements and guidelines for schools." ANSI S12.60-2002.
- Exhibit 20 Evans, G.W. and Lepore, S.J., "Nonauditory effects of noise on children." *Children's Environments*, 10: 31-51, 1993.
- Exhibit 21 Green, K., Pasternack, B. and Shore, R., "Effects of aircraft noise on reading ability of school age children." *Archives of Environmental Health*, 37: 24-31, 1982.
- Exhibit 22 Hygge, S., Evans, G.W., and Bullinger, M., "A prospective study of some effects of aircraft noise on cognitive performance in school children." *Psychological Science*, 13: 469-474, 2002.
- Exhibit 23 Evans, G.W. & Lepore, S.J., "Nonauditory effects of noise on children." *Children's Environments*, 10: 31-51, 1993.
- Exhibit 24 Evans, G.W., Hygge, S. & Bullinger, M., "Chronic noise and psychological stress." *Psychological Science*, 6: 333-338, 1995.
- Exhibit 25 Cohen, S., "Aftereffects of stress on human performance and social behavior: A review of research and theory." *Psychological Bulletin*, 88: 82-108, 1980.
- Exhibit 26 Evans, G.W., "Environmental stress and health." In A. Baum, T. Revenson & J.E. Singer (Eds.), *Handbook of Health Psychology*. Mahwah, NJ: Erlbaum, 2001.
- Exhibit 27 Evans, G.W., Bullinger, M. and Hygge, S., "Chronic Noise Exposure and Physiological Response: A Prospective Study of Children Living Under Environmental Stress." *Psychological Science*, Vol.9, No.1, January 1998.
- Exhibit 28 Office of Environmental Health Hazard Assessment of California Environmental Protection Agency, "Draft Report: Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(g)." June 2003.

Presidential Documents

Title 3—

Executive Order 12898 of February 11, 1994

The President

Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1-1. Implementation.

1-101. *Agency Responsibilities.* To the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.

1-102. *Creation of an Interagency Working Group on Environmental Justice.*

(a) Within 3 months of the date of this order, the Administrator of the Environmental Protection Agency ("Administrator") or the Administrator's designee shall convene an interagency Federal Working Group on Environmental Justice ("Working Group"). The Working Group shall comprise the heads of the following executive agencies and offices, or their designees: (a) Department of Defense; (b) Department of Health and Human Services; (c) Department of Housing and Urban Development; (d) Department of Labor; (e) Department of Agriculture; (f) Department of Transportation; (g) Department of Justice; (h) Department of the Interior; (i) Department of Commerce; (j) Department of Energy; (k) Environmental Protection Agency; (l) Office of Management and Budget; (m) Office of Science and Technology Policy; (n) Office of the Deputy Assistant to the President for Environmental Policy; (o) Office of the Assistant to the President for Domestic Policy; (p) National Economic Council; (q) Council of Economic Advisers; and (r) such other Government officials as the President may designate. The Working Group shall report to the President through the Deputy Assistant to the President for Environmental Policy and the Assistant to the President for Domestic Policy.

(b) The Working Group shall: (1) provide guidance to Federal agencies on criteria for identifying disproportionately high and adverse human health or environmental effects on minority populations and low-income populations;

(2) coordinate with, provide guidance to, and serve as a clearinghouse for, each Federal agency as it develops an environmental justice strategy as required by section 1-103 of this order, in order to ensure that the administration, interpretation and enforcement of programs, activities and policies are undertaken in a consistent manner;

(3) assist in coordinating research by, and stimulating cooperation among, the Environmental Protection Agency, the Department of Health and Human Services, the Department of Housing and Urban Development, and other agencies conducting research or other activities in accordance with section 3-3 of this order;

(4) assist in coordinating data collection, required by this order;

(5) examine existing data and studies on environmental justice;

(6) hold public meetings as required in section 5-502(d) of this order; and

(7) develop interagency model projects on environmental justice that evidence cooperation among Federal agencies.

1-103. *Development of Agency Strategies.* (a) Except as provided in section 6-605 of this order, each Federal agency shall develop an agency-wide environmental justice strategy, as set forth in subsections (b)-(e) of this section that identifies and addresses disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The environmental justice strategy shall list programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to, at a minimum: (1) promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations; (2) ensure greater public participation; (3) improve research and data collection relating to the health of and environment of minority populations and low-income populations; and (4) identify differential patterns of consumption of natural resources among minority populations and low-income populations. In addition, the environmental justice strategy shall include, where appropriate, a timetable for undertaking identified revisions and consideration of economic and social implications of the revisions.

(b) Within 4 months of the date of this order, each Federal agency shall identify an internal administrative process for developing its environmental justice strategy, and shall inform the Working Group of the process.

(c) Within 6 months of the date of this order, each Federal agency shall provide the Working Group with an outline of its proposed environmental justice strategy.

(d) Within 10 months of the date of this order, each Federal agency shall provide the Working Group with its proposed environmental justice strategy.

(e) Within 12 months of the date of this order, each Federal agency shall finalize its environmental justice strategy and provide a copy and written description of its strategy to the Working Group. During the 12 month period from the date of this order, each Federal agency, as part of its environmental justice strategy, shall identify several specific projects that can be promptly undertaken to address particular concerns identified during the development of the proposed environmental justice strategy, and a schedule for implementing those projects.

(f) Within 24 months of the date of this order, each Federal agency shall report to the Working Group on its progress in implementing its agency-wide environmental justice strategy.

(g) Federal agencies shall provide additional periodic reports to the Working Group as requested by the Working Group.

1-104. *Reports to the President.* Within 14 months of the date of this order, the Working Group shall submit to the President, through the Office of the Deputy Assistant to the President for Environmental Policy and the Office of the Assistant to the President for Domestic Policy, a report that describes the implementation of this order, and includes the final environmental justice strategies described in section 1-103(e) of this order.

Sec. 2-2. *Federal Agency Responsibilities for Federal Programs.* Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin.

Sec. 3-3. Research, Data Collection, and Analysis.

3-301. Human Health and Environmental Research and Analysis. (a) Environmental human health research, whenever practicable and appropriate, shall include diverse segments of the population in epidemiological and clinical studies, including segments at high risk from environmental hazards, such as minority populations, low-income populations and workers who may be exposed to substantial environmental hazards.

(b) Environmental human health analyses, whenever practicable and appropriate, shall identify multiple and cumulative exposures.

(c) Federal agencies shall provide minority populations and low-income populations the opportunity to comment on the development and design of research strategies undertaken pursuant to this order.

3-302. Human Health and Environmental Data Collection and Analysis. To the extent permitted by existing law, including the Privacy Act, as amended (5 U.S.C. section 552a): (a) each Federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information assessing and comparing environmental and human health risks borne by populations identified by race, national origin, or income. To the extent practical and appropriate, Federal agencies shall use this information to determine whether their programs, policies, and activities have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations;

(b) In connection with the development and implementation of agency strategies in section 1-103 of this order, each Federal agency, whenever practicable and appropriate, shall collect, maintain and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding facilities or sites expected to have a substantial environmental, human health, or economic effect on the surrounding populations, when such facilities or sites become the subject of a substantial Federal environmental administrative or judicial action. Such information shall be made available to the public, unless prohibited by law; and

(c) Each Federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding Federal facilities that are: (1) subject to the reporting requirements under the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. section 11001-11050 as mandated in Executive Order No. 12856; and (2) expected to have a substantial environmental, human health, or economic effect on surrounding populations. Such information shall be made available to the public, unless prohibited by law.

(d) In carrying out the responsibilities in this section, each Federal agency, whenever practicable and appropriate, shall share information and eliminate unnecessary duplication of efforts through the use of existing data systems and cooperative agreements among Federal agencies and with State, local, and tribal governments.

Sec. 4-4. Subsistence Consumption of Fish and Wildlife.

4-401. Consumption Patterns. In order to assist in identifying the need for ensuring protection of populations with differential patterns of subsistence consumption of fish and wildlife, Federal agencies, whenever practicable and appropriate, shall collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. Federal agencies shall communicate to the public the risks of those consumption patterns.

4-402. Guidance. Federal agencies, whenever practicable and appropriate, shall work in a coordinated manner to publish guidance reflecting the latest scientific information available concerning methods for evaluating the human health risks associated with the consumption of pollutant-bearing fish or

wildlife. Agencies shall consider such guidance in developing their policies and rules.

Sec. 5-5. Public Participation and Access to Information. (a) The public may submit recommendations to Federal agencies relating to the incorporation of environmental justice principles into Federal agency programs or policies. Each Federal agency shall convey such recommendations to the Working Group.

(b) Each Federal agency may, whenever practicable and appropriate, translate crucial public documents, notices, and hearings relating to human health or the environment for limited English speaking populations.

(c) Each Federal agency shall work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public.

(d) The Working Group shall hold public meetings, as appropriate, for the purpose of fact-finding, receiving public comments, and conducting inquiries concerning environmental justice. The Working Group shall prepare for public review a summary of the comments and recommendations discussed at the public meetings.

Sec. 6-6. General Provisions.

6-601. Responsibility for Agency Implementation. The head of each Federal agency shall be responsible for ensuring compliance with this order. Each Federal agency shall conduct internal reviews and take such other steps as may be necessary to monitor compliance with this order.

6-602. Executive Order No. 12250. This Executive order is intended to supplement but not supersede Executive Order No. 12250, which requires consistent and effective implementation of various laws prohibiting discriminatory practices in programs receiving Federal financial assistance. Nothing herein shall limit the effect or mandate of Executive Order No. 12250.

6-603. Executive Order No. 12875. This Executive order is not intended to limit the effect or mandate of Executive Order No. 12875.

6-604. Scope. For purposes of this order, Federal agency means any agency on the Working Group, and such other agencies as may be designated by the President, that conducts any Federal program or activity that substantially affects human health or the environment. Independent agencies are requested to comply with the provisions of this order.

6-605. Petitions for Exemptions. The head of a Federal agency may petition the President for an exemption from the requirements of this order on the grounds that all or some of the petitioning agency's programs or activities should not be subject to the requirements of this order.

6-606. Native American Programs. Each Federal agency responsibility set forth under this order shall apply equally to Native American programs. In addition, the Department of the Interior, in coordination with the Working Group, and, after consultation with tribal leaders, shall coordinate steps to be taken pursuant to this order that address Federally-recognized Indian Tribes.

6-607. Costs. Unless otherwise provided by law, Federal agencies shall assume the financial costs of complying with this order.

6-608. General. Federal agencies shall implement this order consistent with, and to the extent permitted by, existing law.

6-609. Judicial Review. This order is intended only to improve the internal management of the executive branch and is not intended to, nor does it create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any person. This order shall not be construed to create any right to judicial review involving the compliance or noncompliance

of the United States, its agencies, its officers, or any other person with this order.

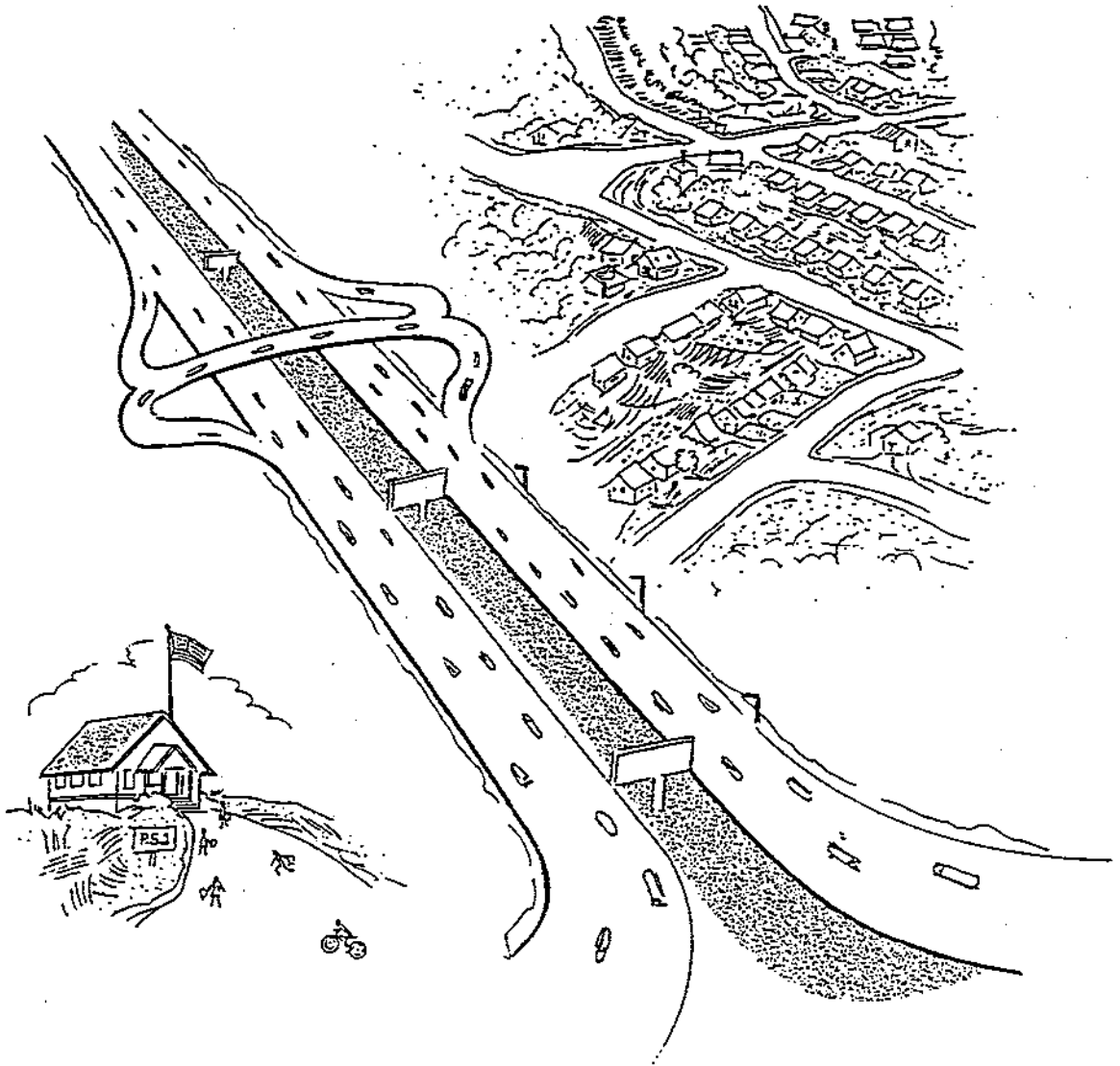
William Clinton

THE WHITE HOUSE,
February 11, 1994.

[FR Citation 59 FR 7629]

SAL00017

Effects of Noise on Academic Achievement and Classroom Behavior



TECHNICAL REPORT STANDARD TITLE PAGE

1. REPORT NO. FHWA/CA/DOHS-81/01		2. GOVERNMENT ACCESSION NO.		3. RECIPIENT'S CATALOG NO.	
4. TITLE AND SUBTITLE Effects of noise on Academic Achievement and Classroom Behavior				5. REPORT DATE September 1981	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) J.S. Lukas, R.B. DuPree, J.W. Swing				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Office of Noise Control California Department of Health Services 2151 Berkeley Way, Berkeley, California 94704				10. WORK UNIT NO.	
				11. CONTRACT OR GRANT NO. I.A.A. 19-7165	
12. SPONSORING AGENCY NAME AND ADDRESS California Department of Transportation Sacramento, California 95807				13. TYPE OF REPORT & PERIOD COVERED Final. 1977-1981	
				14. SPONSORING AGENCY CODE	
15. SUPPLEMENTARY NOTES This study was performed in cooperation with the U.S. Department of Transportation, Federal Highway Administration.					
16. ABSTRACT <p>There is a significant acoustical difference between State and Federal rules governing implementation of noise abatement programs in schools impacted by freeway noise. The magnitude of that difference suggests the rules may have been based upon empirically weak grounds. This study of third and sixth grades of 15 elementary schools in the Los Angeles Unified School District indicates that California's rule is more accurate than is the Federal rule in predicting the effects of noise on reading achievement.</p> <p>Based upon this study and another independent study, a revision of the existing rule is recommended. The design criterion for traffic noise levels inside classrooms should be $L_{eq} = 58$ dB C-weighted. This criterion level is approximately 7 dB less than the current Federal standard and about 6 dB higher than the California standard.</p> <p>Because of the apparent synergistic effects of community and classroom noise levels on academic achievement, in order for the above classroom noise limit to be effective in preventing degradation of achievement from noise, efforts will be required to contain community noise levels so as not to exceed $L_1 = 65$ dBA.</p>					
17. KEY WORDS Schools, community noise, freeway, academic achievement			18. DISTRIBUTION STATEMENT No restrictions. This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161		
19. SECURITY CLASSIF. OF THIS REPORT Unclassified		20. SECURITY CLASSIF. OF THIS PAGE Unclassified		21. NO. OF PAGES	22. PRICE

STATE OF CALIFORNIA
HEALTH AND WELFARE AGENCY
Mario Obledo, Secretary

DEPARTMENT OF HEALTH SERVICES
Beverlee A. Myers, Director

September 1981

**Effects of Noise on
Academic Achievement and Classroom Behavior**

Study Conducted by.....Office of Noise Control
Epidemiological Studies Section
Preventive Medical Services Branch

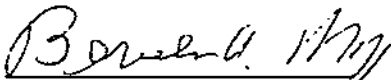
Under the Supervision ofA.E. Lowe

Principal InvestigatorJerome S. Lukas, Ph.D.

Co-Investigators.....Russell B. DuPree and
Jack W. Swing, P.E.

Report Prepared by.....Jerome S. Lukas, Ph.D.

APPROVED BY


BEVERLEE A. MYERS, Director
Department of Health Services

SAL00017

NOTICES

Funding for this study was provided by the Federal Highway Administration through the California Department of Transportation (I.A.A. 19-7165) and by the California Department of Health Services. Assistance of Juanita Oñate and Robert Heald in collection and analysis of the classroom data, of the Environmental Investigation Section, District 7, of Caltrans in collecting the community noise and air quality data, and of Dee Nichols for typing is acknowledged with gratitude.

The contents of this report reflect the views of the Office of Noise Control of the California Department of Health Services which is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. While this report contains useful information and advances the state of knowledge concerning the relationship between classroom noise and academic achievement, the report may not constitute an adequate basis for changing either the California or Federal regulations regarding acceptable noise levels in classrooms at this time. This report does not constitute a standard, specification, or regulation.

Neither the State of California nor the United States Government endorse products or manufacturers. Trade or manufacturers' names appear herein only because they are considered essential to the objective of this document.

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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
acres	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds (short tons (2000 lb))	4.5	kilograms	kg
		0.3	tonnes	t
VOLUME				
tblsp	tablespoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³

TEMPERATURE (exact)

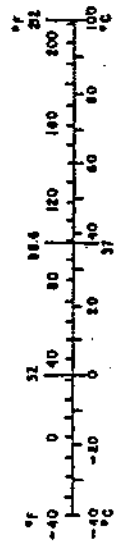
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
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Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.39	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
in	inches	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	acres
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	short tons
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	cups	c
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³

TEMPERATURE (exact)

°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F
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* 1 in x 2 3/4 inch (1). For other exact conversions and more detailed tables, see NBS Spec. Publ. 286, Units of Weight and Measures, Price 12.75, SO Catalog No. C13.10-286.

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Final Report

Effects of Noise on Academic Achievement and Classroom Behavior

Jerome S. Lukas, Russell B. DuPree, and Jack W. Swing

Introduction

Some studies have suggested that noise from external sources affects teachers' and childrens' behavior and childrens' achievement in school. For example, Crook and Langdon,¹ in a study of schools exposed to aircraft noise, found that teachers typically paused in their discourses when peak noise levels reached 80 dBA, even though voice levels were raised to compensate for the increased noise levels. With respect to academics, Bronzaft and McCarthy² found that children exposed to elevated train noise at peak levels of about 90 dBA were three to four months behind their schoolmates in quieter classrooms in reading. Cohen, et al³ reported a similar result in children exposed to aircraft noise. An unpublished preliminary study by the California Department of Health Services obtained results similar to those of Bronzaft and McCarthy and Cohen, et al. Our study suggested that reading achievement of third and sixth graders in "noisy" schools⁴ was poorer than that of socioeconomically comparable students in "quiet" schools.

The above study raised more questions than it answered. For example, because school noise levels were unknown, we assumed that all classrooms in "noisy" schools were equally noisy, while in "quiet" schools they were equally quiet. In addition, we assumed that community noise levels were comparable. Perhaps proximity to freeways was correlated with high levels of other pollutants—lead, carbon monoxide, nitrous oxide, etc., and these may explain the difference in reading ability. Or, more simply, our results may have been due to an unique combination of schools.

In contrast to the characteristics of noise that might be expected in schools adjacent to freeways, in the other studies different levels, durations, periodicities, and sources of noise were observed. Hence, the results may not be applicable to the freeway and traffic situations found in cities.

This lack of scientific data is in part responsible for the existence of two different rules governing implementation of a noise abatement program for schools adjacent to freeways. California law states that noise abatement must occur when the noise level inside the classroom exceeds 50 dBA. In contrast, the federal program becomes operational when the noise level reaches an $L_{10}=55$ dBA. This is equivalent to about 63 dBA⁴ under California's rule. Thus, there is a clear need to determine which of these rules is more appropriate.

The study described below was designed to examine the extent to which exposure to freeway noise affects children in school and to determine a criterion noise level for a school noise abatement program. The effects investigated were both behavioral and academic. We tentatively hypothesized that there would be correlations between external noise levels, behavioral effects,

1. A list of references and technical notes in numerical order is appended.

⁴"Noisy" schools were defined as schools adjacent to freeways that qualified for noise abatement work by State criteria (see below), while "quiet" schools were those nearest each "noisy" school (usually within one-half mile) but further from the freeway.

and academic achievement and that degradation of classroom behavior may explain, at least in part, reductions in academic achievement.

In addition, measures of air quality were obtained for eight of the schools under study and were selected according to (a) their proximity to the freeway, (b) their location with respect to the freeway and prevailing winds, and (c) the topography of the greater Los Angeles area. These data were used to determine roughly whether the schools studied were comparable with respect to air quality.

Method

A. Selection of Schools

The so-called "noisy" schools were selected because they were located adjacent to freeways, and because measurements by the California Department of Transportation indicated that peak noise levels in the worst classrooms exceeded 60 dBA. In addition, corrective noise abatement work was scheduled after completion of our study. It should be noted that CalTrans' noise abatement program began long before the study. Thus, we were unable to study the noisiest schools (peak levels above 80 dBA) and if we had, perhaps the effects would have spanned a greater range than those to be shown subsequently.

Two criteria were used to select the quiet schools. In general, we selected the school closest to each noisy school, but the quiet school was further from the freeway. It was assumed on the basis of the preliminary study mentioned above, that this technique would result in socioeconomically comparable "noisy" and "quiet" schools. The second criterion involved use of the teachers' estimates of parental employment to assure greater comparability. These estimates of parental employment were obtained as follows. Each year the State Department of Education requires that third and sixth grade students be administered standard tests in reading and mathematics. This test is the California Assessment Program, referred to hereafter as the CAP. The teacher fills out an information form for each child which includes a categorized question about parental occupation. The categories are: 0—Unskilled or Welfare; 1—Skilled and Semi-skilled; 2—Semi-professionals, Clerks, Sales and Technicians; 3—Executives, Professionals, and Managers. The Socioeconomic Index (S.E.I.) for a school is the average of the students tested.

This index was a rough estimate at best. Nevertheless, it was all that was available and was used for the initial selection of schools. Subsequently, more precise data were made available from several sources. These were used to develop other indicators of socioeconomic status that are shown in Table 1. These indicators were calculated from the "block data" of the U.S. Census, some data provided by the Los Angeles City Planning Department, and by a private survey company. Details of the procedure for estimating the socioeconomic variables can be found in Appendix A.

Three matching quiet schools are missing in Table I. Several reasons accounted for this. One school principal refused to participate in the study because his school was not noisy. Another school was dropped when after driving through the area we found relatively few homes in an area devoted to heavy commerce which is serviced frequently by large trucks and trailers. Unpredictable delays in our schedule were caused by school holidays, and non-academic preparations for festive events such as Mothers' and Fathers' Days, Halloween, Valentine's Day, or teacher training and parent-teacher conference days. Finally, contractual and financial constraints required completion of our classroom observations in the 1978-79 school year.

Table I

SOME SOCIOECONOMIC INDICATORS FOR NOISY AND MATCHED QUIET SCHOOLS

NOISY SCHOOLS											QUIET SCHOOLS										
School Code No.	S.E.I.	Median Family Income	% Poverty	% Unemp.	% Black	% Hispanic	% White	% N.E.S.		No. of Students	School Code No.	S.E.I.	Median Family Income	% Poverty	% Unemp.	% Black	% Hispanic	% White	% N.E.S.		No. of Students
								1	2										1	2	
6002	2.01 1.96	10,337	20.05	8.36	0.7	63.9	7.9	15.5	0.9	570/116	6893	2.01 2.12	11,050	22.92	12.01	1.6	64.6	15.3	21.3	1.1	426/94
7214	2.01 2.00	12,862	17.77	—	26.5	41.7	12.6			593/185	8501	— 2.05	10,526	11.52	—	8.6	36.9	26.7	4.6	1.7	547/108
7651	1.54 1.57	7,207	18.16	—	1.6	96.5	1.9	31.1	5.2	1,141/135	9004	1.44 1.44	6,292	18.45	—	84.4	15.6	0.0	1.8	0.0	800/245
7941	1.41 1.52	9,119	27.61	10.19	0.2	98.3	0.7	53.9	9.1	1,104/241											
8071	1.69 1.56	9,008	26.0	14.31	84.5	14.2	0.8	2.4	1.1	716/85	5747	1.53 1.44	9,987	25.13	12.65	79.3	18.2	0.1	2.3	1.5	437/21
9095	1.41 1.33	7,457	33.11	12.65	3.5	92.0	0.9	67.9	1.9	691/162											
9251	1.45 1.45	7,334	23.48	16.69	85.0	14.8	0.1	1.0	0.0	728/197	6174	1.51 1.50	8,473	31.35	16.54	75.5	22.3	0.2	6.2	3.3	1,267/274
9825	— 1.21	8,469	26.14	11.01	0.0	99.7	0.3	27.3	3.9	351/77											
9889	1.52 1.51	7,489	33.38	16.08	41.7	58.0	0.2			905/194	9558	1.32 1.56	6,338	41.92	20.13	37.9	61.9	0.2	20.9	0.7	1,183/28

S.E.I.: Socioeconomic Index. An average of teachers' rankings of parental occupation, where 0 is welfare or unskilled laborer, 1 is skilled or semi-skilled, 2 is semi-professionals, clerks, sales and technicians, and 3 is executives, professionals, and managers. To indicate variability in the Index, the top number is for 3rd grades in 1974/75, and the bottom number is for the same grades in 1975/76. A dash indicates data were not available.

Median Family Income: Estimated as described in Appendix A.

% Poverty: Percentage of families in poverty, based on average household size of 3.67 individuals - the U.S. Average. This corresponds to an income level of \$6,180, according to the U.S. Bureau of the Census for the year 1978. See Appendix A.

% Unemp.: Percentage of employable persons who are unemployed. See Appendix A.

% Black, Hispanic, and White Students: Another category, "Asian/Pacific Islander", was excluded. The percentages should add to 100%, and the difference between 100% and the sum will account for Asians/Pacific Islanders because the number of American Indians or Alaskan natives was, at most, 6 or 1.4% at school 6893. Typically, there were no or only a fraction of a percent of American Indians or Alaskan natives at these schools. Data provided by the Los Angeles Unified School District.

% N.E.S.: Non-English Speaking. The percentage of children in the 3rd and 6th grades who did not speak English with native-born fluency. In most schools these children were recent immigrants of Hispanic origin. No. 1 refers to children of "limited" ability in English, and No. 2 are non-English speaking.

No. of Students: No. in school/no. tested in 3rd 6th grades.

Comparison of the indicators in Table I suggests that our matching of schools produced roughly comparable sets of noisy and quiet schools. This assessment of comparability is correct if one accepts differences in racial composition of up to 10 percentage points or differences of more than \$1,000 in Median Family Income as not being significant. For example, in schools 9251 and 6174, the noisy school had about 10 percent more Blacks and fewer Hispanics (about 8 percentage points), and the latter school's families had \$1,000 more income yearly than did the parents of school 9251, although the unemployment rates were almost equal. Note also that despite the higher Median Family Income for school 6174, this school had a larger percentage of families in poverty than did school 9251.

Schools 7651 and 9004 were very dissimilar with respect to racial composition. These schools were initially matched on the basis of S.E.I. alone, without regard to location. In subsequent analyses, these schools were not paired.

In the aggregate, the various socioeconomic indicators suggest that the schools studied might be called minority schools because of the disproportionately large numbers of Black or Hispanic students. For purposes of comparison, the distribution of racial and ethnic groups in all of the Los Angeles Unified School District's elementary schools in the Fall of 1978 follows: American Indian or Alaskan Native, 0.5%; Black, 22.7%; Asian or Pacific Islander, 6.4%; of Hispanic origin, 46.3%; White, 24.9%. Because of the relatively high percentages of unemployed and families in poverty, as shown in Table I, our group of schools might also be called poor.

It may be concluded that the results of the study are applicable to schools of racial, ethnic, and economic comparison similar to those shown. The results may not be applicable to schools with much larger percentages of White or Asian students.

A final caution about interpretation of the Non-English-Speaking (N.E.S.) category is warranted. The decision to test or not to test a student with limited skills in English is left to the school staff. In some cases, teachers or principals may be interested in how well some or all the children are doing academically and may require tests of all, regardless of language limitations. Others may think that because some children are so poor in English, testing would be of little value, and only "Category 1" children are tested. The test score rosters contain information only about children who are tested. Thus, they reflect teacher selection of students who should be tested. The numbers should not be interpreted as reflecting relative fluency in English in the various schools. For purposes of analysis of the academic data, we have treated the children who spoke English fluently separately from those of less fluency as defined by N.E.S. Categories 1 and 2.

1. Schools and Classrooms Excluded

As a rule, we excluded schools that were part of a newly-established bussing program and classrooms that did not have full-time teachers. The behavioral data (but not achievement or noise data) from school 7214 were excluded from analysis because it was the first school studied (it was studied in the 1977 school year) and was used to test and refine our procedures. It is unfortunate that this particular school was chosen for this purpose, because it is the nearest match for school 8501.

Almost all of the principals and teachers were most cooperative, although some were suspicious initially or had reservations about the purposes of the study. Because participation was voluntary, we did not coerce teachers; rather, we used persuasion. Generally we met first with the principals, explained the program, obtained information regarding the number and locations of the third and sixth grades, teachers' names, and the number of children in the school. At this meeting we also set up a tentative schedule for our work in the school and for meeting with the teachers involved. Prior to meeting with the teachers, they were sent a brief description of the study (see Appendix B). At the meeting, this description was elaborated,

discussed, and all questions were answered. Despite these efforts, a few teachers refused to participate in the study. Some refused at the meeting, a few upon our entry into the classrooms to begin work, and some became ill on their scheduled days. If we could reschedule to accommodate the illness, we did; if not and a substitute teacher was used, the data were excluded. We also excluded data from classrooms that were almost completely out-of-control, or if most of the day(s) was spent at rehearsals, preparation for dances, preparing Valentines, Christmas decorations, etc. Occasionally the equipment malfunctioned.

Table II lists the number of classrooms and the number of days during which we obtained usable data. In some cases, usable data were obtained for a portion of the day—such as during a period devoted to mathematics. Such instances are not discriminated in the table.

It will be noted that in some classrooms we obtained data during more than three days. Typically, this occurred when a teacher of another classroom decided not to participate or became ill. Rather than wasting a day, we extended the observation period for a given classroom, if that teacher permitted. It was thought this technique would result in more accurate estimates of classroom behavior, particularly as they relate to noise levels.

2. Classrooms Combined

As will be shown subsequently, children who were not fluent in English consistently performed less well on the achievement tests than did children fluent in English. Thus, the achievement data of the two groups of children had to be analyzed separately.

In the classrooms studied, the numbers of English fluent and non-fluent children varied with the language skills of the teacher, particularly in schools with large Hispanic populations. This student distribution problem became apparent after we had observed most of the classrooms in the second school and became very clear after we had obtained the achievement test results that identified the non-English speaking students in each classroom. The reason is that the number and location of Spanish-speaking teachers does not correspond to the number of Spanish-speaking students. Thus, English-speaking students typically are taught by English-speaking teachers, whereas bilingual teachers have predominantly English-weak and non-English-speaking students.

For obvious reasons, it is invalid to perform statistical comparisons based upon samples of one or two students. Thus, we were forced to combine some data. Data from two classrooms were combined if their exposures to external noise sources were either found to be or were expected to be comparable or within 2 dB; in most cases these were adjacent classrooms. All of the classrooms, either in combination or singly, had an N of 5 or more (mean=17.2, σ =7.2). Although an N of 5 is admittedly small, the acoustics of a particular school's location or construction would not permit combination of more classrooms as being representative of a particular noise exposure. In the few cases where student numbers were less than 2 and where classroom noise levels were not comparable, the data were deleted.

B. Noise in the Communities

The fact that children are exposed to noise in their non-school environments as well as in their schools is indisputable. The problem for the study described herein is to discern the extent to which noise levels in the schools affect childrens' academic achievement independently of their non-school exposures. That achievement might be related to noise exposures in the non-school environment was suggested by Cohen, Glass and Singer⁵. They examined the reading abilities of socioeconomically comparable children attending

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Table II

NUMBER OF OBSERVATION DAYS DURING WHICH
USABLE DATA WERE OBTAINED

NOISY SCHOOLS					QUIET SCHOOLS				
School Code No.	Grade	No. of Class-rooms	Total Obs. Days	Added*	School Code No.	Grade	No. of Class-rooms	Total Obs. Days	Added
<u>6802</u>	3	2	5	0	<u>6893</u>	3	1	3	2
	6	2	6	0		6	2	6	0
<u>7214</u>	3	3		3	<u>8501</u>	3	2	6	1
	6	3		3		6	2	6	0
<u>7651</u>	3	2	6	1	<u>9004</u>	3	3	9	2
	6	2	6	2		6	3	8	0
<u>7941</u>	3	6	18	0					
	6	3	13	0					
<u>8071</u>	3	1	3	0	<u>5747</u>	3	3	9	1
	6	0	0	4		6	3	9	0
<u>9095</u>	3	3	9	2					
	6	3	9	0					
<u>9251</u>	3	3	9	2	<u>6174</u>	3	2	6	4
	6	4	12	0		6	4	10	1
<u>9825</u>	3	1	3	2					
	6	1	3	0					
<u>9889</u>	3	3	9	2	<u>9558</u>	3	6	18	0
	6	3	9	0		6	5	12	0

*Added: Number of classrooms that were not observed, but for which academic achievement data were used in some analyses.

the same schools and residing in the same New York apartment building. They found that children living on the noisier lower floors with closer proximity to a freeway had reading levels lower than those children residing on the higher floors.

1. Method

The Noise Monitoring Survey, Class II, as developed and described by Wyle Research,⁶ was used. It is described briefly below and Appendix C describes the survey techniques in greater detail.

Students were assigned to a particular school if they lived within a distance of 1/4 to 1/2 mile of the school. Using maps of these "feeder areas" for each school, the area was subdivided into five or six locations that would estimate community noise levels considering local traffic patterns, noise sources, and the pattern of residences. These are called "spatial sampling units". Once the spatial sampling units for a given school were localized, the principal or a representative of the community was asked to provide the names, addresses, and telephone numbers of volunteers in each unit who would permit us to set up the equipment at their homes. The research group subsequently met with the volunteers, explained the study and what was expected of them, described the equipment, and arranged for an equipment set-up date. Volunteers were paid \$5.00 for each day the equipment was at their homes. Because volunteers were used, the sites were not always where we would have wished. They may have been, for example, at most a block from the ideal location. Nevertheless, the sites are believed to be representative of the sampling units.

Microphone masts were attached to the plumbing vent pipes atop the homes, and the microphones were located at the top of the mast about 6 feet above the roof. Every effort was made to prevent shielding of microphones by roof peaks and chimneys. Roofs were used to prevent shielding by adjacent buildings and to preclude vandalism.

At each sampling site, a Type 1945 Gen Rad Community Noise Level Monitor provided samples during most of the 24-hour day. A copy of a completed Community Noise Survey Data Sheet is provided as Figure 10 in Appendix C. It shows the sampling periods used throughout the day and night and the noise level indices that were recorded.

In addition to the sampling procedure with the Gen Rad 1945 at fixed sites, a Bolt Beranek and Newman Model 614 Portable Noise Monitor or a Gen Rad 1945 were used at selected "roving sites". Roving sites—two or three at each school—were used to provide better coverage of the sampling units, to corroborate data obtained at the fixed sites or, in lieu of fixed sites, if volunteers were unavailable in a particular sampling unit. Sampling durations (typically 1/2 hour) at the roving sites were necessarily shorter than those shown on the Community Noise Survey Data Sheet, but did occur within the time periods shown.

2. Community Noise Levels⁷

The community noise levels are described and discussed here rather than in the Results section because they are relevant to the comparability of the schools and are similar to socioeconomic factors.

Shown in Table III are several measures of noise levels in communities providing children to the schools. School 9251 may be compared with 6174 and 9004 as was discussed on page 3, while the four largely Hispanic schools are shown at the bottom of the table.

Table III

A-WEIGHTED NOISE LEVELS IN COMMUNITIES PROVIDING CHILDREN TO "NOISY" AND "QUIET" SCHOOLS

NOISY SCHOOLS						QUIET SCHOOLS					
School Code No.	L ₁ [*]	L ₁₀	L ₉₉	L _{NP}	L _{eq 24}	School Code No.	L ₁	L ₁₀	L ₉₉	L _{NP}	L _{eq 24}
6802 \bar{x}	69.0	62.4	54.1	66.0	60.7	6893 \bar{x}	66.6	56.6	41.7	64.1	56.9
s	3.7	4.3	4.8	4.4	3.6	s	6.4	7.4	4.7	10.5	5.6
7214 \bar{x}	66.8	59.9	49.7	64.2	59.0	8501 \bar{x}	65.9	58.4	47.3	63.6	57.3
s	6.3	7.0	6.9	7.7	5.2	s	4.5	5.5	4.4	7.5	3.7
8071 \bar{x}	69.9	62.8	54.6	66.0	62.3	5747 \bar{x}	65.9	58.0	45.9	63.4	56.3
s	5.5	4.5	6.0	4.4	3.4	s	4.1	5.9	6.0	6.9	3.8
9251 \bar{x}	68.4	61.7	51.7	66.1	59.5	6174 \bar{x}	72.4	65.3	51.1	72.9	63.9
s	3.0	4.0	4.8	4.1	3.1	s	6.3	7.4	8.7	9.0	6.9
						9004 \bar{x}	72.1	64.3	48.8	72.0	62.3
						s	3.3	4.2	5.8	5.5	2.7
9889 \bar{x}	70.7	63.6	51.7	69.0	62.7	9558 \bar{x}	70.8	63.4	50.3	70.2	59.9
s	4.3	5.1	6.9	5.4	3.8	s	3.4	2.3	3.4	5.6	2.6
7651 \bar{x}	70.5	63.4	52.0	68.4	60.8	Schools, primarily Hispanic, for which we have no matched Quiet schools.					
s	5.5	5.9	5.8	6.7	1.5						
7941 \bar{x}	63.5	58.1	51.5	60.6	56.7						
s	3.2	2.6	2.3	2.8	2.6						
9095 \bar{x}	72.2	67.7	58.2	71.9	64.7						
s	4.4	4.5	5.6	4.9	4.1						
9285 \bar{x}	74.0	68.0	57.1	72.9	67.5						
s	6.0	6.4	6.7	6.8	4.2						

*L₁, L₁₀, L₉₉ and L_{NP} are averages over all sites, both fixed and roving (see Appendix C), throughout each community. The measurements occurred during Morning Rush Hours, Midday, Evening and Night.

L_{NP} for each measurement period = L_{eq} + (L₁₀ - L₉₀), and

L_{eq 24} = Logarithmic averages of levels measured during the four periods.

By and large, the differences between the "noisy" and "quiet" neighborhoods are neither consistent nor remarkably large. Indeed, some so-called quiet neighborhoods are noisier than their adjacent noisy neighborhoods (e.g., schools 9251 and 6174). Maps and observation of the areas indicate that local traffic patterns and the types of traffic are the cause. For example, although school 9251 is adjacent to a freeway, there is almost no truck traffic through its feeder area. In contrast, feeder areas for schools 6174 and 9004 are intersected by one or two major thoroughfares carrying frequent automobile and truck traffic to and from the freeway. Occasionally this traffic may bypass major intersections through residential streets. In addition, the areas are economically poor, so that many old cars in poor condition and with inadequate mufflers travel the streets. It is reasonable to expect that higher unemployment and/or poverty levels are correlated with relatively higher frequencies of decrepit automobiles; hence, there may be some correlation between the economic indices and community noise levels even in poor areas that are not adjacent to freeways.

On the average, the L_{99} appears to be the best discriminator between noisy and quiet neighborhoods; noisy areas having an average $L_{99} = 53.4$ dBA, while quiet ones average 47.5 dBA. The L_{99} may be thought of as the background, or residual, noise level obtained when the sources of noise are absent or remote from the monitoring sites.

In general, both the "noisy" and "quiet" feeder areas are shown to be relatively noisy. Only in the middle of the night at some monitoring sites in certain quiet areas did the minimum levels go down to 35 dBA or so. Compilations of noise levels at the different measurement times are shown in Appendix D; see also Figure 16, Appendix C. Because studies relating academic achievement and environmental levels are few and inconclusive, the levels shown here may be spurious. Statistical analyses described subsequently suggest the relationship between the various community noise levels and achievement.

3. Other Pollutants in School Areas⁸

The results presented in Figure 12 of Appendix C suggest that the concentrations of lead and carbon monoxide* are not related to the proximity of the school to the freeway; rather, the concentrations appear to be relatively uniform among the schools we studied in the Los Angeles Basin. It may be concluded that the children in the schools studied were exposed to similar concentrations of these air pollutants.

4. Classroom Measurement and Observation

While in the classrooms, two observers selectively tape-recorded two types of information: (1) the acoustic environment, and (2) certain indications of classroom behavior when the teachers were lecturing or otherwise interacting with the entire group of children. Figure 1 is a schematic diagram of the equipment used for recording and analysis.

a. Acoustical

The acoustical measurements are to be regarded as being Type 2 (ANSI S1.4-1971) for two reasons: (1) we were unable to commit, without interruption, two sound level meters as first-stage inputs (see Figure 1), which resulted in differences in the acoustical characteristics of our recordings; and (2) some initial recordings were obtained inadvertently at a tape speed (1.5 ips) that

*Lead and carbon monoxide are used illustratively here. The discussion is pertinent also to other pollutants.

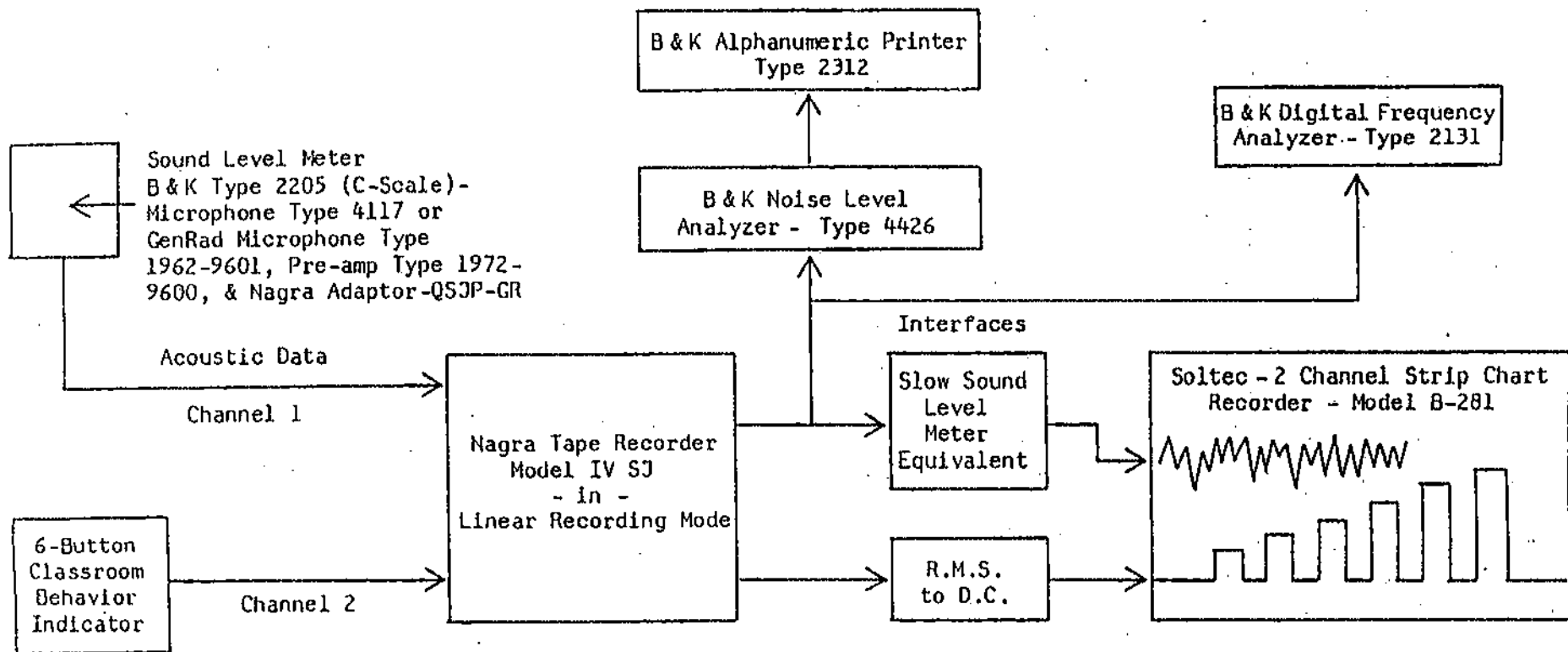


Figure 1

SCHEMATIC DIAGRAM OF RECORDING AND PLAYBACK EQUIPMENT

resulted in the signal to "roll-off" beyond 3,000 Hz.* The acoustical recording system was calibrated daily, and generally before beginning observation.

Noise levels were recorded under three conditions. These were:

- (1) Classroom and school areas without any children. These were obtained during the summer vacation. Ventilation (windows, doors, air conditioners, and forced air) was similar to that observed during the normal classroom periods.
- (2) Classroom noise levels with the children in position but quiet; that is, working at their seats with a minimum of talking and movement.
- (3) The observer's estimate of normal noise levels with the children present and active.

In order to calculate the Articulation Index,⁹ a sample of the teacher's voice level while reading a standard phrase (see Appendix E) at a distance of about 6 feet from the microphone was obtained. We attempted to obtain samples before and after the normal classroom hours without children present, but were hampered by faculty meetings, tardiness, and parent-teacher discussions. We were able, typically, to obtain at least one sample daily from each teacher.

b. Behavioral

In addition to the handwritten observations about the various phases of the school day and behavior therein (see Appendix B), a technique was used to record electronically pulses of varying amplitude on the magnetic tape. These pulses had a carrier frequency of 1,000 Hz, but varied in amplitude depending upon which of six buttons was pushed. Each button corresponded to a specific facet of classroom behavior, and was used to facilitate analysis of the acoustical channel of the tape. The criteria governing use of each button may be found in Appendix F. It is sufficient here to describe the six buttons only briefly:

- (1) Disregard: Used when the noise source that affected some classroom behavior was other than a motor vehicle. This button was used infrequently; discrimination of noise source was based on listening to tape recording or by annotation of the written record.
- (2) Can't Hear: Used when the observer was unable to hear what the teacher or a student was saying.
- (3) Rebuke: Used when the teacher called the class or a student to order.
- (4) Interrupt/Pause: Used when the teacher paused while instructing the students.
- (5) Distract: Used if several students looked around in the direction of a noise source.
- (6) Raise: Used if the teacher's voice was raised to compensate for an increase in noise level. (This event invariably occurred in conjunction with a "Rebuke" rather than as a response to an increase in noise level.)

Table IV shows the frequencies of the various events observed and annotated in the classrooms. It can be noted that Rebukes were the most common event, followed by Can't Hears. Because Rebukes typically were associated with an increase of the teachers' voice levels (Raise), it may be concluded that about 9 percent of Rebukes were concomitant with perceptible increases in the teachers' voice levels.

*Subsequent recordings were at a speed off 3.75 ips, which resulted in the roll-off beginning at 10 KHz.

Table IV

Frequencies of Different Types of Classroom Disruptions

Disregard	Can't Hear		Rebuke	Interrupt/ Pause	Distract	Raise Voice
	Student	Teacher				
545	2380	258	6955	288	144	655

c. Comparability of Observers

After several days of practice in different classrooms, the observers worked simultaneously in a single classroom for two days* in order to determine their relative comparability. Table V shows the frequency of use of the different buttons by the two observers. McNemar's Chi-square test for correlated samples¹⁰ revealed no statistically significant differences in response frequencies between observers. However, observer H appears to have had more difficulty hearing both the students and the teacher than did observer O; and this difficulty is more apparent with respect to hearing the teacher than the students. A reason for H's apparent difficulty is that he has a significant bilateral high frequency hearing loss, as is shown in Table VI.

Detailed analysis of the strip charts (see Figure 1) indicated that the observers were more consistent than the aggregated data (Table V) initially suggested. This analysis compared only those segments of the classroom periods when observations were simultaneous.¹¹ These strip charts were synchronized, divided into 5-second periods, and a count made of the number of coincidental observations as well as the number of 5-second periods during which coincidental observations were possible. The results are shown in Table VI. Section A of the Table refers to the frequency of use of all six behavioral categories, while Sections B and C refer only to "Can't Hear" responses during periods when either the students or the teachers were doing most of the talking. For example, Section B is the sum of two periods when the children were giving answers to arithmetic problems or spelling words, and Section C is the sum of two periods when the teacher was reading a story aloud. Table VI indicates that overall the observers agreed with each other about 93% of the time. Of greater interest, however, is the indication that the observers couldn't hear the students about twice as frequently (12.6% in contrast to 6.7%) as they couldn't hear the teacher. This difference in frequencies of not hearing and hearing the teachers versus the students was statistically significant ($X^2=5.45$, $p < .025$) and is mainly due to the frequencies of not hearing rather than the frequencies of possibly hearing (the Hear-Hear cell).

*Cooperation of Ms. Nancy Ferguson is acknowledged with gratitude.

Table V

COMPARABILITY OF OBSERVERS: CONCURRENT OBSERVATION OF EVENTS
FROM ADJACENT POSITIONS IN A CLASSROOM
(H & O: Observers)

Activity*	Can't Hear				Rebuke		Interrupt/ Pause		Distract		Raise Voice	
	Student		Teacher									
	H	O	H	O	H	O	H	O	H	O	H	O
<u>DAY ONE</u>												
Administration					2	1						
Mathematics	12	9	1		10	6	3	3	1	1	1	1
Reading and Spelling	4	5	2		1							1
Students Read Aloud	22	26	9	7	15	13		2	2		1	
Teacher Reads Aloud		1	9	6	1	4	3	2	1			
Science	7	6	2		5	4						
<u>DAY TWO</u>												
Administration					2	1						
Mathematics	24	17			10	10	3	3				
Reading and Spelling	38	36	6	6	16	25						
Story Time by Teacher			17	16	3	5	4	1	3			
TOTAL	107	100	46	35	65	69	13	11	7	1	2	2

*"Disregard" was not used during these periods.

Table VI
HEARING LEVELS IN dB RE ANSI 1969

Frequency in KHz:	Right Ear								Left Ear							
	.25	.5	1	2	3	4	6	8	.25	.5	1	2	3	4	6	8
Observer																
H	10	15	10	5	20	60	85	80	10	15	0	5	15	70	85	55
O	20	20	5	10	10	15	25	15	15	10	5	5	10	10	15	15

On the basis of the aggregate results shown in Table V it is suggested that observer H had somewhat more difficulty hearing both the teacher and students than did observer O. As shown in Table VII, that initial impression was confirmed;* however, the differences are not pronounced. It may be concluded, therefore, that the observers were responding similarly to each other and their reliability is at least 91% across all response categories.

Table VIII shows the average increases in noise level when the observers were unable to hear what the students or teacher were saying and the background noise levels (see footnote, Table VIII) prior to the Can't Hear responses. It can be seen that for both observers the changes in noise levels were usually greater when the observers were unable to hear the teacher than when they were unable to hear the students, although the background noise levels before the events were very similar. This difference, roughly 2 dB, reflects the fact that the teacher's voice level at the rear of the classroom typically was more intense than was the background noise level; hence, higher noise levels could occur before the observers were unable to hear what the teacher was saying. In contrast, the childrens' voices (sixth graders) probably were less intense,¹² so smaller increases in noise level caused interruption of comprehension of their speech.

The classroom in which these observations occurred overlooked a thoroughfare that handled automobile and truck traffic to and from two freeways. Thus, the background noise levels were high (see the dBC levels in Table VIII). These background noise levels were obtained when children were not present and during a brief period when, apparently, traffic was heavier than usual, as determined by listening to the tapes. Hence, the C-weighted levels without the children present were higher* than with the children, whereas the A-weighted levels were more similar but in the opposite direction; that is, A-weighted levels with children are higher than without children. The increased A-weighted levels were probably due to the voices of students and teacher (compare L_{eq}^A before with L_{eq} without children, for example).

*Observer H heard the students 84.8% of the time (81.8 + 3.0), whereas observer O heard the students 84.3% (81.8 + 2.5) of the time; and for hearing the teacher the percentages are 89.4 and 88.4, respectively.

*Traffic, particularly that containing trucks, has a spectrum showing maximum acoustical energy at frequencies below about 150 Hz. These frequencies contribute much to C-weighted noise levels but are de-emphasized in A-weighted measurements. See K.D. Kryter,¹³ pages 14, 352 and 353.

Table VII

COMPARABILITY OF OBSERVERS
DURING SIMULTANEOUS PERIODS OF OBSERVATION

A. All Responses

Observer	H		Agreement = 93.2% N* = 1025
	Response	No Response	
O	Response	9.9%	2.7%
	No Response	4.1%	83.3%

B. Can't Hear Student

Observer	H		Agreement = 94.4% N* = 396
	Can't Hear	Hear	
O	Can't Hear	12.6%	3.0%
	Hear	2.5%	81.8%

C. Can't Hear Teacher

Observer	H		Agreement = 91.3% N* = 312
	Can't Hear	Hear	
O	Can't Hear	6.7%	4.8%
	Hear	3.8%	84.6%

*Number of 5-second intervals

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Table VIII

AVERAGE CHANGES IN NOISE LEVEL IN dB
COINCIDENTAL WITH AN INABILITY TO HEAR THE TEACHER AND STUDENTS
(DURING - BEFORE A CAN'T HEAR EVENT OR RESPONSE)

Observer	L _{eq}		L ₁		L ₅		L ₁₀		L ₅₀		L ₉₀		Number of Samples
	A	C	A	C	A	C	A	C	A	C	A	C	
	<u>Can't Hear Teacher</u>												
H	2.6	3.0	2.4	3.5	2.2	3.5	2.5	3.4	2.9	2.9	2.0	1.8	44*
O	3.0	3.4	1.4	2.5	2.3	3.2	2.7	3.5	3.8	3.7	3.2	3.2	30*
	<u>Noise Levels Before Can't Hear</u>												
H	60.8	67.4	66.7	71.9	64.9	70.5	63.7	69.7	59.7	67.0	56.8	64.8	44
O	61.2	67.3	67.2	72.5	65.3	70.8	64.1	69.8	60.1	66.7	57.0	64.1	30
	<u>Can't Hear Students</u>												
H	0.9	1.1	0.3	1.9	1.0	1.8	1.1	1.7	1.1	0.8	0.4	0.2	38
O	-0.1	0.4	-0.1	-0.3	-0.6	0.3	-0.4	0.4	0.2	0.4	0.7	0.5	52
	<u>Noise Levels Before Can't Hear</u>												
H	60.8	67.5	67.7	72.4	65.0	70.8	63.8	69.9	59.4	67.1	56.2	64.9	38
O	60.6	67.6	66.9	72.7	64.9	70.9	63.7	70.0	59.4	66.9	56.1	64.6	52
	<u>Noise Levels With No Children In Classroom</u>												
	59.0	70.9	63.8	75.0	62.5	74.0	61.5	73.5	58.5	70.5	54.5	68.0	1

A & C are the frequency weightings used.

*

In general we attempted to measure noise levels before an event simultaneously, but were not always successful for the reason explained below, and because of differences between observers as to when to begin or stop analysis of noise levels before an event.

Sample sizes are different for the two observers because they used the button at different frequencies. For example, suppose observer H pushed the Can't Hear button twice during two contiguous 5-second periods, while observer O used it once during the second period; thus, the latter Can't Hear responses were coincidental. In this circumstance the noise levels before the Can't Hear of observer H were measured about 10 seconds before the event, while for observer O they were measured about 5 seconds before the event. In other words, although the button pushes were roughly coincidental, the noise level measurements before any event were not necessarily coincidental.

C. Academic Achievement

In April and May of the school year, third and sixth grade students in the Los Angeles Unified School District are routinely administered two standardized achievement tests. The Comprehensive Test of Basic Skills (CTBS)¹⁴ is administered by the School District, while the California Assessment Program (CAP)¹⁵ is administered by the California Department of Education. Details about these tests can be found in the manuals referenced but the tests are described briefly below.

1. Comprehensive Test of Basic Skills (CTBS)

The test battery is comprised of tests in six basic skills areas: Reading, Language, Mathematics, Reference Skills, Science, and Social Studies. The tests are designed to assess individual achievement. Only Reading and Mathematics were tested typically in our group of schools.

Reading Vocabulary and Comprehension are subtests of the Reading test and contain 40 and 45 items, respectively. Each item of the Vocabulary subtest consists of a stem phrase and four discrete words for alternatives. The student is required to choose a synonym for the key word in the stem phrase. Although the key word is part of a phrase, sentence or paragraph, the vocabulary test is a measure of the student's knowledge of the dictionary definition of the word as the context must be used to determine the key word's meaning. The items of reading comprehension assess specific skills in literal and critical comprehension; about half of the items are of each type. Forty-five items of this subtest are based upon seven selected reading passages. Some passages portray situations, feelings and emotions experienced by young people, while others provide informative material.

The Mathematics section includes sections on Computation (48 items), Concepts (25 items), and Applications (25 items). Items in addition, subtraction, multiplication and division comprise the computation section. The content of the Concepts section includes items on number systems, measurement, set theory, and geometry, and test the student's ability to convert numerical, graphic, or verbal concepts to another form. Mathematical application measures ability to select and complete problem-solving operation and include items on reasoning, algebra, measurement and set theory.

2. California Assessment Program (CAP)

The purposes of the Program are to determine the effectiveness of education in California and to provide information needed to assess the strengths and weaknesses of various educational programs in individual schools and their districts. In contrast to the CTBS, the CAP is not designed to test achievement of individual students. The CAP uses a "Matrix Sampling" technique in which each child is tested on only a small number of the questions comprising the entire test. Test scores are then aggregated over a classroom or over a grade level within a school.

The total test is comprised of 250 items; however, the test form used by any pupil contains only 25 items. Third graders took only the Reading test. Subtests of reading include Word Identification Skills, Vocabulary, Comprehension and Study-Locational Skills. The Vocabulary and Comprehension items are similar in content to those described for the CTBS. Word Identification includes items designed to measure a student's ability to identify specific words, to decode letters to their corresponding sounds, and to identify specific elements within words (e.g., root words and suffixes). Study-locational skills are those that deal with the student's ability to alphabetize and use a table of contents.

Sixth grade children were tested in Reading and Mathematics. The subtests of the sixth grade reading test are identical to those of the third grade test. The mathematics subtests are arithmetic, geometry, measurement, and probability and statistics. Each subtest includes items to assess skills in computation or knowledge, comprehension, and application of mathematical concepts.

D. Data Analysis

Because of the variability in socioeconomic composition and in noise levels in the classrooms and communities of both noisy and quiet schools, a multiple regression analysis was conducted.¹⁶

While planning the study, we hoped to conduct our analysis between classrooms; that is, in a given school a comparison of noisy and quiet classrooms was planned. However, this plan became infeasible after we observed the daily operations of the schools.

Our observations and discussions with teachers and principals indicated that achievement scores of the various classrooms at each grade level within a school should be averaged for the following reasons:

- (1) Many children moved from their homerooms to another room for reading, mathematics, or another subject depending upon skills and interests of the students and teachers, or if a teacher was absent and a substitute was not available. Thus, in many cases noise exposures may have varied with subject matter.
- (2) In some schools students of varying academic skills were not randomly distributed between classrooms. As an example, see the discussion in Section A.2. (Classrooms Combined) regarding the classroom assignments of non-English-speaking children. Thus, some variability in achievement was associated with classroom assignment.
- (3) Achievement scores between classrooms within a school were not consistently statistically different (see below).
- (4) Socioeconomic and community noise variables were available only on a community-wide basis; that is, they were not specific to a classroom or to a student within a classroom, whereas the CTBS scores were specific to each child. Noise levels within the schools were appropriate for each classroom. It appeared preferable, therefore, to use data based upon relatively uniform units of observation: at grade level within a school.

Results

A. Academic Achievement

At the outset, it should be noted that the achievement data of the English-speaking (E.S.) and non-English-speaking (N.E.S.) children are treated separately. This was necessary because, as expected, N.E.S. children do less well academically than do children who are fluent in English, particularly in reading. Differences between English and non-English-speaking children are less apparent for mathematics. Table IX shows the range of Grade Equivalents in Reading and Mathematics for all of the classrooms and schools studied. Grade Equivalents are used because they are more meaningful to the reader than are Expanded Standard Scores.¹⁷

Also shown in Table IX are the F ratios between mean achievement scores for the classrooms in each school and the corresponding degrees of freedom (df). In the df column the number to the left of the comma is pertinent to the number of classrooms, while the number to the right refers to the number of students in the different classrooms. In some schools the number of N.E.S. students was so small as to preclude calculation of meaningful F ratios; nevertheless, the mean achievement for those students is shown. In other schools (e.g., school, 6802, Grade 3), the number of N.E.S. students in each classroom

AVERAGE CLASSROOM ACHIEVEMENT WITHIN SCHOOLS FOR
ENGLISH-SPEAKING (E.S.) AND ENGLISH-WEAK (N.E.S.) STUDENTS

NOISY SCHOOLS										QUIET SCHOOLS									
School Code No.	Language	Grade	No. Class-rooms	Reading			Math			School Code No.	Language	Grade	No. Class-rooms	Reading			Math		
				G.E. Range	F	d. f.	G.E. Range	F	d. f.					G.E. Range	F	d. f.	G.E. Range	F	d. f.
6802	E.S.	3	2	2.7-3.0	1.41	1,38	3.4-3.5	.097	1,38	6893	E.S.	3	3	4.0-4.1	.006	2,41	4.4-4.5	.012	2,41
	N.E.S.	3	2	2.3-2.8	.34	1,9	3.2-3.6	.61	1,9		N.E.S.	3	2	2.8-2.9	.0007	1,9	3.8-3.9	.002	1,9
	E.S.	6	2	6.9-7.0	.03	1,52	8.7-9.5	2.83	1,52		E.S.	6	1	8.4			7.1		
	N.E.S.	6	1	2.6			6.4				N.E.S.	6	1	5.2			6.6		
7214	E.S.	3	3	3.1-3.5	.497	2,53	3.1-3.6	.73	2,53	8501	E.S.	3	3	2.6-3.9	3.21*	2,64	3.2-4.3	2.92	2,64
	N.E.S.	3	3	2.2-2.7	.64	2,28	2.7-3.1	2.14	2,28		N.E.S.	3							
	E.S.	6	3	5.5-7.0	1.49	2,85					E.S.	6	2	3.6-8.6	35.9*	1,28			
	N.E.S.	6		2.9 (N=9)			4.8				N.E.S.	6	2	3.6 (N=5)					
7651	E.S.	3	2	2.4-3.0	1.08	1,23	3.2-4.0	5.72*	1,23	9004	E.S.	3	6	2.0-3.6	8.51*	5,115	2.3-3.6	7.67*	5,115
	N.E.S.	3	3	1.6-2.1	1.44	2,32	2.8-3.5	1.42	2,32		N.E.S.	3							
	E.S.	6	4	5.9-8.8	5.2*	3,71	6.6-8.5	2.79*	3,71		E.S.	6	4	4.5-6.4	3.45*	3,78	4.6-6.1	4.3*	3,78
	N.E.S.	6	3	3.2-4.5	1.2	2,22	5.6-7.1	2.34	2,22		N.E.S.	6		3.6 (N=4)			5.3		
7941	E.S.	3	4	2.5-3.8	1.48	3,41	3.2-4.8	4.16*	3,41	5747	E.S.	3	4	2.4-3.1	1.11	3,89	2.8-2.9	0.19	3,89
	N.E.S.	3	6	1.7-2.0	1.75	5,98	2.8-3.9	2.78*	5,98		N.E.S.	3							
	E.S.	6	3	4.1-5.6	1.33	2,39	5.5-7.0	1.24	2,39		E.S.	6	2	6.4-7.4	1.88	1,51	7.1-7.6	0.25	1,51
	N.E.S.	6	2	4.2-5.6	5.997*	1,24	6.1-6.3	.066	1,24		N.E.S.	6							
8071	E.S.	3	4	1.9-3.5	10.07*	3,77	2.2-3.4	6.82*	3,77	6174	E.S.	3	6	2.2-4.0	10.58*	5,131	2.6-3.9	6.03*	5,131
	N.E.S.	3	3	2.0-2.8	.428	2,10	2.0-2.8	.497	2,10		N.E.S.	3	1	2.4			3.2		
	E.S.	6	4	4.3-5.0	.506	3,74	4.9-5.5	.317	3,74		E.S.	6	5	4.4-5.8	1.24	4,108	4.9-5.5	.46	4,108
	N.E.S.	6									N.E.S.	6	1	3.5			4.7		
9095	E.S.	3	4	1.9-3.2	5.24*	3,85	2.0-3.6	6.33*	3,85	9251	E.S.	3	4	2.4-2.9	.825	3,79	2.6-3.3	2.85*	3,79
	N.E.S.	3							N.E.S.		3								
	E.S.	6	3	5.1-7.5	1.86	2,26	5.0-9.5	7.00*	2,36		E.S.	6	4	4.1-5.8	4.14*	3,67	4.7-5.8	2.70*	3,67
	N.E.S.	6	3	4.3-5.3	1.12	2,30	5.1-5.7	.143	2,30		N.E.S.	6							
9285	E.S.	3	3	2.8-3.5	.872	2,32	3.5-4.3	1.49	2,32	9285	E.S.	3	3	2.8-3.5	.872	2,32	3.5-4.3	1.49	2,32
	N.E.S.	3	1	2.2			3.0		N.E.S.		3	1	2.2			3.0			
	E.S.	6	1	5.1			6.6		E.S.		6	1	5.1			6.6			
	N.E.S.	6	1	3.2 (N=3)			5.0		N.E.S.		6	1	3.2 (N=3)			5.0			
9889	E.S.	3	5	1.9-3.0	3.5*	4,67	2.6-3.3	1.48	4,67	9558	E.S.	3	6	2.1-3.2	1.86	5,88	2.5-3.2	.678	5,88
	N.E.S.	3	5	1.5-2.1	2.39	4,46	2.6-3.5	2.38	4,46		N.E.S.	3	3	1.7-1.9	.889	2,46	2.1-2.8	2.12	2,46
	E.S.	6	3	3.9-6.1	5.31*	2,45	4.7-6.8	6.68*	2,45		E.S.	6	5	3.6-5.0	2.46	4,109	4.1-5.3	1.12	4,109
	N.E.S.	6	3	3.4-4.5	.59	2,20	4.7-5.4	.405	2,20		N.E.S.	6	2	3.9 (N=8)			5.1		

* Significant F, P < .05

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Table X

FREQUENCY OF STATISTICALLY SIGNIFICANT DIFFERENCES
BETWEEN CLASSROOMS WITHIN SCHOOLS FOR
ENGLISH-SPEAKING AND ENGLISH-WEAK STUDENTS

<u>3rd Grade</u>					<u>6th Grade</u>			
<u>Reading</u>		<u>Math</u>			<u>Reading</u>		<u>Math</u>	
E.S.	N.E.S.	E.S.	N.E.S.		E.S.	N.E.S.	E.S.	N.E.S.
6	0	7	1	Significant	5	1	5	0
9	8	8	7	Not Significant	8	3	6	4
P = 0.049		P = 0.013			P = 0.555		P = 0.153	

Probability (P) calculated by Fisher's Exact Test.

See A. E. Maxwell, *Analysing Qualitative Data*, London: Methuen & Company, Ltd., 1961, pp. 23-24.

Significant: Statistically significant at least at the 0.05 level.
as calculated by analysis of variance within each school.

Table XI

MEAN GRADE EQUIVALENT ACHIEVEMENT SCORES OF ALL CHILDREN IN SOCIOECONOMICALLY MATCHED NOISY AND QUIET SCHOOLS
F Ratios Calculated from Expanded Scale Scores are Provided

Grade Level	READING - C.T.B.S.				MATHEMATICS - C.T.B.S.			
	Grade Equivalent		F Ratio	No. of Students	Grade Equivalent		F Ratio	No. of Students
	Noisy	Quiet			Noisy	Quiet		
<u>3rd Grade</u>								
E.S.	2.7	3.1	7.23*	888	3.1	3.2	5.24*	888
N.E.S. ⁺	2.0	2.3	0.02	120	2.8	2.4	7.88*	120
<u>6th Grade</u>								
E.S.	5.4	6.0	19.19*	758	5.8	5.9	41.94*	640
N.E.S. ⁺⁺	3.2	4.5	5.28*	60	4.5	4.5	2.98	60

* Significant @ $p < 0.05$.

⁺2 Schools

⁺⁺3 Schools

Table XII

MEAN GRADE EQUIVALENT ACHIEVEMENT OF ENGLISH-FLUENT CHILDREN
IN SOCIOECONOMICALLY MATCHED NOISY AND QUIET SCHOOLS

Grade Level	READING - CTBS				MATHEMATICS - CTBS			
	Noisy School	G.E.	G.E.	Quiet School	Noisy School	G.E.	G.E.	Quiet School
Third	6802	2.9	4.1	6893	6802	3.4	4.5	6893
	7214	3.2	3.5	8501	7214	3.5	3.8	8501
	8071	2.5	2.8	5747	8071	2.8	2.8	5747
	9251	2.7	3.0	6174	9251	2.8	3.1	6174
	9889	2.3	2.6	9558	9889	3.0	2.8	9558
		*	2.7	9004		*	2.8	9004
	Mean	2.7	3.1	Mean	Mean	3.1	3.3	Mean
Sixth	6802	7.0	8.4	6893	6802	9.1	7.1	6893
	7214	6.2	7.3	8501	7214	none	none	8501
	8071	4.7	7.0	5747	8071	5.1	7.4	5747
	9251	5.1	5.1	6174	9251	5.1	5.2	6174
	9889	5.0	4.3	9558	9889	5.5	4.8	9558
		*	5.4	9004		*	5.3	9004
	Mean	5.6	6.3	Mean	Mean	6.2	6.0	Mean

* The socioeconomic mix in School 9004 was similar to that of 9251. Thus, they may be compared.

Table XIII

PERCENTAGE OF QUESTIONS ANSWERED CORRECTLY BY
ENGLISH-FLUENT CHILDREN IN NOISY AND QUIET SCHOOLS

Achievement Tests are Those of the California Assessment Program

Grade Level	READING - C.A.P.				MATHEMATICS - C.A.P.			
	Noisy School	Percent Correct	Percent Correct	Quiet School	Noisy School	Percent Correct	Percent Correct	Quiet School
Third	6802	75.3	82.6	6893	Test Not Administered			
	7214	68.9	80.6	8501				
	8071	60.6	66.5	5747				
	9251	63.6	67.9	6174				
	9889	59.8	65.3	9558				
		***	56.4	9004				
	Mean	65.6	69.9	Mean				
	Percentile	5*(24)**	8(34)	Percentile				
Sixth	6802	67.7	71.4	6893	6802	67.2	51.4	6893
	7214	62.4	76.3	8501	7214	54.6	80.0	8501
	8071	49.7	52.2	5747	8071	39.9	46.6	5747
	9251	49.7	51.1	6174	9251	44.5	43.2	6174
	9889	45.0	45.3	9558	9889	43.8	41.0	9558
		***	49.7	9004		***	43.1	9004
	Mean	54.9	57.7	Mean	Mean	50.5	50.9	Mean
	Percentile	10*(33)**	16(42)	Percentile	Percentile	12(38)	16(39)	Percentile

* Percentiles relative to all other 3rd or 6th grades in schools throughout the State of California. They are based upon the mean percent correct.

** () For comparison these are the percentiles for the CTBS Test (Table XII) relative to samples of students completing 3rd and 6th grades throughout the United States.

*** The socioeconomic mix in School 9004 was similar to that of 9251. Thus, they may be compared.

was admittedly small, but the analysis of variance was completed simply to show the trend.

Comparison of the grade equivalents for E.S. and N.E.S. will show that the N.E.S. students were almost uniformly behind their English-speaking schoolmates. The exception was among the 6th graders in school 7941, where their reading achievement scores were equivalent. But note that among the N.E.S. students within each school, achievement in Mathematics, which is somewhat less language dependent, is greater than that in reading. A similar trend is found among the English-fluent students, but is less consistent and less pronounced than in the case of N.E.S. children.

Table IX shows also the schools in which statistically significant differences in achievement scores between classrooms were attained. As shown in Table X, the distribution of these significant differences suggests that the E.S. students are more likely to show differences in achievement between classrooms than are the N.E.S. students. Although the distributions for the sixth grade students are not significant statistically, they exhibit the trend shown by third grades. However, these distributions may simply reflect the lack of power of the Analysis of Variance test when samples are small. Hence, it is reasonable to be cautious when interpreting the achievement data for the English-weak students.

1. An Overview of Measures of Achievement

Table XI shows the average achievement in Reading and Mathematics in the noisy and quiet schools that are similar with respect to the socioeconomic variables. Four noisy schools which had Hispanic populations of 92 percent or more are not included because comparable quiet schools were not available. Data from these four schools are included subsequently in the multiple regression equations.

With respect to Table XII, it is apparent that both third and sixth grade children in noisy schools generally did less well academically in both Reading and Mathematics than did their counterparts in quieter schools. On average, third graders in noisy schools were about 0.4 year behind in Reading, while the sixth graders were about 0.7 year behind. In Mathematics, third graders in noisy schools were about 0.2 year behind, while the sixth graders in noisy schools were about 0.2 year ahead. This reversal was due to the superior performance in Mathematics by both sixth grade classrooms in a single school, no. 6802. Why these children did so well is unknown; because of the small number of classrooms in this school and in this subset of the Mathematics data, the results should not be interpreted too broadly.

On the average, this group of schools is not "up to par". After approximately three years in school the third graders should have grade equivalents of nearly 4.0, while the sixth graders should be at or near 7.0.

It is of interest to note that the children in most of the schools had slightly better scores in Mathematics than in Reading. This result may be partially due to the test and normative group used as is suggested by the scores obtained on the CAP test shown in Table XIII. These data are in the form of percent correct, and in this form are difficult to interpret because of a lack of normative data. Therefore, shown at the bottom of Table XIII are percentile ranks corresponding to the mean percent correct. It is expected that an average number of correct responses for a particular grade level would correspond to the 50th percentile. With respect to better performance in Mathematics than in Reading, it will be seen that when only California schools are compared sixth grade children in noisy schools were 2 percentile points higher in Mathematics, while in quiet schools equivalent percentiles in Reading and Mathematics were obtained. If comparison is based upon a sample of the students throughout the U.S. (in parenthesis), it will be seen that in the quiet sixth grades performance in Mathematics was poorer than it was in Reading.

SOURCES AND LEVELS OF NOISE IN THIRD GRADE CLASSROOMS

NOISY SCHOOLS												QUIET SCHOOLS											
School Code No.	Class-room No.	C-Weighted				A-Weighted				A.I.	Source	School Code No.	Class-room No.	C-Weighted				A-Weighted				A.I.	Source
		L _{eq}	L ₁	L ₁₀	L ₉₀	L _{eq}	L ₁	L ₁₀	L ₉₀					L _{eq}	L ₁	L ₁₀	L ₉₀	L _{eq}	L ₁	L ₁₀	L ₉₀		
6802	17,18	61	66	63	59	38	44	39	36	.93, .92	A/C	6893	14,15,19	54	57	56	52	37	44	39	36	.98	L
7214	14	64	72	67	60	49	57	51	44	.75 ^e	F	8501	10	54	60	56	52	40	49	42	36	.90 ^e	L
	15	65	69	67	62	50	57	52	47	.80 ^e	F		17	54	57	56	53	36	40	38	35	.95	L
	20	64	69	66	62	47	50	48	45	.90 ^e	A/C												
7651	34	61	67	64	58	45	50	48	42	.79	F	9004	17	56	64	59	53	44	55	46	37	.95 ^e	T
	47	61	63	62	60	46	47	47	46	.82 ^e	A/C		38,27,28	55	64	57	50	41	51	43	34	1.0	T
													32	53	58	55	51	36	40	38	34	.95	L
													37	54	64	57	51	38	45	41	34	.95 ^e	L
7941	11,12	68	72	70	66	52	56	53	49	.71	F												
	13,14	73	79	76	70	64	71	66	61	.6, .45	F												
	26,27	74	80	77	70	63	69	66	59	.54 ^e	F												
8071	38,41	65	68	67	62	44	47	43	42	.70 ^e	A/C	5747	5,6	50	58	53	47	41	50	44	34	.98, .94	L
	39,40	65	68	67	62	42	44	42	41	.93, .70	A/C		9	51	58	53	47	40	51	44	32	.99	L
													26	60	63	62	58	39	44	40	38	.96	A/C
9095	15	61	67	63	57	44	49	46	41	.98	F												
	24	66	70	68	63	58	62	60	56	.37	F												
	28,29	59	63	61	57	46	51	48	44	.92	F												
9251	24,22	63	68	64	58	49	60	50	43	.39, .56 ^e	F	6174	50	55	58	57	54	47	51	48	46	.96	L
	25	69	76	72	65	57	63	59	50	.56	F		51 to 55	53	59	55	52	44	47	46	41	.97 ^e	L
	27	70	77	73	65	57	63	59	52	.86	F												
9825	6	64	72	66	60	53	59	55	48	.70 ^e	F												
	15	68	76	71	62	57	64	60	52	.63	T												
9889	22	59	63	61	58	38	43	40	37	1.0	L	9558	22,23	56	65	59	50	39	47	42	33	.97, .94	L
	35	62	67	63	60	41	45	43	40	.95	A/C		43,44	58	68	61	52	45	53	47	38	.98, 1.0	A/C
	36	62	65	64	61	40	42	41	40	.96	A/C		50,51	56	65	64	53	37	45	36	34	.99	A/C
	38,39	62	64	63	60	45	49	47	43	.91 ^e	A/C												
Mean		64.9	69.7	67.0	61.9	49.0	54.2	50.0	46.1	.75				54.4	61.2	57.2	51.4	40.7	47.6	42.6	36.5	.97	
Standard Deviation		4.4	5.3	4.8	3.8	7.9	9.0	8.9	7.0	.19				2.3	3.6	3.1	2.3	3.2	3.8	3.5	3.4	.02	

A.I.: Articulation Index, calculated according to American National Standard No. 3.5-1969, American National Standards Institute, New York, New York, 1969. In some cases teachers' voices or noise levels were not measured. A.I.s were estimated (e) from average levels of teachers in that school or noise levels in similar classrooms. Two or more classrooms in a column indicate similar noise levels are assumed (see Method Section).

Source: Inattentive; A/C - air conditioned; F - freeway; L - light traffic on local streets; T - trucks and heavy traffic on adjacent streets.

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SOURCES AND LEVELS OF NOISE IN SIXTH GRADE CLASSROOMS

NOISY SCHOOLS												QUIET SCHOOLS											
School Code No.	Class-room No.	C-Weighted				A-Weighted				A.I.	Source	School Code No.	Class-room No.	C-Weighted				A-Weighted				A.I.	Source
		L _{eq}	L ₁	L ₁₀	L ₉₀	L _{eq}	L ₁	L ₁₀	L ₉₀					L _{eq}	L ₁	L ₁₀	L ₉₀	L _{eq}	L ₁	L ₁₀	L ₉₀		
6802	5	60	67	63	57	41	45	43	39	.58	F	6893	6,8	52	62	56	45	40	49	45	32	.99, .97	L
	10	61	66	63	59	45	49	46	44	.71	F												
7214	28	66	72	69	63	51	59	54	47	.71 ^e	F	8501	1,6	54	59	56	52	40	46	42	37	.99	L
	29	66	74	69	61	51	59	54	46	.82 ^e	F												
	31	64	71	67	60	51	57	54	47	.86 ^e	F												
7651	6,9	59	67	62	55	46	50	46	40	.72 ^e	A/C,F	9004	4	69	78	74	59	54	65	58	41	.74	T
	16	60	63	61	59	54	59	55	51	.69	A/C,F		5	64	75	69	55	47	56	50	41	.87	T
	27	59	64	62	56	50	57	52	47	.72	F		6	58	67	61	51	43	52	46	36	.87 ^e	T
													7	58	63	60	55	42	49	45	39	.87	T
7941	15	69	78	72	62	53	63	56	44	.64	T,F												
	16	71	75	74	68	53	65	56	44	.82	T,F												
	19	62	69	64	60	51	56	53	49	.62	F												
8071	27,28	65	70	66	62	55	58	57	54	.76, .76 ^e	F	5747	29	59	61	60	58	42	49	44	40	.97	A/C
	29,30	64	71	67	60	54	58	56	51	.76 ^e	F		30	58	64	59	55	45	54	48	38	.97	A/C
9095	8	63	69	67	60	51	59	54	48	.86	F												
	10	67	75	71	62	51	59	54	47	.87	F												
	13	63	66	65	63	45	50	47	43	.87	F												
9251	43	57	62	58	54	43	44	41	39	.96	A/C	6174	20,21	57	66	60	53	47	56	50	40	.88, .98	L
	46	59	64	62	57	41	45	43	41	.87	A/C,F		22	57	67	60	50	46	57	48	36	.98	L
	48,49	59	65	62	56	44	47	45	43	.93, .97	A/C		25,26	55	61	58	52	44	51	46	41	.87 ^e , .64	L
9825	14	65	70	68	63	55	63	59	50	.60	F,T												
9889	8	67	74	70	64	59	62	60	57	.61	F	9558	7,15	62	74	62	52	47	57	47	36	.96, .94	L
	16,17	62	66	62	58	48	55	50	44	.84, .95	T,F		11	63	67	65	61	47	54	50	45	.75 ^e	T,L
													13,14	64	71	67	60	47	52	49	44	.75, .75 ^e	T,L
Mean		62.9	68.8	65.3	59.6	49.6	55.2	51.4	46.2	.78				58.8	66.4	61.4	53.8	44.7	52.7	47.3	39.0	.88	
Standard Deviation		3.5	4.1	3.9	3.3	4.8	6.2	5.4	4.8	.11				4.7	5.9	5.0	4.5	3.6	4.6	3.6	3.6	.11	

A.I.: Articulation Index, calculated according to American National Standard No. 3.5-1969. American National Standards Institute, New York, New York, 1969. In some cases teachers' voices or noise levels were not measured. A.I.s were estimated (e) from average levels of teachers in that school or noise levels in similar classrooms. Two or more classrooms in a column indicate similar noise levels are assumed (see Method Section).

Source: redominating A/C - air conditioned; F - freeway; L - light traffic on local streets; T - trucks and heavy traffic on adjacent street. Where two sources are indicated, the major source is shown first.

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Table XVI

COEFFICIENTS OF CORRELATION BETWEEN
AVERAGE NOISE LEVELS AND AVERAGE GRADE EQUIVALENTS
FOR ENGLISH-FLUENT CHILDREN IN CLASSROOMS OF 15 SCHOOLS

Grade Level	READING					MATHEMATICS			
	Weighting	L _{eq}	L ₁	L ₅	L ₁₀	L _{eq}	L ₁	L ₅	L ₁₀
3	A	-.135	-.074	-.129	-.129	.077	.042	.050	.068
	C	-.248	-.277	-.286	-.221	.061	-.058	-.018	-.054
6	A	-.638	-.549	-.536	-.514	-.330	-.313	-.304	-.254
	C	-.651	-.642	-.613	-.607	-.225	-.338	-.263	-.212

Table XVII

COEFFICIENTS OF CORRELATION BETWEEN
AVERAGE NOISE LEVELS* IN NEIGHBORHOODS AND AVERAGE GRADE EQUIVALENTS
FOR ENGLISH-FLUENT CHILDREN OF 15 SCHOOLS

Grade Level	READING				MATHEMATICS			
	L _{eq}	L ₁	L ₁₀	L ₉₉	L _{eq}	L ₁	L ₁₀	L ₉₉
3	-.363	-.379	-.534	-.615	-.295	-.390	-.476	-.395
6	-.478	-.420	-.337	-.544	-.239	-.327	-.142	-.051

* Limitations of the equipment and time precluded C-weighted measurements. Thus, the neighborhood noise levels are A-weighted.

Aside from certain small discrepancies, the trend of the data for quiet versus noisy schools is consistent for both tests; children in quiet schools attained higher achievement scores than did children in noisy schools. It should be noted, however, that some of our so-called quiet schools were, unexpectedly, not quiet, and their noise exposures may account for the poor achievement shown. For example, school 9004 was located on a thoroughfare that fed traffic, including many trucks, to and from a nearby freeway. This school was also under a segment of the approach pattern to Los Angeles International Airport. The average noise level outdoors at this school was 60 dBA (L_{eq} , measured outdoors for 8 hours). In comparison, at three of the so-called noisy schools the noise levels were about 62 dBA, and at the next quieter school (6893) noise levels outdoors were 58 dBA. Individual classroom noise levels depended upon the orientation of the classroom to the predominant noise source in the area. Thus, the distinction between "noisy" and "quiet" schools was found to be based upon small differences in noise levels; A multiple correlation paradigm was selected for statistical analysis because it takes these small differences into account.

B. Noise Levels in Classrooms

The noise levels, their predominant sources, and the articulation indices observed, or estimated, in the classrooms are shown in Tables XIV and XV. It is apparent that there was a broad range of noise levels in the various classrooms of both noisy and quiet schools. On the average the designated noisy schools were noisier than were the quiet schools, but in comparing individual classrooms some notable exceptions may be found. For example, in the third grade classroom 47 of school 7651 (Table XIV) the C-weighted L_1 level due to an air-conditioner was 63 dB, while in 5 classrooms exposed to local traffic in school 9004, L_1 's were 64 dB. In classroom 17 of school 9004 which was exposed to truck traffic on an adjacent street, the A-weighted L_1 was 5 dB higher than was a comparable classroom in 7651 which was near a freeway. The effect of local truck traffic on classroom noise levels in these two schools is even more pronounced in the case of certain sixth grade classrooms (Table XV). In school 9004, the 4 sixth grade classrooms are arranged in an L shape, in which classrooms 4 and 5 are the base of the L and parallel to the street; the narrow, windowless side of classroom 4 is facing oncoming traffic on the near-side of the street. Classrooms 6 and 7 make up the side of the L and are partially shielded from outgoing traffic by an adjacent building. The center of the window side of classroom 7 is about 100 feet from the centerline of the nearest traffic lane. The observed noise levels in the four classrooms were consistent with the configuration of the rooms but, more importantly, in two classrooms noise levels were found to be much higher than those observed in its matching noisy school.

Other, similar comparisons of schools and classrooms can be drawn. The point is that the so-called quiet schools were in many instances noisier than were the so-called noisy schools. Our analysis required that the noise levels in classrooms be accounted for regardless of whether the source of the noise was a freeway, local traffic, or air-conditioning.

C. Correlations Between Noise Levels and Achievement

Table XVI shows the correlation coefficients between noise levels as measured by the several descriptors in question averaged over the classrooms in each school and the achievement scores averaged over the same classrooms using the CTBS test results. The CTBS, rather than the CAP, is emphasized because performance on the CTBS can be evaluated with respect to some expected criterion. For example, children completing the third grade should attain a grade equivalent of about 4.0. Thus, grade equivalents provide a norm against which the effects of noise can be evaluated.

The magnitudes* of the coefficients shown in Table XVI suggest that noise had a more systematic effect upon sixth graders than upon third graders and that noise appears to have more predictable effects upon the skills involved in Reading than those in Mathematics.

A likely reason for the difference between Reading and Mathematics is that acquiring skills in reading depends more upon verbal interactions between teacher and student and the need for the teacher to correct student errors, for example in pronunciation. Such interactions are known to be affected by noise. Performance in Mathematics, in contrast, is more dependent upon solitary student practice and the student learning to perceive and understand abstract relationships; such tasks are less likely to be affected by noise. This hypothesis is supported by the relationships between scores on the Reading and Mathematics tests and the Articulation Index (AI), which is a measure of how well one is likely to understand speech spoken at a certain intensity given some intensity and spectrum of noise in the background. In general, the correlations between Reading scores and the AI are small but positive (see Appendix G for details), whereas they are smaller (nearly zero) but negative with respect to Mathematics. In other words, as the AI improves Reading performance also tends to improve, but for Mathematics there is only a slight or negative relationship.

The reasons for the generally smaller coefficients for third graders than for sixth graders are unclear. In part, they may be due to a statistical artifact. The range of achievement scores for third graders was much smaller (for Reading, from 2.2 to 4.1) as compared to a range from 4.3 to 8.4 for sixth graders. It is also possible that the data reflect to some degree the cumulative interaction of noise and achievement.* Deficits in achievement due to noise in the first several years of school may become progressively greater as a child continues through school, so that in grade six noise may be more disruptive because it is acting upon a weaker scholastic base.

Similarly, Bronzaft reported (during the Acoustical Society of America's meeting in Los Angeles Ca, on 20 November 1980) that the effects of elevated train noise were less pronounced on the reading scores of third graders than on those of sixth graders. She attributed the difference to sixth graders obtaining less individual attention from the teachers than did third graders. We observed little difference in the amount of individual instruction given third and sixth graders.

1. Preferred Classroom Noise Descriptor and Predicted Achievement

One question posed in the Introduction is which of several descriptors of noise is the best predictor of the relationship between noise and academic achievement. The subsequent statistical question is which noise descriptor is correlated most highly with academic achievement. Implicitly, State law says L_1 * is, whereas the FHWA's Guidelines say an L_{10} is correlated more highly with achievement.

Furthermore, the State suggests that a significant detrimental effect on the educational process begins when a noise level of 50 dBA is obtained, while the Federal Guidelines suggest such an effect begins at 63 dBA.

If we confine attention to Reading achievement in Table XVI, it is quite clear that for both third and sixth graders the C-weighted descriptors of noise level are more highly correlated with Reading achievement than are the A-weighted levels. Furthermore, the coefficients associated with the L_1 descriptors are higher than with the

*We are considering here only the absolute magnitude of the coefficients, regardless of whether they are statistically significant.

*In this regard it is important to observe that on the average approximately 65 percent of the students attended these schools since Kindergarten.

*California State Law specifies the noise level in terms of a single event maximum or peak level. In usage, however, the law is less restrictive. For our purposes, the L_1 level appears appropriate.

L_{10} descriptor; the L_{eq} descriptor is nearly equivalent to or higher than that of the L_1 . These results suggest that L_1 or L_{eq} C-weighted should be used in the multiple regression equation to predict achievement. Several noise descriptors could be used in the calculations, but because of the high intercorrelations between the descriptors (Appendix G), and the need to obtain a single descriptor and level to be used as a criterion level for purposes of noise abatement, only a single descriptor is used in the equation. It is the L_{eq} C-weighted.

2. Preferred Community Noise Descriptor and Predicted Achievement

As shown in Table XVII, noise levels in the neighborhoods appear to be related to childrens' achievement. Noise levels in the communities appear to have a greater effect upon achievement in reading than in mathematics, but the trend is somewhat less consistent than was the case for classroom noise levels. For example, with respect to the reading achievement of third graders, the L_{10} coefficient is greater than is that of the L_1 or L_{eq} . However, in both grades the L_{99} levels are most highly correlated with reading achievement, while for mathematics the L_{99} levels are less highly correlated than are some of the other descriptors. These variations may be statistical artifacts due to the small number of schools.

For purposes of the multiple regression equation, the L_1 descriptor was used because it had the smallest range of coefficients (from $-.327$ to $-.420$), and is perhaps the better estimate of the actual correlation between community noise levels and achievement in both reading and mathematics. Furthermore, the noise events associated with L_1 are more likely than are L_{99} events to intrude into the home.

3. Socioeconomic Variables

Table XVIII shows the correlations between certain socioeconomic variables, achievement, and selected noise measures. These data indicate that as the percentage of families in poverty increases, achievement in reading and mathematics decreases. A similar relationship exists with respect to the percentage of Blacks in the community. In contrast, as the Hispanic population increases there appears to be a trend for higher achievement in mathematics, but no such trend is apparent with respect to reading achievement. This may be due to the fact that, on the average, as the Hispanic population increases there is a corresponding decrease in the percentage of that population which is fluent in English.

As the White population increases, there is higher achievement in both reading and mathematics. The percentages of Blacks and Whites were included in the multiple regression equation because achievement appears to be related to these ratios and because the intercorrelation of these percentages is relatively small (≈ -0.4) as compared to the intercorrelation of the percentages of Blacks and Hispanics (≈ -0.9) (see Appendix G).

Several trends in the data shown on the right side of Table XVIII are of interest. It is apparent that as noise levels in the community increase, median family incomes decrease; or poor people live in noisier neighborhoods. Whites live in quieter communities and attend quieter schools than do Hispanics. Blacks appear to go to quieter schools than do Hispanics, but the Blacks live in somewhat noisier neighborhoods.

D. Predicting Achievement from the Selected Noise and Socioeconomic Variables

Figure 2 illustrates the predicted¹⁸ relationship between Reading grade equivalent in third graders as a function of noise level (in units of L_{eq} C-weighted) averaged over the classrooms in each school, with different average noise levels (in units of L_1 A-weighted) in the 15 communities. Different proportions of Black and White students may be assumed;

Table XVIII

COEFFICIENTS OF CORRELATION BETWEEN SOCIOECONOMIC VARIABLES, ACHIEVEMENT IN READING AND MATHEMATICS, AND INTERCORRELATIONS BETWEEN SELECTED VARIABLES

	Grade Level	Median Family Income	% Families In Poverty	% Black	% Hispanic	% White	Variable	Median Family Income	% Black	% Hispanic	% White
READING	3	.217	-.325	-.342	.021	.697	Classroom* Leq C	.103	-.243	.385	-.257
MATHEMATICS	3	.212	-.311	-.699	.446	.645	Community L ₁ A	-.438	.211	-.041	-.428
							% Poverty	-.343	-.028	.267	-.524
READING	6	.360	-.545	-.439	.104	.676	Classroom* Leq C	.035	-.201	.291	-.218
MATHEMATICS	6	.328	-.437	-.667	.408	.493	Community L ₁ A	-.573	.178	-.033	-.408
							% Poverty	-.416	.038	.153	-.493

*These coefficients were calculated from noise levels measured in each classroom, but the other variables were community-wide aggregates.

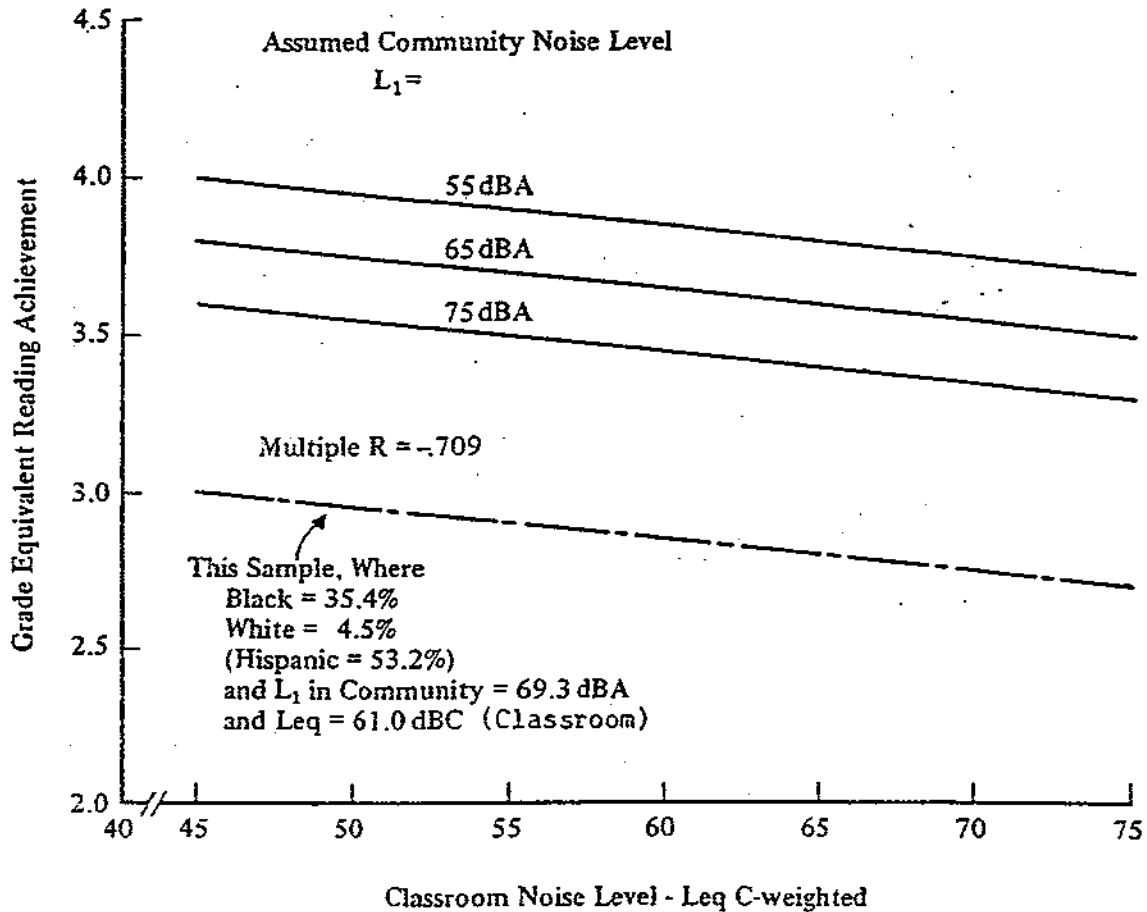


Figure 2

RELATIONSHIP BETWEEN READING ACHIEVEMENT OF THIRD GRADERS AND CLASSROOM NOISE LEVELS GIVEN DIFFERENT NOISE LEVELS IN COMMUNITIES
The Population is Assumed to be 23 Percent Black and 24 Percent White

The upper curves illustrate the estimated relationship between reading achievement and noise levels in the classroom and the community assuming that the racial composition of the schools is 23% Black and 24% White, 46% Hispanic and 7% other. It shows that at any given classroom noise level as the noise level in the community increases, reading achievement decreases. Conversely, at a constant noise level in the community, achievement in reading decreases directly with increasing noise level in the classroom. The lowest curve shows the results for this sample of schools in which the racial and noise level parameters differ from those assumed for the upper curves. Because the curves are parallel, decreased noise levels in the communities should result in a shift upward of the lowermost curve.

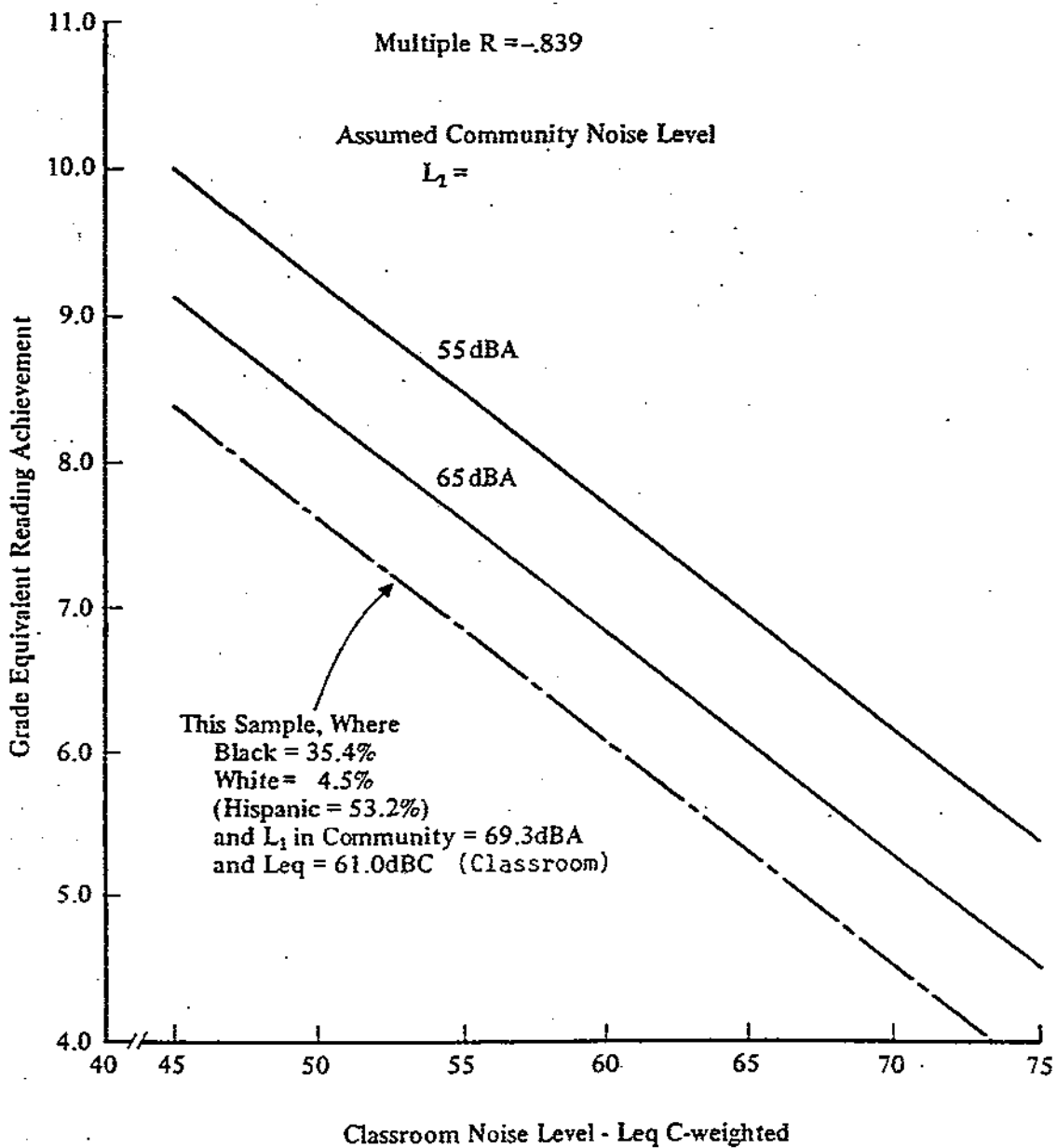


Figure 3

RELATIONSHIP BETWEEN READING ACHIEVEMENT OF SIXTH GRADERS AND CLASSROOM NOISE LEVELS GIVEN DIFFERENT NOISE LEVELS IN COMMUNITIES
The Population is Assumed to be 23 Percent Black and 24 Percent White

School District: 23 percent Black and 24 percent White.

Most remarkable about these data is the apparent trade-off between noise levels in the community and those in the classroom. In other words, if the community is quiet, more noise in the classroom can be tolerated without appreciable effect upon reading. For these third graders it appears that a 10 dB increase in community noise level is equivalent to about a 20 dB increase in classroom noise level. The magnitude of this trade-off is due to the low correlations between reading achievement and noise levels in the classrooms and communities, which in turn may be due to the limited range (1.9 G.E. units) of achievement. Indeed, the multiple correlation does not attain statistical significance.

In Figure 2, the bottom, dashed line represents the results for this sample of schools given its average racial composition and the average community noise level. Clearly, on average this group of students was not achieving at grade level; that is, near or at 4.0. Rather, average achievement was 2.9 units in reading. The highest achievement was attained at a single school with a grade equivalent of 4.1, the lowest was 2.2.

Because the multiple correlation was not statistically significant, and because of suggested possible cumulative effects of an early educational deficit, it appears unwise to belabor further the third graders' data.

As is illustrated in Figure 3, the effects of noise level in classrooms were more pronounced with sixth graders than was the case with third graders. Here a 10 dB increase in classroom noise level resulted in a decrease of about 1.5 grade equivalent units, or about .15 units per dB. Community noise levels have less effect; a 0.9 grade unit decrease for a 10 dB increase in noise level, or about 0.1 grade unit per dB. It is worthwhile to note that the degradation in reading with increases in community noise level is consistent with the findings of Cohen, Glass and Singer.⁵

E. Results with Non-English-Fluent Children

The Correlations between achievement in reading and mathematics and classroom noise levels for the non-English-speaking and English-weak students are invariably low; details may be found in Tables G-3 and G-4. It is likely that this is a result of the students' general inability to read and understand the English language, as is reflected in their generally low and narrow range of achievement scores (see Table IX). It is reasonable, therefore, not to discuss these data further.

F. Implications Regarding Classroom Noise Levels

Because of the trade-off between classroom and community noise levels, it is clear that the proscribed level for classrooms depends upon the noise level obtained or that which may be proscribed for the communities. Our sample of communities had average L_1 levels of 69.3 dBA or an $L_{eq} = 60$ dBA. The effects of those levels on the childrens' achievement are shown in the lowermost curve of Figure 3. Again, as in Figure 2, the socioeconomic variables are those found in our sample. Use of the lowermost curve to establish a criterion classroom noise level appears unwarranted because the percentage of White children is low while the percentage of Black (and Hispanic, as well) children is high as compared to their distribution throughout the school district. Consequently, at this time it seems advisable to use one of the upper three curves to establish the criterion level. We have selected an $L_1 = 65$ dBA as a criterion community noise level for several reasons: 1. It is equivalent approximately to an $L_{dn} = 60$ dBA, which is the estimated exposure of about 54 percent of the urban population of the U.S.;¹⁹ 2. An L_{dn} of 60 dBA is near the upper limit for single family residential areas recommended in California;²⁰ 3. It encompasses the FHWA criterion for highway noise impacting upon a sensitive outdoor space of $L_{dn} = 60$ dBA;²¹ and 4. The reduction of noise levels in urban communities to more satisfactory levels is likely to be a slow process.

Assuming that the average achievement of children completing the sixth grade should be about 7.0 grade equivalent units, Figure 3 indicates that the L_{eq} C-weighted in the classroom should not exceed 59 dB. This level in units of L_{eq} A-weighted is about 46 dB, and equivalent to an $L_{10} = 48$ dBA. It is interesting to note that this latter level is only about 2 dB higher than that recommended ($L_{10} = 46$ dBA) in the National Cooperative Highway Research Program Report No. 117, which was based primarily upon degradation of the Articulation Index by noise. This document apparently was used to establish the federal noise abatement criterion level.

G. Classroom Behavior

Tables XIX and XX present average noise levels in units of L_{eq} C-weighted under three classroom conditions: without children, with quiet children, and with typical activities ongoing. Children were considered to be quiet when they were working individually in their workbooks, for example, and there was no verbal interaction between students and teacher, although some students may have been talking together. Typical activities were those in which the children and teachers were interacting, some children may have been moving around, and some were perhaps shuffling papers, pencils, feet, etc. The tables also include the changes in noise levels relative to the typical level that precluded hearing what the teachers and students were saying, the Articulation Index given the teachers' voice levels, and an estimate of the relative incidence per unit of time that the observers were unable to hear the teachers and students. This latter number is a rough estimate because of the problem of determining, on the basis of the daily classroom log, the exact number of minutes or number of opportunities during some activity when the teacher and students were attempting to communicate verbally. For example, during a session devoted to spelling, the teacher may call out a word to be spelled, she or he then looks around the room for hands or otherwise selects a student to respond, calls a name, repeats the word, at which time and after some delay the student attempts to spell it. Although the time used by the teacher to speak the word, the student's name, and the student's response may be brief, the intervals between these events are of variable and of unspecified duration. Furthermore, preparation times for activities such as putting word lists away before a spelling test or finding a reading book were of highly variable durations and appeared to depend upon the demeanor of the students. Despite the limited value of these results, they are presented herein to provide an approximation of the inability to hear speech in the classrooms studied. When this normalized Can't Hear rate was used as the dependent variable and the other variables (excluding can't hear teacher because of the limited sample) were used as independent variables in a multiple regression equation, the multiple correlation coefficients were low (≈ 0.20 for both third and sixth grade classrooms) and statistically insignificant. The intercorrelation matrix for both grade levels are provided in Appendix H.

The data presented in the two tables discussed above are combined in Table XXI in order to show the average values of the variables aggregated on the basis of whether or not the classroom noise levels without children present exceeded 58 dBC (see Section F. above). Also included are the average voice levels (in L_{eq} -C) of the teachers. In Table XXI it may be seen that in the classrooms with high background noise levels (greater than 58 dBC) the contribution of the children to the noise level is small compared to classrooms in which background levels are at or less than 58 dBC. Specifically, in the noisy classrooms background noise levels prevailed so that when the children were present but quiet noise increased only 1.5 dB (an average over the third and sixth grades), but if typical activities were ongoing noise levels increased by about 3.5 dB. In contrast, in the quieter classrooms the presence of children (due to paper shuffling, some whispering, etc.) added about 8.5 dB to the levels, and typical activity added about 12.5 dB to the background levels. But the fact that similar typical levels were found in both groups of schools suggests that children generate limited amounts of noise. Thus, in schools in noisy areas outside sources of noise prevail, whereas in quiet schools noise generated by the children is

NOISE LEVELS (Leq - HTED) UNDER SELECTED CONDITIONS
AND THE INCREASED LEVELS CORRESPONDING WITH AN
INABILITY TO HEAR TEACHERS AND STUDENTS
- THIRD GRADE CLASSROOMS -

NOISY SCHOOLS										QUIET SCHOOLS										
School Code No.	Class-room No.	Leq-C Weighted			Change Can't Hear Teacher ¹	A.I.	Change Can't Hear Student ²	Normal Can't Hear ³	Total Can't Hear ³		School Code No.	Class-room No.	Leq-C Weighted			Change Can't Hear Teacher ¹	A.I.	Change Can't Hear Student ²	Normal Can't Hear ³	Total Can't Hear ³
		No Children	Quiet Children	Typical									No Children	Quiet Children	Typical					
6802	17	61	62.5	63.7	N.D.	.93	-.7	.053	5*	6893	14	54		N.D. - One Day	.98	N.D.	.011	1		
	18	61	N.S.	65.1	N.D.	.92	.2	.165	14		15	54	61.6	65.9	N.D.	.98	-1.2	.146	30	
7214	Not Obtained									8501	10	54	60.2	64.7	3.1	.90E	-1.4	.737	14	
											17	54	65.5	65.3	N.D.	.95	.8	.493	72,1	
7651	34	61	64.6	70.4	1.5	.79	-.1	.192	8,12	9004	32	53	67.7	67.5	8.6	.95	-.1	.099	20,1	
	35	62	65.8	68.2	N.D.	.73	-0.1	.139	23		37	54	59.2	69.8	N.D.	1.0	2.7	.220	11	
7941											38	55	69.9	71.1	N.D.	1.0	1.1	.039	7	
	11	68	N.S.	67.5	5.1	.71	7.4	.132	5											
	12	66	67.4	69.3	-1.6	.71	-.4	.442	76											
	13	73	67	70.2	3.8	.60E	-1.4	.211	41											
	14	73	67.1	68.2	N.D.	.45E	N.D.	.048	3											
	26	74	76.4	74.3	1.8	.54	.4	.013	2											
27	74E	72.3	77.6	2.5	.54E	.4	.708	80												
8071	39	65	Disorganized			.93		.038	5	5747	5	50	61.8	67.4	N.D.	.98	1.9	.467	33,2*	
	40	65	61.0	62.4	N.D.	.70	-.3	.013	2		6	50	60.4	65.9	N.D.	.94	1.0	.360	9	
											9	51	64.0	66.4	-1.5	.99	-1.5	.382	12,1	
											26	60	63.4	64.6	-1.9	.96	-1.9	1.040	21,5	
9095	15	61	67.4	70.6	-.3	.98	-3.8	2,296	113, 11*											
	24	66	66.0	66.2	N.D.	.97	-.6	-	41,27*											
	28	59	65.0	68.3	N.D.	.32	-2.4	.843	57,2											
9251	24	63	62.2	62.8	5.8	.39	-1.1	.978	68,12	6174	50	55	62.9	67.7	N.D.	.96	2.7	.040	4	
	25	69	66.8	70.6	N.D.	.56	0.6	.419	35		54	53	66.1	65.8	N.D.	.96	-1.6	.251	45*	
	27	70	68.4	69.9	3.8	.86	1.1	.066	5,1*		55	53		N.D. - One Day	.97	N.D.	.333	12,12*		
9825	15	68	65.2	70.5	.8	.63	2.2	3,467	48,4											
9889	22	59	69.5	66.9	N.D.	1.0	-1.2	1,886	65,1	9558	22	56	66.6	70.9	N.D.	.97	-3.2	.081	11*	
	35	62	59.5	63.9	N.D.	.95	1.7	.508	18,30*		23	56	65.8	69.1	N.D.	.94	-.3.8	~	46	
		62	63.1	65.1	N.D.	.96	N.D.	.104	3,2		43	58	62.1	68.9	.9	.98	-1.2	.078	8,2	
	36	62	63.1	65.1	N.D.	.96	N.D.	.104	3,2		44	58	62.3	66.7	N.D.	1.0	.9	.311	26,2	
										50	56	Only	Substitute Teachers	.99	-	-	12*			
										51	56	61.4	66.0	N.D.	.99	-.4	.267	16		

1. Change relative to Typical Leq (During Can't Hear in Leq-C - Typical in Leq-C).
2. Normalized Can't Hear rate for teachers plus students = Total No. of Can't Hear/Number of minutes of observation (estimated from daily classroom log - Appendix B) X 100.
3. Observers were more often unable to hear the students. A single number refers to the number of times an observer was unable to hear the student. The second number refers to an inability to hear the teacher. If the classroom was observed more or less than 3 days, the average incidence per day was calculated and extrapolated to 3 days.*

N.D. No Data. Although there were occasions when the observer was unable to hear students and teachers, they may have occurred when the tape recorder was off.

N.S. No Sample.

E. Articulation Index estimated from noise levels in a comparable classroom.

Table XX

NOISE LEVELS (L_{eq} -C WEIGHTED) UNDER SELECTED CONDITIONS
AND THE INCREASE IN LEVELS CORRESPONDING WITH AN
INABILITY TO HEAR TEACHERS AND STUDENTS
- SIXTH GRADE CLASSROOMS -

NOISY SCHOOLS										QUIET SCHOOLS										
School Code No.	Class-room No.	L_{eq} -C Weighted			Change Can't Hear Teacher ¹	A.I.	Change Can't Hear Student ¹	Normal Can't Hear ²	Total Can't Hear ³		School Code No.	Class-room No.	L_{eq} -C Weighted			Change Can't Hear Teacher ¹	A.I.	Change Can't Hear Student ¹	Normal Can't Hear ²	Total Can't Hear ³
		No Children	Quiet Children	Typical									No Children	Quiet Children	Typical					
6802	5	60	61.1	64.0	N.D.	.58	.9	.043	5	6893	6	52	63.8	71.4	4.2	.99	-4.4	.017	3	
	10	61	66.4	68.4	N.D.	.71	-.2	.618	68		8	52	60.5	66.3	2.3	.97	.1	.411	38,1	
7214			Not Obtained							8501	1	54	57.3	64.2	N.D.	.99	-2.7	.155	30	
											6	54	64.4	68.8	N.D.	.99	-.8	.072	11	
7651	16	60	63.5	67.1	4.0	.69	-2.1	.044	5,1	9004	4	69	71.5	70.9	N.D.	.74	6.4	.079	5	
	27	59	65.0	67.7	N.D.	.72	-.4	.248	36		5	64	67.1	69.7	2.7	.87	3.0	.206	28,4	
											6	58		Poor Quality	.87E	Data	0	0	0	
											7	58	68.5	69.7	N.D.	.87	1.3	.308	30*	
7941	15	69	68.1	70.6	-.5	.64	-.6	1.069	156,60											
	16	71	71.0	71.1	4.5	.82	4.5	.361	61											
	19	62	64.2	64.7	1.0	.62	-1.0	.256	93,45											
8071	27	65		Rehearsals		.76	-	Inc.		5747	29	59	63.0	68.4	N.D.	.97	N.D.	0	0	
	30	64		Rehearsals		.76E	-	Inc.			30	58	62.2	65.3	N.D.	.97	-3.0	.087	9	
9095	8	63	73.0	74.1	.9	.86	-2.3	-	T=10											
	10	67	67.7	71.1	.3	.87	-1.1	.605	20,3											
	13	63	N.S.	67.6	.6	.87	.9	1.138	72,2											
9251	43	57	63.1	64.0	N.D.	.96	-2.2	.175	22	6174	20	57	59.2	66.9	3.1	.88	-1.2	.432	70,10	
	46	59	64.2	63.6	N.D.	.87	-.3	.134	37*		21	57	61.5	69.0	5.1	.98	-5.2	.248	38,3*	
	48	59	65.9	64.0	N.D.	.92	-3.7	.590	81,1		22	57	70.1	68.1	N.D.	.98	-6.5	.104	27*	
	49	59	68.7	67.2	6.4	.98	1.2	.045	5		26	55	61.4	62.0	N.D.	.64	-3	1.419	49,12	
9825	14	65	67.7	66.7	N.D.	.60	2.9	.132	5											
9889	8	67	62.2	68.3	4.6	.61	-3.6	.232	40,4	9558	7	62	62.7	69.1	N.D.	.96	N.D.	0	0	
	16	62	64.9	66.1	N.D.	.84	-.2	.145	21,1		13	64	N.S.	68.6	-.6	.75	.9	.75	12,3	
	17	62	74.2	71.4	.5	.95	-1.9	.221	23,8		15	62	63.6	68.7	2.2	.94	.8	.425	30,1	

1. Change relative to Typical L_{eq} (During Can't Hear in L_{eq} -C - Typical in L_{eq} -C).
2. Normalized Can't Hear rate for teachers plus students = Total no. of Can't Hear/Number of minutes of observation (estimated from daily classroom log - Appendix B) X 100.
3. Observers were more often unable to hear the students. A single number refers to the number of times an observer was unable to hear the student. The second number refers to an inability to hear the teacher. If the classroom was observed more or less than 3 days, the average incidence per day was calculated and extrapolated to 3 days.*

N.D. No Data. Although there were occasions when the observer was unable to hear students and teachers, they may have occurred when the tape recorder was off.

N.S. No Sample.

E. Articulation Index estimated from noise levels in a comparable classroom.

Inc. Incomplete records.

predominant. Because our typical noise levels include the voices of teachers and children and because at times the child speaking was very close to the microphone, the noise levels when the children were quiet is the better basis for estimating how noise affects classroom communication. Classroom observations indicated that when noise levels due to the children's activities became too high (i.e., at or near the typical levels) the teacher called the class to order and paused until the disrupting activities stopped.

Table XXI indicates that in this group of noisy schools the teachers' voice levels were on the average about 1 dB over the Quiet Children condition; hence, the change in level necessary to obscure the teachers' voices was less than was the case in quiet schools where the teachers' voices were about 3 dB above the Quiet Children condition. It must be remembered that the teachers' voice levels were measured at a distance of six feet, but in the classroom the recordings were obtained when the teacher was at a greater distance. Thus, teachers' voice levels as recorded during the classroom observations probably were about 4 dB less intense (as estimated from Ref. 12) than those shown in the table. In these noisy schools the teachers' voice levels at the back of the room were very near the background noise levels without children present. In these quiet schools, in contrast, at the rear of the class the teachers' voice levels were about 7 dB above the levels without children present, and near the levels observed when the children were quiet.

Because estimates of children's voice levels are unavailable* a similar analysis of their probable intensities at the teacher's ear cannot be made. However, the intensity changes associated with an inability to hear the children are small and typically negative, indicating that the levels during the Can't Hear event were indistinguishable from or less than the typical level. Furthermore, it is reasonable to hypothesize that in these noisy schools the children's voice levels were frequently at or below the levels observed when the children were absent, and that the teacher may have had difficulty hearing ~~what~~^{what} was being said. We observed instances, particularly in noisy classrooms, in which children mispronounced or misspelled a word without correction by the teacher. Presumably, the teacher did not hear the error, and upon subsequent questioning the teacher admitted that she had not heard.

As is to be expected, the articulation indices in this group of noisy classrooms is lower than in the quiet classrooms. In addition, the earlier finding that children in quiet classrooms do better academically than children in noisy classrooms is seen again.

Teachers have observed that as a result of noise children are less well behaved and require more direct control than do children in quieter classrooms. It was thought that a simple test of this observation might be to count the number of rebukes of the children and the number of times a class is called to order to discern if such numbers are related to the classroom noise levels. Hence, Table XXII presents the number of rebukes as an average over classrooms and the average noise levels extant shortly before those rebukes occurred. Noise levels before the event were recorded because of the possibility that a noise threshold must be reached before the teacher calls the class or individual children to order.

It will be seen that there appears to be no relationship between the number of rebukes and the noise levels occurring just before a rebuke. Furthermore, there are no differences in the number of rebukes observed in these groups of noisy and quiet classrooms. These limited data suggest that calls for order were precipitated by levels of about 69 dBC.

In order to assure ourselves that this result was not due to the way the classrooms were divided, we calculated the intercorrelation matrix of the three variables shown in Table XXII and the relative frequency of rebukes based upon total observation time in each

*Pearsons et al.¹² measured voice levels of children under age 13 in an anechoic chamber. Whether children's voices in school have comparable intensities is unclear. Our observations indicate they are less intense. In fact, some children appeared to be whispering at times.

Table XXII

AVERAGE NUMBER OF REBUKES AND NOISE LEVELS
BEFORE THE REBUKE IN CLASSROOMS
CATEGORIZED BY NOISE LEVELS WITHOUT CHILDREN

	L _{eq} Without Children > 58 dBC			L _{eq} Without Children ≤ 58 dBC		
	No Children	Number of Rebukes	L _{eq} C Before a Rebuke.	No Children	Number of Rebukes	L _{eq} C Before a Rebuke
			<u>Third Grades</u>			
Mean	65.3	114.0	69.1	54.2	88.6	69.2
s	5.0	73.6	4.4	2.3	57.3	2.7
			<u>Sixth Grades</u>			
Mean	63.9	51.2	67.7	55.6	82.2	68.9
s	3.0	34.9	5.1	2.3	47.4	2.7

classroom. Correlation coefficients between the noise levels and both rebuke frequency measures were on the order of 0.05.

Discussion

That a negative relationship exists between classroom noise levels and reading achievement has been demonstrated by this study, Bronzaft and McCarthy,² and Cohen, et al.^{3,5} A similar relationship between community noise levels and reading achievement has been shown herein as well as by Cohen, et al.⁵ and Green, et al.²² In these studies the sources of noise were aircraft, freeways and local thoroughfares, and elevated trains. Retrospectively, it is perhaps not surprising that both community and classroom noise levels are correlated with achievement levels if we consider how noise from such sources is propagated throughout the community. Indeed, as was shown in Appendix G, there was a high correlation ($=0.65$) between classroom noise levels in units of L_{eq} -C and background noise levels (L_{99}). Furthermore, the classroom C-weighted levels were more highly correlated with community levels than were the classroom A-weighted levels, which probably reflects the fact that low frequencies propagate more widely and with less attenuation than do the higher frequencies.

What this study and most of the others fail to demonstrate (although some investigators did not try) is the immediate effect of noise on classroom behavior or operations. The exceptional study was that of Crook and Langdon,¹ which showed that as noise from aircraft flyovers intensified there was an increasing incidence of (1) an inability to hear what teachers were saying, (2) pauses by teachers to permit the noise to cease, and (3) increases in the teachers' voice levels in compensation for the noise. In the noisy classrooms of this study, noise events such as passbys of trucks, motorcycles, or noisy automobiles were difficult to measure from the tape recordings because of the generally high background noise levels due to heavy traffic and the ongoing discussions between students and teachers. Thus, an event, although audible, was acoustically indiscernible. Despite this inability to demonstrate certain behavioral effects of noise, the fact that independent studies with a variety of noise sources show less achievement in noisy schools and communities indicates that noise hampers the educational process in some way. Cohen and Weinstein²³ have suggested several possibilities. Moreover, it appears that early academic deficits due to noise become progressively worse. Because of this progressive deficit and because children are exposed to community noise well before their exposures in classrooms, it appears that abatement of community noise should be emphasized more than abatement of classroom noise. Of course, if community noise is abated classroom noise will be also.

Abatement of classroom noise is a relatively simple problem technically* and has been shown to be of some benefit to the students academically.^{3,24} The question of importance for this study was, "What should the criterion noise level be?"

In terms of behavioral effects the results are equivocal, but in terms of academic achievement the results are more clear, notwithstanding the fact that children do contribute to background noise levels. As was pointed out with respect to Table XXI, when the children in noisy schools were relatively quiet the predominant source of noise was traffic. Here the children when quiet added only 1.5 dB to the background traffic level, which might be accounted for by the variance of traffic noise rather than the presence of the children. On the other hand, in the quiet schools the noise level with children quiet was about 3.0 dB quieter than were the noisy schools without children present. If we assume that when children are quiet they produce an L_{eq} of 63 dB C-weighted,* then logarithmic addition of the noise levels observed in the noisy classrooms from traffic alone (64.5 dB as an average over the third and sixth grades) to another random

*Reducing community noise levels is technically and politically difficult because it appears that a major requirement will be to reduce noise levels at their sources, and organized opposition to such attempts has been amply demonstrated during recent history.

*This level is consistent with that reported by Pearsons, et al.¹² Comparison of A- and C-weighted L_{eq} s when only trucks and local traffic were the noise sources indicates that L_{eq} C-weighted - 13 = L_{eq} A-weighted.

noise of 63 dB (children quiet) will result in a total noise level of about 66.5 dB. As may be seen in Table XXI, this is very close to the noise levels observed in the noisy classrooms with children present but quiet. In other words, noise levels from outside sources appear to have a major influence on classroom noise levels when the children are present and quiet. This analysis suggests that noise levels resulting from the presence of quiet children should not be taken into account in developing a criterion noise level for an abatement program.

Furthermore, teachers have the responsibility for controlling noise levels in their classrooms in order to assure that adequate communication is possible, but they have no control over external sources of noise. These external sources may influence their vocal efforts.¹² But, despite these efforts the Articulation Indices calculated in this group of schools show that in noisy classrooms the average (over third and sixth grades) Articulation Index was .77, whereas it was .95 in the quiet classrooms. Although the first number is some 19% less than is the second, according to the usual interpretation of these numbers speech communication should be adequate if the teacher is talking. Our observations indicated that children do not speak as loudly as do the teachers. If we consider that education depends upon interactions between students and teacher, then given the apparently lower voice levels of the students and, at times, their less than ideal distance from the teacher, it can be hypothesized safely that high background noise levels from external sources are a greater detriment to the ability of the teacher to hear the student than is the converse. Indeed, the observers recorded an inability to hear the students about 9 times as frequently as their inability to hear the teacher when all of the data were combined (Table IV), and about twice as frequently when the observation periods of teacher versus students were controlled (Table V). Finally, the changes in level recorded when the observers were unable to hear the children were near or below typical noise levels (see Table XXI), which suggests that discrimination of a single voice from a noise milieu is a difficult task for the teacher and should be accounted for in establishing a criterion level for noise abatement. It is thought that using the reading achievement results, which appear most sensitive to noise, provides conservative but indirect assurance of accounting for the teachers' difficulty.

Conclusion

A recommended design criterion for traffic noise levels inside classrooms ($L_{eq} = 58$ dB C-weighted)²⁵ is advanced on the basis of two independent studies: The one reported herein and the National Cooperative Highway Research Program Report No. 117.²⁶ This recommendation should be accepted as the basis for revision of current standards pending the availability of additional information.

Because of the apparent synergistic effects of community and classroom noise levels on academic achievement, in order for the above classroom noise limit to be effective in preventing degradation of academic achievement from noise, efforts will be required to contain community noise levels so as not to exceed $L_1 = 65$ dBA.

²⁵This level is equivalent, approximately, to an $L_{10} = 48$ dBA, which is 7 dB less than the current Federal standard ($L_{10} = 55$ dBA), but about 6 dBA higher than the California standard ($L_1 = 50$ dBA = $L_{10} = 42$ dBA). Use of the C-weighting is recommended because C-weighted sound level measurements are more sensitive to the lower sound frequencies found in traffic noise and are generally more highly correlated with achievement in reading.

References and Technical Notes

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4. Estimated from Bishop, D.E. and M.E. Simpson. Correlations between different community noise measures. *Noise Control Engineering*. Autumn 1973, 74-78. See also, Flynn, D.R., et al.: Highway Noise Criteria Study: Traffic Noise Data Base. *N.B.S. Technical Note 113-1*. April 1980, C-1 to C-29.
5. Cohen, S., D.C. Glass, and J.E. Singer: "Apartment noise, auditory discrimination and reading ability in children". *J. Exptl. Soc. Psychol.* 9, 407-422 (1973).
6. "Community Noise Monitoring - A Manual for Implementation". (WR 76-8). Prepared for U.S. E.P.A. by Wyle Research. July 1976.
7. An attempt was made to measure 24-hour noise exposures of some children through use of dosimeters. This effort was unsuccessful because we were unable to obtain consenting parents and/or children in the time allotted in the various schools. However, in two schools we were able to recruit several students. Their noise exposures over 24 hours averaged about $L_{eq} = 80$ dBA, consistent with the preliminary results reported by Roche, et al. (Longitudinal Study of Human Hearing: Its Relationship to Noise and Other Factors II, PMRL-TR-79-102 (Wright-Patterson A.F.B., Ohio) November 1979.)
8. The efforts and cooperation of the Air and Industrial Hygiene Laboratory, Laboratory Services Branch, California Department of Health Services, Preventive Medical Services Division, in developing the monitoring protocol and analysis, compilation and interpretation of the data are acknowledged gratefully.
9. American National Standards Institute; American National Standard: Methods for Calculation of the Articulation Index, ANSI 53.5-1969. January 1969.
10. Hayes, W.L.: *Statistics for Psychologists*. New York, Holt, Reinhart and Winston, 1963, 589f and 601f.
11. Several reasons accounted for the lack of simultaneous recordings by the observers. These were: Different expectations as to how the teacher would conduct a classroom period; differences in understanding the need to record a particular activity; different timing for replacing magnetic tapes; different timing for "breaks"; and an equipment failure.
12. Pearsons, K.S., et al.: "Speech Levels in Various Environments". EPA-600/1-77-025, May 1977, Figure 2 and Tables I and II.
13. Kryter, K.D.: *The Effects of Noise on Man*. New York, Academic Press, 1970, pp. 14, 352 and 353. See also Ref. 4., Flynn, et al.
14. CTB/McGraw-Hill: *Comprehensive Tests of Basic Skills, Form S, Expanded Edition, Examiners' Manual, CTBS-EX-2-S-Man*, McGraw-Hill, Del Monte Research Park, Monterey, CA 93940, 1974.
15. State of California, Department of Education, California Assessment Program, Survey of Basic Skills. Examiners Manual and Test Content Specifications, Publication Sales, California State Department of Education, P.O. Box 271, Sacramento, CA 95802, 1979.

16. Kim., Jae-On and F.J. Kohout: Multiple Regression Analysis: Subprogram Regression. In N.H. Nie et al. (eds.) *Statistical Package for the Social Sciences, 2nd ed.* New York: McGraw-Hill Book Co., 1975, 320-367.
17. "Expanded Standard Scores (Scale Scores) are produced from a single, equal interval scale of scores across all grades for use with all levels of CTBS (Comprehensive Test of Basic Skills). The scale is expressed in three-digit numbers, ranging from 000 to 999. The term 'Expanded Standard Scores' was adopted to indicate that the scale can be transformed linearly into ordinary normalized standard scores at any grade point within a level." From: CTB/McGraw-Hill, *Comprehensive Tests of Basic Skills, Test Coordinator's Handbook, No. 91916*, McGraw-Hill, Del Monte Research Park, Monterey, CA 93940, 1976.
18. The formula for the multiple correlation permits prediction of achievement using the noise and socioeconomic variables as predictors. The prediction equation takes into account the intercorrelations of the prediction variables. N.N. Nie, et al. *Statistical Package for Social Sciences, 2nd ed.* New York: McGraw-Hill Book Co., 1975, 320-342.
19. See Tables B-3 and B-5 in "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety", U.S. E.P.A., 550/9-74-004, March 1974.
20. Office of Noise Control, California Department of Health Services, "Guidelines for the Preparation and Content of Noise Elements of the General Plan". February 1976 and "Model Community Noise Control Ordinance", April 1977, Berkeley, CA 94704.
21. The data collected in this study indicate that an L_1 of 65 \approx L_{10} = 58 dBA. See Page A-21 to A-23 of U.S. E.P.A., Loc Cit.
22. Green, K., et al.: "Effect of Aircraft Noise on Children's Reading and Hearing Levels in Brooklyn and Queens". Presented at Acoust. Soc. of Amer. Meetings, 17-21 November 1980, Los Angeles, Ca.
23. Cohen, S. and N. Weinstein: Nonauditory effects of noise on behavior and health. *J. Social Issues*. 37, 1981, 36-70.
24. Bronzaft, A.L.: "The Effect of Elevated Train Noise on Reading Ability: Followup Report". Presented at Acous. Soc. of Amer. Meetings, 17-21 November 1980, Los Angeles, Ca.
25. Highway Research Board, National Academy of Sciences: "Highway Noise: a Design Guide for Highway Engineers". Report No. 117, 1971.
26. A maximum permissible level of 45 dBA has been recommended for schools impacted by aircraft noise. This level is consistent with the L_{eq} = 58 dBC recommended herein. Trans System Corp and Wyle Laboratories. Study of Soundproofing Public Buildings Near Airports. U.S. DOT-FAA-AEQ-77-9., 1977.

Appendix A

Technique for Estimating Several Socioeconomic Indicators Applicable to the 1978/79 School Year for Selected Schools

Study of census data showed that neighborhoods providing children to a certain school are encompassed by several different census tracts and incorporate only small parts, or "blocks", of the much larger census tracts and in most cases the socioeconomic data (% poverty, median family income, etc.) for each tract were different. Thus, the problem arose of developing a technique for using existing census data - that are applicable to or described in terms of large areas (tracts) - to the specific, smaller neighborhoods feeding children to the specific schools studied.

Technique:

The Los Angeles City Planning Department indicated that the neighborhoods of interest had not had significant changes in the number of dwelling units during the preceding ten years or so. Thus, using the 1970 U.S. Census as a data base, the procedure described below was followed:

1. From maps showing the areas feeding children to our schools and from Census Tract maps - that show Census Block numbers within each tract, we determined the specific Census Blocks that provided children to each of our schools.
2. From the "Census Block Within Tract" data we obtained the number of housing units in each block that contributed children to each school's population.
3. Then we calculated the fractional contribution of a particular block (or blocks) of a tract to a school's population by using the total number of housing units in a tract as the denominator and the number of housing units obtained in Step 2 as the numerator. This fraction was calculated to 3 decimal places.
4. Fractional contributions (Step 3) were calculated for each census tract contributing children to a particular school.
5. The fractional contributions of each tract contributing children to a particular school were multiplied by the median family income, percent in poverty, and percent unemployed for each corresponding tract, and the products summed to arrive at the socioeconomic indicators shown in Table 1.

Mr. Fred Ige of the Los Angeles City Planning Department concurred with the technique, and Mr. Thomas Smuczynski of the Los Angeles City Planning Department provided 1977 estimates of median family income, percent in poverty, and percent unemployed. These 1977 estimates, by census tracts, were obtained from a study conducted by the Planning Department and were based on a two percent sample of households in the City of Los Angeles.

In nine cases the tracts were not in the City of Los Angeles. The 1977 estimates for these tracts were obtained from Urban Decision Systems, Inc., at the suggestion of the Los Angeles County Planning Department.

Jane Rachel Kaplan, Ph.D. was, in large part, responsible for and conducted the described socioeconomic analyses.

Appendix B

Synopsis of a Study Entitled "Effects of Freeway Noise on School Children"

Purpose:

To develop a criterion level for controlling noise from freeways (or other sources) in classrooms.

Method:

In the Los Angeles Unified School District, 20 schools have been selected for study. Half the schools are adjacent to freeways, while the "quiet" ten are not. Quiet schools are used for comparison.

In each school we are concerned only with the third and sixth grades because these grades, by law, are tested relatively extensively for academic achievement. In addition, State law also requires that the children now in grades three and six had their hearing checked the preceding year. Those children with hearing problems have been identified, and can be checked further if necessary.

Typically, we try to study all the third and sixth grades in each school. If this is not possible, the classes studied are selected so they are likely to be the noisiest (nearest the freeway) or quietest (furthest from a playground or noisy street, for example).

We spend three consecutive days in each classroom; hopefully the teacher involved is permanent and experienced at that grade level. In the classroom, we try to set up an observation point that approximates the location of those students who are furthest from the teacher at her/his usual operating position. Typically, the "usual operating position" is at the head of the class in front of the blackboard, from which point the teacher usually lectures the entire class.

Our observations consist of tape recording whatever happens in the classroom, including noise from freeways, airplanes, local streets, playgrounds, children in the classroom and the teacher. These tapes are subsequently analyzed to determine the noise level when certain classroom "events" occur, then the tapes are wiped clean for re-use in another classroom. The "events" are the times that (1) the observer cannot hear what is being said by the teacher or student, (2) the students are distracted by some noise, (3) the teacher rebukes students for not doing their work, or (4) classroom progress is interrupted or delayed while awaiting the cessation of some noisy event. The observer will be making notes on a form during the class. These notes describe what happened in the period and are used to facilitate analysis of the tape. A copy of the form is attached. You can see the forms associated with your class at any time.

A Final Note:

We are in no way evaluating teachers, teaching styles, or content. Please conduct your class as you usually do, ignoring the observer as much as possible. The observer will answer any questions you or the students may have.

Personnel:

Juanita Oñate

Robert Heald

Jerome Lukas

We are members of the Office of Noise Control of the California Department of Health Services.

PROTOCOL AND LOG SHEET FOR CLASSROOM OBSERVERS

School: Street School Room #: 15 Teacher: Mrs. (Subst 2/1) Date: Apr 22, 1979

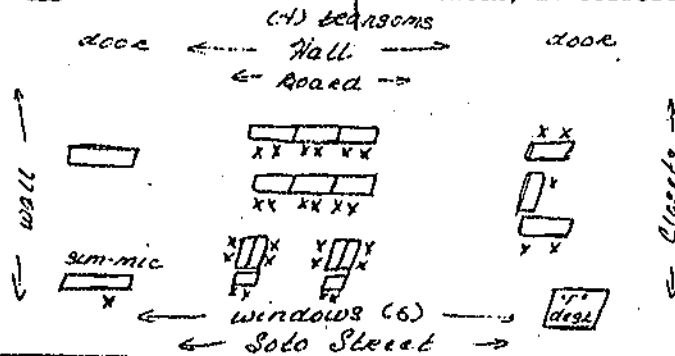
Calibration { Nagra Setting 150 SLM Setting 110 C } Nagra Meter 12.5 Peak (Linear, fast - only) SLM 115.5 Recording { Nagra Setting 150 SLM Setting 70C }

1. Noise level (using 2nd SLM) near beginning of 1st recording, when children are fairly quiet: 88A dB

* checks up to SLM at windows closed

3. Sketch of classroom and location of students, teacher, microphone, and observer's position. Locate observer's position as near as possible to rear center of room.

(1) calibration
(2) Performance



2. Microphone (on Channel 1) near center of room, about 7 feet from teacher's normal working position: 15 ft check, if correct.

(830) all windows closed both doors open.
(1030) one window opened 2' 6 inches (4/15) from SLM

Regular "1" out - Sub w/ class for 1 week - beginning 2nd week

Time		Classroom Activity	Recorded?		No. of "Raises" at Start of Record	Approximate Number of Button Pushes					
Begin	End		Yes	No		Disregard	Can't Hear	Rebuke	Interrupt	Pauses	Distract
9:00	9:05	Administrative		✓							
9:05	9:20	Handwriting noise sample w/ children class reading poem	✓		1 long	too much movement			not a lot of students aware of SLM		
9:20	10:00	Spelling "1" @ front of rm - class divided into separate spelling groups -- 1st group "1" @ side of room -- children giving sentences for spelling words (TAPE OF 9:40) (TAPE OF 9:50) 1st of morning in room "1" @ back of room	✓		2			SSS SSS SSS W W W W W			
10:00	10:25	RECESS		✓							
10:25	12:00	Reading aid w/ group make 1st group 2-4 ft from SLM - children reading out loud -- "1" w/ other group @ far side of rm - "1" doing reading games -- 1 group playing "reading" games note SLM's "early hear" chut reading (1st on 1/2 off)	✓		3			SSS W W W W W			
		Reading - quiet		✓				W W W W W			

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Appendix C

Results of Monitoring of Noise and Air Quality in Feeder Areas of Schools at Various Proximities to Freeways

Jack W. Swing
California Office of Noise Control
Berkeley, California

Presented at the 98th Meeting of the
Acoustical Society of America
Salt Lake City, Utah

November 28, 1979

I would first like to present an overview of the project which is currently being conducted by Jerome Lukas and myself, and which is concerned with the effects of freeway noise on hearing levels and academic achievement of children. A preview of this study was presented at INTER-NOISE '78 in San Francisco, California.¹ The objectives of this larger study are outlined in Figure 1. The report which I am presenting today is concerned with the first objective, that of determining correlations between environmental noise levels, childrens' exposure levels, hearing loss and academic achievement. The other two items will be discussed in the final report on the entire project. (It is of interest that the State of California presently specifies a maximum intrusion level inside classrooms of 50 dB A-weighted. It is assumed that this maximum level is created by the noisiest vehicles on the road; i.e., heavy trucks.)

Figure 2 illustrates the various data elements which comprise the work efforts in the entire program. Four of these data elements are pertinent to today's discussion. These are: school site noise exposure, feeder area environmental noise, and air quality at both school sites and their surrounding feeder areas. This paper, then, is concerned with the environmental monitoring efforts in both noise and air quality which support the study on the effects of freeway noise on the academic performance of school children.

Figure 3 presents a map of the matched noisy and quiet school feeder areas which were incorporated in this study. Those areas shown in red are the high noise impacted schools and their feeder areas, while those in green are the socioeconomically matched quiet schools and their feeder areas. In total, there were 15 schools and their surrounding feeder areas involved in this study. Originally, 32 schools had been selected for preliminary analysis; this number was then reduced to a more manageable number. Of the 15 schools illustrated on the map, 8 of these were selected for air quality analysis. These schools are indicated by an asterisk adjacent to their feeder areas.

Figure 4 presents additional detail on two of the socioeconomically matched feeder areas that were utilized in this study, and serves to illustrate the general nature of the feeder areas providing children to our study schools. As may be observed, the two areas are in close proximity to each other, with the primary difference being that one area has considerably heavier freeway exposure than the other. The matching of areas has been carefully controlled for such

socioeconomic factors as ethnic population, mean housing values, mean income, percent employed, and other pertinent socioeconomic variables. An interesting item to observe in these two feeder areas is that in one case, school 8501,* there is clearly no freeway impact, while in the case of School 7412, a large portion of the feeder area has the Harbor Freeway running straight down the middle. However, off to the east is a segment of residential development well away from the freeway, whose individual noise environment is very close to that of the 8501 School feeder area. The analysis has been confined to those children which live in the immediate proximity of the schools they attend.

Figure 5 illustrates the scope of the monitoring efforts involved in this study. In the community noise monitoring aspects of the program, 15 school sites and their surrounding feeder areas were studied. This resulted in a total of 141 community noise monitoring sites which, at four to five days per site, yielded a monitoring effort of approximately 500 site days. Approximately 1,600 man-hours were expended on the community noise monitoring efforts. The air quality monitoring, which involved eight school sites, was conducted on a rotational basis during December 1978 and January and February of 1979. The monitoring involved measurements at each of eight schools on ten separate days. At each school site, outdoor lead and carbon monoxide were monitored for 24-hour periods. Indoor carbon monoxide was also monitored for two days at each of the schools during school hours.

In addition to fixed monitors at each school site, a fully-equipped air pollution monitoring van was rotated through the system and spent one entire 24-hour period at each of the school sites, thereby effectively replicating the air quality data taken on any given day at any given school site. Approximately 3,000 man-hours were expended in collecting the air quality data.

The personnel utilized for the noise monitoring efforts in this program were technicians from the California Division of Highways (CalTrans) who had little or no prior experience in noise monitoring. These technicians were, however, quite familiar with the air quality monitoring procedures and equipment. Each technician received approximately two hours training in community noise monitoring techniques prior to beginning the actual field monitoring work.

Given that the program would utilize personnel generally unfamiliar with community noise work, the equipment to be used had to be extremely simple, easy to use, reliable, and essentially foolproof. The Gen Rad Model 1945 Community Noise Analyzer was selected as generally fulfilling these requirements. Ten of these units were incorporated in the noise monitoring efforts, along with security boxes and Gen Rad weatherproof microphone systems. These consisted of installation of "pause" buttons on the devices, as well as reducing the run times by a factor of 3, such that we were able to conduct 10-minute samples rather than the normal sampling run time of 30 minutes. Throughout the duration of the noise monitoring, the Gen Rad units functioned reliably and maintained an operability rate on the order of 90% (i.e., 9 of the 10 were generally running and usable). Overall, less than 5% of all the data collected was either lost or invalidated. Most of these failures were due to operator error - such things as forgetting to set the unit to the proper run schedule, or the most common failure, allowing the unit to operate with insufficient battery voltage.

In addition to the Gen Rad units, two BBN Model 614 instruments were used for spot checks on the other data. These units were used exclusively by State Office of Noise Control personnel, because of their somewhat more sophisticated functional characteristics and higher value. The two BBN units functioned satisfactorily throughout the duration of the study.

I will next discuss the temporal sampling aspects of the study effort. Figure 6 illustrates the essential elements incorporated in selection of the community noise monitoring sites. The basic concept involved in site selection was taken from work done by Sutherland at Wyle Laboratories^{2,3} with modifications per R.K. Miller's techniques.^{4,5} Essentially, each school feeder area was identified (using Wyle's terminology) as the spatial sampling unit (SSU). Within each spatial sampling unit, a combination of systematic techniques (after Wyle) and

*In order to preserve confidentiality, schools are identified by code number only.

deterministic site selection processes (after Miller) were utilized. Only residential areas were monitored. These areas were selected in each feeder area by observing maps of each feeder area and, in most cases, driving through these areas to further subdivide the land uses. Each feeder area encompassed a physical area on the order of 1/4 to 1 square mile (.6 - 2.6 km²). Once the residential land use areas in each spatial sampling unit were identified, they were then subdivided into sub-areas of similar noise exposure, based on comparable proximities to freeways, major arterials, commercial strips, and industrial areas (deterministic subdivision). Typically 4-6 sites per spatial sampling unit were utilized. One may infer from Sutherland's analysis that this would yield a 95% confidence interval on the order of $\pm 4-5$ dB.

The next step was to secure specific measurement locations in each SSU. This involved locating a contact person in each feeder area. Generally, this contact person was the PTA president, the community representative, or the school principal. In some cases we found it useful, when time allowed, to address the PTA or parents' meeting, etc., in order to apprise them of our study efforts and the merit of our program towards improving the quality of education their children would receive. The contact person was responsible for providing names and addresses of interested parents residing in each of the identified sub-areas. The contact person would additionally make the initial personal contact with each prospective candidate and apprise them of the nature of the study. This approach yielded a more-or-less random site selection within each sub-area, which was, however, favorably biased in that each site utilized actually represented one of the school children's residences. Each candidate site was then visited and evaluated for suitability. The criteria for site suitability included the following: No dogs; safe, accessible microphone location; no construction in the immediate proximity of the site. Also, the particular site should not be dominated by any "unusual" noise sources (i.e., gas stations, car washes, dry cleaners, refrigeration compressors, should not be adjacent to delivery truck alleys behind markets, should not be near fire stations or hospitals, etc.). For those sites finally accepted for study, a contract was signed between the homeowner and CalTrans, in which the homeowner would receive \$5.00/day for the use of his premises. This amounted to an expenditure of approximately \$1,320 over the course of the study effort. We found, however, that these payments seemed to insure the cooperation and continued interest of the homeowner, who was also a parent of one of the children involved in the study. These individuals took sufficient interest in the program and in the security of the monitoring equipment, that losses due to theft were limited entirely to a single microphone.

When suitable candidate sites within a given SSU could not be located, it was necessary to substitute roving sites which were sampled on a rotational basis. In all cases we attempted to place the microphone as near the center lot as possible, with the provision that it also be located 20 feet (6.1m) or more from the nearest roadway and away from "high activity" areas around the home (swimming pools, air conditioning units, garages, patios, driveways, etc.). At the fixed sites, the microphone was typically mounted on a mast, 5 feet (1.5m) above the roof, either attached to a plumbing vent, chimney, TV antenna mast, or other means of support, at a typical elevation of 12-14 feet (3.7 - 4.3m). For the roving sites, the microphone height was typically 4-5 feet (1.2 - 1.5m), with its placement in the center of vacant lots in the study area. The generalized nature of the spatial sampling patterns is illustrated in Figure 7. In many cases, however, the ratio of fixed to roving or portable survey sites was other than as illustrated in this figure, due to the variables associated with selection of candidate sites and the general agreeability of the community to participate in the noise monitoring program.

In developing the temporal sampling strategies, again the work of Sutherland was incorporated.² The categories of sampling strategies considered in the program are illustrated in Figure 8. The temporal sampling schedules used in the noise survey are shown in Figure 9, and fall between Wyle's Class 2 and Class 3 measurements, in that nine sample periods per day were utilized at the fixed sites, which amounted to 19 hours of sampling for each 24-hour period. The roving site schedule typically followed Type Class 2 procedures, with monitoring at each site occurring for five to six 30-minute measurement sequences per 24-hour period. These sampling schedules were selected to allow the monitoring efforts to be conducted by two CalTrans technicians working on 8-hour overlapping schedules. In some instances it was necessary to modify

the roving site sampling schedule in order to achieve improved security for measurement personnel.

A sample data sheet for one of the fixed monitoring sites is illustrated in Figure 10. These data sheets have been keyed to the fixed location monitoring schedule of Figure 9 and are designed for use with the Gen Rad 1945 monitoring units. A sample preliminary data analysis control sheet, which illustrates the nature of temporal variations typically found at the fixed site noise monitoring locations, is shown in Figure 11. Equivalent energy levels were plotted as a function of time period and duration of sample for each of the community monitoring sites for each of the days which a particular site was sampled. Thus, after four to five days of monitoring a given site, a "typical" trend could be identified. Data lying clearly outside these "normal" trends were then further evaluated and spot checks were conducted at those sites having questionable data.

The preceding discussion dealt with a description of the spatial and temporal sampling considerations incorporated in the conduct of the noise monitoring efforts. I would next like to present some of the preliminary findings of both the air quality analysis and the community noise monitoring. First, let us consider the air quality data and the variations in air pollutant levels as a function of sampling date and freeway proximity of the measurement sites.

Figure 12 illustrates 24-hour outdoor airborne lead levels by school for each of the 10 sample dates. Three pairs of socioeconomically matched noisy and quiet schools are shown in this figure. As may be observed, all six schools illustrate almost identical trends in terms of lead concentrations as a function of their sample date. Proximity to freeways seems to have little or no effect on the values of the measured lead concentrations. Similar trends are also observed in the 24-hour average carbon monoxide levels at these same six schools for the same sampling dates, as shown in Figure 13. For these schools, again note that freeway proximity has little relevance on the levels of pollutants measured. In fact, almost identical trends as a function of sample dates are seen to exist between 24-hour lead levels and 24-hour carbon monoxide levels. Thus, based on these limited samples, we may conclude that air quality, certainly in the Los Angeles area, is primarily a basin phenomena and does not appear to be dependent upon proximity to a freeway.

Monitoring of interior carbon monoxide levels was also conducted at each of the eight school sites; however, interior levels appeared to show little or no correlation to exterior levels for the same measurement periods. Hence, no conclusions can be drawn at this time based on this study's data as to the effectiveness of the classroom building in lowering or at least otherwise affecting indoor carbon monoxide levels.

Finally, Figure 14 illustrates the temporal characteristics of the measured outdoor carbon monoxide levels for a particular school site. This figure, which is a combination of the data from all 10 sampling days, is quite typical in appearance to the other school sites, and illustrates an interesting phenomena; that during the hours of the day that school is in session, carbon monoxide levels tend to be at their lowest values.

Let me now present some preliminary results of the community noise monitoring. Figure 15 illustrates the average daytime noise exposure expressed in terms of L_{eq} for 8 hours for each of the school sites analyzed. As may be observed, the school sites are generally lumped into two distinct groupings; those in the immediate proximities to freeways, and those in the matched feeder areas away from freeways. The noise impacted school sites in general range from 5-6 dB louder than their quiet counterparts. However, it should be noted that the values represented in this figure are the logarithmic average of exposures at a particular school site, weighted by the number of rooms exposed to a particular level. For this analysis, a minimum of three measurements per school site were taken. These measurements were of the maximum exposed classrooms, minimum exposed classrooms, and the estimated average exposed classrooms. Thus, we could expect the overall range of exposures between noisy and matched quiet school sites to be considerably greater than are shown in this figure.

The day-night sound levels for the school feeder areas are summarized in Figure 16. For this initial analysis, the data has been stratified into freeway impacted and non-freeway exposed community sites. For a sample size of 22 freeway impacted sites, the mean value of observed day-night sound levels was 68.4 dB, with a standard deviation of 4.2. For the non-freeway sites (sample size of 82) the mean day-night sound level was 62 dB; with a sigma of 4.1. For all sites combined, the mean value was found to be 63.3, with an expected higher standard deviation of 4.9 dB. In subsequent analysis, the non-freeway sites will be further stratified in terms of their proximity to low volume local streets, high volume arterials, commercial strips, proximity to industrial areas, and single or multi-family housing units. It is anticipated that this further stratification of the non-freeway sites will yield standard deviations on the order of 2-1/2 - 3 dB.

Finally, the cumulative percentages of the populations in each of the feeder areas studied and their relative exposure to environmental noise (expressed in terms of day-night sound level) are summarized in Figure 17. For each school feeder area, the population exposure is expressed in terms of 10%, 50% and 90% levels, indicating that cumulative percentage of a feeder area's population exposed to a particular noise level. In addition to the measured data, we have shown the predicted ambient environmental noise levels based on population density, taken from BBN's 100 point study for the U.S. Environmental Protection Agency.⁶ Computation of this predicted exposure level in L_{dn} uses the following formulation:

$$L_{dn} = 10 (\log_{10} \rho) + 22, \text{ dB}$$

Where ρ is the population density in thousands of people per square mile.

For this analysis, population density was computed based upon the adjusted area within each school feeder area which reflected only residential land use. As may be observed, these predicted environmental noise levels, based solely on population density, covered a rather narrow range, that being from approximately 60 dB to 66 dB L_{dn} . (The population densities based on this adjusted area concept range from 7,100 people per square mile up to 21,000 persons per square mile.) It should be noted, however, that the BBN analysis was based on the assumption that the areas represented by it were not exposed to freeways or aircraft overflight activity. Therefore, applying such an analysis to the freeway noise impacted feeder areas may not be fully appropriate.

An interesting observation can be made looking at the range of populations exposed to the various environmental levels for matched pairs of school feeder areas. The mean, or 50% population exposed levels, do not vary significantly in any of the matched pairs of feeder areas. The range, however, for the freeway-exposed and non-freeway-exposed areas do show considerable spread, where in all cases, the freeway-exposed areas indicate a much higher range of environmental noise exposures. Ongoing analysis will include additional detail on the percentage of each feeder area's population exposed to environmental noise levels.

In conclusion, the purpose of this environmental monitoring has been to provide the supporting documentation needed to readily assess not only the school childrens' classroom noise environment, but the noise environment in which these children reside. This noise exposure information has been supplemented by air quality monitoring data in order that any adverse effects thought to be noise related can also be correlated with the air quality of the area in which the school is located and in which the children reside. We have been concerned, since the beginning of this project, that there may indeed be synergistic effects of combined high noise exposure and high levels of air pollutants experienced by those children residing near freeways. It would appear, at least from our initial analysis, that adverse effects found in these studies may be related solely to the noise exposure climate of the children, in that the air quality appears to be more or less constant throughout the portion of the Los Angeles Basin in which the study was conducted, and independent of freeway proximity.

References

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2. Sutherland, L.C., et al.: "Community Noise Monitoring - A Manual for Implementation". (Wyle Research Report WR 76-8), July 1976.
3. Pies, D.B. and Sutherland, L.C.: "Evaluation of Spatial Sampling Techniques for Community Noise Surveys". (Wyle Research Report WR 77-5), April 1977.
4. Miller, R.K. and Oviatt, M.D.: "New Spatial Methodology for Environmental Noise Measurement". (Work sponsored by U.S. E.P.A.)
5. Miller, R.K., et al.: "City Noise Index". Published by the Southeast Acoustics Institute, Atlanta, Georgia, January 1978.
6. Galloway, W.J., et al.: "Population Distribution of the United States as a Function of Outdoor Noise Level". (BBN Report No. 2592), November 1973.

FIGURE 1

EFFECTS OF FREEWAY NOISE ON SCHOOL CHILDREN

STUDY OBJECTIVES

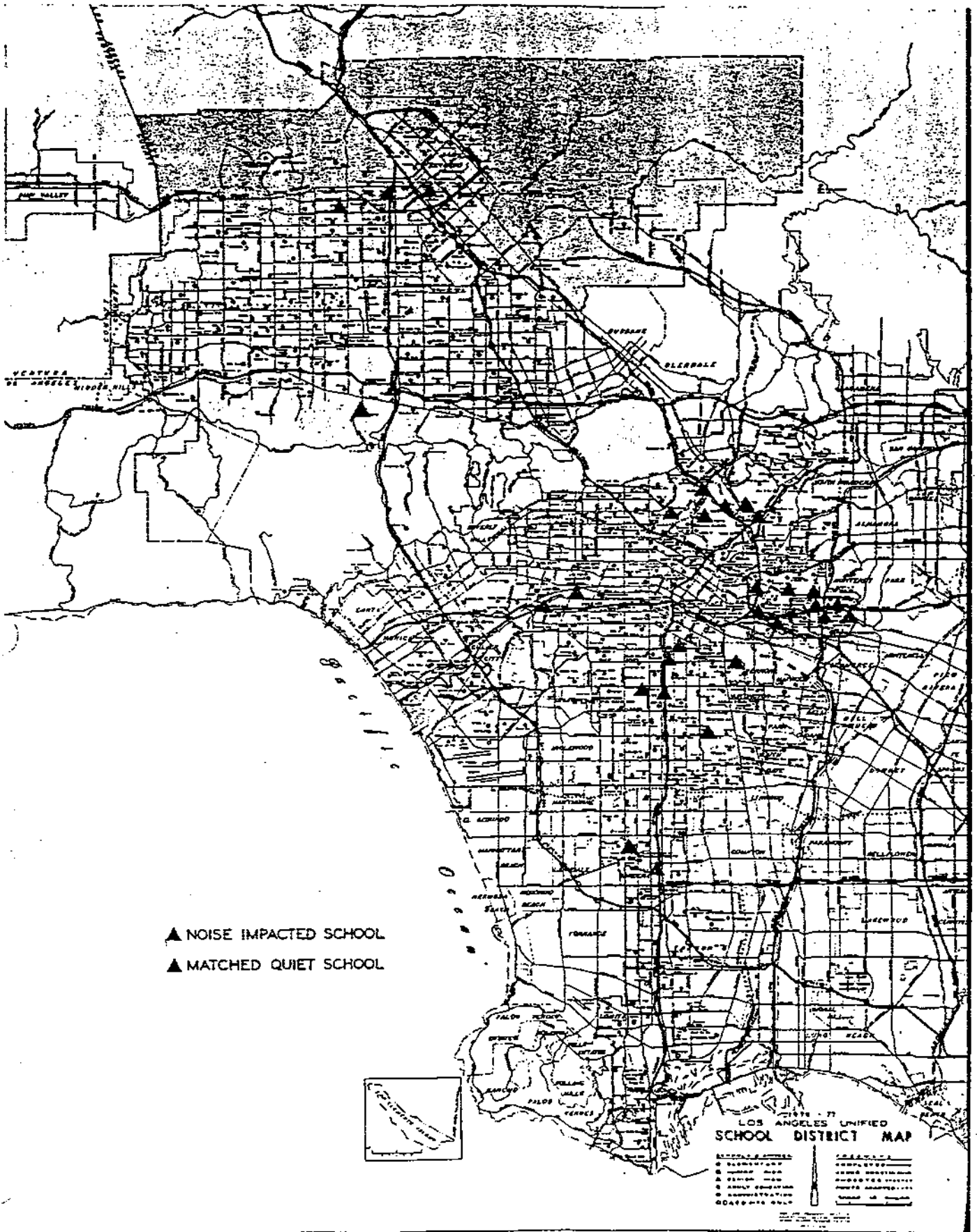
- DETERMINE CORRELATIONS BETWEEN ENVIRONMENTAL NOISE LEVELS, CHILDRENS' EXPOSURE LEVELS, HEARING LOSS AND ACADEMIC ACHIEVEMENT.
- DETERMINE THE DEGREE TO WHICH ENVIRONMENTAL NOISE MAY IMPEDE THE CLASSROOM PERFORMANCE OF TEACHERS AND STUDENTS.
- DEVELOP AN EMPIRICALLY BASED INTERIOR NOISE INTRUSION STANDARD FOR SCHOOL CLASSROOMS.

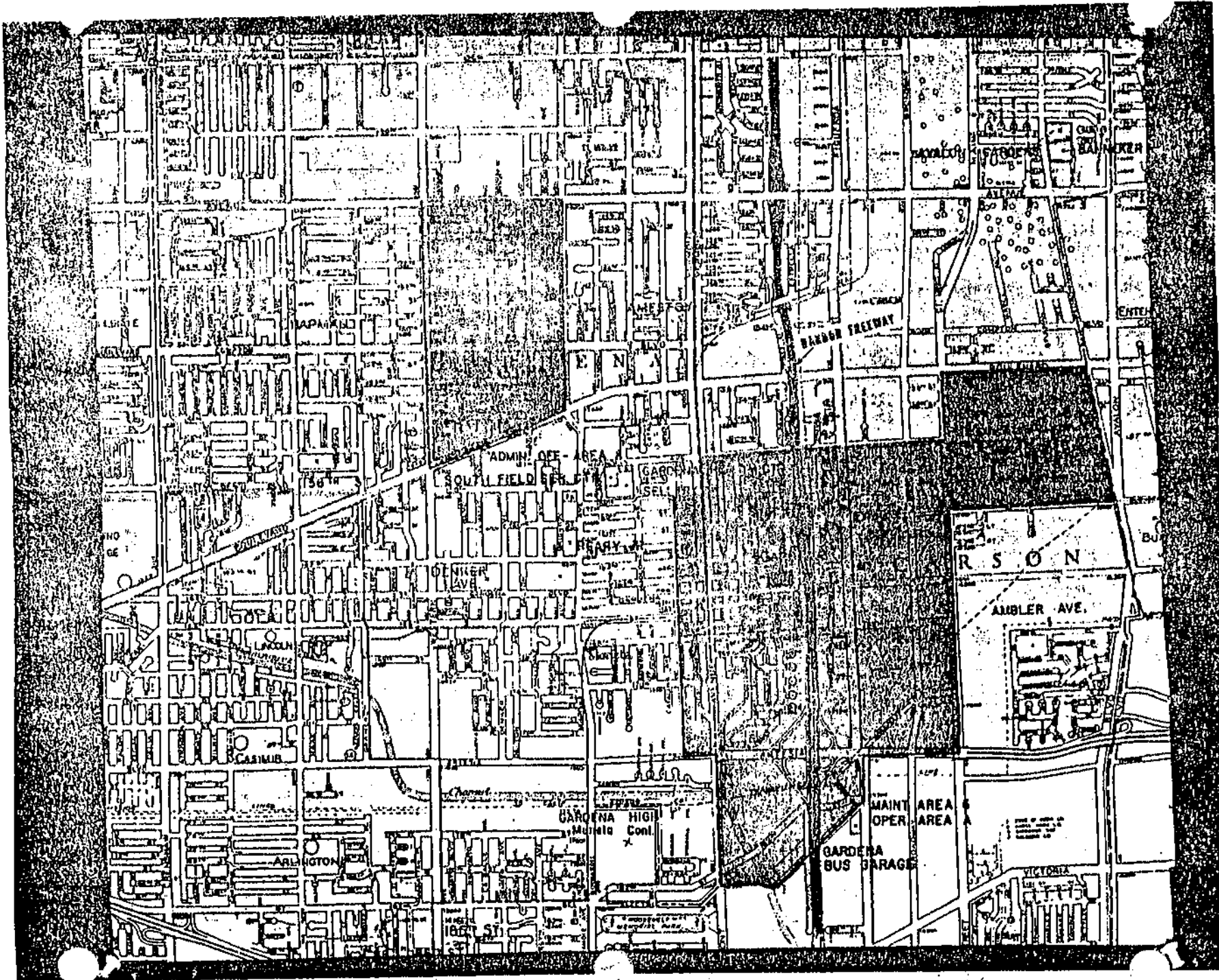
FIGURE 2

EFFECTS OF FREEWAY NOISE ON SCHOOL CHILDREN

DATA ELEMENTS

- ACADEMIC ACHIEVEMENT TEST SCORES
- AUDIOMETRIC PERFORMANCE
- SOCIOECONOMETRICS
- SCHOOL SITE NOISE EXPOSURE
- CLASSROOM NOISE EXPOSURE
- CLASSROOM NOISE INTRUSION CHARACTERISTICS
- FEEDER AREA ENVIRONMENTAL NOISE
- DWELLING SOUND ISOLATION
- INDIVIDUAL NOISE DOSE (DOSIMETER)
- AIR QUALITY - SCHOOL SITES
- AIR QUALITY - FEEDER AREAS





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FIGURE 5

EFFECTS OF FREEWAY NOISE ON SCHOOL CHILDREN

SCOPE OF ENVIRONMENTAL MONITORING EFFORTS

ENVIRONMENTAL MONITORING	FIXED SITES	SITE DAYS	ROVING SITES	SITE DAYS
I. Community Noise				
• 15 School Sites	45	98		
• 15 Feeder Areas	66	290	30	107
II. Air Quality				
• 8 Schools				
24 Hour Pb	8	72	8	8
Outdoor CO	8	94	8	8
Indoor CO	8	19	8	8
III. Soil Lead				
• 31 Schools	124			

FIGURE 6

- COMMUNITY NOISE MONITORING -
SITE SELECTION

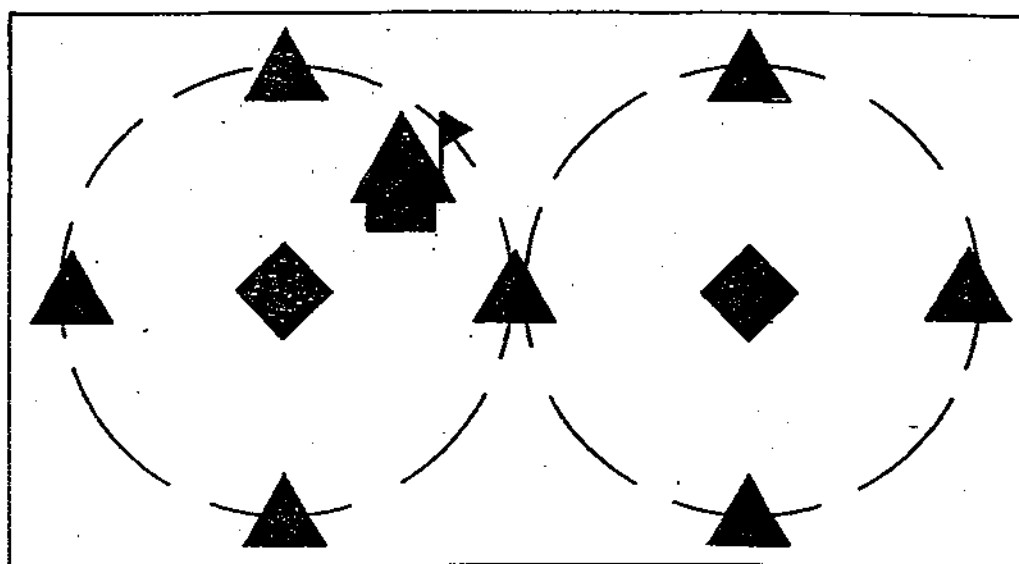
[SCHOOL FEEDER AREA \equiv SPATIAL SAMPLING UNIT (S.S.U.)]

- IDENTIFY RESIDENTIAL LAND USE
- DEFINE SAMPLING SUB-AREAS
- LOCATE CONTACT PERSON
- IDENTIFY CANDIDATES FOR "FIXED" MONITORING SITES
- CHOOSE FIXED AND ROVING SITES
- MICROPHONE PLACEMENT

FIGURE 7

SCHOOL FEEDER AREA SURVEY PLAN

(1.3 - 2.6 km²)



FIXED (CONTROL) SITE



PORTABLE SURVEY STATION

FIGURE 8

COMMUNITY NOISE SURVEY CATEGORIES
(WYLE LABORATORIES)

CLASS I

- ONE 20 + MINUTE MEASUREMENT PER SITE (WEEKDAYS)
- MEASURE DURING MID-DAY PERIOD: 9 AM - 4 PM
- ONE CLASS II CONTROL SITE.

CLASS II

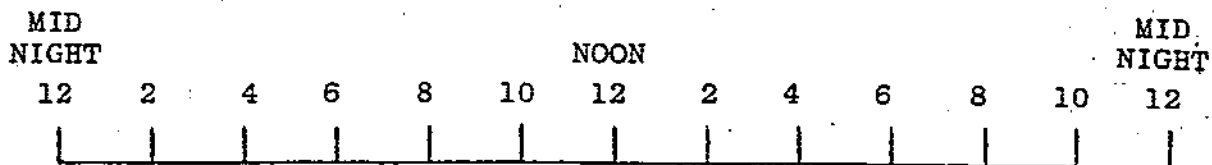
- ONE 20 + MINUTE MEASUREMENT PER SITE PER TIME PERIOD (WEEKDAYS)
 - MID-DAY: 9 AM - 4 PM
 - AM/PM TRAFFIC RUSH HOURS: 7 AM - 9 AM
4 PM - 6 PM
 - EVENING: 6 PM - 12 AM
 - NIGHT/EARLY MORNING: 12 AM - 6 AM
- ONE CLASS III CONTROL SITE.

CLASS III

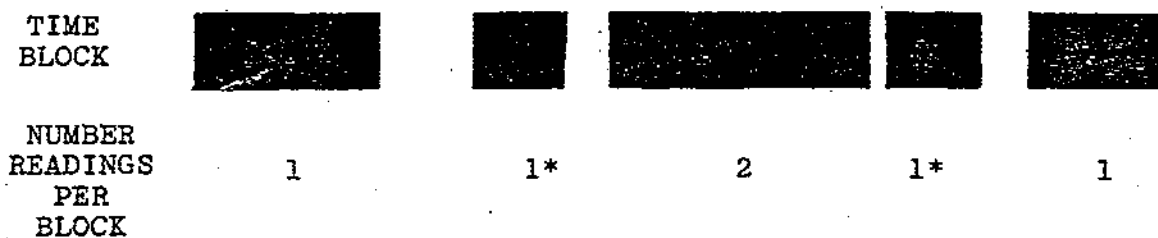
- ONE 20 + MINUTE MEASUREMENT EACH HOUR PER SITE.
- CONTROL SITE - MONITOR BOTH WEEKDAYS AND WEEKENDS.

FIGURE 9

COMMUNITY NOISE SURVEY SCHEDULE
(GEN RAD MODEL 1945)



PORTABLE STATION SCHEDULE



* MAY ALTERNATE DAY TO DAY

FIXED LOCATION SCHEDULE

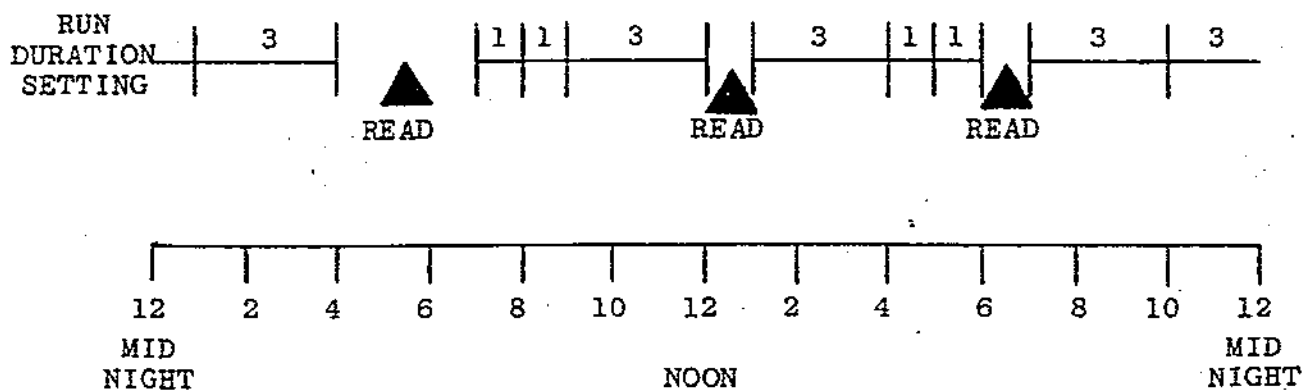


FIGURE 10

COMMUNITY NOISE SURVEY DATA SHEET

School: 6174 School

Sheet _____ of _____

Date: 4/17/79

Day: S M (T) W Th F S

EQUIPMENT: GR 1945

Serial No: _____

Weighting: (A) C Flat

(Fast) / Slow / _____ per sec.

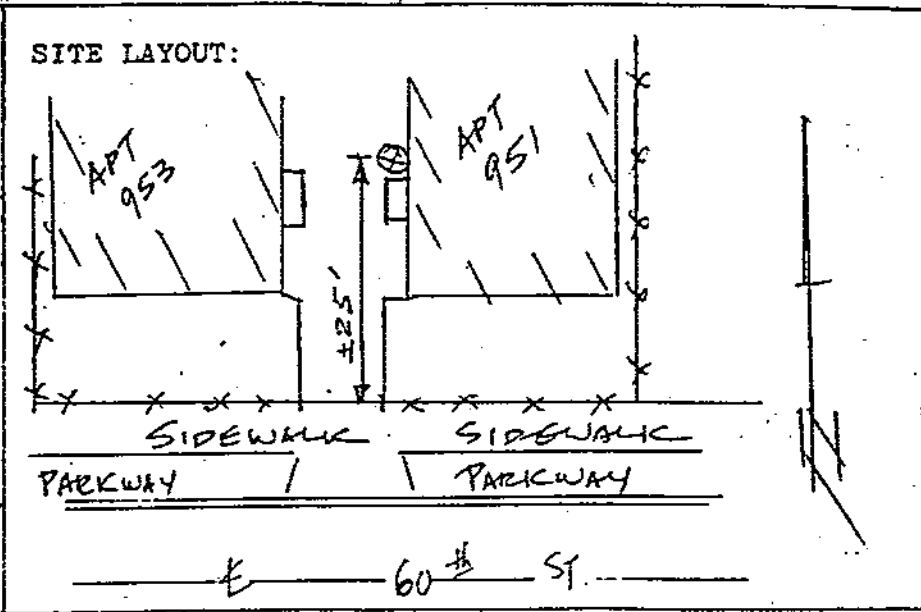
Microphone Height: 16'
ABOVE GROUND LEVEL

WEATHER:

Wind Sp. _____ Direction _____

Temp. _____ Rel. Hum. _____

Other _____



Run	Duration	From	To	Run	Duration	From	To
1	One Hr	0700	To 0800	4	Two Hrs	1400	To 1600
2	One Hr	0800	To 0900	5	One Hr	1600	To 1700
3	Three Hrs	0900	To 1200	6	One Hr	1700	To 1800

Run	L _{max}	L _{0.1}	L ₁	L ₁₀	L ₅₀	L ₉₀	L ₉₉	L _{min}	L _{eq}
1	76	74	69	63	57	52	48	46	60
2	79	73	68	62	57	51	49	47	59
3	83	75	69	61	56	52	49	46	59
4	79	75	70	62	58	54	52	49	60
5	74	72	69	63	58	54	52	48	60
6	85	75	70	64	59	54	51	49	61

Approximate distance to major roadway/freeway: _____

Comments: _____ Site #3

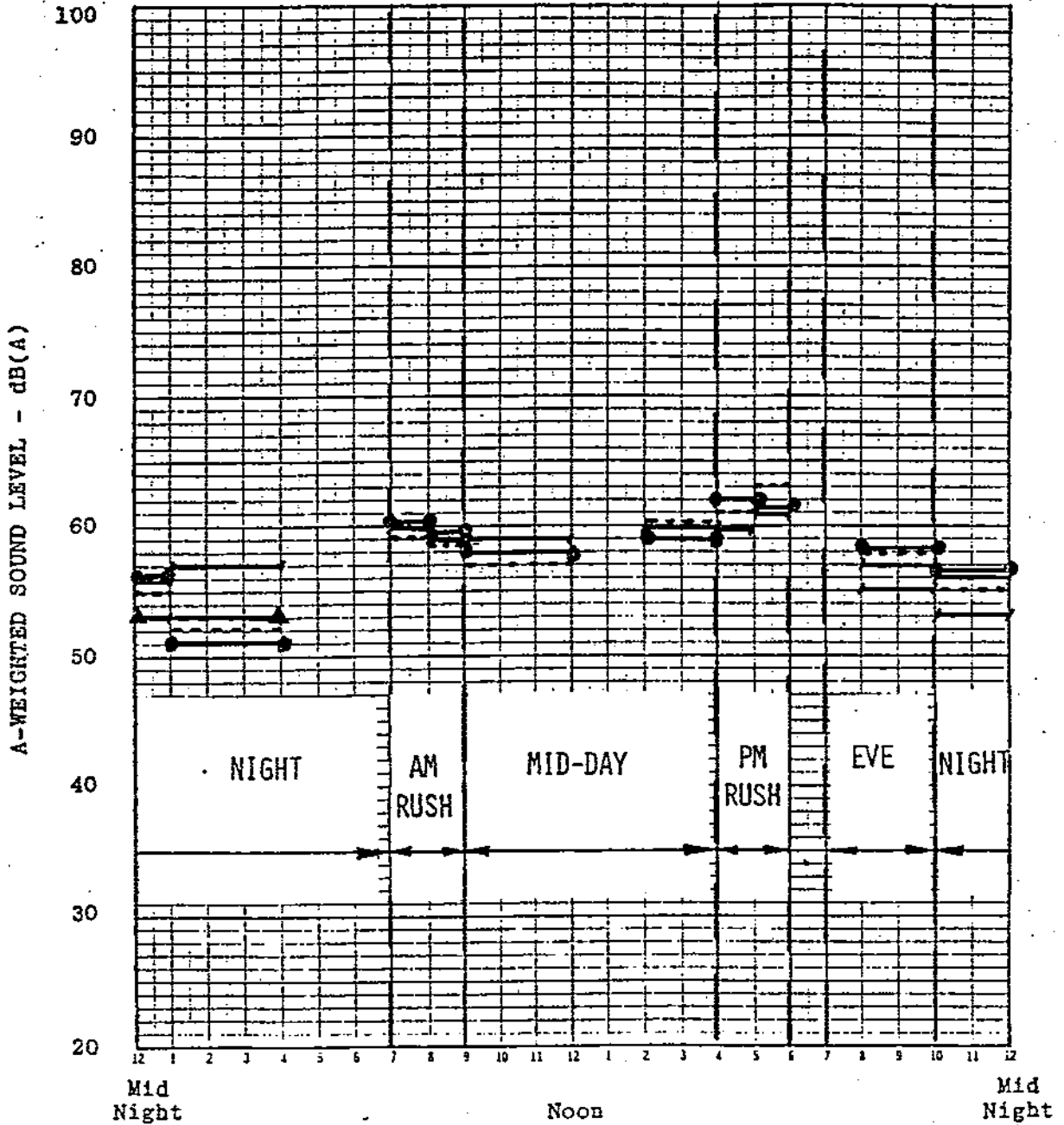
By: J. Ito

FIGURE 11

SAMPLE PRELIMINARY DATA REDUCTION SHEET

Location: 6174 SCHOOL
SITE #3

Date(s): \blacktriangle 4/16/79 \bullet 4/18/79
 \longleftarrow 4/17/79 \cdots 4/19/79



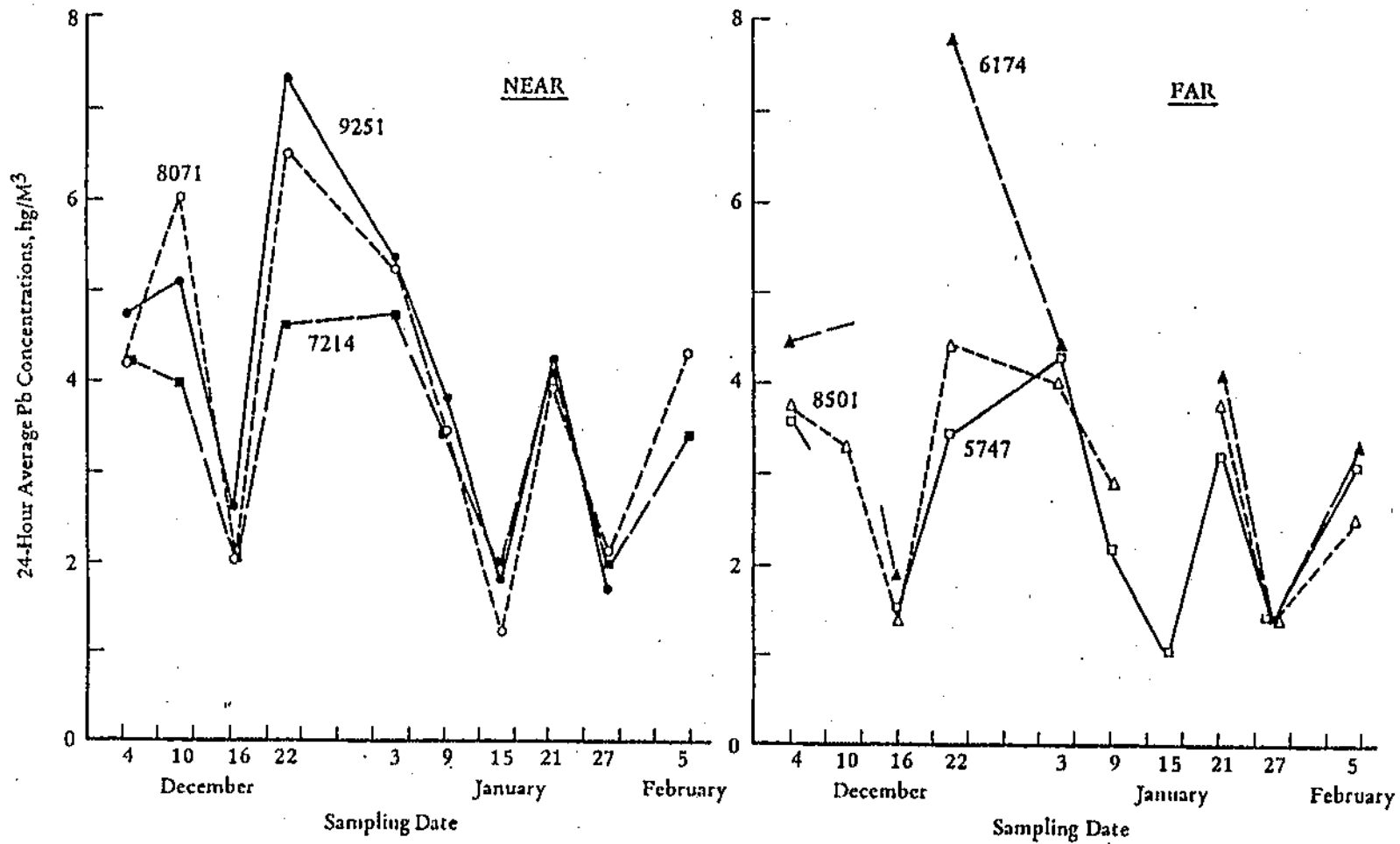


Figure 12. 24-Hour Airborne Lead Concentrations at Six Schools Varying in Proximity to Los Angeles Freeways.

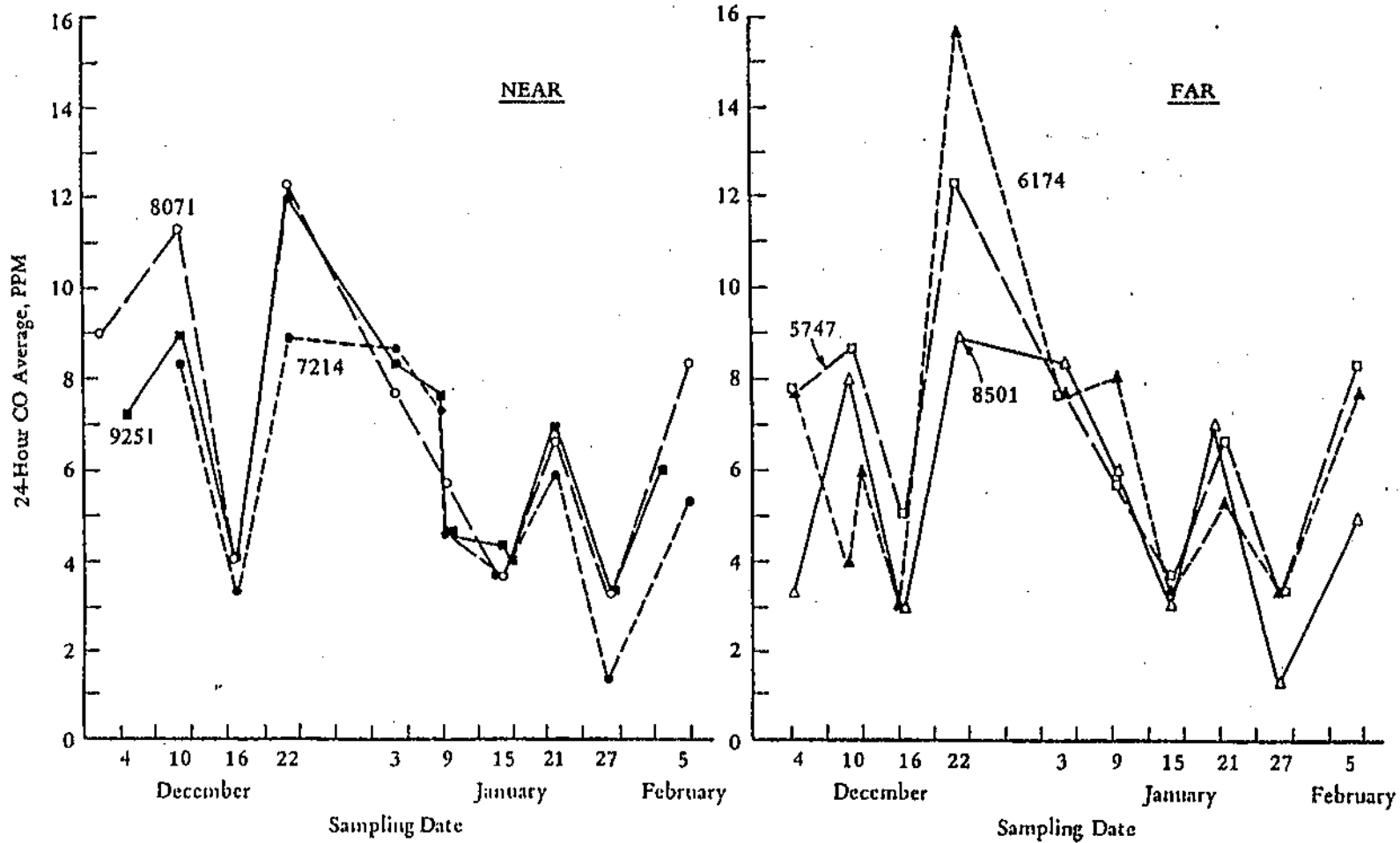
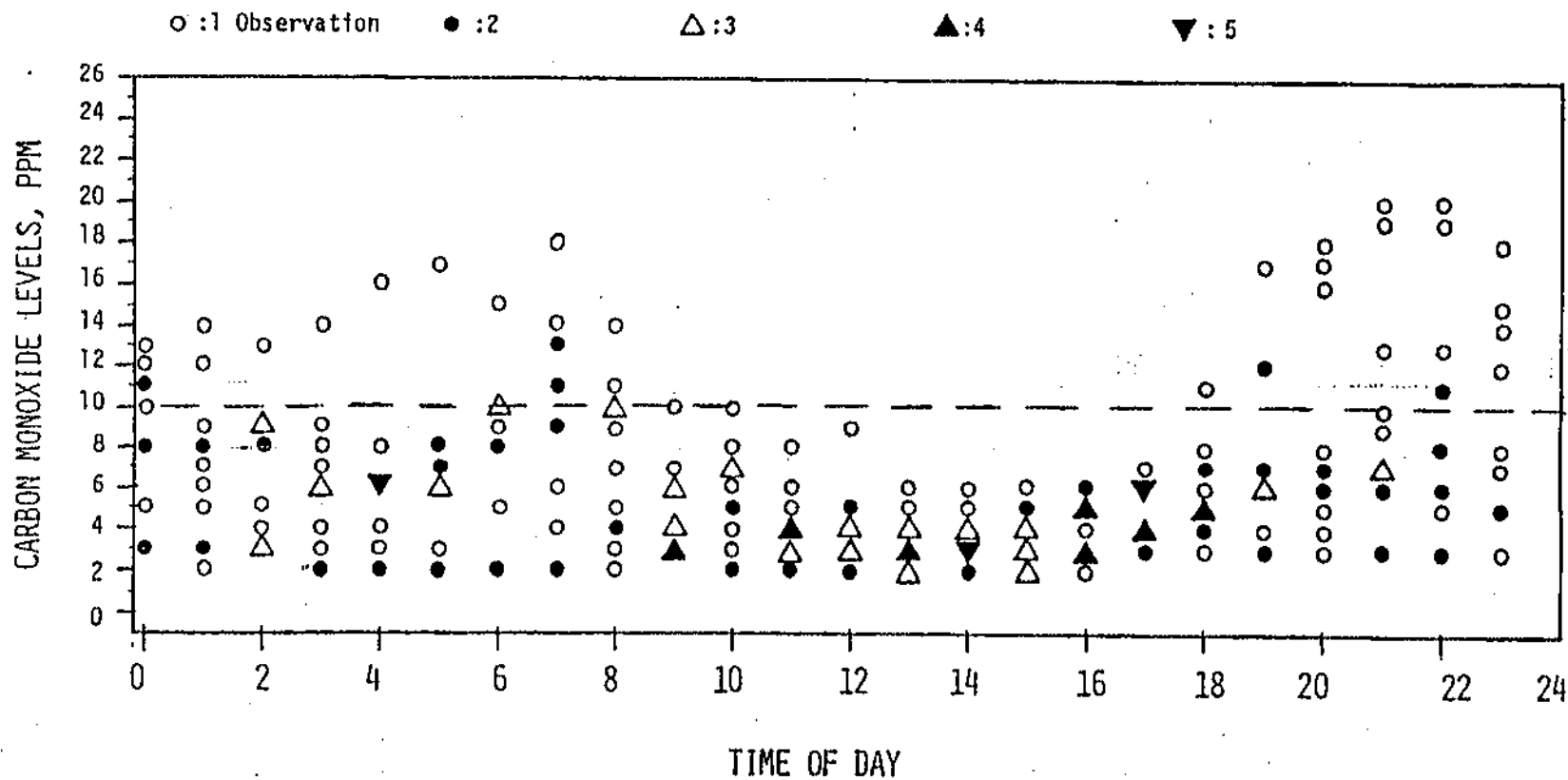


Figure 13. 24-Hour Outdoor Carbon Monoxide Concentrations at Six Schools Varying in Proximity to Los Angeles Freeways.

FIGURE 14

OUTDOOR CO LEVELS BY TIME OF DAY

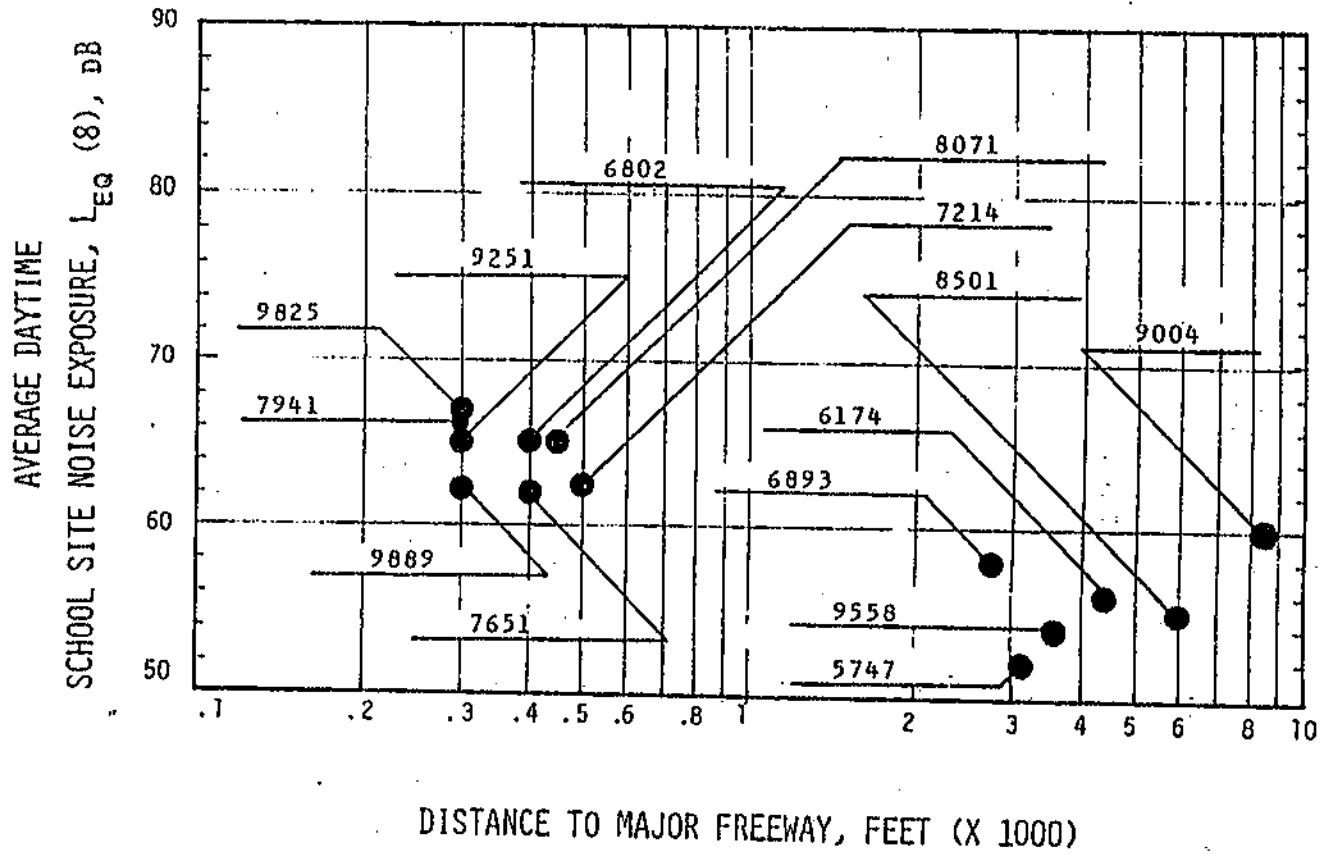
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FIGURE 15

SCHOOL SITE NOISE EXPOSURE
RELATIVE TO FREEWAY PROXIMITY



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FIGURE 16

SCHOOL FEEDER AREA NOISE MONITORING

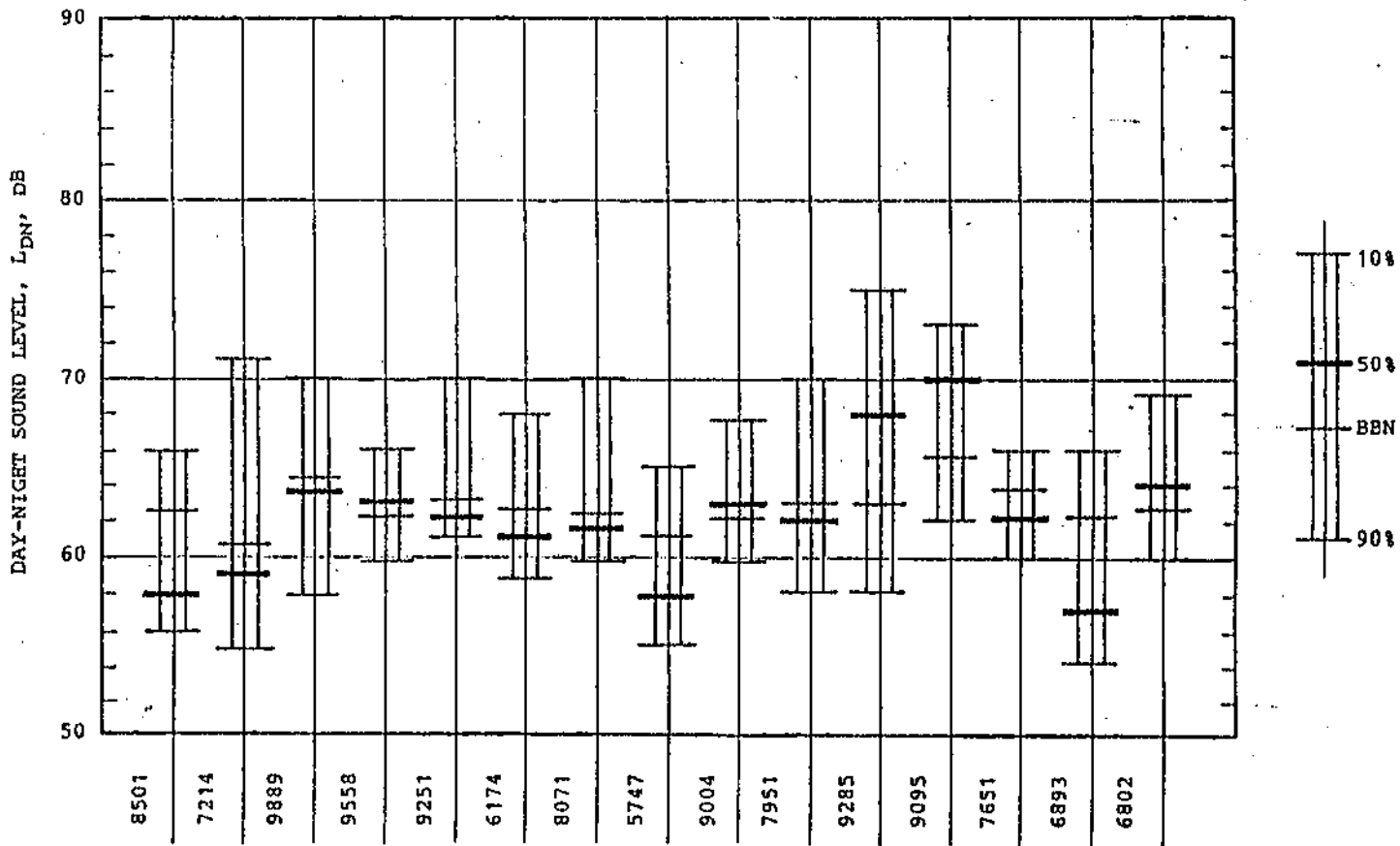
DAY-NIGHT SOUND LEVELS

L_{DN} , dB

FREEWAY	NON-FREEWAY	ALL SITES
(N = 22)	(N = 82)	(N = 104)
$x = 68.4$	$x = 62$	$x = 63.3$
$\sigma = 4.2$	$\sigma = 4.1$	$\sigma = 4.9$

Figure 17

CUMULATIVE PERCENTAGES OF FEEDER AREA POPULATIONS
EXPOSED TO LEVELS OF ENVIRONMENTAL NOISE



NOISE LEVELS IN COMMUNITIES

SCHOOL	TIME	LMAX	L ₁	L1	L10	L50	L90	L99	LMIN	NPL	TNI	LEQ
5747	RUSH HOUR	94	75	68	61	56	53	51	38	65.5	61.4	58.7
	MIDDAY	97	76	70	64	59	54	51	38	72.6	70.8	61.4
	EVENING	83	73	65	58	54	50	49	34	63.4	63.4	56.6
	NIGHT	76	67	62	54	51	48	46	31	57.6	45.1	52.6
6174	RUSH HOUR	100	84	78	73	60	65	64	40	79.2	80.2	69.9
	MIDDAY	105	86	80	74	68	64	63	39	81.1	84.1	71.0
	EVENING	100	80	73	66	63	61	60	36	77.0	83.7	65.0
	NIGHT	95	76	69	63	59	57	56	33	72.2	83.6	61.5
6802	RUSH HOUR	102	79	71	64	60	58	57	46	66.4	53.2	62.2
	MIDDAY	94	79	72	67	64	61	59	45	70.6	56.6	65.0
	EVENING	91	74	69	62	59	56	54	45	65.8	52.6	60.6
	NIGHT	88	72	66	62	58	54	51	41	67.0	56.6	59.2
6893	RUSH HOUR	99	78	72	63	56	49	46	32	73.5	76.4	61.6
	MIDDAY	96	78	72	65	57	50	47	35	75.9	81.5	61.8
	EVENING	95	79	69	60	50	44	42	33	73.7	85.0	58.4
	NIGHT	96	74	63	55	42	38	36	28	68.6	90.1	53.2
7214	RUSH HOUR	101	78	72	67	63	60	58	26	71.7	64.2	64.7
	MIDDAY	104	78	72	67	63	60	57	31	72.9	67.2	64.9
	EVENING	92	76	69	63	58	54	51	39	70.4	69.1	60.9
	NIGHT	97	71	65	58	51	48	44	30	64.6	65.1	55.3
7651	RUSH HOUR	95	81	76	70	65	61	58	44	75.6	69.2	67.3
	MIDDAY	96	83	77	71	65	60	57	45	78.8	77.7	68.1
	EVENING	98	79	69	61	56	53	51	45	66.4	63.2	60.2
	NIGHT	87	71	64	57	52	48	45	36	63.1	60.8	54.3
7941	RUSH HOUR	88	72	66	60	56	54	53	47	62.1	46.1	58.8
	MIDDAY	89	71	66	59	56	54	52	43	62.3	48.9	58.4
	EVENING	87	70	64	58	55	53	52	45	60.9	43.9	57.3
	NIGHT	84	68	62	57	53	51	50	43	59.1	42.2	54.8
8071	RUSH HOUR	102	84	74	65	62	60	59	45	68.4	60.0	65.1
	MIDDAY	97	81	77	66	62	60	59	40	69.1	62.3	63.6
	EVENING	97	75	68	64	62	60	59	39	66.4	49.3	62.8
	NIGHT	97	72	66	62	59	56	53	34	65.8	51.9	59.1
8501	RUSH HOUR	90	76	69	63	58	52	50	35	74.3	77.2	60.2
	MIDDAY	96	75	68	62	56	52	50	42	69.0	67.2	59.6
	EVENING	101	79	69	62	56	51	49	42	72.1	76.4	60.1
	NIGHT	89	77	65	53	47	43	42	30	58.6	65.0	54.4
9004	RUSH HOUR	94	80	74	68	6	58	56	44	76.4	89.6	64
	MIDDAY	101	81	74	66	6	56	53	42	75.3	78.3	64
	EVENING	87	70	72	65	57	52	50	41	71.0	82.5	62.2

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Appendix D (Continued)

SCHOOL	TIME	LMAX	L_1	L1	L10	L50	L90	L99	LMIN	NPL	TNI	LEQ
9095	RUSH HOUR	92	80	74	70	67	64	62	51	72.7	57.0	67.7
	MIDDAY	94	81	76	71	68	65	63	52	74.4	60.2	68.6
	EVENING	97	80	73	68	64	61	59	48	72.8	62.4	65.8
	NIGHT	89	75	71	66	61	55	51	37	74.0	70.3	63.0
9251	RUSH HOUR	90	76	70	64	60	57	55	42	68.1	58.0	61.9
	MIDDAY	93	77	71	65	61	57	54	40	71.6	65.7	63.0
	EVENING	89	73	68	61	57	55	53	34	63.9	51.3	59.0
	NIGHT	92	72	65	59	55	52	50	32	63.5	54.5	57.4
9285	RUSH HOUR	101	84	79	73	68	65	64	42	76.9	68.8	70.3
	MIDDAY	108	84	78	73	69	66	64	43	77.1	69.7	70.2
	EVENING	101	82	76	70	65	62	59	42	75.6	70.2	67.9
	NIGHT	102	80	75	68	64	58	56	36	76.1	76.0	65.5
9558	RUSH HOUR	101	81	73	65	58	52	51	44	74.3	80.2	63.6
	MIDDAY	99	80	73	64	55	50	48	42	74.0	84.0	62.0
	EVENING	94	81	68	62	59	57	56	54	64.1	47.1	61.8
	NIGHT	89	76	66	60	57	56	54	49	61.9	42.7	59.1
9889	RUSH HOUR	93	77	72	66	62	59	57	33	70.2	65.0	63.4
	MIDDAY	120	82	75	70	64	62	59	39	75.2	82.2	66.7
	EVENING	106	79	73	65	60	57	53	39	71.7	72.8	63.7
	NIGHT	93	75	66	60	53	49	47	33	66.4	68.5	57.3

Appendix E

**Statement by Teacher for
Recording Normal Voice Level**

My name is (*state in full - e.g., Mrs. Harriet von Hobson*). This is Room (*No.*) and the (*Number*) grade. This recording is to obtain a sample of the loudness of my voice. I normally speak to my entire class at this intensity.

Appendix F

Criteria for Use of Buttons During Classroom Observations

Note: All buttons must be held down for 1 second or more to insure an adequate electronic response.

Button Number

1. **Disregard:** Is for any event that is caused by "normal" sounds in the classroom. For example, school bell, paging a child or teacher over the school's intercom, visitors, library carts, etc.

Note: Children calling outside the classroom should not be a Disregard, particularly if such noise is distracting. Rather, it should be a Distract or Interrupt button.

Note: When any of the other buttons are pressed as a result of some internal (classroom) noise event, Disregard should be pushed immediately after releasing the other button in order to discriminate between external and internal noise events. On occasion this sequence was not followed; determination of the cause of "Can't Hear" or other event was discerned by listening to the tape.

Note: Fire and earthquake drills should be noted on written record.

2. **Can't Hear:** Is to be used when the observer is not able to hear and understand the teacher or student. The observer should use ears, not eyes, for this button - that is, do not attempt to lipread (the study is trying to estimate the percentage of time information cannot be heard or understood).

If the observer is unable to hear about 5 words or less, do not use Can't Hear button. If the observer is unable to hear or understand 6 or more consecutive words, push Can't Hear and hold until able to hear and understand. If unable to hear and press Can't Hear and the voice level increases, release Can't Hear and push Raise. Short answers (5 words or less) to questions that are not heard, for example, should be marked "Can't Hear".

3. **Rebuke:** Is to be used when the teacher calls the class or several individual students to order with or without a raised voice level. If noise was the cause, it should be possible to discern that from listening to the tape. Rebuke can be pushed as frequently as necessary, and should be held down until the class returns to order. Rebuke will vary with the teacher's particular style and will generally be of short duration. It may be: "Johnny!", "I'm waiting for quiet!", "I need attention!", etc. It may be silent - taking the child by the arm and walking to the hallway or outside the room.

4. **Interrupt/Pause:**

Interrupt: A 1-second press is to be used if the teacher or student stops an activity (talking, writing or reading) due to noise, and resumes the activity after the noise stops. The noise may be either internal or external in origin. The source of noise may be the freeway, airplane, helicopter, bus, fire truck, siren, etc.

Pause: Is 2 1-second presses to indicate a non-noise event, such as a student with a note from the office, a child being put in the hallway for discipline, students leaving to go to work in the cafeteria, etc. Use only if there is an obvious cessation of classroom activity.

5. **Distract:** Should be used in response to some external or internal event. When the children look around, fidget, or in some way lose their concentration, the Distract button should be pressed down and held for as long as necessary. Distract may be the result of a visitor - parent, teacher, principal, nurse, etc., entering the room. It may also be a loud or unusual noise from any source such as screech of brakes, freeway accident, car or truck "backfire", chair tipping over, microphone tipping over, breaking glass, etc. (N.B.: This event was observed very infrequently.) Distract may be followed by Rebuke.
6. **Raise** Is used if the teacher or student increases voice intensity. The increase may be in response to an increase in noise level from an internal or external source. It may be because one person is trying to get attention, children out for recess, or an increase in other external noise sources. Raise may be used after the fact and it is likely to be used that way. For example, voice level increases slowly, and consequently it may require some time before the voice level increases to the point the observer notices. When the teacher calls a single name at an increased level, push Rebuke rather than Raise. (N.B.: This event was almost never due to noise, rather it was associated with a "Rebuke".)
7. **Start/Stop:** To start an activity (recording period), push a variable number of times.

APPENDIX G

TABLE G-1

INTERCORRELATION MATRIX OF ALL VARIABLES
THIRD GRADERS - ENGLISH FLUENT

Math. G.E.	.855																		
Leq-C	-.248	.061																	
L1-C	-.277	-.058	.952																
L5-C	-.286	-.018	.984	.987															
L10-C	-.221	.054	.987	.973	.992														
Leq-A	-.135	.077	.833	.848	.833	.815													
L1-A	-.074	.042	.746	.820	.772	.746	.956												
L5-A	-.129	.050	.770	.816	.783	.760	.989	.977											
L10-A	-.129	.068	.782	.810	.785	.761	.992	.966	.991										
A.I.	.128	-.059	-.896	-.874	-.885	-.876	-.893	-.861	-.850	-.875									
Leq-A	-.363	-.295	.174	.242	.208	.143	.185	.124	.161	.231	-.153								
L1A	-.379	-.390	-.128	-.019	-.063	-.127	-.110	-.134	-.114	-.054	.144	.910							
L10A	-.534	-.476	.130	.225	.187	.101	.161	.121	.151	.211	-.122	.965	.926						
L99A	-.615	-.395	.608	.631	.634	.565	.482	.381	.437	.480	-.533	.764	.547	.786					
% White	.697	.645	-.303	-.404	-.363	-.315	-.374	-.365	-.395	-.393	.260	-.474	-.478	-.560	-.502				
% Black	-.342	-.699	-.247	-.160	-.208	-.214	-.180	-.114	-.156	-.182	.132	-.009	.105	.059	-.121	-.422			
% Hispanic	.021	.446	.424	.370	.411	.396	.421	.343	.409	.439	-.305	.253	.141	.225	.367	-.054	-.872		

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TABLE G-2

INTERCORRELATION MATRIX OF ALL VARIABLES
SIXTH GRADERS - ENGLISH FLUENT

	Reading G.E.	Math. G.E.	Leg-C	L1-C	L5-C	L10-C	Leg-A	L1A	L5A	L10A	Articulation Index	Leg-A	L1A	L10A	L5A	Community	% White	% Black
Math. G.E.	.782																	
Leg-C	-.651	-.225																
L1-C	-.642	-.338	.931															
L5-C	-.613	-.263	.960	.984														
L10-C	-.607	-.212	.980	.957	.990													
Leg-A	-.638	-.330	.861	.793	.839	.841												
L1-A	-.549	-.313	.793	.800	.831	.807	.917											
L5-A	-.536	-.304	.785	.777	.821	.800	.948	.985										
L10A	-.514	-.254	.834	.796	.852	.841	.968	.947	.980									
A.I.	.383	-.114	-.679	-.630	-.678	-.678	-.709	-.603	-.620	-.668								
Leg-A	-.478	-.239	.381	.343	.401	.423	.545	.456	.497	.494	-.512							
L1A	-.420	-.327	.212	.239	.248	.240	.377	.313	.333	.321	-.359	.910						
L10A	-.337	-.142	.298	.247	.284	.306	.467	.337	.348	.363	-.491	.815	.854					
L5A	-.544	-.051	.682	.535	.615	.680	.676	.470	.521	.574	-.684	.764	.547	.686				
% White	.676	.493	-.551	-.525	-.524	-.519	-.540	-.495	-.458	-.447	.393	-.474	-.478	-.513	-.502			
% Black	-.439	-.667	-.048	-.052	-.090	-.092	-.043	-.106	-.103	-.131	.357	-.009	.105	-.078	-.121	-.422		
% Hispanic	.104	.408	.323	.311	.356	.355	.352	.409	.355	.403	-.552	.253	.141	.371	.367	-.054	-.872	

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TABLE G-3

INTERCORRELATION MATRIX OF ALL VARIABLES
THIRD GRADERS - NON-FLUENT ENGLISH
TWELVE SCHOOLS

	Reading C.E.	Math C.E.	Classroom Noise Levels										Articulation Index		Community			% White	% Black
			Leq-C	L1-C	L5-C	L10-C	Leq-A	L1-A	L5-A	L10-A		Leq-A	L1-A	L10-A	L99-A				
Math. C.E.	.688																		
Leq-C	-.082	.050																	
L1-C	-.173	-.032	.762																
L5-C	-.158	-.049	.984	.800															
L10-C	-.127	-.017	.992	.792	.996														
Leq-A	-.245	-.031	.777	.617	.805	.788													
L1-A	-.290	-.095	.665	.593	.723	.697	.957												
L5-A	-.322	-.102	.691	.581	.738	.713	.986	.986											
L10-A	.142	-.071	.331	.294	.405	.376	.625	.665	.644										
A.I.	.107	-.007	-.905	-.679	-.905	-.903	-.921	-.847	-.871	-.625									
Leq-A	-.008	-.014	.193	-.040	.179	.159	.162	.022	.115	-.061	-.171								
L1-A	.021	.030	.041	-.123	.039	.026	-.067	-.215	-.125	-.176	.037	.913							
L10-A	-.157	-.175	.129	-.147	.139	.111	.124	-.003	.093	-.052	-.113	.963	.909						
L99-A	-.176	-.225	.584	.218	.584	.563	.427	.286	.371	.171	-.521	.775	.611	.807					
% White	.782	.632	-.124	-.103	-.170	-.147	-.297	-.273	-.348	-.017	.209	-.405	-.298	-.514	-.529				
% Black	-.276	-.590	-.430	-.202	-.435	-.428	-.340	-.360	-.311	-.269	.406	-.087	-.110	-.052	-.165	-.373			
% Hispanic	-.072	.358	.511	.259	.533	.520	.517	.524	.505	.300	-.545	.252	.250	.250	.350	-.033	-.904		

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TABLE G-4

INTERCORRELATION MATRIX OF ALL VARIABLES
SIXTH GRADERS - NON-FLUENT ENGLISH
TWELVE SCHOOLS

	Reading G.E.	Math. G.E.	Classroom Noise Levels										Articulation Index				Community		% White	% Black
			Leq-C	L1-C	L5-C	L10-C	Leq-A	L1-A	L5-A	L10-A		Leq-A	L1-A	L10-A	L99-A					
Math G.E.	.482																			
Leq-C	-.163	-.247																		
L1-C	-.052	-.198	.940																	
L5-C	-.075	-.187	.966	.982																
L10-C	-.127	-.217	.983	.956	.990															
Leq-A	-.080	-.341	.863	.772	.827	.841														
L1-A	.075	-.346	.802	.793	.835	.819	.944													
L5-A	.050	-.339	.784	.756	.815	.806	.949	.992												
L10-A	.010	-.261	.834	.775	.845	.845	.963	.957	.977											
A.I.	.365	-.109	-.660	-.548	-.618	-.634	-.682	-.540	-.554	-.621										
Leq-A	-.323	-.484	.337	.228	.310	.350	.519	.440	.481	.465	-.424									
L1-A	-.272	-.464	.148	.116	.141	.149	.315	.243	.260	.245	-.246	.900								
L10-A	-.127	-.246	.266	.156	.209	.245	.468	.319	.332	.345	-.431	.793	.839							
L99-A	-.289	-.240	.679	.486	.581	.659	.665	.505	.527	.566	-.683	.744	.513	.678						
% White	-.060	.172	-.622	-.675	-.652	-.620	-.675	-.670	-.627	-.586	.554	-.617	-.611	-.633	-.587					
% Black	-.258	-.584	-.023	.119	.024	-.016	-.033	.073	.008	-.108	.261	.198	.377	.086	-.182	-.334				
% Hispanic	.406	.448	.385	.272	.357	.372	.481	.393	.428	.507	-.543	.173	.005	.327	.503	-.280	-.793			

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Aircraft Noise and Children: Longitudinal and Cross-Sectional Evidence on Adaptation to Noise and the Effectiveness of Noise Abatement

Sheldon Cohen
University of Oregon

David S. Krantz
Uniformed Services University of
the Health Sciences

Gary W. Evans
University of California at Irvine

Daniel Stokols and Sheryl Kelly
University of California at Irvine

Longitudinal and cross-sectional data on effects of aircraft noise on elementary school children are presented as evidence for the effects of community noise on behavior. To examine the generality of previous laboratory findings in a naturalistic setting, the study assesses the impact of noise on attentional strategies, learned helplessness, performance on cognitive tasks, and blood pressure. Children were tested on the same measures twice, with a 1-year interval between sessions. A previous article reported cross-sectional findings from the first testing session. In the present article, longitudinal data are used to determine whether children *adapt* to the aircraft noise over the 1-year period and to assess the effectiveness of noise abatement interventions introduced in a number of noise-impacted classrooms. Additional cross-sectional data from the original testing session are also presented to provide further information on the utility of noise abatement. In general, there was little evidence for adaptation to noise over the 1-year period. Noise abatement had small ameliorative effects on cognitive performance, children's ability to hear their teachers, and school achievement. The implications of the study for understanding the relationship between noise and behavior and resulting policy implications are discussed.

Although prolonged exposure to high-intensity noise can cause temporary and permanent losses of hearing (cf. Kryter, 1970), other general statements about the debilitating effects of routine noise exposure have to be made with considerably less confi-

dence. It is, of course, difficult to isolate the effects of a particular characteristic of a natural environment on the health and behavior of its occupants. Invariably the possibility exists that the people who choose (or are forced) to work or live in a noise-impacted environment are somehow different than those who work or live elsewhere. Moreover, environments that suffer from high levels of noise often have other characteristics (e.g., pollution, poor housing, high levels of population density) that may also deleteriously affect behavior and health.

The research reported in this article was supported by grants from the National Science Foundation (BNS 77-08576 and SOC 75-09224), the National Institute of Environmental Health Sciences (1 RO1 ESO176401 DBR), the Society for the Psychological Study of Social Issues, the University of Oregon Biomedical Fund, and the Uniformed Services School of Medicine (Clinical Investigation Grant 7208).

The authors are indebted to Laura Martin, Laurie Poore, Robyn Dawes, Jerry Lukas, Rich Haller, Ray Hyman, Nick Garshnek, the administrative staff, teachers, children, and parents of participating schools; the California Assessment Program; and the California Department of Health. We also wish to thank Michael Posner and Myron Rothbart for comments on an earlier draft.

Requests for reprints should be sent to Sheldon Cohen, Department of Psychology, University of Oregon, Eugene, Oregon 97403.

In a recent article, Cohen, Evans, Krantz, and Stokols (1980) argue that the impact of noise (and other environmental factors) on health and behavior can best be assessed by a methodological strategy that combines the use of laboratory (experimental) and naturalistic studies. Laboratory studies direct our attention to categories of behavior and health that may be affected by noise and establish a causal link between noise and

these behaviors. Naturalistic research helps to establish whether particular effects found in the laboratory also occur in real-life settings. Cohen et al. (1980) argue that an interplay between these two approaches provides a more complete understanding of the relationship between environmental stressors and behavior and generates the type of data necessary to influence public policy.

Recent laboratory research on the impact of high-intensity noise has directed attention to the possible effects of community and industrial noise on a number of nonauditory systems. For example, noise is associated with alterations in task performance (cf. Broadbent, 1978; Loeb, 1979), decreased sensitivity to others (e.g., Cohen & Lezak, 1977; Mathews & Canon, 1975), and elevation of a number of nonspecific physiological responses (cf. Glass & Singer, 1972; Kryter, 1970). Exposure to noise that is unpredictable and uncontrollable can also result in *aftereffects*—deficits in performance and social sensitivity that occur after the noise is terminated (e.g., Glass & Singer, 1972; also see review by Cohen, 1980). The difficulty with this research is that it emphasizes acute rather than long-term noise effects. Thus, its implications for those suffering prolonged exposure in their homes or at work are unknown.

Although investigators have also begun to take a closer look at the nonauditory effects of noise in naturalistic settings (see reviews by Cohen, Glass, & Phillips, 1979; Kryter, 1970; Miller, 1974), methodologically tight studies are rare. This research also tends to be atheoretical and thus difficult to compare with existing laboratory work. Moreover, there are few *longitudinal* studies of people living and/or working under noise. Thus, it is unknown whether prolonged noise exposure results in increasingly deleterious effects or whether those exposed for prolonged periods adapt to noise, with effects disappearing after awhile. Studies comparing measures of health and behavior of the same person before exposure, immediately after exposure begins, and at set intervals for 1 or several years would allow us to determine the long-term course of stress and adaptation. In addition, longitudinal studies in situations in which the environmental stressor

is removed or attenuated would make it possible to determine whether there are long-term aftereffects of prolonged noise exposure.

Accordingly, this article reports data from the Los Angeles Noise Project—a longitudinal study of the impact of aircraft noise on elementary school children. The study was designed to examine the course of adaptation and the impact of a noise-abatement intervention on a variety of physiological, cognitive, and motivational measures. It is particularly concerned with exploring the generality of laboratory work on noise-induced shifts in attentional strategies, feelings of personal control, and nonauditory physiological responses related to health. (Findings from noise-induced laboratory exposure are discussed more fully in Cohen et al., 1980).

In this study elementary school children living and attending school under the air corridor of a busy metropolitan airport were compared with a matched group of children living in relatively quiet neighborhoods. In an earlier article, Cohen et al. (1980) reported cross-sectional data indicating that children from noisy schools had higher systolic and diastolic blood pressures than those from matched control schools and that this difference was greatest in children with the fewest years of exposure. Noisy-school children were also more likely to fail on a cognitive task and more likely to "give up" before the time to complete the task had elapsed. Finally, children from noisy schools who had lived in the neighborhood less than 2 years were less distractible than their quiet-school counterparts, whereas those children living under noise for more than 4 years were more distractible than those from quiet schools.

As part of a settlement of a law suit brought by the school systems against the airport, money was made available to lower the interior sound levels of many of the schools in the landing corridor. During the summer following the collection of data for the Cohen et al. article, architectural interventions were instituted in 43% of the noisy-school classrooms. These interventions resulted in a substantial decrease in noise levels in treated rooms (data presented later).

Thus, a large number of noisy-school children spent the following school year in noise-abated classrooms. At the end of the school-year (1 year after original testing), children who were still enrolled in their schools (noisy and quiet) were retested on the original measures.

This article uses these longitudinal data and some previously unreported cross-sectional data from the first testing session to answer two questions about the long-term impact of aircraft noise on elementary school children. First, do children retested 1 year later continue to show effects found during the first testing session or do they *adapt* to the noise over the 1-year period? Cross-sectional data reported in the earlier article found some evidence for decreasing effects suggestive of physiological (blood pressure) habituation as duration of exposure increased, but failed to indicate adaptation of annoyance, cognitive performance, or helplessness. Second, what are the effects of noise abatement interventions in the classrooms on the various measures of health and behavior? That is, does assignment to a quieter classroom ameliorate the effects of noise?

Method

Overview of the Study

The subjects were children attending the four noisiest elementary schools in the air corridor of Los Angeles International Airport and three control (quiet) schools with similar (matched on social class and race) student bodies. Peak sound level readings in the noise schools are as high as 95 dB (A), and the schools are located in an air corridor that has over 300 overflights a day—approximately one flight every 2½ min. during school hours (Lane & Meecham, 1974). The study focuses on effects occurring *outside* of noise exposure. Thus, all tasks and questionnaires (except the achievement test records gathered from school files) were administered in a quiet setting—a noise-insulated trailer parked directly outside the school. Students were tested first in the spring of 1977 (T1) and again in the spring of 1978 (T2).

Tasks administered during the test periods were designed to assess feelings of personal control and to determine whether the children employed some common attentional coping strategies. Children were also asked a number of questions about their response to home and classroom noise and had their blood pressures measured. At the time of the first (but not the second) testing session, a parent questionnaire dealing with parent response to noise, mother's, and father's level of education, and the number of children in the family was sent home

with each child. Scores on standardized reading and math tests and data on absenteeism were also collected from school files at the time of the first (but not the second) session.

Data from subjects who were tested at both testing sessions (longitudinal data) were analyzed to determine if noise effects adapted—decreased or disappeared—over the 1-year interval between sessions. Separate analyses (both cross-sectional and longitudinal) were conducted to evaluate the effectiveness of the noise-abatement interventions. The cross-sectional data were collected during the first testing session and compared children who were in noise-abated classrooms with those in noisy (nonabated) rooms as well as those who were from quiet schools. The longitudinal analyses looked at the changes in the response of children who moved from a noisy to a noise-abated classroom in contrast to those children who spent both years in noise-impacted rooms.

This section will provide brief descriptions of the experimental tasks and procedures. The reader is referred to Cohen et al. (1980) for additional detail.

Matching

Three control schools (quiet schools) were matched with the experimental schools for grade level, ethnic and racial distribution of children, the percentage of children whose families are receiving assistance under the Aid to Families With Dependent Children program, and the occupations and educational levels of parents. (Detailed data on matching are reported in Cohen et al., 1980). Thus, we were able to compare samples of children attending noisy and quiet schools who were relatively similar in terms of age, social class, and race. A regression analysis procedure (described later) allowed additional control over these factors.

Subjects

The study included children from all noise-impacted third- and fourth- grade classrooms in each noisy school as well as children from an equivalent number of classrooms in quiet schools. To assure that performance differences between children from noisy and quiet schools could not be attributed to noise-induced losses in hearing sensitivity, children failing (either ear) an audiometric pure tone threshold screening (500, 1000, 2000, 4000 Hz at 25 dB) were not included in the study. Six percent of the noisy-school and 7% of the quiet-school children failed the screening.

Noise Measures

Testing session 1: Interior sound levels (without children) were measured inside each classroom with Traoustics Sound Level Meters (SLM S2A). Peak decibel level (A scale) was recorded during 1-hour sessions in both the morning and afternoon. It is important to note that due to limitations in the equipment and duration of the measurement, these measures are presented only to establish *relative* differences between the sound levels of various types of classrooms, not as evidence for sound-level criterion or threshold levels of effects.

Testing session 2: Sound levels (again without chil-

dren) were measured inside each classroom for 1 hour during the morning and 1 hour during the afternoon with Digital Acoustics (DA605), B and K (4426), and General Radio (1945) noise-level analyzers.¹ The machines were calibrated to a pure tone source every other day and were periodically calibrated against one another to ensure intermachine reliability. Microphones were placed approximately 3 feet (.9 m) from the ground in the center of the room. Data available from all machines included peak decibel level (A scale), the decibel level exceeded 33% of the time (L_{33}), and the noise level averaged on an energy basis over each hour period (L_{EQ}).

Parent and Child Questionnaires

The questionnaire administered to each child assessed his/her perception of classroom and home noise levels. The parent questionnaire (T1 only) also included questions on perception of home noise level as well as queries as to how long the child had been enrolled in his/her school and how long she/he had lived at the present address. Data on school enrollment were also available from school files.

Blood Pressure and Health

Each child's resting blood pressure (systolic and diastolic) was taken each testing day on an SR-2 Physiometrics automated blood pressure recorder.² Blood pressure data are based on the mean systolic and diastolic pressures for these two measurements. The graphic output of the machine was coded after the study was completed, with coders blind to experimental condition. Each child's height and weight were also measured. Absenteeism was used as an indirect measure of health, since absence from school is often attributable to illness. These data were available from school files.

Helplessness

Performance on a cognitive task preceded by a success or failure experience was employed to examine the effect of noise on response to failure and on persistence on a difficult task. Response to failure is a standard measure of susceptibility to helplessness (cf. Seligman, 1975). Thus, if noisy-school children are more susceptible to helplessness, they will show greater effects of a failure experience than their quiet-school counterparts. A lack of persistence ("giving up" syndrome) is considered a direct manifestation of helplessness.

First testing session. Each child was given a treatment puzzle to assemble after the tester demonstrated the task with another puzzle. One half of the children received an insoluble (failure) puzzle and one half a soluble (success) puzzle. The soluble puzzle was a circle, and the insoluble puzzle was a triangle. After time (2½ min.) was up on the first puzzle, the child was given a second, moderately difficult puzzle to solve. The second (test) puzzle was the same—a square—for all (success and failure) children. The child was allowed 4 min. to solve the second puzzle. Whether the puzzle was solved, how long the solution took, and whether the child "gave up" before the 4 min. had elapsed were used as measures of helplessness.

Second testing session. Treatment puzzles were not readministered during the second session. Each child was given only the test (square) puzzle to solve. As previously, the child was allowed 4 min. to solve the test puzzle, with the same measures of helplessness assessed as in the earlier testing session.

During T1, a large proportion (34%) of the children assigned to the success condition who received a soluble treatment puzzle failed to solve the treatment puzzle within the 2½ min. allowed. Although the fact that a number of children self-selected themselves into a failure condition makes it difficult to interpret main effects for success-failure and interactions between success-failure and noise, comparisons between the children from noisy and quiet schools, irrespective of (controlling for) their pretreatment, are of primary interest.

Distractibility

It was proposed in our earlier article (Cohen et al., 1980) that children reared in noisy environments become inattentive to acoustic cues (cf. Cohen, Glass, & Singer, 1973; Deutsch, 1964). Since children who are relatively inattentive to acoustic cues should be less affected by an auditory-distractor, distractibility was used as a measure of this selective inattention. Subjects performed a crossing out *Es* task under both ambient and distracting conditions. The subject's task was to cross out the *Es* in a 2-page passage from a sixth-grade reader. Each subject worked on a short practice paragraph and then on the task for 2 min. Two versions (different samples of prose) were used.

In a distraction condition, the child worked on one of the versions of the task while a tape recording of a male voice reading a story was presented at a moderate volume over headphones. In the no-distraction condition, the alternative form of the task was completed with headphones on but under ambient sound conditions. The distraction and no-distraction tasks were administered on different testing days. Both the order of alternative versions of the task and the experimental conditions were counterbalanced. The criterion measure was performance (percentage of *Es* found) on the distraction task after these scores were adjusted for no-distraction performance. It was expected that children from noisy schools would be less affected by distraction.

¹ The noise-level analyzers, which were not available to us during the first testing session, were used during the second session because of their increased sensitivity and accuracy and their ability to provide various measures of noise over time, for example, L_{EQ} and L_{33} . It is, however, appropriate to again caution the reader that the rather short interval of measurement limits the use of these data to the establishment of relative sound levels of classrooms in the various conditions.

² This instrument is an electronic infrasonic device that records on a rotating paper disc. Measurements were taken with a rubber cuff entirely encircling the upper arm. The reliability of this device for blood pressure measurement in children has been established in previous work (e.g., Voors, Foster, Frerichs, Weber, & Berenson, 1976).

Table 1
Overview of the Analyses

Title of analysis	Sample	Classroom noise condition		Additional independent variable/conditions
		1977 (T1)	1978 (T2)	
I. Attrition bias	T1	Noise vs. quiet		Retested at T2? Yes No
II. Adaptation to noise	Attrition (T1 & T2)	Noise ^a ——— Noise		None
		vs.		
		Quiet ——— Quiet		
III. Blood pressure: Habituation or attrition?	T1	Noise vs. quiet		Migration Not enrolled in school 1 year after T1 vs. Enrolled in school 1 year after T1 but not 2 years later vs. Still enrolled 2 years after T1
IV. Noise abatement: Cross-sectional analyses	T1	Noise vs. abated vs. quiet		None
V. Noise abatement: Longitudinal analyses	Attrition (T1 & T2)	Noise ——— Noise		None
		vs.		
		Noise ——— Abated		

^a The few classrooms that had had noise-abatement work completed prior to T1 are included as noisy classrooms in these analyses. This was done in order to make these analyses comparable to those reported in Cohen et al. (1980) and is justified by the findings reported in this article suggesting little if any effect of abatement.

School Achievement

The scores on the California Test of Basic Skills (California Assessment Program, 1976) reading and math tests (administered during the second and third grades by the school system) were gathered from school files, and the Wepman (1958) auditory discrimination test was administered individually to children in the soundproof van. The Wepman test measures the child's ability to discriminate between pairs of words that differ from each other in either initial or final sound, for example, "sick-thick" or "map-nap."

To roughly equate the effect of the noise and quiet conditions on the aptitude of the children at the time they entered school, analyses of school achievement and auditory discrimination scores included an additional control for the mean cognitive abilities (standardized test administered by school) of the child's class on entering the first grade.

Analyzing and Interpreting Data

The answers to our questions about adaptation to noise and abatement effectiveness each require different blockings (or groupings) of the noise variable and analyses of different subsets of the sample. Table 1 provides an overview of these analyses. It may be useful for readers to refer to this table while reading the results sections of the article.

To avoid confusion about exactly which analysis and/or data set is being employed at any point, we will present two consecutive sets of results and discussions. The first will examine the question of adaptation and the second the question of the effectiveness of the noise-abatement interventions. These sets will be followed by a short section on the overall implications of the study.

The general statistical model (described below) was used in all data analyses reported in this article. Biases in subject attrition (also described below) are important in aiding interpretation of all longitudinal analyses. Attrition bias is not an issue in the interpretation of cross-sectional analyses, which involve only T1 data and thus include the entire T1 sample.

Statistical analyses. A regression technique was used in all the analyses reported in this article to allow additional control over the effects of socioeconomic and demographic factors (cf. J. Cohen & Cohen, 1975). All data analyses include controls for the number of children in the child's family, grade in school, months enrolled in school, and race. These control factors, forced into the regression first, are then followed by noise, and then the interaction between noise and months enrolled in school.³ Additional controls are used in the analyses of

³ To avoid confusion, the reader should note that two distinct terms are used to refer to different time frames. T1 and T2 refer, respectively, to the first and second testing sessions, separated by 1 year. The term "months

blood pressure (height and ponderosity), school achievement (cognitive aptitude test), and distractibility (performance under ambient conditions). The primary helplessness analyses include factors for success-failure and the interaction between success-failure and noise. (Those who solved and those who did not solve the success treatment puzzle are treated as separate groups.) Analyses of longitudinal data also include a repeated measure factor (Testing Session 1, Testing Session 2).⁴ School achievement analyses were performed with classrooms (nested in noise) rather than with individual children, as the unit of analysis. A more detailed description of the form of each analysis is provided in Cohen et al. (1980).

The various measures were analyzed in predetermined multivariate clusters created on the basis of theoretical consideration.⁵ This form of analysis helps to decrease the probability of chance findings that occur when a large number of analyses are necessary (cf. Bock, 1975).

Interpreting longitudinal analyses: Sample attrition bias. An effort was made to retest all students who were attending school during the longitudinal follow-up. Sixty-two percent (163: 83 noise and 80 quiet) of the original sample (262: 142 noise and 120 quiet) were retested. Although a slightly higher proportion of quiet (67%) than noisy (58%) school children were retested, this difference was not statistically significant, $\chi^2(1) = 1.99, p < .16$.

All data analyses that include data from the second testing session (these are all repeated measures designs) were based on the 163 retested students—the *attrition sample*. Sample attrition (not being retested) may be attributable to either migration or absenteeism. It is our purpose at this point in the article to describe the nature of any self-selection bias in the retest sample; thus, these causes of attrition are not separated.

The purpose of the attrition bias analyses was to determine whether remaining in the study (being retested) was correlated with one or more of the criterion variables in one of the study's conditions (noise or quiet) but not in the other. For example, noisy-school children who were *not* retested had higher blood pressures than those who were retested; whereas being retested was unrelated to blood pressure for quiet-school children. This particular attrition bias resulted in a deflated mean blood pressure for noisy-school children in analyses of the attrition sample. As a result, there is a lessening of the difference between mean blood pressures of noisy- and quiet-school children. It is important to note cases in which the lack of a main effect for noise in the attrition sample is due to selective attrition as opposed to adaptation to noise or problems with measure reliability. To determine whether any such biases occurred, data from the first testing session (all of the original 262 subjects) were analyzed with whether a student was retested (yes/no), and a Retest \times Noise interaction added to the standard analysis (see Table 1, I). Note that these analyses are not presented in an attempt to make any conclusions about those who were retested versus those who were not but only to provide information about the nature of the attrition bias that may be useful in interpreting anal-

enrolled in school" refers independently to the length of time the child was enrolled in school at T1.

yses presented later in this article. For this reason, a rather liberal alpha level (.10) was employed, and multivariate analysis is not reported.

A retest bias occurred on a number of the dependent variables. On all of these variables, those in the noise condition who showed the greatest stress during T1 were not present at T2. No such relationship (or in some cases a slight reversal) existed in the quiet group. The variables with Noise \times Retest interactions suggesting this pattern were the child's perception that noise made it difficult to hear their teacher, $F(1, 241) = 3.46, p < .06$, and systolic, $F(1, 233) = 8.65, p < .004$, and diastolic, $F(1, 233) = 3.39, p < .07$, blood pressure.

Adaptation to Noise

Results

To determine whether or not the children adapted to the noise over the 1-year period, data from the attrition sample (those who were tested at both T1 and T2) were analyzed in a repeated measures design, with Testing Sessions 1 and 2 constituting the repeated measure (see Table 1, II). The occurrence of the same difference between noise and quiet schools at both T1 and T2 (main effect for noise) provides evidence for test-retest stability. A diminution of the T1 difference between noise and quiet at T2 (Noise \times Testing Session interaction) suggests the possibility of progressive adaptation to the noise stressor. Finally, an increased difference between noise and quiet at T2 (Noise \times Testing Session interaction) suggests that increased exposure results in an increased effect of noise.

It is important to note that these analyses include only the attrition sample (163), that is, those who were enrolled and present during the second testing session. Thus, vari-

⁴ Two new variables, sum (T1 + T2) and difference or change score (T1 - T2), were created for each dependent variable. Then separate regression analyses were conducted on each of the new variables. Analyses of the sum score reflect differences between groups, irrespective of the testing session, whereas analyses of change scores reflect differences between testing sessions over groups. The results of these analyses are mathematically equivalent to a standard repeated measures analysis with two levels of the repeated measure (cf. Overall & Klett, 1972).

⁵ There are separate clusters for general health, blood pressure, helplessness, and the child questionnaire. The distraction analyses were run as univariates, since each analysis required a unique control factor.

ables that were related to attrition for noisy-school (but not quiet-school) children, including the child's perception of classroom noise and the blood pressure measures, are unlikely to show noise effects in this analysis.

Children's perceptions of noise. Main effects of noise for children's reports of how much airplane noise bothered them at home, $F(1, 145) = 3.62, p < .05$, and in the classroom, $F(1, 145) = 15.74, p < .001$, suggest that those attending noisy schools report high levels at both testing sessions. There was no effect on the remaining child questions. The multivariate noise effect was significant, $F(7, 139) = 3.13, p < .004$.

These results are generally consistent with those reported in the original study (analyses including the entire sample of children tested at T1) in which noisy-school children reported noisier classrooms (a variable affected by attrition bias in the present analysis) and said that airplane noise bothered them more in both home and classroom.

Health measures. Although neither height nor weight were significantly related to noise in the entire T1 sample, noisy-school children did attend school more often than their quiet-school counterparts. In the present analysis, there was a Noise \times Testing Session effect for the percentage of days attending school, $F(1, 120) = 8.00, p < .005$. Although noisy-school children had better attendance during the year of the first testing session (98% attendance for noise group versus 96% for quiet), the attendance of noisy- and quiet-school children was equivalent (94% for both groups) during the following year. The multivariate for the interaction effect of Noise \times Testing Session was significant, $F(3, 118) = 3.71, p < .01$.

Blood pressure. Although the analysis of the complete T1 sample indicated inflated systolic and diastolic blood pressure for noisy-school children, there were no effects of noise, testing session, or any of the interactions on either systolic or diastolic blood pressure in the present analysis. Longitudinal blood pressure effects were not expected, however, since a relatively high proportion of noisy-school children with high blood pressure were lost to attrition and thus were not included in the present analyses.

Distractibility. In the earlier report of

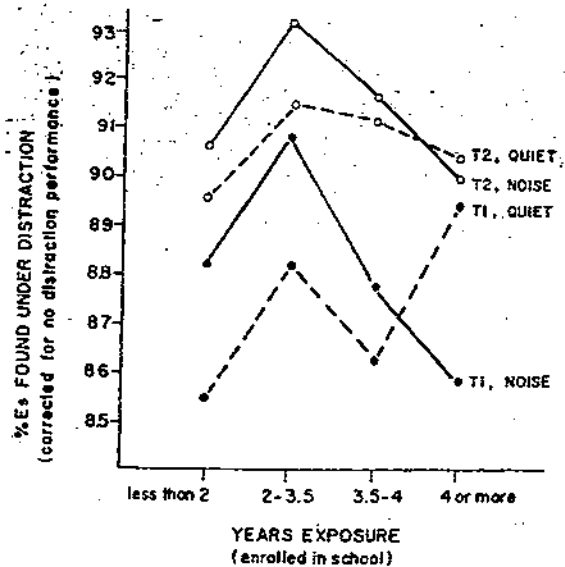


Figure 1. Distractibility at T1 and at T2 as a function of school noise level and duration of exposure. (Each period on the number of year's of exposure coordinate represents one quarter (based on quartiles) of the sample. For example, 25% of the sample were enrolled in school for less than 2 years.)

the entire T1 sample (Cohen et al., 1980), an interaction was found between noise and months enrolled in school for the percentage of Es found on the distraction task. Children in noisy schools did better than the quiet group on the distraction task during the first 2 years of exposure and worse after 4 years. Quiet- and noisy-school children who had been enrolled between 2 and 4 years, demonstrated equivalent performance. As apparent from the lower half of Figure 1, the attrition sample showed a similar T1 pattern, except that noisy-school children, who had been enrolled for 2-4 years also appeared to be less distractible than their quiet-school counterparts. Examination of the upper half of Figure 1 indicates that the T2 sample continues to show the same pattern of better performance by the noise group on the distraction during the earlier years. In this case, however, performances of the noisy-school and quiet-school groups are rather equivalent after 4 years of enrollment—Noise \times Months interaction, $F(1, 141) = 3.66, p < .06$.

Helplessness. As in the analysis of the entire T1 sample, there are effects of noise on test puzzle performance that occur irre-

spective of whether the child received a success (solved or not) or failure treatment. Noisy-school children were more likely to fail the test puzzle than quiet-school children, $F(1, 133) = 5.37, p < .02$, and more likely to take longer solving the puzzle, $F(1, 133) = 2.88, p < .09$, than quiet-school children—multivariate effect for noise, $F(3, 133) = 1.92, p < .12$. Although differences between proportion of children failing and time to solution were stable across the two testing sessions, quiet/noise differences in the percentage of children giving up occurred only at T1—Noise \times Testing Session interaction, $F(1, 133) = 3.90, p < .05$. The multivariate effect for the Noise \times Testing Session interaction was not, however, significant, $F(3, 131) = 1.57, p < .20$.

As pointed out in Cohen et al. (1980), an analysis of the proportion of children giving up that includes only those children who failed the test puzzle provides the most direct measure of helplessness. This analysis looks at the degree to which failure is associated with giving up as opposed to unsuccessful persistence. Although data for the entire T1 sample indicated increased giving up on the part of noisy-school as opposed to quiet-school children, there was neither a noise nor Noise \times Testing Session interaction in the present analysis.

Although not directly relevant to problems posed in this article, it is of general interest to examine whether the soluble or insoluble puzzle given at T1 affected performance on the test puzzle administered 1 year later, irrespective of (i.e., controlling for) noise exposure. This comparison provides a rough measure of the duration of the learned helplessness effect. That is, does a failure as opposed to a success pretreatment affect subsequent task performance as much as a year later? As suggested earlier, because of a selection bias created by subjects who were assigned to a soluble puzzle condition who failed to solve their soluble puzzle, there were three levels of the success-failure factor: success group who solved their pretreatment puzzle, success group who failed their pretreatment puzzle, and failure group. At both T1 and T2, children who received a success treatment puzzle and solved that puzzle were more likely to solve, $F(2,$

133) = 5.39, $p < .006$, and faster at solving the test puzzle, $F(2, 133) = 3.16, p < .05$, than both those who failed to solve the success treatment puzzle and those who received a failure treatment puzzle. There were no differences between these conditions on the proportion of children giving up; multivariate for success-failure, $F(6, 262) = 2.16, p < .05$. These data suggest the possibility of a helplessness effect persisting over a 1-year period, but they are difficult to interpret because of the self-selection problem.

Discussion

In general, the retest data provide strong support for the stability of the effect of noise on annoyance, distractibility, and performance on a moderately difficult task. First, at both testing sessions, noisy-school children were bothered more by aircraft noise than quiet-school children in both the classrooms and homes. Second, the similarity of the T1 and T2 data on the distraction task suggests the relative stability of this unpredicted interaction. Specifically, it suggests that there is some initial increased ability among noise-impacted children for "tuning out" auditory distraction and that this advantage disappears after 4 years of exposure. It was suggested in the earlier article that the children initially attempt to cope with the noise by tuning it out. Later, however, as they find that the strategy is not adequate, they give it up. An alternative explanation is that as duration of exposure increases, the children become more discriminating in terms of the kinds of sounds that they tune out. That is, initially they tune out wide range of acoustic stimuli (including the distractor used in the present study, which is dissimilar to aircraft noise), but later they tune out only sounds that are similar to the aircraft noise.

The present analyses also suggest that noisy-school children were poorer than quiet-school children at solving the test puzzle at both testing sessions. However, the increased "giving up" on the part of the noisy- as opposed to quiet-school children found in the analysis of the entire T1 sample was not found in the present analysis. The lack of

such an effect may have occurred because of subject attrition, because the children had had a previous experience with the same puzzle, or because the effect disappeared, that is, adapted out over time. It should be noted that the cross-sectional analysis of the entire T1 sample *did not* indicate a lessening of giving up with increased months of school enrollment. This suggests that the giving up effect does not adapt out over time.

Although the previously reported differences between the noisy- and quiet-school children on systolic and diastolic blood pressure were not found in the analysis of the attrition sample, this result was expected, given the large proportion of noisy-school children with high levels of blood pressure who were not retested. Because of this, the lack of a relationship between noise and blood pressure (at either T1 or T2) in the attrition sample *does not* constitute information for the acceptance or rejection of the hypothesis that the children adapted to noise.

A piece of data that was rather inconsistent with other findings in the original study of the entire T1 sample was that noisy-school children attended school more often than quiet-school children. The present data suggest that this difference did not exist for the data collected at T2. We are unable to explain the difference that occurred at T1 and feel that it may reflect random fluctuation, with T2 reflecting a regression to the mean.

In sum, the data suggest that effects related to living and attending school in a noisy neighborhood are stable over a 1-year period. That is, there is little evidence for adaptation to the noise.

Blood pressure: Habituation or attrition? The cross-sectional analysis of the entire T1 sample reported in an earlier article (Cohen et al., 1980) similarly found little evidence for adaptation. In fact, the only data supporting an adaptation hypothesis was the finding that systolic blood pressure differences between noisy- and quiet-school children (noisy-school children had higher blood pressure) were greater during the first few years of school enrollment. A similar pattern also occurred for diastolic pressure, although it did not reach statistical significance. (Figure 2 depicts the results of

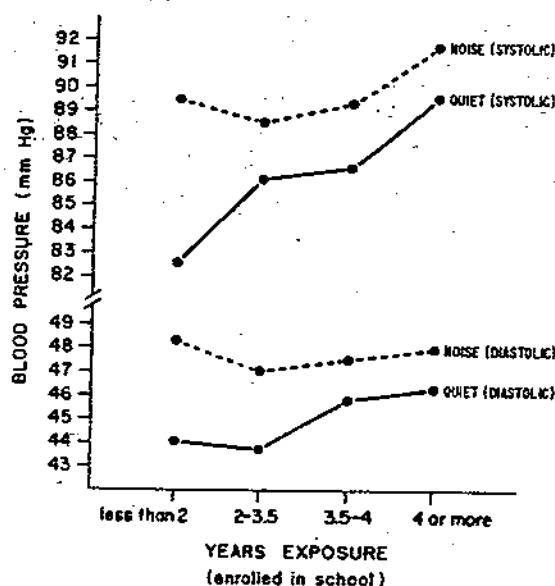


Figure 2. Systolic and diastolic blood pressure as a function of school noise level and duration of exposure. Each period on the number of years of exposure coordinate represents one quarter (based on quartiles) of the sample. For example, 25% of the sample were enrolled in school for less than 2 years. (From "Physiological, Motivational, and Cognitive Effects of Aircraft Noise on Children: Moving from the Laboratory to the Field" by Sheldon Cohen, Gary W. Evans, David S. Krantz, and Daniel Stokols, *American Psychologist*, 1980, 35, 231-243. Copyright 1980 by the American Psychological Association. Reprinted by permission.)

the T1 sample analysis, as reported in Cohen et al., 1980.) As previously suggested, this effect could be due to noisy-school children adapting to the stressor as the duration of exposure increased. On the other hand, the effect could be due to some kind of subject selection bias. That is, children with noise-induced, elevated blood pressure may have quickly moved out of the noise-impacted neighborhood and thus lessened the mean blood pressure for noisy-school children in the 2 or more years of exposure categories.

Some longitudinal data on how long specific noisy- and quiet-school children remain enrolled in their schools can help distinguish between these two explanations. The attrition bias analyses reported earlier suggest the possibility that people who move out of noise-impacted neighborhoods are different than those who move out of similar neighborhoods not suffering from noise pollution. Conclusions of this kind cannot, however, be

made from the attrition analyses, since a subject assigned to the not-present-during-retesting category may have moved or may have merely been absent during the retesting session. Thus, a second analysis of T1 blood pressure data was conducted to determine whether families of noisy-school children who showed elevated blood pressure were more likely to *move* sometime during the 2 years following the original testing session than families of quiet-school children and of noisy-school children not showing elevated pressure. In this case, unlike the attrition analyses, children who were absent at T2 but still enrolled were categorized as attending school. The retest factor used in the attrition analysis was replaced with a three-level measure of *migration* (not enrolled in school after 1 year/enrolled 1 year later but not after 2 years/still enrolled after 2 years, see Table 1, III).

As in the attrition bias section, we are concerned primarily with the Noise \times Migration interaction. This interaction suggests that those children leaving the noise-impacted neighborhood have different scores on blood pressure than those leaving the quiet neighborhood. As depicted in Figure 3, noisy-school students with the highest blood pressures move out of the noise area soon (within 2 years) after the initial testing: $F(2, 229) = 6.80, p < .001$, for systolic, and $F(2, 229) = 3.50, p < .03$, for diastolic. The multivariate interaction effect was significant, $F(4, 456) = 3.84, p < .004$. Thus, it appears that selective attrition, *not* adaptation, is responsible for the decrease of the difference between the blood pressure of noisy-school and quiet-school children.

Apparently the families of those noise-group children who showed elevated blood pressure were more likely to move out of the noise-impacted neighborhood than the families of children who did not show elevated blood pressure. It is important to emphasize that these effects occurred with race and social class partialled out of the analyses and that this bias for those with higher blood pressure to move out of the neighborhood occurred only in the noise-impacted area. Some possible explanations for this effect are that (a) parents of children with elevated blood pressure were sensitive to their chil-

dren's experience of stress and as a consequence moved to a less noisy neighborhood; (b) because of a familial bias (either genetic or environmentally determined), parents of children with noise-induced blood pressure elevations experienced similar stress-related reactions that motivated them to move from the neighborhood; (c) the children's elevated blood pressures were a response not to the noise itself but to their parents' own noise-induced stress, which was motivating the parents to move from the neighborhood; and (d) some unknown third factor is related to mobility, high blood pressure, and living in a noisy neighborhood.⁶

Noise-Abatement and Noise-Stress Reduction

Do noise-abatement interventions (and their resulting reduction in classroom noise level) decrease or ameliorate the effects of noise in impacted classrooms? Both cross-sectional data collected during the first testing session and longitudinal data looking at changes in the responses of children who moved from noisy to quiet classrooms are relevant to this question. As in the previous section, longitudinal data are based on the attrition (163) sample and, thus, are subject to the attrition bias. The cross-sectional data reported in this section are based on the entire T1 sample (262).

⁶ The explanations that suggest that high blood pressure is the *cause* of the migration from the noisy neighborhoods assume that the child and/or parent perceive that the child is under stress. It is probable that only those children with blood pressures substantially higher than the group mean would fit into this category. Thus, if elevated blood pressure is responsible for increased migration in the noisy neighborhoods, large proportions of those children leaving the noisy neighborhood would have relatively high blood pressures. Analyses of the proportion of children moving from their neighborhoods as a function of whether they attend a noisy or quiet school and whether they have high (80th percentile or above) or low (below the 80th percentile) blood pressure indicate that the proportion of children with high blood pressure who move from the noisy neighborhoods is higher than the proportion of high blood pressure children who move from quiet neighborhoods (Noise \times Blood Pressure interactions: for systolic, $F(1, 246) = 5.42, p < .02$; for diastolic, $F(1, 246) = 5.59, p < .02$). Apparently, a relatively large number of noisy-school children who move do have substantially elevated blood pressure.

Results: Cross-Sectional Analyses

Several of the classrooms in noise-impacted schools had been treated with noise-reducing materials several years before the first testing session. Because they were still relatively noisier than quiet comparison classrooms and because of the presumption that the high noise levels in the homes and play areas of noisy-school children were as important as the actual classroom level, these treated classrooms were not separated from other noisy school classrooms in the previous article (Cohen et al., 1980). To evaluate the effectiveness of this treatment and assess the relative impact of a somewhat quieter classroom on the criterion variables, data from the first testing session were reanalyzed, with classrooms categorized as noisy (97 children), abated (45), and quiet (120). The regression analyses on criterion variables are identical to those described previously except that the noise variable had the three levels described above instead of two (see Table 1, IV).

Noise measures. The mean peak noise level for noisy classrooms was 79.06 dB, for abated classrooms it was 63.17 dB, and for quiet classrooms, 56.60 dB. An analysis of variance indicated a significant difference between these means, $F(2, 34) = 38.45$, $p < .001$. Moreover, preplanned contrast indicated significant differences between noise and quiet, $F(1, 34) = 75.06$, $p < .001$; quiet and abated, $F(1, 34) = 16.93$, $p < .0002$; and noise and abated, $F(1, 34) = 45.89$, $p < .0001$, rooms. In general, it was expected that effects on criterion variables would be directly related to average classroom noise levels and therefore, the mean values would fall in the following order: noise, abated, quiet. Preplanned comparisons reported in this section were employed to directly test this hypothesis.

Child questionnaire. Although noise had a significant impact on children's self-reports of classroom noise, $F(2, 249) = 7.69$, $p < .07$; airplane disturbance in the classroom $F(2, 249) = 7.4$, $p < .0008$; and airplane disturbance at home, $F(2, 249) = 7.78$, $p < .0005$, all reflected a relatively low level of noise annoyance among quiet-classroom children as compared with noisy- and abated-

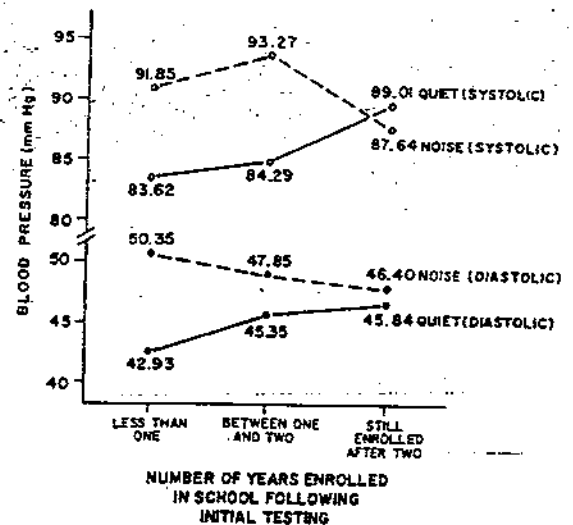


Figure 3. Systolic and diastolic blood pressure as a function of school noise level and the number of years enrolled in school following T1.

classroom children, whose means on these questions were nearly identical. The multivariate analysis for the child questionnaire data did not indicate any significant effects.

Health. The health cluster analyses indicated Noise \times Months Enrolled in School interactions for both height, $F(2, 237) = 2.83$, $p < .06$, and weight, $F(2, 237) = 4.21$, $p < .01$. These interactions were primarily attributable to relatively low mean heights and weights for those in the abated group who had been enrolled in their schools between 2 and 3½ years. There was also a main effect of noise for the percentage of total school days a child was in attendance, with noisy- and abated-group children attending more often (97.5% for noise and 97.2% for abated) than quiet-group children (94.2%), $F(2, 237) = 11.93$, $p < .0001$. Multivariate analyses for both the noise, $F(6, 470) = 1.58$, $p < .15$, and Noise \times Months, $F(6, 470) = 1.85$, $p < .09$, effects were marginal.

Blood pressure. As is apparent from Table 2, both systolic and diastolic blood pressures appear to vary as a function of noise level, with the highest mean pressure reported for the noise group, followed by a lower blood pressure in the abated group and an even lower pressure in the quiet group. Although the analysis of systolic pressure did not indicate a statistically significant impact of noise, there was a main effect of noise for

Table 2
Mean Blood Pressures (mm Hg) by Classroom Noise Abatement for Cross-Sectional (T1) Data

Blood pressure	Classroom		
	Quiet	Abated	Noisy
Systolic	86.64	88.69	90.09
Diastolic	44.99	46.77	48.46

diastolic pressure, $F(2, 241) = 3.19, p < .04$. The multivariate analysis was not significant.

Preplanned contrasts between the various blood pressure means indicate that for both systolic, $F(1, 235) = 2.61, p < .10$, and diastolic pressure, $F(1, 235) = 5.24, p < .02$, the noise group was different from the quiet group. Comparisons between the quiet group and the abated group indicated marginal differences in both cases—for systolic, $F(1, 235) = 2.21, p < .14$; for diastolic, $F(1, 235) = 3.17, p < .08$. There were no differences between the noise and abated groups for either systolic or diastolic pressure.

Helplessness. The percentage of failure on the second helplessness puzzle was also consistent with the expected order. The noise group was more likely to fail the second helplessness puzzle (57% failed) than either the abated group (47% failed) or the quiet group (35% failed), $F(2, 235) = 4.12, p < .02$. There was no difference between noise groups on the time required to solve the second puzzle. Preplanned contrasts comparing proportions of students solving the second puzzle indicate marginal differences between the quiet and abated groups, $F(1, 235) = 3.10, p < .08$, and the noise and abated groups, $F(1, 235) = 2.70, p < .10$, and a significant difference between noise and quiet, $F(1, 235) = 8.03, p < .005$. These data suggest that noise abatement marginally affected puzzle task performance, with children in abated classrooms performing at a higher level than those in nonabated rooms, but not as well as those in quiet rooms.

Both the noise and the abated group "gave up" on the second puzzle (17% for noise, 16% for abated) more often than the quiet group (3%). The multivariate effect for noise did not, however, reach statistical significance. An analysis including only those children who failed the second puzzle indicated

that the failures of noise- (29%) and abatement-group (35%) children were associated with giving up more often than were the failures of quiet-group children (7% who failed gave up).

School achievement. The achievement tests for reading and math are administered by the school systems during the third but not during the fourth grade. As a result, the scores that were used in the following analyses were recent for third graders (administered at approximately the same time as our own testing) but were 1 year old for fourth graders. Thus, it was expected that noise abatement would affect the achievement scores of third graders who spent a year in their abated classrooms before (and while) taking the test, but not fourth graders, since their classroom assignment at the time that we collected our data was presumably irrelevant to how they performed on a test taken in another classroom 1 year earlier. (Unfortunately, data on the classroom assignment of fourth graders during the year that they were tested were not available.) To test the hypothesis that the achievement scores of third but not fourth graders would be affected by abatement, a Grade \times Noise interaction was added to the noise nested in classrooms analysis of the school achievement cluster. Although there were no effects for the noise or Noise \times Grade interaction on either reading achievement or auditory discrimination, there was a Grade \times Noise interaction for performance on the math achievement test, $F(2, 32) = 3.06, p < .06$; the multivariate for noise was $F(6, 60) = 1.98, p < .08$. As is apparent from Table 3, although grade level did not have a substantial effect on the relative performance of third and fourth graders in quiet schools,

Table 3
Mean (Adjusted) School Achievement Percentiles for Cross-Sectional (T1) Data as a Function of Classroom Noise Abatement and Grade

Classroom	Reading		Math	
	3rd grade	4th grade	3rd grade	4th grade
Noisy	30.30	35.96	34.35	39.35
Abated	47.36	37.90	56.24	37.54
Quiet	37.85	39.09	36.96	42.76

third graders in abated classrooms performed substantially better than those in nonabated classrooms, whereas the reverse was true for fourth graders. It is also apparent from Table 3 that there was a similar pattern for reading test scores, although the Grade \times Noise interaction for reading did not reach statistical significance.

One anomaly of these data is that math (also reading) achievement performance of the third-grade children from abated classrooms in noisy schools is higher than that of third-grade children from quiet schools. It was noted in a previous article (Cohen et al., 1980) that differences between noisy and quiet schools were affected by a number of variables that could not be controlled for in the present study, including school and district teaching policy, teaching quality, level of federal aid to a school, and school administration. It was also suggested that these factors are probably more important than noise in determining school achievement. These problems are reduced substantially when (as in the analysis above) the noise and abated classrooms are in the same district and often in the same school.

Distraction. Analysis of the distraction task data indicated no significant effects.

Results: Longitudinal Analyses

As mentioned earlier, all children from the original sample who were still enrolled in their respective schools were retested 1 year later. The analyses presented below compare those children who were in noisy (non-abated) classrooms during both testings (44 children) with those children who were in noisy rooms during the first testing and abated rooms during the second testing (39 children). Quiet-classroom children were not included in these analyses because of the conceptual problem of evaluating change scores when initial scores are significantly different (see Table 1, V): Only factors for which Noise \times Testing Session and/or Noise \times Months \times Testing Session interactions were significant will be discussed, since at this point we are not concerned with differences between noise/noise and noise/abated groups that occur at both testings (i.e., the main effect for noise) unless an interaction is found.

Noise measures. Before presenting data

Table 4

Mean Classroom Noise Levels for Noisy and Abated-Noise Classrooms at T2

Noise level	Noise measure		
	L_{EQ}	L_{33}	Peak dB (A) ^a
Noisy	70.29	55.82	91.50
Abated	62.82	49.27	71.27

^a Mean peak dB (A) measures at T2 are higher than those recorded at T1. This is because the more sensitive automated equipment used at T2 records peaks that last only a fraction of a second, whereas manual equipment used at T1 required the operator to judge the highest point reached by a fluctuating needle.

on the relationship between the noise-abatement work and the children's performance and health, it is important to determine whether the abatement work was effective. Analyses of the differences in the sound levels in classrooms that were sound attenuated versus those that were not sound attenuated suggests that the abatement work had a significant impact on interior sound levels. As apparent from Table 4, on all three measures— L_{EQ} : $F(1, 20) = 9.39, p < .006$; L_{33} : $F(1, 20) = 4.92, p < .04$; and peak dB: $F(1, 20) = 24.91, p < .0001$ —abated rooms have substantially lower sound levels than non-abated rooms.

Child questionnaire. Children in the noisy group reported more trouble hearing their teacher during the second testing session, whereas those in abated classrooms reported less difficulty—Noise \times Testing Session, $F(1, 48) = 3.98, p < .05$. There were no other Noise \times Testing Session effects on children's questions and no significant multivariate effects.

There were no significant multivariate or univariate interactions of noise and testing session in any of the remaining clusters; thus, no additional data are reported here. It is important to reiterate that school achievement data were available only at T1, and thus, there were no longitudinal school achievement analyses.

Discussion

The cross-sectional comparison of noisy, abated, and quiet classrooms suggests only a minimal impact of the abatement intervention on the criterion variables. Clusters

apparently *unaffected* by abatement (those showing no effects or just noisy- versus quiet-school differences) include children's perceptions of noise and noise interference, health factors, and the auditory distraction measure. On the other hand, two important clusters did provide at least marginal support for an ameliorative effect of abatement. First, abatement did have a marginal effect on whether the child was able to solve the moderately difficult test puzzle in the helplessness task, irrespective of whether the child received a soluble or insoluble first puzzle. It is noteworthy, however, that giving up—the measure designed to provide a direct assessment of feelings of helplessness—was affected only by the noisy-school versus quiet-school distinction. Second, although reading achievement and auditory discrimination ability were unaffected by abatement, there was evidence that math achievement was higher for children in abated than in noisy classrooms. This effect seems especially noteworthy, since it occurs, as predicted, only for those children who took the achievement test at the end of the year that was spent in an abated classroom. It is important to consider, however, that unlike all other measures that were administered in a relatively quiet setting, the achievement tests were actually taken in the classroom. Thus, the relative deficit in math performance of the children from the noisy as opposed to noise-abated classrooms may be attributable to noise interfering with test performance rather than to an aftereffect of noise, which we would expect to occur even outside of the noise-impacted environment.

The *longitudinal* data similarly provide little evidence that children who had been enrolled in a noise-impacted school showed improvement in their performance and/or health following a 1- (school) year experience in a noise-abated classroom. In contrast to the cross-sectional analysis, the longitudinal data did not even indicate improvement in ability to solve the moderately difficult puzzle on the part of children in noise-abated rooms. This failure to mimic the cross-sectional findings may be due to an attrition bias or to the marginality of the effect itself. Unfortunately, school achievement data were not available during the second testing session, and there was no opportunity to reevaluate the ameliorative effects

of noise abatement on school achievement found in the cross-sectional analyses.

It is clear that the ameliorative effects of classroom noise abatement were not substantial, nor did they cover a wide range of measures. There is evidence, however, that abatement affects behavior in the classroom. Children in abated classrooms reported fewer problems hearing their teachers and performed better on school achievement tests than children in nonabated rooms. It is important to reiterate that unlike other measures in the study, school achievement tests were administered in the (noisy or quiet) classroom. It is thus possible that noise-associated deficits on this measure reflect an effect of noise that occurs *during* rather than after exposure.

We can suggest two possible explanations for the general lack of ameliorative effects of classroom noise abatement. First, it is possible that effects of previous noise exposure are relatively long lasting. That is, it takes more than a 1-year reprieve from the noise for a return to more normal levels of behavior and health. Second, since the children are all exposed to the noise outside of the school—in their homes, on the playground, and so forth—a quieter classroom may not have been a sufficient intervention.

In evaluating these results, it is also important to remember that most of the children attending noisy schools spent previous years in nonabated classrooms. Thus, although abatement interventions were not entirely effective for this population, it is possible that children who start to attend school after the entire school has undergone noise abatement (and are thus always in relatively quiet classrooms) would benefit from the interventions.

Conclusions and Implications

The data reported in the analyses of the entire T1 sample (Cohen et al., 1980) indicated effects of aircraft noise on cognitive, motivational, and physiological mechanisms that were consistent with effects found in laboratory settings. The data presented in this article established the stability of these effects over time. Moreover, they reinforce our interpretation of the earlier cross-sectional data that children do *not* adapt to noise over time. The analyses of noise-abate-

ment effectiveness indicate that the abatement is partially effective, with the important school achievement measure showing some improvement for children in noise-abated classrooms.

From a policy point of view, these data support the need for noise-abatement work in these kinds of settings but suggest that noise insulation in the classroom may not be enough. It is likely that more effective noise abatement in classrooms (bringing levels closer to those in quiet schools) and decreased noise exposure *outside of school* would have an increased ameliorative impact. Thus, decreasing overall community noise levels by creating buffer zones between airports and other sources of high-intensity noise and the surrounding communities would be one way of providing more adequate protection for community residents.

The data reported in this and the previous article are part of the Los Angeles Noise Project, an ongoing study that is attempting to provide a sound data base regarding the possible links between community noise exposure and various aspects of behavior and health. The consistency of laboratory and field findings is beginning to increase our confidence in a number of deleterious effects of community noise exposure. This project includes an ongoing attempt to replicate this work, with both a second sample of children living in the air corridor and a sample of children attending schools adjacent to highways. The aim is to increase our understanding of the aftereffects of noise, the possible role of adaptation in mediating such effects, and the impact of noise-abatement intervention on noise-related effects. The strategy of studying effects that are closely linked to laboratory findings together with the use of both cross-sectional and longitudinal approaches in the field helps establish both the scientific validity and practical value of work, with implications for social issues. As these converging approaches eliminate alternative explanations for noise-associated effects, the potential for affecting the formation of public policy increases.

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Received January 31, 1980 ■



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Physiological, Motivational, and Cognitive Effects of Aircraft Noise on Children

Moving From the Laboratory to the Field

SHELDON COHEN *University of Oregon*
GARY W. EVANS *University of California, Irvine*
DAVID S. KRANTZ *Uniformed Services University of the Health Sciences*
DANIEL STOKOLS *University of California, Irvine*

ABSTRACT: *A combination of laboratory and field methodologies is suggested as a strategy to increase the influence of psychological research in the formation of public policy. A naturalistic study of the effects of aircraft noise on elementary school children is presented as evidence for the effects of community noise on behavior and as an example of a study that examines the generality of laboratory effects in a naturalistic setting. The study is concerned with the impact of noise on attentional strategies, feelings of personal control, and physiological processes related to health. In general, the results are consistent with laboratory work on physiological response to noise and on uncontrollable noise as a factor in helplessness. Thus children from noisy schools have higher blood pressure than those from matched control (quiet) schools. Noise-school children are also more likely to fail on a cognitive task and are more likely to give up before the time to complete the task has elapsed. The development of attentional strategies predicted from laboratory and previous field research was, on the whole, not found. The implications of the study both for the understanding of the relationship between noise and behavior and for the influencing of public policy are discussed.*

Science's contribution to social policy decisions regarding noise pollution has been primarily limited to the documentation of the impact of high-intensity sound on hearing. Acceptable noise standards used in both national and local statutes are based on research that assesses magnitude of hearing loss at varying intensities and durations of sound. Yet during the last ten years it has become clear that noise can alter nonauditory systems as well as auditory ones. Thus laboratory research has established effects of noise on cognitive, motivational, and general physiological pro-

cesses. For example, noise is associated with alterations in task performance (cf. Broadbent, 1978; Eoeb, 1979), decreased sensitivity to others (e.g., S. Cohen & Lezak, 1977; Mathews & Canon, 1975), and elevation of a number of nonspecific physiological responses (cf. Glass & Singer, 1972; Kryter, 1970). Exposure to noise that is unpredictable and uncontrollable (cannot be escaped or avoided) can also reduce one's perception of control over the environment (e.g., Glass & Singer, 1972; Krantz, Glass, & Snyder, 1974). This loss of control is often accompanied by a depression of mood and a decrease in one's motivation to initiate new responses (Seligman, 1975).

One argument against serious consideration of this evidence when making policy decisions is that it is largely derived from laboratory studies. Since laboratory subjects typically experience a single short period of exposure to high-intensity sound and are aware that their exposure is only temporary, the applicability of these findings to experi-

The research reported in this article was supported by grants from the National Science Foundation (BNS 77-08576 and SOC 75-09224), the National Institute of Environmental Health Sciences (1 RO1 ES0176401 DBR), the Society for the Psychological Study of Social Issues, and the University of Oregon Biomedical Fund.

The authors are indebted to Sheryl Kelly, Laurie Poore, Jerry Lukas, Rich Haller, and Nick Garsbnek; to the administrative staffs of the Los Angeles, Lennox, and Inglewood (California) School Districts; to the staff, teachers, children, and parents of the participating schools; to the California Assessment Program; and to the California Department of Health. We also wish to thank Michael Posner and Myron Rothbart for their comments on an earlier draft.

Requests for reprints should be sent to Sheldon Cohen, Department of Psychology, University of Oregon, Eugene, Oregon 97403.

ences of chronic noise exposure is questionable. Because of a lack of well-controlled studies of persons routinely living and working under noise, we are unable to say with any certainty if similar effects occur in individuals exposed to noise for prolonged periods.

Our own lack of confidence in the generality of the effects of noise that occurs in laboratory settings translates into a lack of influence in the policy-making process. Legislation restricting noise levels in industrial and community settings usually imposes a heavy economic burden on those responsible for the noise. To convince policymakers that such burdens are justified, there must be substantive evidence that community and/or industrial noise deleteriously affects health and behavior.

Naturalistic studies of the effects of noise that occurs in home, school, or office seem like the obvious alternative to investigations carried out in laboratory settings. However, such studies are correlational. Subjects are not randomly assigned to noisy or quiet settings, and the settings often vary on dimensions other than noise exposure. These problems can be substantially reduced by carefully matching the noise and quiet samples on important dimensions and by statistically controlling for other possible confounds. It is always possible, however, that some unknown factor covaries with exposure to the noise setting and actually causes the effects that the investigator associates with noise. Thus, in isolation, naturalistic studies also provide insufficient evidence for a link between community noise and measures of health and behavior.

It is clear that neither laboratory nor naturalistic studies can in themselves provide what either scientists or politicians would consider convincing evidence for noise-induced effects. What is necessary is an interplay between laboratory and field methodologies. This interplay can take at least two forms. On the one hand, an effect can first be established as reliable within laboratory settings where causal links can be inferred. Then, the robustness of this relationship can be established in a number of naturalistic settings. On the other hand, by first conducting field research, it is possible to isolate important dimensions of a particular problem. At that point, laboratory studies may be useful to rule out plausible alternate explanations often inherent in naturalistic research. Laboratory and field approaches are often pursued to the exclusion of one another, but only by com-

bining these two strategies can we begin to understand the impact of environmental variables in naturalistic settings. Moreover, only when evidence from the laboratory and field converges can a credible scientific case be presented in order to influence public policy.

This emphasis on the interplay between the laboratory and the field is consistent with Campbell and Stanley's (1966) discussion of the inevitable trade-off between well-controlled experimental settings (internal validity) and our ability to generalize across persons and settings (external validity). The laboratory provides the opportunity for an internally valid investigation, but the generality of laboratory findings is severely restricted. Naturalistic studies provide the opportunity to generalize findings to a greater range of persons and settings but often lack the strict control of the laboratory.

The study presented in this article examines the effects of aircraft noise on children. It is particularly concerned with exploring the generality of laboratory work on noise-induced shifts in attentional strategies, feelings of personal control, and nonauditory physiological responses related to health. Our purpose in reporting this study is twofold. First, it is presented as evidence for relationships (or lack of relationships) between aircraft noise exposure and a number of cognitive, motivational, and physiological measures. The article includes short discussions of laboratory and field research in each of the areas of concern. Second, it is presented as an example of an attempt to examine the generality of laboratory effects in a naturalistic setting. In this regard, the study employs an individual testing procedure in a field setting. It uses a matched-group design and attempts to control statistically for a number of possible alternative explanations for correlations between community noise and the various criterion variables.

Overview of the Study

The subjects were children attending the four noisiest elementary schools in the air corridor of Los Angeles International Airport. Peak sound level readings in these schools are as high as 95 dB (A), and the schools are located in an air corridor that has over 300 overflights a day—approximately one flight every 2.5 minutes during school hours (Lane & Meecham, 1974). Three control

schools (quiet schools) were matched with the experimental schools for grade level, for ethnic and racial distribution of children, for percentage of children whose families were receiving assistance under the Aid to Families with Dependent Children program, and for the occupations and education levels of parents. Thus we were able to compare samples of children attending noise schools and quiet schools who were relatively similar in terms of age, social class, and race. A statistical technique described later allowed additional control over these factors.

The study focused on effects occurring outside of noise exposure (i.e., aftereffects). Thus all tasks and questionnaires (except the achievement test records gathered from school files) were administered in a quiet setting—a noise-insulated trailer parked directly outside the school. These data were collected during two 45-minute sessions on consecutive days. Three cognitive tasks were administered during the test periods: One was designed to assess feelings of personal control and the others to determine whether the children employed some common attentional coping strategies. A questionnaire, concerned with responses to noise and two blood pressure measures were also given during the testing sessions. A parent questionnaire dealing with parent response to noise, mother's and father's level of education, and the number of children in the family was sent home with each child. Scores on standardized reading and math tests and data on absenteeism were collected from school files.

The study included children from all noise-impacted third- and fourth-grade classrooms in each noise school as well as children from an equal number of classrooms in quiet schools. To ensure that performance differences between children from noise schools and those from quiet schools could not be attributed to noise-induced losses in hearing sensitivity, an audiometric pure-tone threshold screening was administered to each child. Children were screened at 25 dB for select speech frequencies (500, 1000, 2000, and 4000 Hz). Children failing to detect 25 dB tones at any one of these frequencies in either ear were not included in the study. Six percent of the noise-school children and 7 percent of the quiet-school children failed the screening. A total of 262 subjects (142 from noise schools and 120 from quiet schools) remained in the study. Individual analyses, how-

ever, sometimes contain fewer subjects because of missing data.

Data compiled from the parent questionnaire allowed us to determine the degree of similarity of the prematched noise and quiet samples. Analyses of variance indicated that there were no differences between the samples on the various social class factors. The mean number of children per family was 3.54 in the noise sample and 3.88 in the quiet sample. Levels of parent education were also equivalent, falling between some high school (scaled as 3) and high school graduate (scaled as 4). The mean level of education for fathers was 3.75 for noise-school children and 3.41 for quiet-school children, and for mothers, 3.64 and 3.35, respectively. The racial distributions, however, differed significantly, $\chi^2(3) = 10.5$, $p < .01$, with the noise group containing more blacks (32% vs. 18%) and the quiet group more Chicanos (50% vs. 33%). Noise and quiet samples had nearly equal percentages of whites (32% and 29%, respectively) and of unidentifiable or mixed-race children (3% in each sample).

The two samples also differed on mobility, with children in the quiet sample having lived in their homes longer (a mean of 49.6 months vs. 41.4 months) and attended their schools for longer periods (a mean of 43.2 months vs. 36.0 months) than noise children, $F(1, 270) = 4.8$, $p < .03$, and $F(1, 270) = 12.9$, $p < .001$, respectively. Length of school enrollment was not related to father's education, mother's education, or the number of children in the family. Moreover, the noise and quiet samples were relatively equal on these various social class factors across all durations of exposure. This finding suggests that the decision to continue living in the noise-impacted area was not determined by the parents' socioeconomic status. There were, however, more blacks and whites in the noise group with less than 2 years' exposure than there were in the equivalent quiet group, $\chi^2(4) = 12.04$, $p < .02$. There were no differences in racial distribution for other exposure durations.

Statistical Controls

A regression technique was used to compensate for differences between the noise and quiet samples on racial distribution and mobility (J. Cohen, 1968). In general, the regression analysis allows one to determine the relation between two variables while

ing evidence for noise-induced physical disease (cf. S. Cohen, Glass, & Phillips, 1979; Kryter, 1970). It is well-established, however, that short-term exposure to relatively high sound levels in laboratory settings can alter physiological processes. Physiological changes produced by noise consist of non-specific responses typically associated with stress reactions, including increases in electrodermal activity, catecholamine secretions, vasoconstriction of peripheral blood vessels, and diastolic and systolic blood pressure. Because such changes, if extreme, are often considered potentially hazardous to health, many feel that pathogenic effects of prolonged noise exposure are likely. Laboratory evidence that some components of the physiological response to noise do not habituate (Jansen, 1969) lends fuel to this argument, but is difficult to interpret in light of evidence from other laboratories indicating complete habituation (Glass & Singer, 1972).

A number of studies of workers in noisy industries have indicated health problems for those exposed to intense noise levels. Included are respiratory problems, such as sore throat, and allergic, musculoskeletal, circulatory, neurological, cardiovascular, and digestive disorders (e.g., Anticaglia & Cohen, 1974; A. Cohen, 1973). However, all of the industrial noise studies are subject to serious criticism because of their failure to control for other adverse workplace or job factors, for example, task demands and risks, that often covary with the noisiness of the job (cf. S. Cohen et al., 1979; Kryter, 1970). It is also important to note that several industrial surveys have failed to find a relation between noise and ill health (e.g., Finkle & Poppen, 1948; Glorig, 1971).

There are no existing controlled studies on the impact of noise on nonauditory health in children (Mills, 1975). Recent theoretical work, however, argues that children (along with the old, individuals in institutions, and persons suffering from other sources of stress) may be particularly susceptible to noise-induced illness because they lack the ability to temporarily escape their noisy environments (S. Cohen et al., 1979). It is suggested that this inability to escape at will can cause both an increase in overall duration of noise exposure and an increase in feelings of helplessness. This effect is important, since feelings of helplessness have been implicated as possible causal factors in illness (Seligman, 1975).

Each child's resting blood pressure (systolic and diastolic) was taken on an SR-2 Physiometrics automated blood pressure recorder.³ To accustom the children to the blood pressure measurement technique, an initial measurement was made at the beginning of the first day of testing. A short explanation of the technique and the concept of blood pressure was given at this time, and questions were solicited and answered. This initial measurement was not recorded. Each child's blood pressure was measured again on the first day and once more on the second day. The blood pressure data are based on the mean systolic and diastolic pressures for these two measurements. The graphic output of the machine was coded after the study was completed, with coders blind to experimental condition. Each child's height and weight were also measured. Absenteeism was used as an indirect measure of health, since absence from school is often attributable to illness. These data were available from school files.

Health measures were separated into two multivariate clusters: general health measures and blood pressure. This procedure was necessary because two of the general health measures—height and ponderosity (weight/height²)—were required as controls for the blood pressure analyses (cf. Voors et al., 1976). (The ponderosity index was chosen as a measure of obesity because of its high correlation with body fat.) The multivariate F for the effects of noise on the general health cluster was significant, $F(3, 235) = 8.04, p < .001$. Although noise-school children were shorter and weighed less than quiet-school children, neither of these differences reached significance, $F(1, 237) = 1.77, p < .18$, and $F(1, 237) = 1.07, p < .30$, respectively. Surprisingly, noise-school children attended school a higher percentage of the time (97.5% vs. 94.2%) than their quiet-school counterparts did, $F(1, 237) = 21.80, p < .001$.

The multivariate F for the effects of noise on systolic and diastolic blood pressure was significant, $F(2, 244) = 2.98, p < .05$. As is apparent from Figure 1, children from noise schools had higher blood pressure than their quiet-school counterparts did, with $F(1, 245) = 4.61, p < .03$, for

³ This instrument is an electronic infrasonic device that records on a rotating paper disc. Measurements were taken with a rubber cuff entirely encircling the upper arm. The reliability of this device for blood pressure measurement in children has been established in previous work (e.g., Voors, Foster, Frerichs, Weber, & Berenson, 1976).

controlling (covarying or partialing out) for one or more other variables. For example, one can look at the relation between noise level and blood pressure after functionally equating the noise and quiet groups on mobility and race. All data analyses reported in this article include controls for the number of children in the child's family, the grade in school, the number of months enrolled in school (years in residence for the parent questionnaire), and race.¹ These control factors were forced into the regression first, followed by noise and then the Noise \times Months Enrolled in School interaction. The interaction indicates whether length of exposure affected the various criterion measures. Additional controls were used in the analyses of blood pressure, school achievement, and selective inattention. The use of these controls is described in appropriate sections. This conservative analysis looks at the effects of noise and the interaction between noise and length of enrollment after functionally equating the noise and quiet groups on grade, race, social class, and mobility, as well as on any additional control factors employed in a particular analysis.

The various measures were analyzed in predetermined multivariate clusters created on the basis of theoretical consideration.² This form of analysis helps to decrease the high probability of chance findings that occur when a large number of analyses are necessary (cf. Bock, 1975).

Noise Measures

Interior sound levels (without children) were measured inside each classroom with Tracoustics (SLM S2A) sound level meters. Sound levels were monitored for a 1-hour period in the morning and a 1-hour period in the afternoon. Peak sound levels in terms of dB (A) were recorded for both morning and afternoon sessions. The overall mean peak for classrooms in noise schools was 74 dB and in quiet schools 56 dB. The highest reading in a noise-school classroom was 95 dB, while the highest reading in a quiet school was 68 dB.

The questionnaire administered to each child assessed his or her perception of classroom and home noise levels. The parent questionnaire also included questions on perception of home noise level as well as queries on how long the child had been enrolled in the present school and how long he or she had lived at their present address. Data on school enrollment were also available from school files. Noise contours (compiled by the Los

Angeles International Airport) provided approximations of the sound levels outside the homes of noise-school children.

The multivariate F for the effects of noise on the children's noise questionnaire was significant, $F(9, 246) = 3.10, p < .002$, thus allowing interpretation of the univariate regressions. Children in noise schools reported that their classrooms were noisier, $F(1, 254) = 5.49, p < .02$, and that airplanes bothered them more in the classroom, $F(1, 254) = 14.74, p < .001$, than children in quiet schools did. They did not, however, report having more trouble hearing their teacher.

In regard to home noise, children from air-corridor schools were more bothered by airplane noise than their quiet-school counterparts were, $F(1, 254) = 15.75, p < .001$. However, noise- and quiet-school children did not differ in ratings of home noise. Neither the multivariate F nor any univariate regression indicated any significant effects for the Noise \times Months in School interaction on the children's questionnaire.

The multivariate F for the effects of noise on the parents' noise questionnaire was also significant, $F(2, 221) = 124.2, p < .001$. Parents of children from the air-corridor schools indicated both that there were higher levels of noise in the home, $F(1, 232) = 37.33, p < .001$, and that they were bothered more by noise, $F(1, 232) = 240.07, p < .001$, than the parents of children attending quiet schools indicated. The home noise level reported by the parents of noise-school children increased with the number of years they had lived in their present residence, $F(1, 220) = 3.11, p < .08$. This effect must be interpreted carefully, however, since both the univariate and multivariate F s were only marginally significant.

Effects of Noise

PHYSIOLOGICAL RESPONSE AND HEALTH

Aside from temporary and permanent effects on hearing, previous research provides little convinc-

¹ Parent education was excluded as a control because data on this factor were not available for a number of children. As mentioned earlier, the noise and quiet samples were closely matched on education. Race was dummy-variable coded (see Overall & Klett, 1972).

² There were separate clusters for general health, blood pressure, helplessness, child questionnaire, and parent questionnaire. The selective inattention analyses were run as univariates, since each analysis required a unique control factor.

systolic pressure and $F(1, 245) = 4.86, p < .03$, for diastolic pressure.⁴ Unadjusted means for systolic pressure were 89.68 mm for the noise group and 86.77 mm for the quiet group. Diastolic means were 47.84 mm for the noise group and 45.16 mm for the quiet group. A marginal interaction, $F(1, 244) = 3.30, p < .07$, between noise and months in school suggests that systolic pressure differences between noise and quiet groups are greatest during the first few years of school enrollment; differences after this point remain constant. Figure 1 reflects a similar pattern for diastolic pressure. This interaction does not, however, reach even marginal statistical significance.⁵

HELPLESSNESS

Both laboratory and community noise research suggests the possibility that high-intensity noise exposure induces feelings of helplessness. According to Seligman (1975), a psychological state of helplessness frequently results when we continually encounter events (especially aversive ones) that we can do nothing about. The state of helplessness includes a perception of lessened control over

one's outcomes, a depression of mood, and a decrease in one's motivation to initiate new responses. Extreme effects of helplessness include fear, anxiety, depression, disease, and even death.

A number of researchers have induced helplessness effects in the laboratory by exposing subjects to uncontrollable bursts of noise (Hiroto, 1974; Krantz et al., 1974). Moreover, survey data reporting high levels of annoyance but low levels of complaints from noise-impacted populations have similarly been interpreted as reflecting a helplessnesslike state (Herridge, 1974). This finding, however, is subject to a number of alternative explanations, and thus the helplessness interpretation is only suggestive.

Performance on a cognitive task preceded by a success or failure experience was used in the present study to examine the effect of noise on response to failure and on persistence on a difficult task. Response to failure is a standard measure of susceptibility to helplessness. Thus, if noise-school children were more susceptible to helplessness, they would show greater effects of a failure experience than their quiet-school counterparts would. A lack of persistence (or a "giving-up" syndrome) is considered a direct manifestation of the helpless state.

Each child was given a treatment puzzle to assemble after the tester demonstrated the task with another puzzle. All puzzles were based on the same nine pieces and required the child to fill in a template of a familiar shape. One half of the

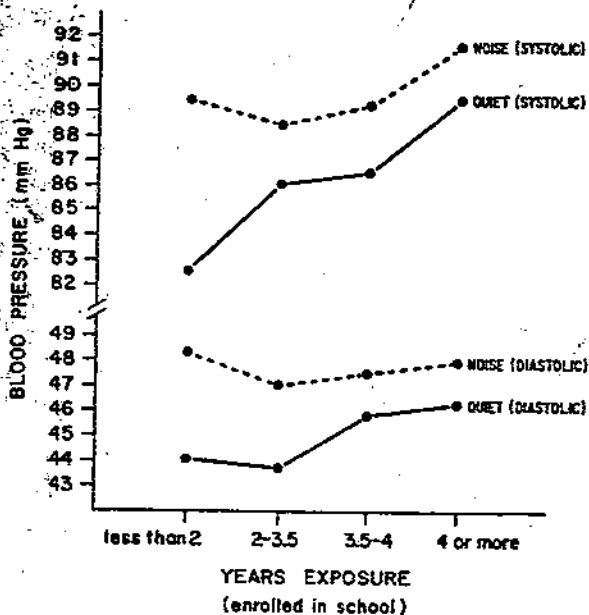


Figure 1. Systolic and diastolic blood pressure as a function of school noise level and duration of exposure. (Each period on the years-exposure coordinate on the figure represents approximately one quarter of the sample. For example, 25% of the sample had been enrolled in the present school less than 2 years.)

⁴ Both the noise-school and quiet-school children have lower mean blood pressures than children of similar ages tested in recent studies (e.g., Voors et al., 1976). It is important to note, however, that it is difficult to compare absolute blood pressure levels across studies, since blood pressure is strongly influenced by environmental and genetic characteristics of the population being studied, the conditions under which measurement occurs, and the measurement device.

⁵ To investigate whether elevations in blood pressure occurred equally across races, separate regressions were calculated for whites, blacks, and Chicanos. Since the number of subjects in each of these regressions is small, only very substantial mean differences will reach statistically significant levels. Blacks and Chicanos attending noise schools had higher systolic ($p < .05$ for blacks, $p < .25$ for Chicanos) and diastolic ($p < .25$ for blacks, $p < .10$ for Chicanos) pressure than their quiet-school counterparts did. For whites, there were no main effects of noise, but an interaction between noise and length of school enrollment indicated that an initial inflation of pressure for noise-school children disappeared as length of enrollment increased ($p < .01$ for both systolic and diastolic). These race differences will be pursued in a later paper.

children received an insoluble (failure) puzzle, and one half received a soluble (success) puzzle. The soluble puzzle was a circle, and the insoluble puzzle was a triangle. Each child was allowed to work on the treatment puzzle for 2.5 minutes. After time was up on the first puzzle, the child was given a second, moderately difficult puzzle to solve. The second (test) puzzle was the same—a square—for all (success and failure) children. The child was allowed 4 minutes to solve the second puzzle. Whether or not the puzzle was solved, time to solution and the child's persisting or giving up before the 4 minutes had elapsed were used as measures of helplessness. We expected that children from noisy schools would be more susceptible to a failure (helplessness) manipulation than children from quiet schools would be, and thus would be less likely to solve the puzzle, slower to find the solution, and more likely to give up on the second puzzle following an insoluble (failure) treatment. Moreover, children from noisy schools, irrespective of their success-failure condition, were expected to give up more often than quiet-school children.

A large proportion (34%) of the children assigned to the success condition, and thus receiving a soluble treatment puzzle, failed to solve the treatment puzzle within the 2.5 minutes allowed. Since the puzzles were considered quite simple and had been pilot tested on children of the same age group, this result was quite unexpected. Although the fact that a number of children self-selected themselves into a failure condition makes interpretation of success-failure effects impossible, comparisons between the children from noise schools and those from quiet schools, irrespective of (controlling for) their pretreatment, are still valid.

Except for the first analysis, which includes only those children who worked on soluble treatment puzzles (success condition), the following analyses also include factors for success-failure (those who solved and those who did not solve the success treatment puzzle are treated as separate groups) and the interaction between success-failure and noise. The control factors were forced into the regression first, followed by success-failure (dummy coded), noise, and the Noise \times Success and Noise \times Months/Enrolled interactions. Because of the difficulty in interpreting success-failure effects, they are not discussed. Moreover, since there were no significant interactions between

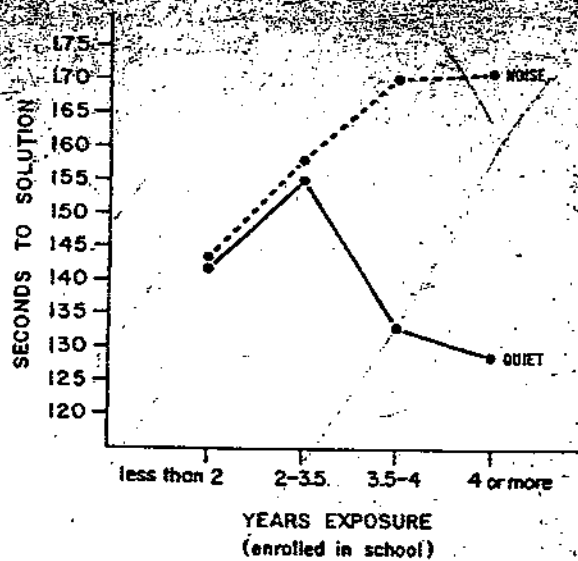


Figure 2. Performance on the second (test) puzzle as a function of school noise level and duration of exposure. (Each period on the years-exposure coordinate on the figure represents approximately one quarter of the sample. For example, 25% of the sample had been enrolled in the present school less than 2 years.)

success-failure and school noise level, the reported results are limited to the overall effects of noise.

First, an examination of only those who were assigned to the success treatment condition indicates that children from noise schools were more likely to fail to solve the treatment puzzle (41% failed) than children from quiet schools were (23% failed). This effect, however, was only marginally significant, $F(1, 131) = 3.62, p < .07$. Second, there were similar effects of noise on the second puzzle, which occurred irrespective of whether the child received a success (solved or not) or failure treatment. As was the case with the first puzzle, noise-school children were more likely to fail the second puzzle (53% failed) than quiet-school children were (36% failed), $F(1, 246) = 5.99, p < .09$, and were more likely to give up, $F(1, 246) = 11.15, p < .001$, than their quiet-school counterparts were, multivariate $F(3, 244) = 4.59, p < .004$. As is apparent from Figure 2, a marginal interaction between noise and months enrolled in school, $F(1, 243) = 3.27, p < .07$, suggests that the longer a child had attended a noise school, the slower he or she was in solving the puzzle. However, the multivariate F for this interaction was not significant.

Although the preceding analyses indicate that children from noise schools are generally less capable of performing a cognitive task (at least puzzle solving) than children from quiet schools are, they provide only suggestive evidence that noise-school children feel or act as if they have less control over their outcomes. The strongest hint that failure on these puzzles on the part of noise-school children is related to helplessness is found in the data indicating that noise-school children were more likely to give up before their allotted time had elapsed than their quiet counterparts were. It is possible, however, that a constant proportion of children who failed on the second puzzle gave up. It would follow that the amount of giving up in the noise condition was inflated by the fact that there was a greater pool of failures. This interpretation suggests that increased giving up under the noise condition cannot necessarily be viewed as a sign of helplessness. A final analysis addresses this point. This analysis, which includes only those children who failed the second puzzle, indicates that the failures of noise-school children were associated with giving up (31% of those who failed gave up) more often than the failures of quiet-school children were (7% of those who failed gave up), $F(1, 103) = 5.85, p < .025$. Thus, even though all of these children failed to solve the puzzle, noise-school children were less likely to persist than their quiet-school counterparts were.

ATTENTIONAL PROCESSES DURING NOISE

Human performance studies report that noise often results in a restriction (or focusing) in one's breadth of attention (Broadbent, 1971; Hockey, 1970). Cues irrelevant to task performance are dropped out first, and then, if attention is further restricted, relevant task cues are eliminated. Performance improves under noise when discarded cues are those that are distracting or competing with primary task cues. Performance is adversely affected, however, when a task requires a wide breadth of attention and when focusing results in the neglect of relevant as well as irrelevant cues. Similarly, focusing can have a negative impact on interpersonal behavior when subtle social cues (e.g., another's look of distress) are dropped out, but can improve the quality of an interaction when the discarded cues are merely distracting (S. Cohen & Lezak, 1977).

There is suggestive evidence that an attentional focusing strategy will persist even after noise is terminated. A number of studies have shown noise effects on performance and interpersonal behavior (e.g., Donnerstein & Wilson, 1976; Glass & Singer, 1972). These aftereffects of noise are consistent with what one would expect to occur when one uses a focusing strategy (S. Cohen, 1978). As yet, however, there is no direct evidence that attentional focusing occurs following exposure to noise in either the laboratory or the field.^a

Selective inattention. A strategy that is similar (and possibly identical) to attentional focusing has been proposed by Deutsch (1964) to account for the effect of community noise on the verbal abilities of children. Deutsch suggests that children reared in noisy environments become inattentive to acoustic cues. That is, they tune out their acoustic environment. (This could be viewed as their focusing their attention on other aspects of their environment.) Children who tune out their noisy environments are not likely to distinguish between speech-relevant and speech-irrelevant sounds. Thus, they lack experience with appropriate speech cues and generally show an inability to recognize relevant sounds and their referents. The inability to discriminate sound is presumed to account, in part, for subsequent problems in learning to read. Although recent research suggests that children living and attending school in noisy neighborhoods are poorer at making auditory discriminations and in reading (Bronzaft & McCarthy, 1975; S. Cohen, Glass, & Singer, 1973), there is no direct evidence for the selective inattention mechanism. An alternative explanation is that noise masks parent and teacher speech, similarly resulting in a lack of experience with appropriate speech cues and, as a consequence, in reading deficits.

The present study attempts to assess the relation between environmental noise level and the selective inattention strategy in order (a) to determine the generality of noise-induced shifts in attention that occur in laboratory settings and (b) to test Deutsch's (1964) hypothesis. In line with

^a The only study on the impact of chronic noise exposure on attentional focusing resulted in rather ambiguous findings, with children from noisy homes (as reported by parents) exhibiting general performance deficits but no focusing strategy (Heft, 1979). A replication of the incidental memory task used in the Heft study was administered in the present study. Errors in administering the task, however, made the data uninterpretable.

the testing of the Deutsch hypothesis, the relation of the above-mentioned variables to auditory discrimination and reading achievement is also assessed.

Because children who are relatively inattentive to acoustic cues should be less affected by an auditory distractor, distractibility was used as a measure of selective inattention. Under both ambient and distracting conditions, the subjects performed a task consisting of crossing out the e's in a two-page passage from a sixth-grade reader. They were instructed to move from left to right and from top to bottom of the page, as if they were reading, and to go as fast as they could without missing any e's. Each subject worked on a short practice paragraph and then on the task for 2 minutes. Two versions (different samples of prose) were used.

In the distraction condition, the child worked on one of the versions of the task while a tape recording of a male voice read a story at a moderate volume. In the no-distraction condition, the alternative form of the task was completed under ambient sound conditions. The distraction and no-distraction tasks were administered on different testing days. Both the order of alternative versions of the task and the experimental conditions were counterbalanced. The criterion measure was performance (percentage of e's found) on the distraction task after the scores were adjusted for no-distraction performance. It was expected that the children from noise schools would be less affected by distraction than the children from quiet schools. Since selective inattention is a strategy that develops over time, it was also predicted that this tuning-out strategy would increase with increased exposure (S. Cohen et al., 1973).

Separate analyses examined the number of lines completed under distraction and the percentage of e's in the completed lines that were found under distraction. No-distraction performance (number of lines in the first analysis and percentage of e's in the second) was added as an additional control variable in order to equate the children on their ability to perform the task under quiet conditions. There were no differences between the noise group and the quiet group (nor was there an interaction) on the number of lines completed under distraction. There was, however, a significant interaction between noise-quiet and months enrolled in school, $F(1, 237) = 5.05, p < .03$, for the percentage-of-e's-found measure. As is apparent from Figure 3,

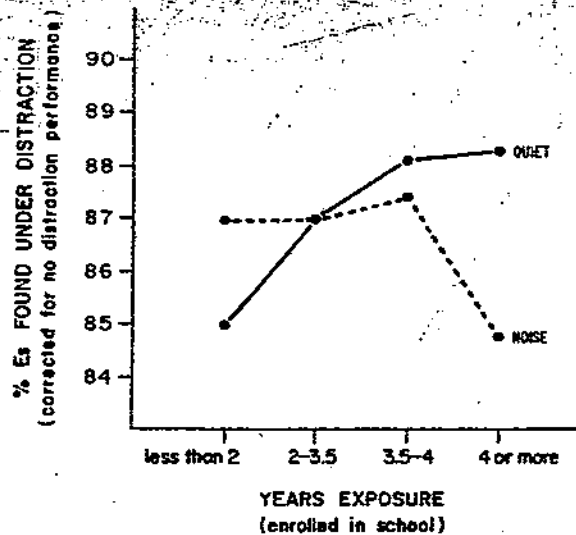


Figure 3. Distractibility as a function of school noise level and duration of exposure. (Each period on the years-exposure coordinate on the figure represents approximately one quarter of the sample. For example, 25% of the sample had been enrolled in the present school less than 2 years.)

the children in noise schools did better than the quiet group on the distraction task during the first 2 years of exposure and did worse after 4 years of exposure. Contrary to earlier evidence, this finding suggests that as the length of noise exposure increases, children are more, rather than less, disturbed by auditory distractors. One possible explanation for this effect is that at first, the children attempt (somewhat successfully) to cope with noise by tuning it out. Later, however, as they find that the strategy is not adequate, they give up. This interpretation is consistent with the helplessness data.

As suggested earlier, reading deficits in children from noisy neighborhoods have been attributed to noise-impacted children's selective filtering out of acoustic cues. Auditory discrimination and reading achievement were assessed in an attempt to replicate previous work and to determine whether there was an association between these measures and the children's attentional strategies. Standardized reading and math tests (administered during the second and third grades by the school system) were gathered from school files, and the Wepman Auditory Discrimination Test (Wepman, Note 1) was administered individually to children in the soundproof van. The Wepman test consists of 40 pairs of words, some of which differ from each other in either initial or final sound, for example,

sick-thick or *map-nap*. The pairs of words are recorded on tape and presented to each child through earphones. The child is instructed to report if the two words in each pair are the same or different. Control word pairs, in which the words are the same, allow for the elimination of children who have problems with same-different judgments or who are not attending to the task.

In order to roughly equate the noise and quiet conditions on the aptitude of the children at the time they entered school, the analyses of school achievement and auditory discrimination scores included an additional control for the mean cognitive abilities of the child's class on entering the first grade. None of the multivariate or univariate analyses were significant for this cluster. Math, reading, and auditory discrimination were all unrelated to both noise and the Noise \times Months Enrolled in School interaction.

Further analyses (Pearson correlations) suggest that the children who were better at auditory discriminations were also better on both the reading test, $r(231) = .19$, $p < .05$, and the math test, $r(231) = .18$, $p < .05$. There were, however, no significant relations between these variables and the selective inattention measure. The same analyses, including only noise-school children, and correlations partialing out control variables for both the entire sample and the noise sample yielded similar results. In summary, there is no evidence that aircraft noise affects reading and math skills, or that these skills are related to a selective inattention strategy.

Classroom as the unit of analysis. Since noise would be likely to have an impact on school achievement by affecting behavior in the classroom, a second analysis of the school achievement cluster was performed with classroom, rather than individual child, as the unit of analysis. This covariance analysis treated the control factors as covariates and months enrolled in school, noise, and classrooms (nested in noise) as independent variables. This analysis is considerably more conservative than the previous analysis because the degrees of freedom in the denominator are based on the number of classrooms (37) rather than on the number of children (262). The results for the school achievement cluster were the same.

The classroom analysis was not used for the other clusters, since those measures were not achievement oriented and thus were presumed not to be classroom mediated. The subjects were also

tested individually, not in the classroom. Even using this ultraconservative technique, however, a reanalysis of the other clusters indicates very similar results for the parent-questionnaire, blood pressure, and helplessness clusters. Differences between the noise group and the quiet group on the child-questionnaire and selective inattention clusters, which were significant in the previous analysis, did not reach statistical significance with classroom used as the unit of analysis.

QUIET HOMES AND NOISY SCHOOLS

To determine whether or not living in a relatively quiet home (at least in terms of aircraft noise) would lessen the impact of school noise, we isolated the children living in the 20 quietest homes in the noise sample, that is, in homes with contour levels of less than 68 in terms of the Community Noise Equivalency Level (CNEL).⁷ These children were then compared (using the regression techniques described earlier) with the remainder of the noise sample and with the entire quiet sample.⁸ In no case was there a difference between these quiet-home children and the remaining children of the noise sample. In a number of cases, however, even this small group of 20 showed the effects of noise reported earlier. Thus the noise-sample children from quiet homes were less likely to solve the first helplessness task puzzles than the quiet-sample controls were, $F(1, 132) = 3.04$, $p < .10$. The longer a child had attended a noisy school, the less likely he or she was to solve either the first puzzle, $F(1, 130) = 4.06$, $p < .05$, or the second puzzle, $F(1, 240) = 2.07$, $p < .15$. Moreover, children from quiet homes but noisy schools were more likely to fail, $F(1, 244) = 6.20$, $p < .01$, and to give up, $F(1, 244) = 11.95$, $p < .001$, on the second puzzle than children from quiet schools were, multivariate $F(3, 244) = 4.71$, $p < .003$. Further, their failures on the second puzzle were associated with giving up more often than the failures of quiet-school children were, $F(1, 102) = 6.27$,

⁷ CNEL is a measure of community noise giving more weight to noise occurring between 1900 and 2200 hours and the most weight to noise occurring between 2200 and 0700 hours (cf. Peterson & Gross, 1972).

⁸ Noise was dummy coded. The two contrasts discussed in this section were used to determine the impact of noise. This is a conservative technique of doing the contrasts, since the error term for the entire sample is used in calculating the F .

.025. Noise-school children from quiet homes also had both higher systolic blood pressure, $F(1, 240) = 3.59, p < .06$, and higher diastolic blood pressure, $F(1, 240) = 5.32, p < .02$, than children from quieter schools did, multivariate $F(2, 239) = 2.84, p < .06$. There were no effects, however, on the selective inattention task (crossing out e's under distraction condition), as reported for the entire sample.

These analyses suggest that living in a relatively quiet neighborhood did not lessen the cumulative impact of exposure to noise at school. The reason may be that the noise experienced during school attendance is sufficient to create noise effects.

Air Pollution

A possible alternative explanation for differences between the noise and quiet samples is air pollution levels. Such an alternative is very unlikely. Sulfur dioxide was minimal at all the school sites, never exceeding the California standard (South Coast Air Quality Management District, Note 2; State of California, Note 3). Ozone and nitrogen dioxide standards were exceeded, but maximum levels were slightly higher at the control schools than at the airport schools. The maximum 1-hour rates in any school area for ozone (.21 parts per million) and NO_2 (.60 ppm) were below levels that generally show any effects on human behavior or health (Morrow, 1975; National Academy of Sciences, Note 4). Maximum carbon monoxide was slightly higher in the airport schools (30 vs. 27, 22 ppm), but average values were identical (6 ppm). The differences in maximum values of 8 ppm are negligible, and human effects from CO concentrations of less than 40 ppm are extremely rare (National Air Pollution Control Administration, 1970). Note that we have used maximum values in arguing against an air pollution alternative, thus presenting a very conservative counter-argument. Average values in all cases were considerably below established standards.

Conclusions

In general, the evidence presented in this article is consistent with laboratory work on physiological response to noise and on uncontrollable noise as a factor in helplessness. Thus children from noisy schools have higher blood pressure and are more likely to give up on a task than children from

quiet schools are. The development of attentional strategies predicted from laboratory work and previous field research was, on the whole, not found. Contrary to prediction, increased years of exposure led to children's being more distractible rather than less. However, a general deficit in task performance on the puzzle task and increased distractibility do seem to support the more general hypothesis that prolonged noise exposure affects cognitive processes.

These data are most interesting, however, because of the tentative answers they provide concerning questions of adaptation to noise over time. One interpretation of the data is that they indicate some habituation of physiological stress response but show no signs of adaptation of cognitive and motivational effects. In fact, in a number of cases, increased length of exposure resulted in an increased negative impact of noise. First, the only evidence for an adaptation effect is provided by the systolic blood pressure data. On that measure, the greatest difference between the noise and quiet groups occurred during the first 2 years of exposure. As length of exposure increased, these differences leveled out but still remained substantial. Perceptions of noise and noise annoyance did not adapt. Thus children from noise schools and their parents reported more noise and being more bothered by noise. Parents, in fact, reported higher levels of noise as their length of residence in the noisy area increased. Neither the cognitive deficits on the helplessness puzzles (which actually increased over time) nor the giving-up syndrome of the children from noise schools lessened with increased length of exposure. Finally, although noise-school children were initially less affected by an auditory distractor, increased length of exposure (beyond 4 years) seemed to result in greater distractibility. Thus the preponderance of evidence suggests a lack of successful adaptation over time. The above interpretation, however, is only tentative. Although length-of-exposure differences may be due to increased exposure to noise, they may also be attributable to some unknown factors that differentiate between children who continue to live in the air corridor and those who move, or to some combination of exposure and these factors.

It should be noted that the failure of the present study to replicate the previously reported relation between community noise and reading ability (Bronzaft & McCarthy, 1975; S. Cohen et al.,

1973) may be attributable to an experimental design insensitive to noise-induced differences in school achievement. In both of the earlier studies, all the students attended the same school. Moreover, in the Cohen et al. study, students from both noisy and quiet apartments were taught in the same classrooms by the same teachers. In the present study, noise-sample children and quiet-sample children attended different schools, were in different classrooms, and had different teachers. It is likely that these factors add substantial error variance to the equation, making the detection of a small effect of noise quite difficult.

Can we conclude that community noise has effects that are similar to noise-induced effects reported in the laboratory literature? The similarity of our results to those reported in laboratory settings is striking. However, we still must be cautious. Replications of these results in other settings and with other populations are required before definitive conclusions are possible. To this end, our own research program includes an ongoing replication of this study, with a population exposed to traffic noise, as well as plans to collect longitudinal data on the children attending airport schools.

What conclusions can we make in regard to public policy? From a policy point of view, these data are valuable but not sufficient. At least 8 million people in this country are exposed to aircraft noise (U.S. Environmental Protection Agency, 1974), and the vast majority of noise-impacted communities have racial and social class compositions more similar to the composition of the present sample than to that of the general population (U.S. Environmental Protection Agency, Note 5). In combination with the laboratory noise literature, these data clearly suggest lending additional weight to the possible impact of aircraft noise on psychological adjustment and on nonauditory aspects of health. Replications of these results, however, would substantially increase their potential influence in the realms of both science and social policy.

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Materials must include references to psychology and/or psychologists and depict the activities, ideas, and findings of individual psychologists or applications of psychological sciences. For example, entries that focus on social issues and mental health must include specific references to psychology and/or psychologists to be eligible. Materials nominated must have been produced or published on or after May 1, 1979, and before May 1, 1980. Nominations may be made by anyone, including the author, producer, etc. Deadline for receipt of entries is May 10, 1980. For entry forms write to Public Information Office, American Psychological Association, 1200 Seventeenth Street, N.W., Washington, D.C. 20036.



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AMERICAN NATIONAL STANDARD
**ACOUSTICAL PERFORMANCE
CRITERIA, DESIGN REQUIREMENTS,
AND GUIDELINES FOR SCHOOLS**

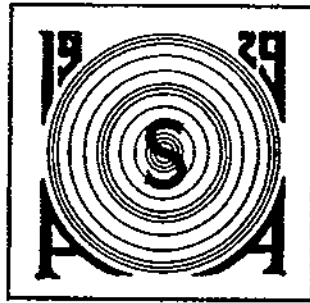
ANSI S12.60-2002

Accredited Standards Committee S12, Noise

Standards Secretariat
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ANSI S12.60-2002

AMERICAN NATIONAL STANDARD
**Acoustical Performance Criteria,
Design Requirements,
and Guidelines for Schools**

Secretariat
Acoustical Society of America

Approved 26 June 2002
American National Standards Institute, Inc.

Abstract

This Standard provides acoustical performance criteria, design requirements, and design guidelines for new school classrooms and other learning spaces. The standard may be applied when practicable to the major renovation of existing classrooms. These criteria, requirements, and guidelines are keyed to the acoustical qualities needed to achieve a high degree of speech intelligibility in learning spaces. Design guidelines in informative annexes are intended to aid in conforming to the performance and design requirements, but do not guarantee conformance. Test procedures are provided in an annex when conformance to this standard is to be verified.

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Standards Secretariat
Acoustical Society of America
35 Pinelawn Road, Suite 114 E
Melville, New York 11747-3177
Telephone: + 1 631 390 0215
Telefax: +1 631 390 0217
E-mail: asastds@aip.org

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Foreword

[This foreword is for information only and is not an integral part of American National Standard *Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools*.]

This standard contains 7 annexes.

This standard was developed under the jurisdiction of Accredited Standards Committee S12, Noise, which has the following scope:

Standards, specifications, and terminology in the field of acoustical noise pertaining to methods of measurement, evaluation, and control, including biological safety, tolerance, and comfort, and physical acoustics as related to environmental and occupational noise.

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Working Group S12-42, Classroom Acoustics, which assisted Accredited Standards Committee S12, Noise, in the preparation of this standard, had the following membership:

D. Lubman and L.C. Sutherland, *Co-Chairmen*

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Suggestions for the improvement of this standard are welcome. They should be made in writing to Accredited Standards Committee S12, Noise, in care of the Standards Secretariat, Acoustical Society of America, 35 Pinelawn Road, Suite 114E, Melville, New York 11747. Telephone: +1 631 390 0215; FAX: +1 631 390 0217; e-mail: asastds@aip.org

American National Standard

ACOUSTICAL PERFORMANCE CRITERIA, DESIGN REQUIREMENTS, AND GUIDELINES FOR SCHOOLS

0 Introduction

Good acoustical qualities are essential in classrooms and other learning spaces in which speech communication is an important part of the learning process. Excessive background noise or reverberation in such spaces interferes with speech communication and thus presents an acoustical barrier to learning. With good classroom acoustics, learning is easier, deeper, more sustained, and less fatiguing. Teaching should be more effective and less stressful with good acoustical characteristics in a classroom. There can be more verbal interaction and less repetition between teacher and students when spoken words are clearly understood. Although all those in a classroom, including teachers and adult learners, will benefit, special beneficiaries are young children and persons with hearing, language, speech, attention deficit, or learning disabilities. As discussed further in annex A, conformance to this standard will improve the quality of education by eliminating acoustical barriers for all students and teachers, including those with communication disabilities. Good design and attention to detail throughout the construction or renovation process can ensure conformance to the requirements of this standard.

1 Scope, purpose, and applications

1.1 Scope

1.1.1 This standard provides acoustical performance criteria and design requirements for classrooms and other learning spaces. Annexes are included to provide information on good design and construction practices, installation methods, and optional procedures to demonstrate conformance to the acoustical performance and design requirements of this standard. This standard seeks to pro-

vide design flexibility without compromising the goal of obtaining adequate speech intelligibility for all students and teachers in classrooms and learning spaces within the scope of this standard.

1.1.2 Acoustical performance criteria are specified in this standard by limits on maximum one-hour A-weighted and C-weighted background noise levels and limits on maximum reverberation times. An objective of these performance criteria is to achieve a level of speech that is sufficiently high relative to the background noise level for listeners throughout the classroom or learning space. However, a requirement for the relative difference between speech levels and levels of background noise, usually referred to as the signal-to-noise ratio, is not within the scope of this standard.

1.1.3 The control of background noise levels in this standard is achieved, in part, by specifying the minimum noise isolation for school building elements. Noise isolation requirements are applicable to the following two types of intrusive noise.

- Noise that intrudes into the classroom or learning space from sources outside of the school building envelope. These noise sources include vehicular traffic, aircraft, industrial plants, and activity in schoolyards or from grounds maintenance. (Schools usually can control only the schoolyard and grounds-maintenance noise sources. However, when a new school site is under consideration, sound from commercial, industrial and transportation noise sources can be taken into account.)
- Noise that originates within the school building and intrudes into the classroom through classroom walls and partitions, floor-ceiling assemblies and ventilation systems. Interior noise sources can be isolated through the proper design and construction of the school building and by noise control measures applied to the building services and utilities.

1.1.4 This standard does not apply to noise generated within a classroom by its occupants. Occupant-generated noise sources include voices and the sounds of classroom activities such as the moving of chairs. Furthermore, this standard does not apply to the noise from portable or permanent built-in equipment used during the course of instruction, such as audiovisual equipment and computers. However, the background noise generated by occupants and instructional equipment can seriously degrade communication or speech intelligi-

bility in learning spaces. Recommendations are given in B5 in annex B for noise control of instructional equipment. Recommendations for background noise assessment procedures are given in E3.2.1 in annex E for such equipment. The teacher can reduce classroom activity noise directly through appropriate controls. This activity noise can also be reduced indirectly in classrooms with acoustical qualities that conform to this standard since a quiet classroom with low reverberation tends inherently to encourage children to lower the level of their voices and the sounds of their activity.

1.1.5 The following annexes are provided to support this standard.

- Annex A: Rationale for the acoustical performance criteria in this standard. (Informative)
- Annex B: Design guidelines for noise control for building services, utilities, and instructional equipment. (Informative)
- Annex C: Design guidelines for controlling reverberation in classrooms and other learning spaces. (Informative)
- Annex D: Design guidelines for noise isolation between adjacent learning spaces within a school building and noise isolation by the building facade. (Informative)
- Annex E: "Good architectural practices" and procedures to verify conformance to the standard. (Normative but Informative if conformance is not to be verified.)
- Annex F: Potential conflict between the acoustical requirements of this standard and indoor air quality (IAQ) and multiple chemical sensitivity (MCS). (Informative)
- Annex G: Cautionary remarks on using supplemental descriptors for evaluating noise in classrooms and other learning spaces. (Informative)

1.2 Purpose

This standard is intended to help school planners and designers provide the acoustical qualities necessary for good speech communication between students and teachers in classrooms and other learning spaces without the use of electronic amplification systems.

1.3 Applications

1.3.1 This standard applies to classrooms and other core learning spaces of small-to-moderate size with volumes not exceeding 566 m³ (20 000 ft³) and to ancillary learning spaces of any volume.

Core learning spaces larger than the above volume limit shall be considered ancillary spaces for purposes of this standard. The standard does not apply to special-purpose classrooms, teleconferencing rooms, special education rooms, such as those for severely acoustically-challenged students or other spaces, such as large auditoria that have unique or more stringent acoustical requirements. Conformance to the requirements of this standard should be considered to be a minimum goal for the acoustical qualities of such spaces, excluding auditoria. The standard does not provide recommendations for electronic amplification or for electronic aids for persons with hearing impairment.

1.3.2 The acoustical performance criteria and design requirements of this standard apply during the design and construction of all new classrooms or learning spaces of small-to-moderate size as specified in 1.3.1. As far as is practicable, these acoustical performance criteria and design requirements also apply during the design and reconstruction of all renovated classrooms and learning spaces. However, the noise reduction and reverberation control principles in this standard also apply to larger classrooms or learning spaces. Thus, while this standard does not necessarily apply to all college and university classrooms or lecture halls, business or professional educational institutions or other adult education centers, acoustical performance criteria and design requirements similar to those in this standard may still pertain to such applications. Appropriate application of this standard to such alternative learning spaces is encouraged.

1.3.3 This standard is intended for use by school building specialists, educators, and parents. The information in annexes B, C, and D is intended for direct application by school design professionals including architects.

2 Normative references

The following standards contain provisions that, through reference in this text, constitute provisions of this American National Standard. At the time of approval of this standard by the American National Standards Institute, Inc. (ANSI), the editions indicated were valid. Because standards are revised from time to time, users should consult the latest revision approved by the American National Standards Institute (ANSI), International Electrotechnical Commission (IEC), and the American Society

for Testing and Materials (now called ASTM International). For the purposes of this standard, the use of the latest revision of a referenced standard is not mandatory. Information on recent editions is available from the ASA Standards Secretariat and ASTM International.

ANSI S1.1-1994 (R1999), American National Standard Acoustical Terminology [Web Site - <http://asa.aip.org>].

ANSI S1.4-1983 (R2001), American National Standard for Sound Level Meters.

ASTM E336-97, Standard Test Method for Measurement of Airborne Sound Insulation in Buildings. [Web site - <http://www.astm.org>].

ASTM E413-87 (1999), Standard Classification for Rating Sound Insulation.

ASTM E989-89 (1999), Standard Classification for Determination of Impact Insulation Class (IIC).

ASTM E1007-97, Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures.

IEC 61672-1, Electroacoustics — Sound level meters — Part 1: Specifications [Web site - <http://www.iec.ch>].

3 Definitions

The following definitions apply for the purposes of this standard.

3.1 General terms

3.1.1 classrooms and other learning spaces. Locations within buildings where students assemble for educational purposes.

3.1.1.1 core learning spaces. Spaces for educational activities where the primary functions are teaching and learning and where good speech communication is critical to a student's academic achievement. These spaces include, but are not limited to, classrooms, (enclosed or open plan), instructional pods or activity areas, group instruction rooms, conference rooms, libraries, offices, speech clinics, offices used for educational purposes and music rooms for instruction, practice and performance.

3.1.1.2 ancillary learning spaces. Spaces where good communication is important to a student's educational progress but for which the primary educational functions are informal learning, social

interaction or similar activity other than formal instruction. These areas include, but are not limited to, corridors, cafeterias, gymnasias, and indoor swimming pools.

3.1.2 acoustical privacy. Pertains to the acoustical attenuation between spaces that is needed to prevent conversation in one space from being understood in an adjacent space.

3.1.3 conforming learning space. Any classroom or other learning space for which the acoustical performance criteria and design requirements conform to this standard.

3.2 Terms relating to acoustical performance and design

The following terms are defined in a simplified form. Complete technical definitions are provided in ANSI S1.1.

3.2.1 noise level or sound level. Generic terms employed interchangeably throughout this standard to represent the frequency-weighted sound pressure level of an airborne sound. This descriptor is used to express the magnitude of a sound in a manner related to how the ear perceives this magnitude. Noise level or sound level is expressed in decibels, unit symbol dB.

3.2.1.1 A-weighted sound level. Sound pressure level measured with a conventional frequency weighting that roughly approximates how the human ear hears different frequency components of sounds at typical listening levels for speech. The A-weighting (see ANSI S1.4 or IEC 61672-1) attenuates the low-frequency (or low-pitch) content of a sound. A-weighted sound level is expressed in decibels, unit symbol dB.

3.2.1.2 C-weighted sound level. Sound pressure level measured with a conventional frequency weighting (see ANSI S1.4 or IEC 61672-1) that does not significantly attenuate the low-frequency (or low-pitch) content of a sound. C-weighted sound level is expressed in decibels, unit symbol dB.

3.2.1.3 one-hour-average A-weighted or C-weighted sound level. Level of the time-mean-square A-weighted or C-weighted sound pressure averaged over a one-hour period. One-hour-average sound level is expressed in decibels, unit symbol dB.

3.2.1.4 yearly average day-night average sound level. Level of the time-mean-square A-weighted

sound pressure averaged over a one-year period with 10 dB added to sound levels occurring in each nighttime period from 22:00 hours to 07:00 hours. Yearly average day-night average sound level is expressed in decibels, unit symbol dB.

3.2.2 background noise level. Sound in a furnished, unoccupied learning space, including sounds from outdoors, building services and utilities operating at their maximum levels. For the purposes of this standard, this excludes sound generated by people within the building or sound generated by temporary or permanent instructional equipment.

3.2.2.1 steady background noise. Noise from building services and utilities and from outdoor noise sources that is fairly constant over time.

3.2.2.2 unsteady background noise. Time varying noise from transportation sources, such as aircraft, vehicle traffic or from other time varying outdoor or indoor noise sources. Unsteady background noise varies substantially over time.

3.2.3 reverberation. An acoustical phenomenon that occurs in an enclosed space, such as a classroom, when sound persists in that space as a result of repeated reflection or scattering from surfaces enclosing the space or objects in the space, such as chairs or cabinets.

3.2.3.1 reverberation time. A measure of the amount of reverberation in a space and equal to the time required for the level of a steady sound to decay by 60 dB after it has been turned off. The decay rate depends on the amount of sound absorption in a room, the room geometry, and the frequency of the sound. Reverberation time is expressed in seconds, unit symbol s.

3.2.4 sound absorption and reflection. Acoustical phenomena that occur whenever sound strikes a surface. Absorbed sound is the portion of the sound energy striking the surface that is not returned as sound energy. Reflected sound is the remaining portion that bounces off the surface. The magnitude of the reflected sound in a room is determined by the amount of sound absorption at the surfaces, the room geometry, and the frequency of the sound. As distance from a sound source in a classroom increases, the sound is increasingly dominated by reflected sound.

3.2.4.1 sound absorption coefficient. A measure of the ability of a material to absorb sound and equal to the ratio of the intensity of the ab-

sorbed sound to the intensity of the incident sound. The sound absorption coefficient of a material normally varies with frequency. It ranges from about 0.2 to about 1.0 for sound-absorbing materials, to less than 0.05 for a smooth, painted concrete floor. Sound absorption coefficients measured in a laboratory (that is, in a reverberation room) can be larger than 1.0 because of test method and sample size effects.

3.2.5 acoustic isolation. A measure of the decrease in sound level (attenuation) when sound passes from one room to another, such as from one side of a wall to the other side. The passage of sound may be via an airborne path or via a structureborne path.

3.2.5.1 attenuation of airborne sound. Attenuation of sound passing through walls or ceilings, between spaces within a building, or through roofs or external walls. The attenuation of airborne sound depends on the sound reduction through these elements, on their size, on sound leakage around their periphery, on the sound absorption in the receiving space, and on the frequency of the sound.

3.2.5.2 sound transmission class. Single number rating for the acoustic attenuation of airborne sound passing through a partition or any other building element such as a wall, roof, or door as measured in an acoustical testing laboratory following accepted industry practice, abbreviation STC. A higher STC rating provides more sound attenuation through a partition.

3.2.5.3 noise isolation class. Single number rating of the noise isolation between two enclosed spaces that are acoustically connected by one or more paths, abbreviation NIC. The rating is derived from the difference in sound levels between two spaces. A higher NIC rating provides more noise isolation between the two spaces.

3.2.5.4 impact insulation class. Single number rating for the attenuation, measured in an acoustical testing laboratory, of structureborne sound through floor or floor-ceiling assemblies from floor impacts into the space below, abbreviation IIC. A higher IIC rating provides more impact sound attenuation into the space below.

3.2.5.5 field impact insulation class. Single number rating of the structureborne noise isolation provided by a floor or floor-ceiling assembly, abbreviation FIIC. The rating is derived from

Table 1 — Maximum A-weighted steady background noise levels and maximum reverberation times in unoccupied, furnished learning spaces

Learning space ^{a)}	Maximum one-hour -average A-weighted steady background noise level ^{b,c)} dB	Maximum reverberation time for sound pressure levels in octave bands with midband frequencies of 500, 1000, and 2000 Hz s
Core learning space with enclosed volume < 283 m ³ (< 10 000 ft ³)	35	0.6
Core learning space with enclosed volume > 283 m ³ and ≤ 566 m ³ (> 10 000 ft ³ and ≤ 20 000 ft ³)	35	0.7
Core learning spaces with enclosed volumes > 566 m ³ (20 000 ft ³) and all ancillary learning spaces	40 ^{d)}	e)

a) See 3.1.1.1 and 3.1.1.2 for definitions of core and ancillary learning spaces.

b) See 4.3.1 for limits on unsteady (time varying) background noise levels.

c) See 4.3.2 for other limits on background noise from building services and utilities including C-weighted steady background noise levels.

d) When corridors are used solely for conveyance of occupants within the school building and structured learning activities do not occur, the A-weighted steady background noise level limit for such corridors may be increased to 45 dB. The use of corridors for formal learning purposes should be avoided.

e) See C3.3 in annex C for recommendations on control of reverberation in these spaces.

the sound levels measured in the receiving room when a standard tapping machine is operating on the floor assembly in the source room above. The higher the FIIC rating, the more the impact noise isolation between the two spaces.

4 Acoustical performance criteria and noise isolation design requirements and guidelines

4.1 Introduction

Acoustical performance criteria and design requirements are contained in the following sub-clauses. The performance criteria shall apply to classrooms and other core learning spaces and to ancillary learning spaces. For purposes of this standard it shall be assumed that the learning spaces are furnished consistent with their use and the building is unoccupied with doors and windows closed. Acoustical design requirements for minimum noise isolation apply only to fully enclosed classrooms and learning spaces.

4.2 Performance criteria for background noise and reverberation time

The one-hour-average A-weighted steady background noise level and the reverberation times shall not exceed the limits specified in table 1. The limits for the background noise shall apply for the following conditions:

- 1) for the noisiest continuous one-hour period during times when learning activities take place;
- 2) exterior and interior noise sources are operating simultaneously;
- 3) interior sources are operating as defined in 4.3.2; and
- 4) portable and permanent (built-in) instructional equipment, such as computers and audio-visual equipment, are turned off.

While designing to conform to both acoustical performance criteria in table 1 is required, conformance to the background noise level criterion is the more important of the two. When optional conformance testing is carried out, the tolerances specified in 4.7 reflect this relative importance.

4.3 Background noise levels

4.3.1 Unsteady background noise from transportation noise sources. School facilities should be sited and designed to limit the noise levels inside learning spaces from transportation noise sources, such as aircraft, road vehicles and trains. (See D2.3 in annex D for further guidance on outdoor-indoor noise isolation and school siting.)

The limits on A-weighted background noise levels in table 1 shall be increased by 5 dB when the noisiest hour is dominated by transportation noise and the following conditions apply to the A-weighted SLOW time-weighted background noise level. For core learning spaces with enclosed volumes not greater than 566 m³ (20 000 ft³), this level does not exceed 40 dB for more than 10% of this noisiest hour. For core learning spaces with enclosed volumes greater than 566 m³ (20 000 ft³) and for ancillary learning spaces, this level does not exceed 45 dB for more than 10% of this noisiest hour. (See E3.7.2 in annex E for a measurement method for this evaluation.)

4.3.2 Background noise from building services and utilities. Steady background noise from HVAC systems and other building services and utilities operating simultaneously shall conform to the requirements of table 1 for all operating modes (for example, cooling, heating, ventilating, and dehumidifying) and at the maximum operating conditions (for example, maximum fan speed with all lights on). Unsteady background noise levels from plumbing systems (for example, toilets and bathing rooms) operating at their noisiest condition, shall also conform to the limits in table 1 taking into consideration their normally limited operating time within any one hour. (See annex B for guidelines on control of noise from HVAC systems, building services, and utilities.)

4.3.2.1 Limits on steady C-weighted background noise levels from building services and utilities. The maximum one-hour-average C-weighted steady background noise levels from the combination of HVAC systems, lighting, and other building services and utilities operating simultaneously shall not exceed the limits on A-weighted steady background noise levels in table 1 by more than 20 dB.

4.3.2.2 Limits on disturbing sounds from building services and utilities. Disturbing sounds, such as rumble, hum, buzz, whine, hiss, or whistle, from HVAC systems and other building services

and utilities shall be controlled so as to not interfere with speech communication or be distracting or annoying to the occupants of the learning spaces.

4.3.2.3 Limits on time-varying noise levels from building services and utilities. The A-frequency-weighted and SLOW time-weighted noise level at any usable location in a room, from HVAC systems and other building services operating as specified in 4.3.2 shall not vary by more than 3 dB during any 5-s period. This shall be measured with a sound level meter conforming to at least the Type 2 requirements of ANSI S1.4 or the class 2 requirements of IEC 61672-1. Such time-varying noise shall be considered to be caused by the building systems and services, unless the noise is clearly recognized as being produced by transportation noise sources, such as road traffic or aircraft, addressed in 4.3.1.

4.3.3 Background noise from instructional equipment. For this standard, noise from instructional equipment is not included in the steady background noise. However, control of such noise, especially that from permanent built-in instructional equipment, should be carefully addressed in the planning stages for new and renovated schools. (See B5 in annex B for guidance on applicable noise control measures for such instructional equipment.)

4.4 Reverberation times

The maximum allowable reverberation times in unoccupied, furnished core learning spaces are specified in table 1 for core learning spaces with enclosed volumes of not more than 566 m³ (20 000 ft³). Design guidelines for controlling reverberation time in learning spaces of all sizes and for selection and proper certification for any acoustical materials applied to control this reverberation are presented in annex C.

4.5 Noise isolation design

The first and most cost effective step in achieving good noise isolation between learning spaces and other spaces in a school is accomplished in the facility planning stage. This includes optimizing the location of noisy spaces and activities to protect sensitive learning spaces. Where this is not possible, adequate noise isolation is needed.

4.5.1 Need for noise isolation. The acoustical performance criteria for background noise levels in

Table 2 — Minimum STC ratings required for single or composite wall, floor-ceiling, and roof-ceiling assemblies that separate an enclosed core learning space from an adjacent space

Adjacent space			
Other enclosed or open plan core learning space, speech clinic, health care room and outdoors ^{c)}	Common use and public use toilet room and bathing room	Corridor, ^{a)} staircase, office or conference room ^{a,b)}	Music room, mechanical equipment room, ^{d)} cafeteria, gymnasium, and indoor swimming pool
50	53	45	60

- ^{a)} For corridor, office, or conference room walls containing doors, the basic wall, exclusive of the door, shall have an STC rating as shown in the appropriate column in this table. The entrance door shall conform to the requirements of 4.5.5.
- ^{b)} When the need for acoustical privacy is critical, the minimum STC rating of the partitions around an office or conference room shall be increased to 50.
- ^{c)} An STC rating of 50 is the minimum for the exterior walls and roofs of a core learning space. However, this rating does not ensure conformance to the background noise limits in table 1 for noise from major outdoor noise sources. See D2.3 in annex D for further guidance on the selection of appropriate STC ratings.
- ^{d)} When the adjacent space is a mechanical equipment room containing fans circulating 140 m³/min. (5000 ft³/min.) or more, the minimum STC rating shall be 60. When the fan circulation is less than this rate, the STC rating may be as low as 45 providing the maximum A-weighted steady background noise level in the adjacent core learning space does not exceed 35 dB. The minimum STC rating shall include the effect of entry door(s) into the mechanical equipment room.

4.2 and 4.3 apply to unoccupied facilities. However, in occupied facilities, activity noises generated in one space can be transmitted through walls, floors, ceilings, and doors to adjacent learning spaces, thus contributing to the overall background noise level in those spaces. Adequate sound isolation is required to limit noise transmission between core learning spaces and adjacent spaces in occupied facilities. The minimum STC ratings of table 2 and table 3 are intended to provide this noise isolation for normal activities in adjoining spaces.

Certain educational styles (such as open plan and group learning) intentionally avoid the use of full enclosures between learning groups. Sometimes, partial height sound barriers or no barriers at all separate adjacent learning groups. Adequate noise isolation between adjacent learning groups cannot be assured unless each learning group is fully enclosed by ceiling-height sound barriers. Because of the inherent low noise isolation, partially enclosed or unenclosed learning spaces are not recommended when good speech communication is desired.

In occupied multistory educational facilities, the transmission of impact noise through the floor of the room above to the learning space below also contributes to the overall background noise level.

To limit impact noise disturbances in learning spaces, this standard also provides minimum impact insulation class (IIC) design requirements for the floor-ceiling assemblies above learning spaces for multistory educational facilities.

As discussed further in D1 in annex D, the noise isolation requirements of this standard are similar in concept to those in existing national and international building codes.

4.5.2 Noise isolation design requirements. In this standard, noise isolation is specified by the minimum values for the STC and IIC ratings for single and composite building elements that may provide acceptable noise isolation for learning spaces. Selection of these minimum ratings, achieved during architectural design, is the basis for limiting the transmission of background noise from external and interior sources into an enclosed learning space. After construction, a field measurement may be made to verify the noise isolation achieved [see 4.6 (3)].

When high noise isolation is required, as for music rooms, flanking of sound along common floors, walls, and roofs can become a limiting factor unless controlled with proper breaks in sound transmission paths or other similar treatments. There are many publications that provide details on de-

Table 3 — Minimum STC ratings recommended for single or composite wall, floor-ceiling and roof-ceiling assemblies separating an ancillary space from an adjacent space

Receiving ancillary Learning space	Adjacent space Corridor, ^{a)} staircase, common use and public use toilet and bathing room ^{b)}	Music room	Office or conference room ^{a)}	Outdoors ^{e)}	Mechanical equipment room, ^{f)} cafeteria, gymnasium or indoor swimming pool
Corridor	45	60 ^{c)}	45 ^{d)}	45 ^{e)}	55 ^{e)}
Music room	60	60	60	45	60
Office or conference room	45	60	45 ^{d)}	45	60

- a) For corridor, office or conference room walls containing entrance doors, the STC rating of the basic wall, exclusive of the door, should be 45. The entrance door should conform to the requirements of 4.5.5.
- b) The STC rating for an ancillary space/toilet partition does not apply when the toilet is private and connected to a private office. An STC rating higher than 45 may be required for separating a quiet office or conference room from a common use or public use toilet or bathing room.
- c) When the corridor will not be used as an ancillary learning space, the minimum STC rating may be reduced to not less than 45 or to not less than 40 for an exterior wall. Use of corridors as ancillary learning spaces should be avoided when they are located next to the noisy spaces indicated in the table by the high STC ratings.
- d) When the need for acoustical privacy is critical, the STC rating should be increased to 50.
- e) See D2.3 in annex D for further guidance on the selection of appropriate STC ratings.
- f) NOTE d) of table 2 applies except that the STC rating may be as low as 40 providing the maximum A-weighted steady background noise level in the adjacent ancillary learning space does not exceed 40 dB.

sign and construction of separating partitions that may achieve the required STC ratings. Annex D provides guidelines and references for such noise isolation design and construction.

4.5.3 Sound transmission class (STC) ratings

4.5.3.1 Core learning spaces. The minimum STC ratings in table 2 shall be employed for the acoustical design of wall, floor-ceiling and roof assemblies that separate enclosed or open plan core learning spaces from adjacent spaces. When the assembly includes two or more elements, such as doors or windows, the STC of this composite assembly also shall conform to the requirements of table 2.

Composite assemblies are walls, floor-ceiling and roof-ceiling constructions composed of more than one element (for example, a wall with a door, window, or penetrations by HVAC ducts or other services). (See NOTE a) to table 2 for special requirements for doors in corridor, office or conference room walls.)

Walls and floor-ceiling assemblies may not maintain their design STC rating if penetrations or openings for piping, electrical devices, recessed

cabinets, soffits, or heating, ventilating or exhaust ducts are unsealed. For this reason, all penetrations in sound-rated partitions shall be sealed and treated to maintain the required ratings. The STC rating requirements of table 2 shall also be employed for the design of temporary partitions that subdivide a learning space.

4.5.3.2 Ancillary learning spaces. Recommendations are given in table 3 for STC ratings for partitions (that is, walls and floor-ceiling assemblies) that enclose an ancillary learning space or that separate two ancillary spaces. When the partition includes two or more elements, such as doors, windows, or penetrations of the partition for HVAC ducts or other services, the STC of this composite construction also should conform to the recommendations of table 3.

4.5.4 Composite partitions. The required minimum STC ratings in table 2 apply to single or composite partitions. Basic wall assemblies (except those identified in NOTE a) for table 2) which contain doors or windows with STC ratings less than those given in table 2, will require higher STC ratings to conform to the required minimum STC ratings of the composite construction. This design

technique is also recommended for partitions enclosing the ancillary learning spaces covered by table 3. A method for estimating the STC rating of composite partitions is provided in D2.4 in annex D.

4.5.5 Entry doors into classrooms and other core learning spaces. To conform to the STC requirements of table 2 for composite walls, entrance doors into classrooms or other core learning spaces would be expected to have laboratory STC ratings of 30 or more in their operable condition. The STC rating for interior entry doors into, or between, music rooms shall be not less than 40. The location of classroom entry doors across a corridor should be staggered to minimize noise transmission between these classrooms.

Provisions should be made to ensure that the perimeter seals of sound rated doors are well maintained. Seals for entrance doors should be inspected and adjusted, as necessary, every six months. The gaskets of door seals should never be painted.

4.5.6 Impact Insulation Class (IIC) rating. The floor-ceiling assemblies of normally occupied rooms located above core learning spaces shall have IIC ratings of at least 45 and preferably 50. If a room below is an ancillary learning space, the floor-ceiling assembly shall have an IIC rating of at least 45. These IIC ratings shall apply without carpeting on the floor in the room above. In new construction, gymnasias, dance studios or other high floor impact activity, shall not be located above classrooms or other core learning spaces. For refurbishment of existing structures, if it is not possible to avoid such an incompatible condition, the IIC rating of the separating floor-ceiling assembly shall be at least 70 when located above a core learning space with an enclosed volume not greater than 566 m³ (20 000 ft³); 65 when located above a core learning space with an enclosed volume greater than 566 m³ (20 000 ft³); and 65 when located above an ancillary learning space. Clause D2.5.1 in annex D provides further guidance on impact noise isolation.

4.6 Conformance to acoustical performance criteria and noise isolation design requirements

It is recommended that conformance to the acoustical performance criteria and noise isolation design requirements be verified by test. However, this standard does not require testing to demon-

strate conformance. When optional tests are performed to verify conformance with the requirements and recommendations of this standard, the following procedures shall be followed.

1) Tests to demonstrate conformance to the limits on background noise levels in table 1, 4.3.1, and 4.3.2.1 shall be performed in accordance with the procedures in E3 of annex E. If necessary, appropriate tests shall be performed to demonstrate conformance with the limits on disturbing or time varying noise from building services and utilities given in 4.3.2.2 and 4.3.2.3. (See E3.7.3 in annex E.)

2) Conformance to the limits on reverberation times in table 1 shall be verified by calculation or by measurement procedures in conformance, or equivalent, to those in E4 of annex E.

3) Conformance to the minimum sound transmission class (STC) design requirements of table 2 and the design recommendations of table 3 shall be verified by field determination of the noise isolation class (NIC) as described in E5.1 in annex E. However, it shall be considered unnecessary to verify conformance to these noise isolation design requirements and recommendations if conformance to the noise limits of table 1 is demonstrated for the noisiest hour when learning takes place.

4) Conformance to the impact insulation class (IIC) requirements of 4.5.6 shall be verified by the field testing procedures in E5.2 in annex E.

4.7 Conformance tolerances

When conformance testing or evaluation is performed, conformance to the requirements and recommendations of this standard is demonstrated if each of the following is achieved. No additional tolerances shall be allowed for the test methods or instruments used for such demonstrations except as specified in this subclause.

1) The measured A-weighted steady or unsteady background noise levels do not exceed the limits specified in table 1 and 4.3.1, respectively, by more than 2 dB. The C-weighted steady background noise levels do not exceed the limits in 4.3.2.1 by more than 2 dB.

2) Mean reverberation times, if calculated, do not exceed the limits in table 1 or, if measured, do not exceed the limits in table 1 by more than 0.1 s.

3) All separating walls and floor-ceiling assemblies have NIC ratings that are not less than a rating 5 points below the required STC rating in table 2 or

the recommended rating in table 3. For example, for a partition between a classroom and a speech clinic, conformance to the minimum STC rating of 50 in table 2 is achieved if the NIC rating is not less than 45.

4) All floor-ceiling assemblies separating occupied spaces from learning spaces below have a field impact insulation class (FIIIC) rating that is not less than a rating 5 points below the design requirement specified in 4.5.6.

Annex A (Informative)

Rationale for acoustical performance criteria

A1 Introduction

The school classroom is an environment in which spoken language communication facilitates and enables students to learn essential academic, social, and cultural skills. Thus, the classroom serves as a communication channel for learning and should be free of acoustical barriers. This informative annex defines the perceptual, educational, and developmental rationale for the acoustical performance criteria specified in table 1 of this standard. These rationales allow determination of the signal-to-noise ratio and reverberation time that can ensure most children, adult learners, and teachers full and equal access to spoken communication within the classroom. The acoustical performance criteria in the standard are derived from empirical studies of classroom noise and reverberation and their effects on speech communication.

A1.1 Educational rationale

Intensive and continuous learning of social, intellectual, and communication skills occurs throughout childhood. A wide range of educational research studies [A1]* has shown that learning is predicated on the ability to communicate with spoken language, and that language input and language proficiency form the bases for most cognitive skills. Additionally, other research [A2] has shown that perception of spoken language provides the foundation for the ability to read and write. Communication with spoken language is essential to most classroom learning activities. Typically, as much as 60% of these activities involve students listening to and participating in spoken communications with the teacher and other students. The central role of spoken language in classroom learning underscores the need for a clear communication channel accessible to all students and teachers.

A1.2 Perceptual rationale

Communication with spoken language can occur successfully only when speech intelligibility is high. Research in speech perception [A3] has found that when the background noise is very low, speech intelligibility depends in part on the absolute sound level of the speech, and in part on the absence of excessive reverberation.

A1.3 Speech intelligibility in background noise

Most speech communication in classrooms occurs in the presence of background noise. When background noise is present, intelligibility depends on the sound pressure level of the speech and also on the level of the speech relative to the level of the noise, that is, the signal-to-noise ratio (SNR) [A4]. The sound levels of both the speech and noise are expressed as A-weighted sound levels in decibels. The relative speech to noise level, or SNR, expressed in decibels, is the sound level of the speech alone in the presence of background noise minus the sound level of the background noise.

Intelligibility increases as the SNR increases, either by raising the speech level or by decreasing the noise level. Speech perception research [A5] has shown that individuals with hearing impairments, speech and language disorders, or limited English proficiency require more favorable signal-to-noise ratios than individuals without these impairments or disorders to achieve high levels of speech intelligibility.

A1.4 Speech intelligibility in reverberant environments

Classrooms are enclosed spaces in which sound produces reverberation. Reverberation times in

*[AX] designates reference [AX] in the bibliography at the end of this annex.

excess of 0.4 s to 0.6 s reduce speech intelligibility both in quiet and in noise.

When both background noise and excessive reverberation are present, their effects on speech intelligibility are additive for individuals with normal speech, language, and hearing abilities. Speech perception research [A4, A6] has shown that individuals with impaired speech, language, and hearing abilities require signal-to-noise ratios that are at least 3 dB more favorable to offset their susceptibility to the negative effects of reverberation, as compared with individuals without impairments.

A1.5 Selective acoustical barriers to learning produced by background noise and reverberation

If spoken communication in the classroom becomes inaudible or unintelligible for some students and teachers because of excessive background noise or reverberation, a clear communication channel is no longer accessible to these children, creating a selective acoustical barrier to learning. Neither the child's ability to understand in quiet nor the adult teacher's ability to understand in the noisy classroom is a good predictor of when such barriers might exist. This difficulty in prediction is also exacerbated by a young child's unawareness of these barriers to learning.

A1.6 Scholastic achievement and the classroom acoustical environment

The link between the acoustical barriers in the classroom and the scholastic achievement of students has been evaluated in studies supporting the objectives of this standard. The reading scores of 2nd to 6th grade children in a school exposed to noise from a nearby elevated urban train track [A7, A8] were compared in quieter and noisier classrooms. The students, comparable in all respects, were receiving the same type of instruction. However, the children in the lower grades and noisier classrooms were three to four months behind in reading scores relative to those in the quieter classrooms and as much as 11 months behind for the higher grades. After a subsequent reduction of the track noise by 3 to 8 dB, the reading scores in the noisy classrooms were still approximately one year behind those in the quiet classrooms.

A major, controlled study of noise effects on scholastic achievement [A9] was carried out in 81

classrooms in 15 socio-economically matched Los Angeles schools located different distances from freeways. These differences caused the traffic-noise-generated indoor background noise to differ by up to 19 dB between the noisiest and quietest classrooms. Reading and math grade-equivalent scores evaluated for English-proficient students in 3rd and 6th grade classes, showed a decrease of approximately 2.2 years between the noisiest and quietest schools for the 6th grade classes and 0.7 years for the 3rd grade classes. This prominent noise effect on grade differences in scholastic achievement is believed the result of either differences in teaching style between grades or, more insidious, a possible cumulative, compounded effect of poor acoustics on learning as a student progresses through school.

A study of 13 schools in the United Kingdom [A10] compared their acoustical environment and corresponding speech communication conditions and teacher satisfaction before and after sound-absorbing treatment of the ceilings. After treatment, the average A-weighted background noise level in the unoccupied classrooms dropped from 45 dB to 40 dB reflecting the decrease in reverberant background noise level. The average reverberation time in the unoccupied rooms dropped from 0.7 to 0.4 seconds. The acoustically treated classrooms were favored by the teachers and pupils, who reported a greater ease of communication and increased student performance.

A2 Developmental rationale

Young children are more susceptible than adults to the effects of background noise and reverberation on communication with spoken language. Because of this susceptibility, young children also require more favorable classroom signal-to-noise ratios and reverberation times to achieve the same level of speech intelligibility as adults do. Developmental status, linguistic and cognitive proficiency, temporary hearing impairments, and early receptive and expressive language disorders are all factors that affect the greater susceptibility of young children to background noise and reverberation. For example, in a longitudinal study [A11] of preschool children in acoustically-treated or non-treated rooms in a child-care center, the children in the treated rooms scored higher in number-letter-word recognition after one year of reduced noise exposure than their cohorts in the non-treated rooms.

A2.1 Developmental status

Speech communication in unfavorable listening conditions is a complex, high-level task requiring a level of neurological maturity that is usually achieved only by 13 to 15 years of age. Consequently, young children may require more favorable signal-to-noise ratios and shorter reverberation times than older children require. Speech perception research [A12] has shown that 6-year-old children with normal hearing and normal language proficiency require signal-to-noise ratios 2 dB more favorable than 15-year-old children to achieve the same level of speech intelligibility. The 15-year olds, however, required the same signal-to-noise ratios as adults. In quiet listening conditions, the adults and both age groups of children had good speech intelligibility.

A3 Hearing impairment

Young children are also more susceptible to temporary conductive hearing impairment caused by ear infection (otitis media) than adults. Demographic research [A13] has identified otitis media as the most common medical disorder in young children, with an estimated incidence as high as 25% to 30% among kindergarten and first grade children. Other research [A14] has found an incidence greater than 10% of mild high-frequency sensorineural hearing impairment among children 6 to 19 years of age. Signal-to-noise ratio improvements of 3 dB to 5 dB together with increases in absolute speech sound levels of 10 dB to 30 dB are necessary for children with these impairments to achieve the same level of speech intelligibility in classrooms with high background noise.

A4 Language proficiency and language disorders

Children with expressive and receptive language disorders may also require more favorable signal-to-noise ratios to achieve good intelligibility, as compared with children without these disorders. Research studies have shown, for example, that children with language disorders have 10% to 40% poorer speech intelligibility in background noise than children without these disorders, despite comparable results in quiet environments. Children for whom English is not the first or primary language may have limited English proficiency. These children are often learning English in school at the same time that they are learning the regular academic curriculum.

Limitations in vocabulary and in the ability to "fill in the blanks" when partial communication occurs in difficult listening situations have been shown to reduce intelligibility for children with limited English proficiency [A15], again despite normal intelligibility in quiet environments. These children may require 2 to 5 dB more favorable signal-to-noise ratios in difficult listening situations to achieve the same level of intelligibility as children with normal English proficiency.

A related speech disorder problem caused by poor classroom acoustics stems from the increased frequency of voice impairments and their consequences for communication. In noisy or reverberant classrooms, teachers are more likely to have to raise their voices. The results are higher incidences of voice impairment among teachers and children have greater difficulty hearing verbal instruction presented by voice-impaired teachers in such noise or reverberation.

A5 Determining appropriate acoustical performance criteria and noise isolation design requirements

The acoustical performance criteria for this standard are expressed in table 1 in terms of background noise levels and reverberation times. Noise isolation design requirements for this standard are given in table 2, in terms of sound transmission class (STC) ratings for enclosed learning spaces, despite the fact that the rationale for these criteria and requirements is based on absolute and relative levels of speech. The terminology of the standard is necessary because speech levels are difficult to prescribe or standardize. However, the research literature on classroom speech sound levels can be used to specify the expected range of speech sound levels seen throughout a classroom. These sound levels, together with knowledge of the signal-to-noise ratios and reverberation times necessary for high intelligibility, were used to determine the requirements for acceptable background noise levels and reverberation times for unoccupied, furnished classrooms in table 1. The background noise level criteria were, in turn, used to determine acceptable STC ratings for walls, ceilings, and floors, in table 2, that will prevent noise from adjacent occupied enclosed spaces from exceeding the background noise level criteria in the classroom.

A5.1 Classroom speech levels

Research studies [A16] of sound levels for conversational speech and teachers' classroom speech [A17] show for the latter, the average A-weighted sound level is 67 dB at 1 m in a quiet classroom. In typical classrooms with little reverberation, speech sound levels in the rear of the classroom may be as low as 50 dB. The criteria for background noise levels in this standard assume minimum speech sound levels will be 50 dB anywhere in the classroom.

A5.2 Background noise levels

The 35 dB acoustical performance criteria for steady classroom background noise levels in table 1 were based on the assumption that a signal-to-noise ratio of at least +15 dB was necessary to ensure that noise will not be a barrier to learning within a classroom. Assuming a minimum speech level of 50 dB, a signal-to-noise ratio of at least +15 dB will always be achieved if the background noise level does not exceed 35 dB. The choice of +15 dB for the signal-to-noise ratio was based on several considerations. The American Speech-Language-Hearing Association [A18] recommends at least a +15 dB signal-to-noise ratio in classrooms to ensure that children with hearing impairments and language disabilities are able to achieve high speech intelligibility.

In addition, the research literature summarized in this annex also supports a signal-to-noise ratio of +15 dB.

Normal adults typically require 0 dB signal-to-noise ratios for high speech intelligibility when listening to simple and familiar speech material for short periods of time. An additional 2 dB is needed to compensate for neurological immaturity; an additional 5 dB is required to compensate for sensorineural and conductive hearing losses; an additional 5 dB is required for limited English proficiency and language disorders; and an additional 3 dB is required to compensate for the effects of excessive reverberation. These additional requirements for classrooms total 15 dB over that of normal adults, or a signal-to-noise ratio of +15 dB. This conclusion does not include any further increase in the signal-to-noise ratio that may be associated with the fact that children in the lower grades may be listening to unfamiliar speech material.

A5.3 Reverberation times

According to available research data, the effects of reverberation on speech intelligibility are controlled primarily by reverberation times at the three frequencies specified in table 1: 500, 1000, and 2000 Hz. Based on this research, it was assumed that reverberation times of 0.6 s, or less, in small and mid-sized classrooms and 0.7 s, or less, in larger classrooms will not degrade speech intelligibility excessively as long as signal-to-noise ratios of +15 dB or better are maintained. (The reverberation times in table 1 are given for unoccupied, furnished spaces. For occupied spaces, the reverberation times are expected to be 0.1 s to 0.2 s less than those in table 1.) These signal-to-noise ratios will be achieved if the background noise performance criteria also are satisfied. Thus, the acoustical performance criteria for both steady background noise levels and reverberation times should be satisfied simultaneously to ensure the elimination of acoustical barriers to classroom learning.

A6 Bibliography on effects of noise and reverberation on learning

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Annex B (Informative)

Design guidelines for noise control for building services, utilities, and instructional equipment

B1 Introduction

HVAC systems and other building services and utilities are complex systems of mechanical, electrical, and plumbing components supplied by many different manufacturers. This observation is particularly true for most HVAC systems designed for specific projects. Noise from these building systems can be generated and transmitted to a room in a wide variety of ways. Responsibility for providing an adequate noise control design that will allow conformance to the background noise level limits in table 1 resides with the architect and the architect's design subcontractors. During construction, responsibility for implementing the noise control design for each element of the building services may rest with each individual subcontractor, but the general contractor is likely to have overall re-

sponsibility to ensure that the design and implementation conforms to the background noise level limits in table 1.

B2 HVAC noise control

Specific limits on the maximum allowable A-weighted and C-weighted background noise level from HVAC equipment are given in 4.3. To achieve these limits, an HVAC system should be designed with noise control in mind. The following are some of the minimum features that should be employed for HVAC systems intended for any learning facility.

1) Unducted systems should not be employed since the sound they produce is inherently unable to conform to the background noise level criteria in table 1.

2) All grilles and diffusers (air devices) should be selected to have a catalog Noise Criteria (NC) rating of NC 18 or less for a single diffuser, providing the NC catalog ratings are based on a correction of 10 dB for sound absorption in the room. [B1]

NOTE Noise Criteria (NC) is a single number rating of room noise based on comparison of the octave-band sound pressure level spectrum of a noise with standardized octave-band sound pressure level contours that include low-frequency sound (see annex G).

3) Airflow velocities in trunk ducts should not exceed 4.1 m/s (800 ft/min). Branch ductwork sizes should match the air device's duct connection size. Duct silencers will be required inside the air-handling unit or in the main supply and return air ducts in most systems.

4) All ductwork should be fabricated and installed so as to achieve a low static pressure loss in accordance with procedures in the Sheet Metal & Air-Conditioning Contractors National Association (SMACNA) for HVAC System Duct Design, [B2]. To achieve the rated performance of air diffusers, the plenum depth should be the equivalent of at least three to four diameters of the duct going to the diffuser.

5) All rotating equipment and equipment with static pressure control dampers should be 3.3 m (10 ft), or farther if possible, from the classroom. HVAC fan equipment serving more than one classroom should be farther from the classrooms than equipment serving only one classroom.

6) Centrifugal fans with airfoil-shaped blades should be used in most cases in order to achieve the background sound levels required for the learning spaces. Centrifugal fans with forward curved blades should be avoided (especially with central air distribution systems) because this fan design typically generates excessive low-frequency noise when the total static pressure is greater than 2 inches of water.

7) Ductwork serving adjacent learning spaces should include sound attenuators or sound-absorbing duct lining (if required), or both, to reduce crosstalk through the duct system. The attenuation should be sufficient to preserve the noise isolation between the adjacent learning spaces.

8) To minimize HVAC noise transmission into core learning spaces, variable air volume (VAV) boxes and fan-powered boxes should not be located over these spaces. Instead, the elements should be lo-

cated over less sensitive spaces, which may include corridors.

The above guidelines are examples of the many noise control provisions that may be needed when designing an HVAC system. Before finalizing any HVAC noise control design, considering the very large number of HVAC systems types that may be employed for schools, the facility designer or the responsible subcontractor should consult one or more references such as those listed in clause B7. The ASHRAE Handbooks, [B3-B5] are especially helpful to assist in achieving an HVAC system design that will conform to the required minimum level of steady background noise. HVAC manufacturers should be able to provide useful design or noise-rating information for their systems or components [B6]. References [B7], [B8] and [B9] provide further guidance on noise control for HVAC systems and other building services.

B3 Noise control considerations for electrical equipment and systems

Significant background noise in a learning space can be produced by electrical equipment and its installation. Two such sources of noise are electrical fixtures and light fixture ballasts. Light fixtures with low-noise ballasts should be used in learning spaces to assist in conforming to the requirements of table 1 for background noise levels. Improper installation of electrical or cable boxes can degrade sound isolation between rooms. For single stud walls, electrical outlet boxes on opposing walls should never be in the same stud space. For dual-stud walls, the boxes should be separated by at least 0.6 m (24 inches). If back-to-back electrical boxes are necessary in double stud walls, either of the following methods should be used. The boxes should be enclosed in full gypsum board enclosures that do not contact the framing of the other row of studs and have all joints sealed with caulking or both boxes should be of the vapor-barrier type that are properly caulked and sealed.

B4 Plumbing systems noise control

Water flow noise from plumbing systems can be a significant contributor to the background noise level in a learning space. To minimize noise from plumbing fixtures and piping located adjacent to core and ancillary learning spaces, consideration should be given to the following installation details.

- 1) Run piping above corridor ceilings, not above learning spaces.
- 2) Locate restrooms away from classrooms.
- 3) Use cast iron waste water pipes, when possible. Plastic piping may require special care during installation to ensure quiet operation and should be wrapped with one or more layers of sound-attenuating material or, for plastic waste pipe, wrapped with sound-absorbing material and boxed in with gypsum wallboard.
- 4) Isolate all water piping from the building walls and structure using foam rubber wrapping or resilient clamps and hangers.
- 5) When it is necessary for a plumbing wall chase to be adjacent to a learning space, the wall should employ double stud construction [with a minimum 2.5 cm (1 inch) gap between the two rows of studs] with two layers of gypsum board on the classroom side and sound-absorbing insulation batts in both stud cavities.
- 6) Reduce the pressure of the supply water as much as possible and employ trapped-air water-hammer arrestors for water supply pipes serving flush or solenoid valve fixtures to reduce water hammer noise.
- 7) Use water siphon jet fixtures instead of blowout fixtures.
- 8) Inspect all plumbing installations for conformance to the noise control features before sealing the walls.

B5 Noise control for instructional equipment used in a classroom

As stated in 1.1.4, the background noise from portable or permanent, built-in equipment used during the course of instruction, such as audio-visual equipment or computers, is not within the scope of this standard. Cooling fans or other internal rotating components usually generate this noise. Because this noise can increase the background noise level in learning spaces, this equipment should be carefully selected and located to minimize its noise impact on the learning process. Except for computers, standards for the acoustical emission characteristics (for example, sound power level) of such equipment are not currently available.

Such instructional equipment, when operating, should be located as far as possible from students

or placed in noise-isolating enclosures. This procedure is especially important and practical for built-in audio-visual systems or overhead projectors. For such built-in equipment, a design goal should be to ensure that its operation will not cause the total one-hour average background noise level to exceed the limits specified in table 1 while HVAC systems and other building services and utilities are also operating.

The designer of the noise-control features should actively seek to determine whether potentially noisy instructional equipment is planned for permanent or long-term installation in a noise-sensitive instructional space. If so, appropriate noise isolating enclosures should be included in the classroom design planning.

The background noise level in a learning space containing a large number of computers, each with its own cooling fan, may be well above the background noise limits in table 1. In such learning spaces, special consideration should be given to noise control by selection of low-noise computers and the addition of more sound-absorbing treatment than needed to conform to the reverberation criteria in table 1 in order to minimize the reverberant level of this background noise. Sound-absorbing partial barriers may be needed between computer stations.

B6 Conforming to the limits for background noise level

Conforming to the noise level criteria specified in table 1 and the design techniques discussed in this annex may require coordinated action by the architects for design of the school building, the general building contractor, the school-facility design staff, the equipment suppliers, and a person with professional experience in building noise control technology.

Selection of a person experienced in building noise control technology is the ultimate responsibility of the owner or designer of the educational facility. However, such a person should be able to provide evidence of professionally recognized expertise in noise-control technology for building services, utilities, and equipment, or be employed by a firm with the same professionally recognized expertise.

The fact that a project has a person trained in building noise control technology on the design team does not ensure conformance to the provi-

sions of this standard. Workmanship and the quality of products used on the project are also major factors in achieving the required acoustical environment in all learning spaces. The best design can be negated by poor workmanship and use of products that do not conform to published performance specifications.

Manufacturers of school building services equipment, utilities (for example, HVAC and lighting) and instructional equipment usually can supply noise emission levels for their products. This information should be evaluated carefully during the equipment selection process.

B7 Bibliography for further guidance on noise control for HVAC, electrical, and plumbing systems

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Annex C (Informative)

Design guidelines for controlling reverberation in classrooms and other learning spaces

C1 Introduction

The amounts and locations of sound absorption treatments needed to limit reverberation are important considerations for good acoustical characteristics in learning spaces. Excessive reverberation can reduce the understanding of spoken words. Conversely, too much sound-absorbing treatment, especially in dedicated lecture rooms, can reduce beneficial early sound reflections causing speech levels from a talker to fall off rapidly with distance and thereby reduce speech intelligibility for distant listeners. This annex provides design guidelines for the control of reverberation in learning spaces by the addition of sound-absorbing materials. The guidelines are intended to assist

in achieving conformance to the reverberation time criteria in table 1.

C2 Procedure to estimate the amount of sound-absorbing material needed to achieve the design goal for reverberation time

The first step in developing an estimate of the minimum required area of acoustical treatment for installation in a learning space is to apply the Sabine formula [C1]. According to this formula, the minimum total sound absorption A needed to achieve a reverberation time of T_{60} seconds or less in a room of enclosed volume V is given by:

$$A \geq kVT_{60} \quad (\text{C.1})$$

The constant $k = 0.161$ s/m when volume V is in cubic meters and the sound absorption A is in square meters. Constant $k = 0.049$ s/ft when volume V is in cubic feet and sound absorption A is in square feet.

Next, the total sound absorption is broken down into the sum of the products of the surface area S_i of each such sound-absorbing surface and the sound absorption coefficient α_i for this surface. That is, the total sound absorption A is given by the summation over all treated surfaces as expressed by the following relation:

$$A = \alpha_1 S_1 + \alpha_2 S_2 + \alpha_3 S_3 + \dots + \alpha_i S_i + A_R \quad (\text{C.2})$$

where A_R is the residual sound absorption. A default value of A_R equal to 15% of the floor area accounts for the acoustically untreated room surfaces (for example, the untreated walls, ceiling, and bare, uncarpeted floor) and for the furnishings (for example, tables, chairs, and shelves (see C3.5)). For a carpeted room, a value for A_R of 20% of the floor area is recommended as a conservative default design value.

Alternatively, the designer can set A_R equal to 13% of the floor area plus the product of the carpet surface area and its sound absorption coefficient. The latter may vary from a minimum of less than 0.1 at 500 Hz to as high as 0.65 at 2000 Hz, depending on the type and thickness of the carpet and its underlayment. Many references, such as those listed in the bibliography to this annex, provide tables of sound absorption coefficients for different acoustical materials, including carpet, at different frequencies.

These same references may be used to provide alternative sound absorption coefficients for other surfaces in place of the preceding default assumptions. Tabulations of the sound absorption per table or chair are available from these references. Their values may be used if these furnishings are comparable to those intended for the learning space.

For best accuracy in calculations of reverberation time, it is recommended that laboratory-certified sound absorption coefficients be used. These are normally available from acoustical material manufacturers, (see C2.1).

Next, the values of α_i and S_i for the proposed materials and surface areas are substituted into equa-

tion (C.2). If necessary, the choices of material and material areas are adjusted until equation (C.1) is satisfied. The minimum total sound absorption is calculated from application of equation (C.1) for frequencies of 500 Hz, 1000 Hz, and 2000 Hz.

The process described above can be simplified substantially when only one type of sound-absorbing material is to be installed and A_R is assumed to be 15% of the floor area.

The volume V of the learning space can be expressed as the product of floor area S_f and average ceiling height H . Using equations (C.1) and (C.2) and a residual absorption of 15% of the uncarpeted floor area, it is straightforward to construct a table of the minimum required surface area S_1 as a percentage of the floor area for maximum reverberation times of 0.6 s and 0.7 s from table 1. The variables in the table are the sound absorption coefficient α_1 of the acoustical treatment and average ceiling height H .

With the assumptions described above, the entries in table C.1 for the minimum surface area of acoustical treatment S_1 as a percentage of floor area S_f were calculated from the following expression.

$$100(S_1/S_f) \geq 100\{[(kH/T_{60}) - 0.15]/\alpha_1\} \quad (\text{C.3})$$

where k is the constant employed in equation (C.1).

As shown in table C.1, for either of the two reverberation times, the required minimum surface area of acoustical treatment increases as the ceiling height increases and as the sound absorption coefficient decreases. The table shows the need to apply acoustical treatment to the walls as well as the ceiling for rooms with high ceilings and low sound absorption coefficients. Two examples illustrate application of the data in the table.

Example 1.

A rectangular core learning space has dimensions of 40 ft long by 25 ft wide by 9 ft high. It is planned to install sound-absorbing material only on the ceiling. The enclosed volume is $(40 \times 25 \times 9) = 9000$ ft³. From table 1, for this enclosed volume, the maximum reverberation time is 0.6 s at each of the three specified frequencies. Manufacturer's data indicate that the proposed acoustical ceiling material has sound absorption coefficients of 0.65, 0.80, and 0.90 at 500 Hz, 1000 Hz, and 2000 Hz, respectively.

From table C.1, for the smallest absorption coefficient of 0.65 and the 9 ft ceiling height, the required minimum area of treatment is 90% of the floor area of $40 \times 25 = 1000 \text{ ft}^2$, or 900 ft^2 . This leaves 10% of the ceiling area free for lighting and other services. If the allowance for lighting area is inadequate, some acoustical treatment may have to be installed on the walls.

NOTE 1. While the required sound absorption should be confirmed at each of the three frequencies, it will generally be found that conformance to the reverberation-time requirement of table 1 at 500 Hz will also ensure conformance at the two higher frequencies.

NOTE 2. If the manufacturer's sound absorption data are between the sound absorption coefficients listed in the first column of table C.1, the required treatment area can be computed by interpolation in the table. For example, if the lowest sound absorption coefficient for example 1 were 0.67 instead of 0.65, the relative treatment area for the ceiling would be $90\% \times (0.65/0.67)$ or 87% of the floor area or 870 ft^2 instead of 900 ft^2 .

A similar table can be constructed from equation (C.3) for a carpeted floor by changing the default value for A_p/S_f from 0.15 for uncarpeted floors to 0.2 for carpeted floors.

Example 2.

For the same core learning space as in example 1, it is now considered necessary to improve the intelligibility of speech in this lecture-type classroom. In accordance with the guidance in C3.1.2, additional sound-absorbing material is to be installed as a ring around the walls near the ceiling. The sound-absorbing ceiling treatment is to be of the same material as for example 1, but the proposed acoustical wall treatment has manufacturer-stated absorption coefficients of 0.45, 0.60, and 0.70 at 500 Hz, 1000 Hz, and 2000 Hz, respectively.

In this case, as a working assumption, assume that the ceiling is to provide 60% of the total sound absorption while the remaining 40% of the total sound absorption is provided by the wall treatment.

Therefore, the ceiling treatment area should be 60% of the 900 ft^2 determined for example 1 or $0.6 \times 900 = 540 \text{ ft}^2$. According to table C.1, for the 9 ft ceiling and the smallest sound absorption coefficient of 0.45 for the wall treatment, the minimum required surface area of wall-treatment material would be 130% of the floor area of 1000 ft^2 if it

were the only material used. However, under the assumptions, only 40% of that area is required or $0.4 \times 1.3 \times 1000 = 520 \text{ ft}^2$. For the room perimeter of 130 ft, the height of the wall treatment would need to be 4 ft on each of the four walls or 44% of the total wall area.

In summary, 540 ft^2 of ceiling treatment material and 520 ft^2 of wall treatment material would be required for the core learning space to conform to the 0.6 s reverberation time limit in table 1 while providing good intelligibility of spoken words. Other distributions of ceiling and wall treatment areas could be evaluated if it were considered that too much of the available wall area was devoted to sound-absorbing material.

C2.1 Sound absorption coefficients and related design considerations

The sound absorption coefficients for all acoustical materials supplied for the project should be determined in accordance with ASTM C423 [C2]. The learning facility owner's representative should request from the acoustical materials contractor(s):

- a) appropriate certification that all material(s) have been tested in full accordance with ASTM C423 and
- b) a table of the laboratory-certified sound absorption coefficients at 500, 1000 and 2000 Hz for the materials employed (see E4.2.1 in annex E). The mounting condition employed for these tests should be identified and, preferably, should be the same as the as-installed mounting configuration. The designer should recognize that when the cavity depth behind the acoustical material in a laboratory configuration mounting is greater than for the as-installed depth, the installed low-frequency sound absorption coefficients are usually lower than those for the laboratory tests.

Tradeoffs between the sound-absorption coefficients and the surface areas of treatment are allowed if the tradeoffs result in the same or lower reverberation times than those specified in table 1 for each of the three frequencies.

When selecting acoustical materials to meet the reverberation time performance criteria in table 1, it is prudent to allow for sufficient surface area coverage using sound absorption coefficients that fall in the lower range that alternative suppliers may provide. This procedure helps insure that the properly certified material from the lowest bidder is adequate.

Table C.1 — Minimum surface area of acoustical treatment for different sound absorption coefficients, ceiling heights, and reverberation times.

		(a) Reverberation time, T_{60} , of 0.6 s Ceiling height, H , ft								
Sound absorption coefficient, α_1	8	9	10	11	12	13	14	15	16	
	Ceiling height, H , m									
	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.88	
Minimum area of sound-absorbing material as a percentage of the floor area										
0.45	112	130	148	167	185	203	221	239	257	
0.50	101	117	134	150	166	183	199	215	232	
0.55	92	107	121	136	151	166	181	196	211	
0.60	84	98	111	125	139	152	166	179	193	
0.65	78	90	103	115	128	141	153	166	178	
0.70	72	84	95	107	119	130	142	154	166	
0.75	67	78	89	100	111	122	133	144	154	
0.80	63	73	83	94	104	114	124	135	145	
0.85	59	69	79	88	98	107	117	127	136	
0.90	56	65	74	83	92	101	111	120	129	
0.95	53	62	70	79	88	98	105	113	116	
1.00	50	59	67	75	83	91	100	108	116	

NOTE Sound absorption coefficients stated by a manufacturer to be greater than 1.0 based on laboratory tests may be taken as equal to 1.00 for purposes of this annex.

		(b) Reverberation time, T_{60} , of 0.7 s Ceiling height, H , ft								
Sound absorption coefficient, α_1	8	9	10	11	12	13	14	15	16	
	Ceiling height, H , m									
	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.88	
Minimum area of sound-absorbing material as a percentage of the floor area										
0.45	91	107	122	138	154	169	185	200	216	
0.50	82	96	110	124	138	152	166	180	194	
0.55	75	87	100	113	126	138	151	164	177	
0.60	68	80	92	104	115	127	139	150	162	
0.65	63	74	85	96	106	117	128	139	149	
0.70	59	69	79	89	99	109	119	129	139	
0.75	55	64	73	83	92	102	111	120	130	
0.80	51	60	69	78	86	95	104	113	121	
0.85	48	57	65	73	81	90	98	106	114	
0.90	46	53	61	69	77	85	92	100	108	
0.95	43	51	58	65	73	80	88	95	102	
1.00	41	48	55	62	69	76	83	90	97	

NOTE Sound absorption coefficients stated by a manufacturer to be greater than 1.0 based on laboratory tests may be taken as equal to 1.00 for purposes of this annex.

C3 Further design guidance

C3.1 Location of the absorbing material

C3.1.1 General Classrooms. In cases where there is no fixed lecture position for the teacher, and when ceiling heights are less than about 3 m (10 ft), the best option is to place most if not all of the sound-absorbing material on the ceiling. For ceiling heights greater than 3 m (10 ft), which is discouraged for classrooms, an increasing amount of the sound-absorbing material will have to be on the walls as the wall height increases above 3 m. If nearly all of the installed sound-absorbing material is on the ceiling, then it is prudent to introduce furnishings such as bookshelves of adequate height to assure that sound waves traveling across the room are scattered in the direction of the sound-absorbing acoustical ceiling.

C3.1.2 Lecture-type classrooms. Speech intelligibility studies [C3] have shown that, for lecture-type classrooms, it is best to ring the upper wall and ceiling with sound-absorbing material. This configuration enhances reflections to and from the back of the room, as well as back and forth across the room, thus promoting good speech communication between teacher and student and vice versa, as well as among students. This arrangement also enhances better communication for group discussions and pod formats where the teacher moves around the room.

For classrooms that have a relatively fixed teacher position, the sound-absorbing material should not be placed just above and in front of the teacher's position because that position would reduce the level of the teacher's voice at the positions of the students.

C3.2 Mounting of acoustical treatment in classrooms

Ceiling acoustical treatment is normally suspended from the ceiling with an air space specified by the architect. The height of the air space may, or may not, be the same as the 40 cm (16 inch) air space commonly used by manufacturers to achieve the sound absorption coefficients that are measured by a testing laboratory. As long as the minimum air space required for installing a lay-in ceiling exists, the actual sound absorption at frequencies of 500 Hz and higher should be not less than the published values. Experienced professionals should be consulted when reverberation at frequencies less than 500 Hz is a major concern.

Wall-mounted materials should be installed, as recommended by the manufacturer, with clips or glue to the wall surface or be fastened to added spacers to achieve the stated sound absorption coefficients.

C3.3 Reverberation control for ancillary and large core learning spaces

For ancillary spaces, such as corridors, gymnasias, cafeterias and large core learning spaces [volume > 566 m³ (> 20 000 ft³)] sound-absorbing material should be installed to reduce noise caused by the activities of occupants, as well as to control reverberation. The amount of acoustical treatment will vary widely, but corridors should generally have a total surface area of sound-absorbing material that is not less than 50% of the ceiling area and up to 75% if possible; 75% treatment area is recommended for corridors with high traffic or noisy lockers.

A measure of the sound absorption coefficient of acoustical materials is provided by a single number rating called the noise reduction coefficient (NRC), [C4, C5]. For cafeterias and for large core learning spaces with ceiling heights up to 3.7 m (12 ft), a suspended ceiling with an NRC of 0.70 or higher should be used for the full ceiling area exclusive of the area required for lights and ventilation grilles. Higher NRC ratings should be considered especially for ceiling heights less than 3.7 m. When the ceiling height is greater than 3.7 m (12 ft), especially if greater than 4.6 m (15 ft), a more detailed analysis by experienced personnel may be required to provide adequate control of reverberation. In any event, as suggested by table C.1, wall treatment should be included for such high-ceiling rooms. Depending on the amount of wall treatment, the ceiling NRC or treated area might then be reduced when some of the wall area is covered by sound-absorbing material. When permitted within sanitation restrictions, similar acoustical treatment should be employed in food-serving and food-preparation areas.

NOTE The Noise Reduction Coefficient is equal to the arithmetic mean of the sound absorption coefficients at 250, 500, 1000, and 2000 Hz, rounded to the nearest multiple of 0.05. The NRC of acoustical material should not be used for design or calculation of reverberation time for core learning spaces for purposes of this standard.

For rooms with high ceilings, such as gymnasias, the installation of acoustical treatment on the walls

is important to minimize reverberant build-up of noise level. Absence of any acoustical treatment on the walls of high-ceiling rooms can make the material on the ceiling less effective than expected.

Guidance is available in the references listed in the bibliography in C5 for many other architectural acoustics design objectives applicable to reverberation control in ancillary spaces and large core learning spaces. These objectives include but are not limited to:

- providing suitable reverberation times for large core learning spaces and dual-purpose ancillary spaces such as a cafeteria also used as an auditorium (e.g. - Ref. C5, C6, or C7), and
- including additional sound-absorbing material on the walls in corridors connecting noisy rooms to quieter areas of the school and in corridors with busy foot traffic or noisy lockers.

C3.4 Carpeting in classrooms

Carpeting in a classroom (for example, in an area where young children sit on the floor together for a story) can help substantially to reduce background noise in the classroom from chair and foot impacts or scuffing. Carpeting can also attenuate the transmission of this impact noise to the room below. The alternative use of neoprene chair leg tips should be considered as a way to help minimize chair-shuffling noise without the use of carpeting. See annex F for discussion of indoor air quality (IAQ) and multiple chemical sensitivity (MCS) issues for carpeting.

Carpeting alone usually does not provide enough sound absorption for classrooms since it is generally poor at low frequencies, even when newly installed. (See text following Equation C.2 for further details.)

C3.5 Absorption of furnishings and occupants

Calculations of reverberation times for learning spaces assume typical furnishings such as chairs, tables, and storage cabinets. A sound absorption equal to 5% of the floor area, already included in the residual absorption term A_R in equation C.2, is a conservative approximation for the sound absorption of these furnishings. These furnishings are normally floor-mounted and thus their quantity and hence their sound absorption will tend to be proportional to the floor area. The 5% figure is con-

sistent with limited experimental data comparing the reverberation for furnished and unfurnished classrooms.

The sound absorption of learning space occupants was considered in setting the limits on reverberation time in table 1 and should not be included in any calculations for the reverberation time of an unoccupied space. The sound absorption provided by an occupant is approximately equal to 0.55 m^2 (6.0 ft^2) for an adult student and about 20% less for a high school student and 40% less for an elementary grade student [C4].

C4 Guidelines for good acoustics in large classrooms and lecture rooms

This standard does not specify performance criteria or design requirements for enclosed learning spaces larger than 566 m^3 ($20\,000 \text{ ft}^3$). However, limited additional recommendations and design guidelines for larger rooms and other spaces in educational facilities, aside from those in C3.3, are given in this subclause.

Large lecture rooms generally differ physically and functionally in many ways from classrooms found in elementary and secondary schools. The teacher-student configuration tends to be fixed; the size of the room can vary greatly, sometimes accommodating hundreds of students. The shape of the room may vary from a traditional rectangular shape; HVAC systems usually have much greater capacities; and speech reinforcement systems as well as other fixed audiovisual facilities are common in such spaces.

For unamplified speech, beneficial sound-reflecting surfaces, especially over the teacher-lecturer, are necessary to assure adequate speech sound levels in the back of the room with relatively uniform distribution of the sound of spoken words. If the teacher-student configuration is fixed, beneficial reflections can be obtained with sound-reflecting surfaces placed above the lecturer, sometimes extending over the audience, on the ceiling, or sidewalls. Because of the larger room volumes, reverberation times usually are greater than in small classrooms, with values of 0.7 s to 1.1 s in occupied rooms not uncommon. To assure less variability in the reverberation time with changes in occupancy, it is always desirable to have sound-absorbing upholstered chairs in small auditoria. To minimize echoes, the back wall is often made sound absorbing, or is tilted to avoid sending reflections back toward the source, or both.

Because of the complexity of the design of large lecture rooms, experienced professionals should be consulted to ensure that the design and its implementation achieve the acoustical objectives of this standard.

Further guidance for detailed design considerations of lecture rooms can be found in a number of sources including [C1, C4-C11] listed in the bibliography.

C5 Bibliography

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[C10] C.J. Rosenberg, "Acoustic Design," *Architectural Graphics Standards, Eighth Edition*, J.R. Hoke, Jr., (ed), The American Institute of Architecture, Wash. DC (1988).

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Annex D (Informative)

Design guidelines for noise isolation

D1 Introduction

This annex provides informative design guidelines for noise isolation between learning spaces and between a learning space and other interior or exterior spaces. Application of these design guidelines will assist, but not guarantee, achieving conformance to the background noise level limits in table 1. The STC and IIC ratings in 4.5 are intended to provide a practical means of achieving this conformance. All acoustical aspects of the design and construction should therefore be consistent with this intent. In support of this intent, since many finished component assemblies involve the work of more than one building trade, architectural specifications should refer to noise control and isolation measures in all applicable sections. After completion of construction, on-site testing may

also be needed when it is necessary to verify conformance to the STC or IIC ratings of 4.5, (see E5.1 in annex E).

The noise isolation provided by wall or ceiling elements depends on both the materials used and the installation practices and may be strongly affected by sound leakage at joints and penetrations and unintended flanking paths around these elements. When a high degree of noise isolation is required, as for music rooms, flanking of sound transmission through common floors, walls, and ceilings can limit the isolation actually achieved unless proper steps are taken in the design and construction.

The noise isolation requirements of this standard are similar in concept to requirements incorporated in several existing national and international building codes. Examples include: a) Appendix Chapter 12 Division II-Sound Transmission Con-

trol of the 1997 Uniform Building Code (UBC), b) Section 1206 of the 2000 International Building Code, and c) Standard SSTD 8-87 of Southern Building Code Conference International (SBCCI). All of these prescribe minimum STC ratings for separating walls and floor-ceiling assemblies. Except for the SBCCI code, they also prescribe minimum IIC ratings for floor-ceiling assemblies. The requirements for this standard differ from those in the above codes because the application for the space is different and, in many cases, have more stringent acoustical design requirements.

D2 Noise isolation

D2.1 Noise isolation between interior spaces

Table 2 specifies the required minimum STC ratings for interior and exterior walls surrounding enclosed learning spaces. The table presents design requirements for STC ratings of typical wall constructions where the wall is continuous to the floor below or floor-ceiling system above, with all penetrations adequately sealed, (see the guidance in ASTM E497 [D1]). General design guidance on noise isolation is provided in many texts and reports on building noise control including references D2 to D15.

D2.2 Noise isolation of open-plan classrooms

The low noise isolation that is inherent with open-plan classrooms is generally well below the design requirements in table 2. Therefore, this standard emphasizes that open-plan classroom design should be strongly discouraged since the resulting background noise levels in a core learning space as a result of activities by students in other core learning spaces within an open classroom setting are highly likely to exceed the background noise limits in table 1. The poor acoustical performance of open-plan systems has a negative impact on the learning process and tends to defeat any teaching methodology advantages that may accrue from their use.

D2.3 Outdoor-to-indoor noise isolation

D2.3.1 Outdoor-to-noise environments. There is no single answer for the proper amount of noise isolation to include in the design to shield a learning space from industrial or transportation outdoor noise sources. Each situation is unique with regard to distance to, and the extent and characteristics of, industrial sources, local traffic, or other transportation noise sources. The best solution to out-

door-to-indoor noise isolation design is to measure the current, or predict the future, noise levels of external sources at the proposed locations for facades. The next step is to determine the necessary outdoor-to-indoor noise level reduction to achieve the required interior background noise level in table 1. (See D2.3.3 for one approximate method.) It is good design practice to allow a margin of safety to account for uncertainties, including the possibility that current outdoor sound levels may increase in the future. For predictions of external noise levels, widely accepted models for assessing industrial or transportation noise sources will normally be available to environmental planners or acoustical consultants. For some sites, maps or contours of the current or projected outdoor noise environment may be available from local planning departments.

Selection of materials and acoustical design for the exterior envelope of a school building should consider these measured or predicted noise levels. Knowledge of these levels can assist in achieving adequate acoustical design features to attenuate the outdoor noise levels and ensure that the interior background levels do not exceed the limits in table 1.

D2.3.2 Selecting sites for learning facilities. As recommended by ANSI S12.9/Part 5 [D10], learning facilities should not be located at sites where the yearly average day-night average sound level exceeds the following limits with corresponding construction methods:

- 60 dB to 65 dB for conventional construction methods for the learning facility, providing the external walls are designed to a minimum STC rating of 50 consistent with the minimum ratings in table 2 and table 3;
- 65 dB to 75 dB if the external shell of the learning facility is designed to provide adequate noise isolation in order to conform to the limits in table 1 for background noise levels (see D2.3.3).

Under no conditions should a new learning facility be located at a site where the yearly average day-night average sound level exceeds, or is predicted to exceed, 75 dB.

D2.3.3 Approximate STC ratings to achieve a desired outdoor-to-indoor noise level reduction. Given the limits on background noise levels from table 1 and the external noise environments established by one of the procedures outlined in

Table D.1 — Approximate difference between the minimum STC rating required for building envelope components and the required outdoor-to-indoor noise level reduction

Fenestration %	(STC rating of walls and roofs) minus (outdoor-to-indoor noise level reduction) dB	(STC rating of doors and windows) minus (outdoor-to-indoor noise level reduction) dB
1 to 25	15	6
26 to 70	20	11

NOTES

- a) Fenestration is the percentage of the total wall and roof surface area that consists of windows, doors, and other openings. For rooms without a roof, it is the percentage of the total wall area made up of windows, doors, and other openings.
- b) The values for the nominal STC rating minus the outdoor-indoor noise level reduction in columns 2 and 3 are based on the expectation that the dominant outdoor noise source is vehicular traffic. If other sources dominate, adjustments may be needed. For example, if aircraft noise is the dominant source, the minimum required STC rating may increase by about 2 dB.

D2.3.1 and D2.3.2, the recommended STC rating for the wall, roof, door, and window elements of the school building envelope may be estimated from the data in table D.1.

Table D.1 gives the approximate difference in decibels between the minimum STC rating of the exterior elements of a learning space and the required outdoor-to-indoor noise level reduction for two ranges of the relative area of the fenestration in the envelope. While only an approximation, the data in the table may be used for initial estimates of the STC rating required for the components of the exterior envelope of the structure.

NOTE Outdoor-to-indoor noise level reduction is the difference in A-weighted sound level between a specified outdoor sound field and the resulting A-weighted sound level in the room abutting the facade or facade element of interest. It can be measured in accordance with ASTM E966 [D9] where it is called "outdoor-indoor level reduction".

As an example, assume that the dominant source of exterior noise is road traffic and that the maximum one-hour-average A-weighted noise level is 65 dB at the nearest exterior classroom wall facing the traffic. To conform to the background noise limit inside the classroom of 35 dB from table 1, the nominal outdoor-to-indoor noise level reduction would have to be $65 - 35$ or 30 dB. According to table D.1, for an exterior wall with fenestration greater than 25%, the nominal STC rating of the

exterior walls would have to be at least $30 + 20$ or 50. The STC rating of the windows would have to be at least $30 + 11$ or 41.

To obtain estimates of the required STC ratings that are better than those obtained from application of table D.1 would require an assessment of the frequency spectrum of the long-term average exterior noise level. Also needed is the frequency-dependent sound transmission through the walls, roof, windows, and doors that are planned for the envelope of the school building (see ref. D8, D9).

D2.4 STC ratings for composite elements of a wall or roof assembly

STC ratings for a composite of several elements in a structural assembly may be estimated by application of the data in table D.2. Table D.2 may be employed to determine the STC rating of two different building elements such as walls, doors and windows with STC ratings, STC (1) and STC (2), where STC (1) is greater than STC (2) and with corresponding surface areas S_1 and S_2 .

Enter table D.2 in the column across the top with the difference in the STC ratings rounded to the nearest 3 dB. Then go down to the row indicated in the left-most column to the range that includes the area S_2 as a percentage of the total area ($S_1 + S_2$) of both elements. At the intersection of the row and column, find the correction to subtract from

Table D.2 — Correction data for estimating the STC rating of a two-element composite building assembly.

S2/(S1+S2) ×100%	STC (1) rating minus STC (2) rating, dB									
	3	6	9	12	15	18	21	24	27	30
	Correction to subtract from STC (1) to obtain the STC rating of the composite assembly, dB									
0 to 0.2	0	0	0	0	0	0	0	1	2	3
>0.2 to 0.5	0	0	0	0	0	1	1	3	4	6
>0.5 to 1	0	0	0	0	1	2	3	4	7	9
>1 to 2	0	0	0	1	2	3	4	7	9	12
>2 to 5	0	0	1	2	3	5	7	10	12	15
>5 to 10	0	1	2	3	5	7	10	13	16	19
>10 to 20	1	2	3	5	7	10	13	16	19	20
>20 to 30	1	2	4	7	9	12	15	18	21	24
>30 to 40	1	3	5	8	11	14	17	20	23	26
>40 to 60	2	4	7	9	12	15	18	21	24	27
>60 to 80	2	5	8	10	13	16	19	22	25	28
>80 to 100	3	6	9	12	15	18	21	24	27	30

STC (1) to yield the estimate for the STC rating of the composite assembly. For more than two elements in a composite assembly, repeat the process by combining the STC of the composite assembly consisting of the first two elements with the STC of the third element, and so on.

As stated in NOTE a) to tables 2 and 3, the STC rating for the walls of a corridor, office, or conference room containing entrance doors excludes these entrance doors. The design and anticipated STC rating for such entrance doors is given in 4.5.5.

D2.5 Isolation from impact noise or vibrating machinery

D2.5.1 Design guideline for impact noise isolation for floor-ceiling assemblies. For learning spaces in multi-story school buildings, classrooms in lower stories may need to be protected from the noise of impacts on the floor of rooms immediately above. Impact noise may arise from footfalls or the scuffing of furniture in the room above. Impact noise can be reduced sufficiently by ensuring that the floor-ceiling system has an adequately high Impact Insulation Class (IIC) rating. Installing carpet on the floor will almost always ensure an IIC rating greater than 50 but may not reduce the low-frequency impact sounds sufficiently. It is good practice to design the floor-ceiling assemblies to achieve a minimum IIC 50 rating without carpeting above classrooms or other core learning spaces. For this purpose a permanent resilient underlayment may be required to isolate the finished floor from the structural floor system.

To achieve high IIC ratings, it may be necessary to isolate the ceiling from the floor above. This can be accomplished by suspending the ceiling with resilient channels or isolation hangers. Good architectural practices, including careful isolation design and attention to detail in construction, are important to ensure the realization of high IIC ratings. References D8 and D11 to D15 in the bibliography provide extensive IIC test data. Product manufacturers can be consulted for additional data.

D2.5.2 Design guideline for noise isolation from vibrating machinery. Vibration isolation methods, such as rubber pads or spring systems under the mounting points, should always be employed under rotating machinery to isolate it from floor-ceiling systems and prevent structurally-transmitted sound from entering learning spaces. This isolation is particularly important for roof-mounted rotating machinery where the deflection of the roof has to be considered in vibration isolation design. Design methods for such vibration isolation are documented in widely available noise control handbooks, (See ref. D2, D8 and D15 in the bibliography).

D3 Bibliography for further guidance on noise and vibration isolation in school buildings

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- [D5] R.B. Dupree, Catalog of STC and IIC Ratings for Wall and Floor/Ceiling Assemblies, Office of Noise Control, California Department of Health Services, Sacramento, CA, (Feb. 1980).
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- [D10] ANSI S12.9-1998/Part 5, American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound, Part 5: Sound Level Descriptors for Determination of Compatible Land Use. [Web Site - <http://asa.aip.org>].
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- [D12] A.C.C. Warnock and J.A. Birta, "Detailed Report for the Consortium on Fire Resistance and Sound Insulation of Floors: Sound Transmission and Impact Insulation Data in 1/3 Octave Bands", Internal Report, IRC IR-811, National Research Council of Canada, (July 2000).
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- [D15] "A Practical Guide to Noise and Vibration Control for HVAC Systems," ASHRAE Special Publication, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. Atlanta, GA. [Web site - <http://ashrae.org>].

Annex E (Normative)

"Good architectural practices" and procedures to verify conformance to this standard

E1 Introduction

This annex provides recommendations in clause E2 for "good architectural practices" that will help to achieve the objectives of this standard. Clauses E3, E4, and E5 describe procedures that shall be followed to verify conformance to the requirements and recommendations of this standard, in the event that such verification is required. If verification of conformance is not required, the procedures described in clauses E3, E4, and E5 are provided for information only and the entire annex then shall be considered to be informative rather than normative.

This standard covers a range of requirements, some of which are relatively simple to accommo-

date by following the design guidelines given in other annexes. However, concerns about the actual acoustical environment of learning spaces may arise depending on a combination of factors such as building siting, variability in the installation of the HVAC system, and variability in the details of the construction techniques. For these and other reasons, verification tests may be necessary to evaluate conformance to the requirements of this standard.

Nonconformance to the provisions of this standard may be suspected when subjective evaluation of a learning space under typical use indicates excessive background noise, reverberation, insufficient noise isolation, or poor speech intelligibility.

Verification tests and analyses, if required, should be performed by qualified personnel (see B6 in annex B).

E2 "Good architectural practices" and acoustical performance considerations during and after construction

E2.1 Prior to completing construction

"Good architectural practices" during the design and construction of a new or renovated learning space include the following actions:

phase 1 – designing to conform to this standard (see annexes B, C, and D);

phase 2 – monitoring activities during construction to ensure that acoustically important design features are not compromised; and

phase 3 – checking for conformance to the principal requirements of this standard before completion of construction or renovation is accepted.

For a new or a renovated learning space, the architectural design in phase 1 should utilize the guidance provided in annexes B, C, and D. Because many structural component assemblies involve work by more than one building trade, the architect's specifications should cross-reference the noise control and noise isolation measures in all applicable sections of the specifications.

During construction phase 2, in addition to, and in advance of, conventional on-site inspections, special training should be provided to those in relevant building trades who will perform the work, or to their supervisors. The training should describe guidelines for implementing what often may be unconventional or unfamiliar construction methods. For example, representatives of certain building trades may not realize that inadvertent or careless disposal of debris or temporary bracing in the space between wall surfaces can cause a drastic reduction in noise isolation between adjacent learning spaces.

It is important to emphasize to those doing the work during the construction phase that all cracks or joints between wall segments or wall-floor or wall-ceiling joints should be sealed with a permanently flexible caulking compound. However, no attempt should be made to seal cracks or joints that are wider than 6 mm (0.25 in.). Solid filler, also caulked, with a surface weight density comparable to that of the material on each side of the crack should be used to seal cracks that are wider than

6 mm. ASTM C919 [E1] provides procedures for the use of sealants to maintain the design for noise isolation. The architectural design drawings should include a reference to ASTM C919 for sealing procedures.

To check conformance to the key requirements of this standard after construction is completed but before the learning space is occupied (phase 3), the following evaluations are recommended:

- 1) measure the background noise levels within learning spaces,
- 2) measure the noise isolation between them, and
- 3) calculate (or measure) reverberation times (see E3, E4, and E5 for procedures).

E2.2 After commissioning

After commissioning (accepting completion of construction), "good architectural practices" include:

- 1) being alert for, and monitoring of, degradation of acoustical materials, and
- 2) responding to complaints about the acoustical environment in a learning space.

Over time, some of the noise control features designed into a learning facility may degrade. One example of such degradation is changes in the balance, or fan operation, of the HVAC system leading to excessive low-frequency noise. Another example is the degradation of designed noise isolation provided by operable partitions as a result of wear and tear of floor and edge seals. A third example is painting of the sound-absorbing material on ceilings and walls.

Tests to verify conformance to this standard may be performed in response to complaints about the acoustical environment in the learning spaces. The results of these tests, and those performed prior to accepting completion of construction, will assist in analyzing the basis for any future complaints about the acoustical environment in the learning spaces.

E3 Verifying background noise levels

E3.1 Selecting learning space for measurements

Ordinarily, comprehensive testing is not required for all learning spaces in a given facility to which this standard applies and appropriate sampling procedures should be adequate. Selection of the size of the sample should consider the need to

evaluate spaces expected to have the highest levels of background noise because of their proximity to internal noise sources (e.g., mechanical equipment rooms) or their proximity to external noise sources (e.g., road traffic).

The test procedures in the balance of this clause apply to each learning space in which background noise levels are to be measured.

E3.2 Room conditions

Background noise levels shall be measured while adjacent spaces (for example, rooms and corridors beside, above, and below the space in which the measurements are to be made) are unoccupied. Students or school staff members, in the remainder of the facility, shall be requested to not carry out any activity that could increase the background noise level in the room under investigation.

Background noise levels shall be measured during an hour when the background noise levels are expected to be a maximum. Background noise levels shall be measured with the HVAC system and other building services at their appropriate maximum operational conditions as specified in 4.3.2. Lights shall be on; doors and windows shall be closed.

E3.2.1 Instructional equipment

Portable and permanent instructional equipment (for example, computers and audio-visual systems) shall be turned off to obtain background noise levels required by this standard.

However, it is strongly recommended that background noise levels also be measured according to the procedures in this annex when such instructional equipment and building services are operating simultaneously. When this total background noise level exceeds the limit in table 1 by more than 3 dB, steps should be taken to reduce the level of the noise produced by the instructional equipment.

E3.3 Room description

The overall dimensions of the learning space shall be measured and the enclosing volume calculated. The locations and dimensions of major features shall be noted on a diagram with plan and elevation views showing: 1) the location of HVAC components and other noise sources within the

space; 2) the position and dimensions of windows and doors; and 3) the heights and locations of partial height walls.

E3.4 Test instruments

Two types of instruments are required — a sound level meter and a compatible acoustical calibrator (or sound calibrator).

E3.4.1 Sound level meter. The sound level meter shall provide frequency weightings A and C, and SLOW time-weighting.

The sound level meter shall be an integrating-averaging type capable of measuring time-average sound levels or a conventional sound level meter capable of measuring SLOW time-weighted sound levels. An integrating-averaging meter is preferred.

An integrating-averaging sound level meter shall conform to the class 1-performance specifications of IEC 61672-1 [E2] or to the performance specifications of ANSI S1.43 [E3] for type 1 integrating-averaging sound level meters. A conventional sound level meter shall conform to the class 1 specifications of IEC 61672-1 or to the specifications of ANSI S1.4 [E4] for type 1 sound level meters. For either type of sound level meter, conformance to IEC 61672-1 is preferred.

To demonstrate conformance to the background noise limits of table 1, the maximum A-weighted level of self-generated noise of the sound level meter shall not exceed 30 dB for the model of microphone installed on the sound level meter.

NOTE Sound level meters designed in conformance with the above IEC or ANSI standards may have A-weighted self-noise levels greater than 30 dB. Conformance to these standards does not assure compliance with this required maximum self-noise level.

To carry out the preliminary survey of the background noise levels in the manner described in E3.7, a conventional sound level meter conforming to IEC 61672-1 class-2 or ANSI S1.4 type-2 specifications may be an acceptable alternative. To be acceptable, the lowest noise level measurable by the instrument shall be at least 5 dB below the actual measured background level. This ability may be demonstrated by observation in a very quiet location. Alternatively, the manufacturer may provide the lowest measurable level for this instrument.

E3.4.2 Acoustical calibrator. The acoustical calibrator shall conform to the requirements of IEC

60942 [E5] for a class 1 instrument or to the requirements of ANSI S1.40 [E6] for a type 1 instrument. Conformance to the standard corresponding to the sound level meter standard is preferred. The actual sound pressure level and nominal frequency of the calibration signal shall be known for the microphone installed on the sound level meter.

E3.5 Calibration

The sound level meter and the acoustical calibrator shall each have a certificate from a qualified acoustical testing laboratory indicating that a calibration of both instruments has been performed within the time interval recommended by the manufacturer but not more than 24 months prior to the date of the tests. The certificate shall apply for reference environmental conditions defined by the manufacturer. The calibration of the sound level meter and acoustical calibrator shall be checked periodically to ensure that measurements with the sound level meter are accurate.

Before initiating sound level measurements, the calibration of the sound level meter shall be verified in accordance with the procedure described in the Instruction Manual for the calibrator. Adjustments shall be made to the calibration in accordance with this manual to account for any significant difference between the prevailing atmospheric pressure and air temperature and the reference conditions (i.e. - 760 mm Hg, and 23 °C).

E3.6 Selecting measurement locations

The customary listening areas used for speech communication shall be determined for each learning space. The customary listening areas include the students' seating areas and the areas used by the teacher. These listening areas may be relatively fixed within a classroom or vary substantially, depending on the seating arrangement and teaching style. A maximum of six measurement locations shall be selected within the customary listening area and at distances not less than 1 m (40 in.) from a wall or other large solid surface, except for measurement locations close to the floor.

The location in the customary listening area that has the highest sound level shall be designated the "key location". This location shall be determined by observing the A-frequency-weighted and SLOW time-weighted sound level as the sound level meter is carried around the learning space with the room conditions as noted in E3.2. Sound

levels shall be noted at measurement heights representative of seated and standing students. Alternatively, this key location may be selected by listening at suitable positions near the apparent source of highest noise levels. If this subjective choice of the key location cannot be confirmed by the subsequent measurements of background noise, the background noise measurements shall be repeated using a correct key location. Before determining the other measurement locations it is prudent to evaluate preliminary survey results at the key location, as called for in E3.7.

A second location shall be on the opposite side of the listening area from the key location. Four other locations, two on each side of the listening area, shall be selected ahead and behind the key and second locations.

Three of the measurement heights above the floor, including that for the key location, shall be at the nominal ear elevation for students seated in a chair or on the floor. The other three heights shall be representative of the ear position of a standing student. The recommended approximate heights are shown in the following table.

Grade level	Approximate measurement height above the floor		
	Seated positions		Standing
	In a chair	On the floor	
K to 6	0.8 m (33 in.)	0.5 m (20 in.)	1.1 m (44 in.)
7 to 9	1.0 m (40 in.)	Not applicable	1.4 m (54 in.)
10 to 12 and adults	1.1 m (44 in.)	Not applicable	1.5 m (60 in.)

For learning spaces used by students of widely varying ages, at least four of the six measurement locations shall be those for the younger students.

Each measurement location shall be shown on a floor plan diagram and shall include the actual measurement heights employed.

E3.7 Measuring background noise

Following the initial survey described below, which can employ a hand-held sound level meter, the remainder of the background noise measurements should be conducted with the meter mounted on a tripod to minimize operator-induced noise and reflections from the operator's body. (A tripod may be

necessary for even the initial survey if the observed sound levels are very low). A large flat surface, such as a table or chair seat, shall not be used to support the instrument. To ensure that any air currents do not affect the reading of the sound level meter, and to protect the microphone from accidental damage, an appropriate microphone windscreen shall always be employed. The number of persons in the listening area shall be minimized, preferably with the test conductor the only person in the area.

The measurement of background noise shall begin with a preliminary survey to:

- 1) find the key location where the background noise level is the highest (see E3.6);
- 2) assess the likelihood that the background noise level conforms to the limits in table 1; and
- 3) determine if the background noise is steady or unsteady.

The sound level meter used for this preliminary survey may be an integrating-averaging type or a conventional type. In either case, it may be one that conforms only to the class-2 requirements of IEC 61672-1 or the type 2 requirements of ANSI S1.4 if the meter also conforms to the requirements in E3.4.1 for the lowest measurable level.

At the key location, the time-average A-weighted sound level shall be measured over each of five nominally consecutive 30-second intervals. The highest 30-second average, the lowest 30-second average and the total average of all five 30-second averages shall be noted. The same type of data shall be obtained for C-weighted sound levels. Each 30-second average may be obtained with an integrating-averaging meter set to a 30-second averaging period or, with a conventional sound meter, by visually observing the mean indication of the A-weighted and SLOW time-weighted sound level over the 30-second interval.

If the average background noise level from the above five A-weighted measurements is at least 3 dB more than the limits in table 1, then it may be concluded that the background noise levels in the room are not in conformance with the standard. No further background noise measurements are needed. If the average background noise level from the above five measurements is at least 3 dB less than the limits in table 1 and the background noise is judged steady as defined below, it may be concluded that the background noise levels in the room are in conformance with the standard. No

further A-weighted background noise measurements are needed.

If the average of the five 30-second samples falls within a 3 dB range above or below the limits of table 1, then confirmation of conformance or non-conformance to these limits shall be determined by additional tests carried out in accordance with one of the following procedures.

If the difference between the highest and the lowest noise levels of the five 30-second samples at the key location is not more than 3 dB, the background noise shall be judged steady and the measurement procedure in E3.7.1 shall be employed. If this difference is more than 3 dB, the background noise shall be judged unsteady and the measurement procedure of E3.7.2 shall be employed.

E3.7.1 Steady background noise. The one-hour-average steady background level for the typical usage hour may be obtained from measurements of one 30-second average sound level at each measurement location after ensuring that the room conditions are as specified in E3.2. Each 30-second average sound level may be measured in one of two ways and the results noted for each measurement location:

- 1) by use of an integrating-averaging sound level meter for a 30-second measurement interval or
- 2) by visual observation for 30 seconds of the mean sound level observed on a conventional sound level meter with SLOW time-weighting.

If any non-typical short-duration sound, such as a door slam, occurs during any measurement period, the measurement shall be stopped, the memory cleared if an integrating-averaging instrument is being used, and the 30-second measurement repeated.

The C-weighted sound level also shall be measured at the key measurement location applying the same process employed for the A-weighted sound levels. If the C-weighted sound level at this location exceeds the limit for A-weighted levels in table 1 by more than 18 dB, it is recommended that a more thorough evaluation be made of the C-weighted levels at other locations in the room to ensure conformance to 4.3.2.1.

E3.7.2 Unsteady background noise from transportation noise sources. For unsteady background noise, the measurement procedure of E3.7.1 (1) shall be followed, using an integrating-averaging sound level meter which, preferably,

can also determine the A-weighted SLOW time-weighted noise level exceeded for 10% of any measurement interval. The integration and averaging measurement interval shall be 60 minutes instead of 30 seconds.

During this measurement, the time of day and the apparent sources of significant transportation noise shall be identified and noted. Non-typical short-duration loud sounds that occur during the integration interval shall be noted, but the integration shall not be interrupted. Prior to reporting the one-hour-average sound level, the measured data may be processed to exclude such non-typical short-duration sounds.

The A-weighted, SLOW time-weighted noise level exceeded for 10% of the observation hour shall be noted directly if the sound level meter has this capability. Alternatively, manual data processing may be employed. For example, a record of 120 observations of 30-second samples of the A-weighted SLOW time-weighted noise level can be used to determine the level exceeded for 10% of the hour.

E3.7.3 Disturbing sounds from building services and utilities. If the presence of disturbing sounds (see 4.3.2.2) is suspected from building services and other utilities, a more thorough analysis of the acoustic environment may be required using appropriate signal analysis equipment familiar to an experienced observer.

E3.8 Verifying conformance to background noise limits

E3.8.1 Steady background noise. For the customary listening area in the learning space, conformance to the requirements of this standard is verified for steady background noise when the following conditions are satisfied.

- The 30-second-average A-weighted sound level at each measurement location does not exceed the corresponding limit specified in table 1, within the tolerance of 4.7 (1); and
- The 30-second-average C-weighted sound level at the key measurement location does not exceed the corresponding 30-second-average A-weighted sound level by more than the limit specified in 4.3.2.1.

E3.8.2 Unsteady background noise from transportation noise sources. Conformance is verified if the one-hour-average A-weighted sound level and the A-weighted, SLOW time-weighted

level exceeded 10% of the time do not exceed the limits specified in 4.3.1. The tolerance of 4.7 (1) applies separately and not cumulatively to each of these limits for the continuous test hour.

E4 Verifying reverberation times

E4.1 Methods

The preferred method to verify that the actual reverberation times do not exceed the maximum reverberation time specified in table 1 is to calculate the reverberation time at 500 Hz, 1000 Hz, and 2000 Hz. Alternatively, reverberation times may be measured directly. Reverberation times shall be measured when the calculated reverberation times exceed the limits from table 1, when the observed reverberation of the learning space appears to be excessive, or when significant differences are suspected between the assumed and the actual mounting conditions for the acoustic treatment.

If calculated and measured reverberation times differ by more than 0.1 s, the measured reverberation time shall take precedence. Results of calculations or measurements of reverberation times shall be rounded to the nearest 0.1 s and shall be within the tolerance limits of 4.7 (4) of the performance requirements in table 1.

E4.2 Reverberation time by calculation

The dimensions of the room shall be measured and the enclosing volume calculated. The dimensions of the sound-absorbing surfaces on the ceiling and walls shall be measured and the surface areas calculated for each different type of sound-absorbing surface.

The total sound-absorbing area in the room shall be determined by means of equation (C.2) in annex C with appropriate estimates for the sound absorption coefficients for the various sound-absorbing surfaces. A residual sound-absorbing area shall be computed according to C2.1 in annex C to account for absorption by furnishings and untreated surfaces. A default value for this residual absorption shall be 15% of the floor area for uncarpeted rooms or 20% for carpeted rooms. Sound absorption provided by occupants of the room shall be ignored. The reverberation time shall be calculated for each frequency by the Sabine equation (e.g. - see equation (C.1) in annex C).

E4.2.1 Sound absorption coefficients used for calculations. To calculate the reverberation time, best estimates of the sound absorption coefficients for the as-installed acoustic materials shall be used. These coefficients (see NOTE) shall be obtained from:

- a) the acoustical materials contractor, accompanied by the certification that they were obtained in accordance with ASTM C423 (see C2.1 in annex C) or,
- b) published results obtained in accordance with ASTM C423 for nominally identical materials and mounting configurations, (see bibliography)

If possible, allowance should be made for acoustically significant differences between the tested and as-installed mounting configuration.

NOTE Manufacturers do not commonly provide the octave band sound absorption coefficients needed for this standard. The values reported are usually those measured for one-third octave bands centered at these octave frequencies. If desired, sound absorption coefficients over the full octave band may be estimated by arithmetically averaging available one-third octave band values at 400, 500, and 630 Hz for the 500 Hz octave band, at 800, 1000 and 1250 Hz for the 1000 Hz octave band, and at 1650, 2000, and 2500 Hz for the 2000 Hz octave band.

When such reasonable data or estimates of the sound absorption coefficients are not available then verification of reverberation time shall only be done using the measurement method in E4.3.

E4.3 Reverberation time by measurement

Measurements of reverberation times shall be performed by, or under the supervision of, a person experienced in performing such measurements. The measurements shall follow procedures in conformance with, or equivalent to, those specified for field tests in ASTM E336 [E7] or in Appendix X2 of ASTM C423 [E8]. The recommended sound signal is random noise with a bandwidth extending at least from 315 Hz to 3150 Hz.

Reverberation times shall be measured at least at the key location noted in E3.6 for each learning space where reverberation times are to be measured.

Before measuring reverberation times, all HVAC fans and other noise-generating equipment, such as instructional equipment, should be turned off if

their noise prevents acquisition of valid measurements of reverberation times. All soft materials that are not a permanent part of the learning space (such as loose clothing and art supplies) shall be removed from the room. The learning space shall be otherwise furnished in the normal manner with chairs, tables, shelves, or cabinets. All windows, doors, and cabinets shall be closed. No more than two persons shall be present during the actual measurements.

No adjustments shall be made to any reverberation time measurements to account for the added absorption of any furnishings of any sort that were not present in the room at the time of the measurements.

E5 Verifying airborne and structureborne noise isolation

E5.1 Airborne noise isolation

When required, tests for conformance to airborne noise isolation requirements in table 2 shall be performed in accordance with the procedures of ASTM E336 [E7] and ASTM E413 [E9] for determining the Noise Isolation Class (NIC) as an approximation to the sound transmission class (STC) rating of a structural element. If there are no significant flanking sound-transmission paths and all sound leaks have been well sealed, the NIC rating is usually equal to, or slightly greater than, the STC rating determined by field tests for assemblies that separate two enclosed learning spaces.

The same ASTM test procedures also should be used to demonstrate conformance with the STC ratings recommended in table 3 for receiving ancillary learning spaces. All sound transmitted from the source room to the receiving room shall be considered to be transmitted through the separating partition. Engineering judgment shall be applied in the interpretation of measured NIC ratings; guidance for this judgment is provided in ASTM E336. The measured NIC ratings shall be within the tolerance limits of 4.7 (2) of the STC design requirements in table 2 and design recommendations in table 3.

E5.2 Structureborne (impact) noise isolation

When required, tests for conformance to structureborne or impact noise isolation requirements in 4.5.6 shall be performed in accordance with the testing procedures for determination of the Field Impact Insulation Class (FIIC) as defined in ASTM

E1007 [E10] for floor-ceiling assemblies separating occupied spaces from learning spaces below. All sound transmitted from the source room to the receiving room below shall be considered to be transmitted through the floor-ceiling assemblies.

E5.3 Sound leakage paths

Tests for airborne and structureborne noise isolation shall not be attempted until all sound leakage paths and gaps have been eliminated by caulking and sealing in accordance with the recommended practice in ASTM C919 [E1].

E6 Test report

A test report shall document the results of all tests or calculations carried out in conformance with the procedures of E3 to E5 of this annex. The report shall reference this standard and the applicable clauses of this annex. The report shall describe the instruments used and their dates of calibration when applicable. The report shall include tables of all measured data and the results of all analyses. Drawings shall be included to show the items noted in E3.3 and E3.6. To support validation of the reverberation time by calculations, the report shall also include the types, locations, and areas of permanently installed sound-absorbing material and their mounting methods.

The report shall state whether the learning space does or does not conform to the requirements of this standard and shall identify the applicable clause(s). If the space does not conform to the requirements of this standard, the report may include, if requested, recommendations for modifications to achieve compliance. These recommendations should be prepared or approved by a person experienced in the applicable acoustical technology.

The report shall name the persons performing the validation tests or calculations and the name of the person who prepared the report.

E7 Bibliography

[E1] ASTM C919-98, Standard Practice for Use of Sealants in Acoustical Applications [Web site - <http://www.astm.org>].

[E2] IEC 61672-1, Electroacoustics — Sound level meters — Part 1: Specifications. [Web site - <http://www.iec.ch>]

[E3] ANSI S1.43-1997 (R 2002), American National Standard Specification for Integrating-Averaging Sound Level Meters [Web site - <http://asa.aip.org>].

[E4] ANSI S1.4-1983 (R 2001), American National Standard Specification for Sound Level Meters.

[E5] IEC 60942: 1997, Electroacoustics — Sound calibrators. (Including IEC 60942-am1:2000.)

[E6] ANSI S1.40-1984 (R 2001), American National Standard Specification for Acoustical Calibrators.

[E7] ASTM E336-97, Standard Test Method for Measurement of Airborne Sound Insulation in Buildings.

[E8] ASTM C423-00, Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

[E9] ASTM E413-87 (1999), Standard Classifications for Rating Sound Insulation.

[E10] ASTM E1007-97, Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling and Associated Support Structures.

Annex F (Informative)

Potential conflicts between the acoustical requirements of this standard and indoor air quality (IAQ) and multiple chemical sensitivity (MCS)

F1 Introduction

Concerns about indoor air quality (IAQ) and multiple chemical sensitivity (MCS) issues have

caused some schools to remove all porous materials from the classrooms and, in some cases, from the ventilation supply ducts, thus potentially compromising the benefits for classrooms that used

these acoustical materials. However, according to available literature and other sources such as those listed below, there is little or no conflict between the applications of this standard for classroom acoustics and IAQ and MCS issues when the proper materials are used and properly maintained. Nevertheless, the concerns need to be addressed. This annex provides a bibliography of references from government organizations, industry associations, and other organizations that offer relevant information.

Educational facility planners and architectural designers should objectively investigate any questions and concerns about IAQ and MCS issues that they may have relative to the acoustical design concepts presented in this standard.

Many materials employed to provide the desired acoustical environments by means of effective noise control are porous or fibrous in nature. Therefore, certain considerations such as material composition, potential out-gassing, and appropriate operating and maintenance strategies need to be addressed in the decision-making process relative to the types of materials proposed for acoustical purposes.

If acoustical materials are considered to be inappropriate under certain conditions, alternative materials, strategies, or applications should be employed to ensure conformance to the acoustical requirements of this standard.

In some cases a management commitment will need to be made to ensure that materials selected and used in a facility will be maintained in an appropriate manner, as recommended by the manufacturer or other governing bodies, under operational conditions after construction of the facility. For example, in hot and humid climates a facility should be adequately ventilated or other recommended measures should be taken at all times to ensure prevention strategies involving the potential for mold growth.

To reduce the potential for mold growth in HVAC systems, good design, installation and maintenance practices should be employed in order to keep filters and sound-attenuating materials clean and dry. This practice should include cleaning and periodically replacing or discarding tennis ball halves that are frequently used on chair legs to minimize shuffling noise. Limited tests have shown that these tennis ball halves develop an active fungal growth. The alternative method for quieting shuffling noise with neoprene chair leg tips should be encouraged.

F2 Bibliography

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b) IAQ in Schools, [Web site - <http://www.epa.gov/iaq/schools/index.html>].

c) A Guide to Indoor Air Quality, [Web site - <http://www.epa.gov/iaq/pubs/insidest.html>].

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[F5] American Society of Heating, Refrigeration, Air-Conditioning Engineers (ASHRAE), [Web site - <http://ashrae.org>].

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[F7] Environmental Building News, [Web site - <http://www.ebuild.com>].

Annex G (Informative)

Cautionary remarks on using supplemental descriptors for evaluating noise in classrooms and other learning spaces

G1 Introduction

There are at least three noise descriptors, other than A-weighted sound levels, that are used to as-

sess background noise or speech intelligibility in enclosed spaces, especially when low-frequency content is a major concern. However, applying the descriptors discussed below requires determining

the frequency spectrum of the noise – a refinement that is beyond the scope of this standard and is not recommended.

A-weighted and C-weighted sound levels are considered adequate descriptors for purposes of this standard to evaluate the acoustical environment in learning spaces. The difference, measured in 56 classrooms, between the A-weighted time-average sound level of steady background noise and the corresponding value of any of the three descriptors noted below varied from 2 dB to 24 dB depending on the location of the learning space in the U.S. and whether the HVAC system was operating. *Thus, none of these supplemental descriptors should be employed for judging conformance to this standard.*

G2 Noise Criteria Rating (NC)

The noise criteria (NC) rating, in common use by architects and consultants for acoustical room design, is based on contours of octave-band sound pressure levels of the background noise. It is thus a measure of the frequency spectrum of this noise and reflects the change in the sensitivity of human hearing as the background noise level changes [G1], especially at frequencies important for speech communication and for annoyance of low-frequency sound.

G3 Balanced Noise Criteria Rating (NCB)

The balanced noise criteria (NCB) rating [G2] are also based on similar contours of octave-band sound pressure levels. The contours for the NCB descriptor extend to lower frequencies than do the contours for the NC descriptor.

G4 Room Criteria Rating (RC)

The room criteria (RC) rating [G3] is recommended by ASHRAE for evaluating background noise from HVAC systems and other mechanical equipment by use of contours of octave-band sound pressure levels. These contours are similar to those for the NC and NCB descriptors but have lower allowable sound levels at very low and very high frequencies.

G5 Bibliography

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[G2] ANSI S12.2-1995 (R 1999), *American National Standard Criteria for Evaluating Room Noise*. [Web site - <http://asa.aip.org>].

[G3] ASHRAE Handbook, *HVAC Applications*, (American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. Atlanta, GA 30329 (1999). [Web site - <http://ashrae.org>].

OTHER ACOUSTICAL STANDARDS AVAILABLE FROM THE STANDARDS SECRETARIAT OF
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- ANSI S1.1-1994 (R 1999) American National Standard Acoustical Terminology
- ANSI S1.4-1983 (R 2001) American National Standard Specification for Sound Level Meters
- ANSI S1.4A-1985 (R 2001) Amendment to S1.4-1983
- ANSI S1.6-1984 (R 2001) American National Standard Preferred Frequencies, Frequency Levels, and Band Numbers for Acoustical Measurements
- ANSI S1.8-1989 (R 2001) American National Standard Reference Quantities for Acoustical Levels
- ANSI S1.9-1996 (R 2001) American National Standard Instruments for the Measurement of Sound Intensity
- ANSI S1.10-1966 (R 2001) American National Standard Method for the Calibration of Microphones
- ANSI S1.11-1986 (R 1998) American National Standard Specification for Octave-Band and Fractional-Octave-Band Analog and Digital Filters
- ANSI S1.13-1995 (R 1999) American National Standard Measurement of Sound Pressure Levels in Air
- ANSI S1.14-1998 American National Standard Recommendations for Specifying and Testing the Susceptibility of Acoustical Instruments to Radiated Radio-frequency Electromagnetic Fields, 25 MHz to 1 GHz
- ANSI S1.15-1997/Part 1 (R 2001) American National Standard Measurement Microphones, Part 1: Specifications for Laboratory Standard Microphones
- ANSI S1.16-2000 American National Standard Method for Measuring the Performance of Noise Discriminating and Noise Canceling Microphones
- ANSI S1.17-2000/Part 1 American National Standard Microphone Windscreens—Part 1: Measurements and Specification of Insertion Loss in Still or Slightly Moving Air
- ANSI S1.18-1999 American National Standard Template Method for Ground Impedance
- ANSI S1.20-1988 (R 1998) American National Standard Procedures for Calibration of Underwater Electroacoustic Transducers
- ANSI S1.22-1992 (R 2002) American National Standard Scales and Sizes for Frequency Characteristics and Polar Diagrams in Acoustics
- ANSI S1.24 TR-2002 ANSI Technical Report Bubble Detection and Cavitation Monitoring
- ANSI S1.25-1991 (R 2002) American National Standard Specification for Personal Noise Dosimeters (Revision of ANSI S1.25-1978)
- ANSI S1.26-1995 (R 1999) American National Standard Method for the Calculation of the Absorption of Sound by the Atmosphere
- ANSI S1.40-1984 (R 2001) American National Standard Specification for Acoustical Calibrators
- ANSI S1.42-2001 American National Standard Design Response of Weighting Networks for Acoustical Measurements
- ANSI S1.43-1997 (R 2002) American National Standard Specifications for Integrating-Averaging Sound Level Meters

S2 STANDARDS ON MECHANICAL VIBRATION AND SHOCK

- ANSI S2.1-2000/ISO 2041:1990 Nationally Adopted International Standard Vibrational and Shock Vocabulary
- ANSI S2.2-1959 (R 2001) American National Standard Methods for the Calibration of Shock and Vibration Pickups
- ANSI S2.3-1964 (R 2001) American National Standard Specifications for a High-Impact Shock Machine for Electronic Devices
- ANSI S2.4-1976 (R 2001) American National Standard Method for Specifying the Characteristics of Auxiliary Analog Equipment for Shock and Vibration Measurements
- ANSI S2.5-1962 (R 2001) American National Standard Recommendations for Specifying the Performance of Vibration Machines
- ANSI S2.7-1982 (R 2001) American National Standard Balancing Terminology
- ANSI S2.8-1972 (R 2001) American National Standard Guide for Describing the Characteristics of Resilient Mountings
- ANSI S2.9-1976 (R 2001) American National Standard Nomenclature for Specifying Damping Properties of Materials
- ANSI S2.10-1971 (R 2001) American National Standard Methods for Analysis and Presentation of Shock and Vibration Data
- ANSI S2.11-1969 (R 2001) American National Standard for the Selection of Calibrations and Tests for Electrical Transducers used for Measuring Shock and Vibration
- ANSI S2.13-1996/Part 1 (R 2001) American National Standard Mechanical Vibration of Non-Reciprocating Machines—Measurements on Rotating Shafts and Evaluation—Part 1: General Guidelines
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- ANSI S2.16-1997 (R 2001) American National Standard Vibration Noise Measurements and Acceptance Criteria of Shipboard Equipment
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- ANSI S2.20-1983 (R 2001) American National Standard for Estimating Airblast Characteristics for Single Point Explosions in Air, With a Guide to Evaluation of Atmospheric Propagation and Effects
- ANSI S2.21-1998 American National Standard Method for Preparation of a Standard Material for Dynamic Mechanical Measurements
- ANSI S2.22-1998 American National Standard Resonance Method for Measuring Dynamic Mechanical Properties of Viscoelastic Materials
- ANSI S2.23-1998 American National Standard Single Cantilever Beam Method for Measuring the Dynamic Mechanical Properties of Viscoelastic Materials
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- ANSI S2.26-2001 American National Standard Vibration Testing Requirements and Acceptance Criteria for Shipboard Equipment
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- ANSI S2.42-1982 (R 2001) American National Standard Procedures for Balancing Flexible Rotors
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S3 STANDARDS ON BIOACOUSTICS

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- ANSI S3.2-1989 (R 1999) American National Standard Method for Measuring the Intelligibility of Speech Over Communication Systems
- ANSI S3.4-1980 (R 1997) American National Standard Procedure for the Computation of Loudness of Noise
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- ANSI S3.6-1996 American National Standard Specification for Audiometers
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- ANSI S12.7-1986 (R 1998) American National Standard Methods for Measurements of Impulse Noise
- ANSI S12.8-1998 American National Standard Methods for Determining the Insertion Loss of Outdoor Noise Barriers

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S. B. Blaeser, Standards Manager

Standards Secretariat
Acoustical Society of America
35 Pinelawn Rd.,
Suite 114E
Melville, NY 11747

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6/10/2019 10:10:10 AM

Nonauditory Effects of Noise on Children: A Critical Review

Gary W. Evans
Cornell University
New York, USA

Stephen J. Lepore
Carnegie Mellon University
USA

Large numbers of children both in the United States and throughout the economically developing world are chronically exposed to high levels of ambient noise. Although a great deal is known about chronic noise exposures and hearing damage, much less is known about the nonauditory effects of chronic ambient noise exposure on children. To estimate the risk of ambient noise exposure to healthy human development, more information about and attention to nonauditory effects such as psychophysiological functioning, motivation, and cognitive processes is needed. This article critically reviews existing research on the nonauditory effects of noise on children; develops several preliminary models of how noise may adversely affect children; and advocates an ecological perspective for a future research agenda.

Keywords: noise, stress, nonauditory effects, health, cognitive

INTRODUCTION

In 1973 nearly 10 million American school children were exposed to ambient noise levels that exceed federal standards for hearing protection in work settings (Environmental Protection Agency, 1974). Recent studies estimate that American children on average are exposed daily to noise levels in the range of 76-80 Leq (unweighted average of decibel levels for 24 hours) (Roche et al., 1982; Schori & McGatha, 1978). To put these figures in perspective, the EPA recommended limit for risk to hearing is 70 Leq daily exposure for children. Since these assessments of childhood noise exposure, there have been marked increases worldwide in the number of children exposed to noise levels loud enough to impair hearing; this is especially true in underdeveloped countries (Evans, 1990; Suter, 1991).

Many *nonauditory* effects of noise on children also have been detected during the past two decades of research. Nonauditory effects of noise refer to impacts not directly related to sound-

induced damage to the auditory system. Non-auditory effects of noise, such as elevated sympathetic nervous system activity or disturbances in attentional processes, are apparent in children exposed to noise levels far below those necessary to induce auditory damage.

Although there is abundant evidence and analysis of the auditory effects of noise on children (Kryter, 1985; Mills, 1975), there has been little systematic, critical analysis of the nonauditory effects of noise exposure among children. This is a critical omission if we are interested in estimating the true risk of noise exposure to healthy human development. The present article critically examines the empirical evidence on the nonauditory effects of noise on children. The work is organized into three general areas of functioning: physiological, motivation, and cognitive. Both conceptual as well as methodological limitations in the extant research are examined.

Physiological Effects of Noise

Work in animal models and in various occupational settings suggests heightened activation of the cardiovascular system among organisms

Correspondence may be addressed to Gary Evans, Department of Design and Environmental Analysis, College of Human Ecology, Cornell University, Ithaca, NY 14853-4401, USA.

Table 1. Effects of noise on cardiovascular outcomes

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Brackbill et al. (1982)	HR	1 h white noise for 4 consecutive days. 50 and 75 dBA.	(78 males) ages 1 mon. to 80 yrs.	In infants and 8-year olds, HR decreased as sound levels increased. No other main or interactive effects of noise.
Cohen et al. (1980)	BP	Aircraft. 95 dBA peak.	(262) grades 3-4.	Noisy-school children had higher SBP and DBP than quiet-school children.
Cohen et al. (1981)	BP	Aircraft. 95 dBA peak.	(163) grades 3-4, longitudinal sample.	In the longitudinal attrition sample, there were no effects of noise on BP.
Cohen et al. (1985)	BP	Aircraft. 16 dBA sound reduction in noise-abated classrooms.	(163) grades 3-4, longitudinal sample.	SBP marginally lower and DBP significantly lower in quiet- than noisy-school children. SBP and DBP marginally lower in quiet- than noise-abated school children. No BP differences in children in noisy vs. noise-abated school.
Cohen et al. (1986)	BP	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Noisy-school children had higher BP than quiet-school children if were enrolled for 2 yrs or less. No noise effects on children enrolled more than 2 yrs.
Karsdorf & Klappach (1968)	BP	Traffic and street. 63-84 phon.	(262) grades 7-10.	Children in quiet schools had normal BP; whereas those in moderately- to very-noisy schools had elevated BP, especially among older boys.
Ising et al. (1990)	BP	Low altitude military flights. 125 dBA peak/Leq 68 dBA.	(433) ages 10-13 yrs.	Noise-related increases in SBP and DBP for girls, but not boys. Noise-related HR deceleration in boys and girls, but deceleration only significant in boys.
Karagodina (1969)	BP	Aircraft. 112 dBA peak/Leq 58 dBA.	(unavailable) ages 9-13 yrs.	Noisy-school children had higher BP than quiet-school children.
Roche et al. (1982)	BP	Self-report of exposure to loud noise sources. 80-Leq.	(233) ages 12-14 yrs.	Self-reported noise exposure levels not associated with BP.

Note: HR = heart rate, BP = blood pressure, S = systolic, D = diastolic.

chronically exposed to noise (Kryter, 1985; Smith, in press). As shown in Table 1, several studies have also uncovered evidence of possible linkages between chronic noise exposure and elevated blood pressure among children.

With two exceptions, all of the studies shown in Table 1 report elevations of resting blood pressure among children chronically exposed to noise. The one experimental study (Brackbill et al., 1982) found habituation to noise, which is a well established psychophysiological finding with short-term noise exposures (Glass & Singer, 1972). The extent of blood pressure elevations found from chronic exposure are probably not clinically significant for children during their youth (Voors et al., 1976), but could portend elevations later in life that might be health damaging (Berenson, 1980). To our knowledge,

there have been no long-term follow up studies of children exposed to noise at an early developmental stage. We know essentially nothing about the long-term consequences of early noise exposure on developing cardiovascular systems.

Both of the studies in Table 1 that found nonsignificant correlations between noise exposure and chronic blood pressure levels have methodological limitations. Roche et al. (1982) relied on children's retrospective reports of exposure to noise events (e.g., motorcycle use) during the previous six months. No data were presented on the reliability or validity of these noise estimates. Furthermore, the children monitored did not live near especially high noise sources (e.g., airports). Instead exposure to point noise sources such as machinery was estimated. Finally, resting blood pressure was only estimated

with one reading. On the other hand, this is the only study to examine the association between typical, daily noise exposures and resting blood pressure among children. All other studies have assessed the association between chronic blood pressure and exposure to high noise sources such as airports, roads, or trains. Analyses of the health effects of typical noise exposure for children are needed but with more adequate measurements of both noise exposure and blood pressure.

The second study to find a nonsignificant association between chronic noise exposure and resting blood pressure levels was conducted with children exposed to high levels of noise from an airport. Cohen et al. (1981) found that a difference in blood pressure between children attending noisy versus quiet elementary schools in a cross-sectional analysis did not replicate when reassessed one year later. Attritional analyses suggested that the failed longitudinal replication was caused by emigration of the families of children in noisy areas with the highest levels of blood pressure. Among children attending quiet schools, on the other hand, there was no selective attrition related to blood pressure levels.

Unlike other studies listed in Table 1, the three studies by Cohen and colleagues (Cohen et al., 1980; 1981; 1986) include statistical controls (e.g., social class, education) to counter potential third variable explanations of the associations uncovered between noise exposure and chronic levels of blood pressure. However, none of the studies is prospective, nor do any show a dose response relation between noise and blood pressure. Furthermore, all of the extant studies have relied upon gross indices of noise exposure - typically peak readings measured at schools.

Noise in the fetal and neonatal environment may be particularly harmful to fetuses and newborns because they are in a period of great organismic plasticity. It is well established that environmental sounds and vibration influence physiological and behavioral responses in the fetus (Pikus, 1991). There are contradictory data on the relations between ambient noise exposure and birth weight (for reviews see Pikus, 1991; Smith, in press) but little or no definitive evidence for teratological effects of chronic noise exposure (Edmonds et al., 1979; Meyer et al., 1989). Nonetheless, it is critical for more thorough and extended investigation of the potential impacts of routine modern medical procedures such as ultrasound monitoring or

placement of premature babies in intensive care nurseries with extremely noisy equipment (Gottfried et al., 1981; Lawson et al., 1977).

Summary

Residing or attending school near a major noise source is associated with elevated blood pressure. More research is clearly called for, especially tracking children before, during, and after exposure to noisy environments. All evidence to date is correlational and even though some studies have included good controls, stronger, quasi-experimental designs are needed to firmly tie noise to the etiology of cardiovascular changes in children. The degree of blood pressure elevations is small, on the order of 4-8 mm of mercury, but these elevations do not appear to habituate with continued exposure (cf., Cohen et al., 1986). The clinical significance of such changes in childhood blood pressure is difficult to determine. The ranges of blood pressure among noise-exposed children are within normal levels and do not suggest hypertension. On the other hand, elevations in blood pressure among children appear to track into adulthood (Beren-son, 1980), increasing the potential risk for cardiovascular disease. It would also be of value to examine neuroendocrine makers of stress (e.g., cortisol) that have been implicated in the casual pathways between stressors and cardiovascular outcomes.

Emotional/Motivational Effects of Noise

The uncontrollability of chronic noise exposure may affect children's emotional and motivational states. When organisms are exposed to repeated, uncontrollable events, learned helplessness can occur (Abramson et al., 1978; Seligman, 1975). Learned helplessness means the organism learns that the outcomes of its behavior are independent of its responses. Learned helplessness is manifested as a lack of effort or responsiveness to environmental stimuli and challenges. Uncontrollable noise has been shown to induce helplessness in adults (Hiroto, 1974; Hiroto & Seligman, 1975; Krantz et al., 1974). Moreover, adults immediately following exposure to uncontrollable noise are less likely to persist on difficult or challenging aftereffect puzzles than their counterparts with prior exposure to controllable noise (Cohen, 1980; Glass & Singer, 1972).

Overall, though, very little is known about the

Table 2. Effects of noise on motivation (learned helplessness)

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Cohen et al. (1980)	Performance on moderately difficult puzzle after pretreatment with insoluble or soluble puzzle.	Aircraft. 95 dBA peak.	(262) grades 3-4.	Noisy-school children failed more on pretreatment soluble puzzle and difficult test puzzle, and were more likely to give up on difficult puzzle, than quiet-school children. There was a nonsignificant trend suggesting that longer exposure to a noisy school was associated with greater time to complete difficult puzzle.
Cohen et al. (1981)	Performance on moderately difficult puzzle.	Aircraft. 95 dBA peak.	(163) grades 3-4, longitudinal sample.	Noisy-school children were more likely to fail at the test puzzle and to take longer to solve the puzzle than quiet-school children. No noise effect on rate of giving up.
Cohen et al. (1981)	Performance on moderately difficult puzzle.	Aircraft. 16 dBA sound reduction in noise-abated classrooms.	(163) grades 3-4, longitudinal sample.	Sound attenuation improved children's performance on the original test puzzle.
Cohen et al. (1986)	Performance on moderately difficult puzzle.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Noisy-school children failed difficult puzzle more frequently than did quiet-school children.
Cohen et al. (1986)	Choice task.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Noisy-school children more likely than quiet-school children to give choice of reward to experimenter.
Moch-Sibony (1984)	Rosenzweig frustration tolerance test.	Aircraft. 29 vs 54 SIL.	(80) kindergarten.	Noise-related decreases in frustration tolerance.
Wachs (1987)	Observer ratings of mastery-oriented play behavior.	Ratings of noise: 1 = normal level voices in home for 15 min. period to 4 = noisy level voices in home for more than half 15 min. period.	(88) 12 mon.	Less mastery-oriented play behavior in noisier homes.

Note: SIL = speech interference level.

relations between chronic exposure to environmental stressors such as noise and the induction of helplessness in human beings. Community surveys of noise annoyance frequently note that while annoyance is common, complaints or other actions to intervene are rare (Evans & Tafalla, 1987). Most residents who are annoyed by noise report feeling unable or helpless to alter the situation (Jue et al., 1984). The small minority who do complain or take other actions report feeling greater self-efficacy to cope with the noise (Jue et al., 1984).

As shown in Table 2, a few studies have examined the effects of noise on children's motivational states. The significant relations between noise exposure and motivational deficits in one cross-sectional study (Cohen et al., 1980) were replicated both in a longitudinal study (Cohen et al., 1981) and in a second, cross-sectional study

(Cohen et al., 1986). Higher noise exposure in children has been associated with reduced persistence on challenging puzzles and greater abdication of choice over rewards (see Table 2). Perhaps the most persuasive data of reduced motivation in an achievement related situation is Cohen et al.'s (1980) findings on giving up. Not only were children from noisy schools less likely to solve a challenging puzzle within a four minute time period, a substantially greater proportion of them (15%) simply gave up before the allotted time had elapsed, often remarking that they couldn't do the task, in comparison to 2% of their quiet school counterparts who gave up.

Of additional interest, teachers from schools located in noisy settings report more difficulties motivating students to perform than do teachers from relatively quiet schools (Crook & Langdon, 1974; Kyzar, 1977; Moch-Sibony, 1984).

Even very young children appear to be less motivated to engage in object mastery or control over their environment, after prolonged exposure to noise. For example, 12-month-old infants living in noisier households tended to engage in less effective, mastery-oriented interactions with toys in their homes than did children from relatively quiet homes (Wachs, 1987).

Learned helplessness is more apt to occur when individuals make stable, personological attributions (e.g., ability) rather than ascribe global or temporary reasons (e.g., bad luck, poor effort) for their failures (Abramson et al., 1974; Silver et al., 1982). No research on noise and motivation has examined these underlying attributional processes. Future research should also directly manipulate contingencies in a task (e.g., provision of insoluble puzzles) and then examine differences in tendencies to become helpless along with attributional measures, as a function of chronic noise exposure. In addition, researchers should examine the possible mental health consequences of noise-related learned helplessness. If noise heightens vulnerability to helplessness, then it is reasonable to suspect possible connections between chronic noise exposure and certain psychological problems in children. In one exploratory study, Wachs (1988) found a positive association between noise levels in the home and adaptability, but noise was unrelated to several other indices of temperament. In another study, a composite index of noise and confusion/clutter in the home was linked to difficulty in care requirements for 18-month-old children, although not for 12-month or 24-month-olds (Wachs, 1989)

Summary

Brief exposures to uncontrollable noise are capable of inducing learned helplessness in adults. Chronic residential exposure to noise also appears to be associated with feelings of helplessness among adults living nearby airports. Although the evidence is scant, there are suggestive findings indicating that children chronically exposed to ambient noise sources may be more vulnerable to learned helplessness. Children attending schools in airport flight paths are less likely to solve or persist in attempting to solve challenging puzzles. They are also more likely to abdicate choice over a reward to an adult rather than exercising the choice option themselves. Teachers of children in noisy schools also report, on average, greater difficulties in

motivating children in their school work. Noise in the home may be associated with mastery motivation in very young children. In addition to the small number of studies, all of which are correlational, another drawback to this area of work has been a lack of systematic integration of more sophisticated developmental paradigms for the measurement of motivational deficits in children. The potential pathways among chronic noise exposure, helplessness, and psychological health warrant further research.

Cognitive Effects of Noise

Research on the cognitive effects of noise exposure on children has received the most attention from researchers. This area of research can be subdivided into three subtopics: (i) attention and perception, (ii) memory, and (iii) intellectual achievement.

Attention and perception

The cognitive ability to perceive order and contingency in the environment presumably depends on some modicum of sustained attention to event sequences as they unfold. The interruptive, distracting effects of high ambient noise levels might directly affect the young child's ability to sustain voluntary attention or to concentrate (Heft, 1985).

As shown in Table 3, studies by Karsdorf and Klappach (1968), Kyzar (1977) and by Moch-Sibony (1984) have revealed deficits in standardized measures of sustained attention among children chronically exposed to noise. The standardized tests involve searching for target geometric stimuli from among fields of similar objects. In addition, teachers report that children in noisy schools tend to have more difficulties in concentrating in comparison to children from relatively quieter schools (Crook & Langdon, 1974; Ko, 1979; Kryter, 1985; Kyzar, 1977).

Cognitive studies on children with variable exposures to chronic noise sources also indicate possible decrements in visual attention (see Table 3). Children from noisy homes took longer to locate target pictorial stimuli within an array of pictures than did children from relatively quiet homes (Heft, 1979). Children attending daycare centers located near train tracks performed marginally more poorly on a visual search task

Table 3. Effects of noise on attention

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Crook & Langdon (1971)	Teachers' reports of concentration.	Aircraft. 75 dBA peak.	(76 teachers) primary and secondary.	Teachers in noisy schools reported more concentration problems in students than did those in quieter schools.
Hambrick-Dixon (1986)	Cross-out letters in quiet or noise.	Train. 108 dBA peak.	(109 black) ages 4-6 yrs.	Children from noisy daycare performed task marginally worse than children from quiet daycare.
Hambrick-Dixon (1988)	Visual stimulus detection with verbal or key press response.	Train. 108 dBA peak.	(102 black) ages 5-7 yrs.	Interaction between location of daycare, response mode, exposure duration, and sex: On key response, girls in noisy daycare less than 2 yrs made more errors than girls in quieter daycare less than 2 yrs. On verbal response, girls in noisy daycare more than 2 yrs made more errors than girls in quiet daycare more than 2 yrs. No differences in performance of boys in any condition.
Heft (1979)	Response latency in visual search.	Noise ratings: 1 = low to 7 = high.	(94) ages 4-7 yrs.	Higher household-noise level associated with longer response latency.
Karsdorf & Klappach (1968)	Errors and latency on Bourbon test.	Traffic and street. 63-84 phon.	(262) grades 7-10.	Noisy-school students had longer response latency and more errors than quiet-school students.
Ko (1979)	Teachers' reports of concentration.	Aircraft. 105 dBA peak.	(2100 teachers) primary and secondary.	Teachers in noisy schools reported more concentration problems in students than did those in quieter schools.
Kyzar (1977)	Minnesota clerical test.	Traffic and street. 62-94 dBA.	(56) elementary school.	Noise-related deficits in clerical-type task.
Kryter (1985)	Teachers' reports of concentration.	Aircraft. 87 dBA peak.	unavailable.	Teachers in noisy schools reported more concentration problems in students than did those in quieter schools.
Moch-Sibony (1984)	Zazzo sustained attention task.	Aircraft. 29-54 SIL	(80) kindergarten.	Noisy-school children had poorer sustained attention than did quiet-school children.
Acute noise				
Zentall & Shaw (1980)	Visual search for letters.	Taped class noise from free time (71 dBA) and work time (57 dBA).	(36) grade 2 (hyperactive and non-hyperactive controls).	Noise × Hyperactivity interaction: Hyperactive children made fewer commission errors in low than in high noise conditions; non-hyperactive children unaffected by noise.

Note: SIL = speech interference level.

than did children from relatively quiet daycare centers (Hambrick-Dixon, 1986). In a subsequent study, Hambrick-Dixon (1988) uncovered a more complex relation between chronic noise exposure and attention, utilizing a vigilance task: Gender, exposure duration to train noise at the daycare center, and the response mode for the task (naming versus pressing a key) moderated the association between noise and performance.

Unfortunately, several of the sustained attention and noise studies suffer from methodological shortcomings. The Kyzar (1977) and Karsdorf and Klappach (1968) studies have inadequate controls

for sociodemographic factors. Furthermore, all of the studies are cross-sectional and only the Moch-Sibony (1984) study carefully screened children for normal hearing. The Heft (1979) study relied upon observer ratings of home noise levels, no actual noise measurements were taken.

The Hambrick-Dixon (1988) results are particularly complex and difficult to interpret. One possible explanation for the inconsistency between her results and those of other researchers is that she measured the ability of children to detect a visual signal using tachistoscopic presentation times (100 msec). Thus rather than

Table 4. Effects of noise on auditory discrimination/speech perception

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Cohen et al. (1973)	WAD	Traffic and street. 55-66 dBA.	(54) grades 2-5.	Noise associated with poorer auditory discrimination.
Cohen et al. (1980)	WAD	Aircraft. 95 dBA peak.	(262) grades 3-4.	No effects of noise on auditory discrimination.
Cohen et al. (1986)	WAD	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	No effects of noise on auditory discrimination.
Moch-Sibony (1984)	MP	Aircraft. 29 vs 54 SIL.	(80) kindergarten.	Noise associated with poorer auditory discrimination.
Acute noise				
Blue & Vergason (1975)	GFW	Recorded sounds (unspecified). 55 dBA.	(34) grades 1,3.	Race x Noise interaction: Black children's performance affected more negatively by noise than was white children's performance.
Nober & Nober (1975)	WAD	Recording of classroom noise vs ambient noise. 39.5-64.7 dBA.	(39) ages 5-7 yrs (healthy control, retarded, and speech-deficit).	Fewer errors when tested in quiet vs. normal classroom noise levels. Control and retarded children performed worse in noise than in quiet; speech-deficit group performed worse in noise than in quiet, but the effect was not significant.
McCroskey & Devens (1977)	WAD	Classroom noise recording. 4 dBA above ambient classroom noise	Unavailable.	Noise associated with decrements in auditory discrimination.
Glenn et al. (1978)	Speech discrimination	Recorded hospital sounds. 75 dB SPC (typical for hospitals).	(21) ages 9-14 yrs (institutionalized MR).	Noise mask significantly degraded speech discrimination.
Laraway (1985)	Digit discrimination	Intermittent white noise. 80 dB SPC.	(46) ages 5-21 yrs (CP, healthy controls).	Noise mask degraded performance of CP children but not controls. Noise effects greatest in younger (< 7 yrs) children.
Laskey & Tobin (1973)	Message comprehension	Speech and white noise. 74 dB SPC.	(22) ages 6-8 yrs (possible LD, non-LD controls).	Speech, but not white noise, interfered with auditory message comprehension in LD children. Control children unaffected by noise.

Note: WAD = Wepman auditory discrimination test, GFW = Goldman-Fristoe-Woodcock auditory discrimination task, MP = Massiot Phillips auditory discrimination test, SIL = speech interference level, LD = learning disabled, CP = cerebral-palsied, MR = mentally retarded.

measuring sustained visual attention, Hambrick-Dixon probably measured signal detectability.

As expected given the physical properties of noise, considerable attention has been given to auditory information processing among children exposed to chronic or acute noise sources. One of the cognitive strategies that children may learn in order to adapt to the distracting properties of chronic noise is to filter or tune out unwanted auditory stimuli. The tendency of children in noisy environments to tune out noise may become overgeneralized, such that various types of acoustic stimuli, including speech, are not attended to carefully (Deutsch, 1964). In a direct

test of the tuning out hypothesis, Cohen et al. (1973) compared the ability of children living in quiet and noisy apartments (proximity to a freeway) within the same building to discriminate between similar sounds under quiet conditions. Cohen et al. (1973) as well as Moch-Sibony (1984) found an association between chronic noise exposure and auditory discrimination (see Table 4). Both of these studies had good controls for socioeconomic status, and pre-screened children for hearing loss. Moreover, Cohen et al. (1973) showed that with longer exposure durations, the association between noise and deficits in auditory discrimination became stronger.

Table 5. Effects of noise on resistance to auditory distractors

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Cohen et al. (1980)	Cross-out letters in ambient or distracting (story recording) condition.	Aircraft. 95 dBA peak.	(262) grades 3-4.	Noise × Month enrolled interaction: with less than 2 yrs enrollment, noisy-school children performed better than quiet-school children under distraction. Between 2-4 yrs enrollment, no noise effects. With more than 4 yrs enrollment, noisy-school children performed worse than quiet-school children.
Cohen et al. (1981)	Cross-out letters in ambient or distracting condition.	Aircraft. 95 dBA peak.	(163) grades 3-4, longitudinal sample.	With 2-4 years enrollment, noisy-school children were less distracted than quiet-school children. With more than 4 yrs enrollment, performance was nearly the same across conditions.
Cohen et al. (1986)	Cross-out letters in ambient or distracting condition.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Children attending noisy schools for 2-4 yrs were less distracted than their quiet-school counterparts. However, after 4 yrs enrollment, performance was nearly the same across conditions.
Cohen et al. (1981)	Cross-out letters in ambient or distracting condition.	Aircraft. 16 dBA reduction in noise-abated classrooms.	(163) grades 3-4, longitudinal sample.	No effects of noise abatement on distractibility.
Hambrick-Dixon (1986)	Weschler IQ task and match animals with color disks in quiet or noise conditions.	Train. 108 dBA peak.	(109 black) ages 4-6 yrs.	Children from noisy daycare performed better in noisy than in quiet conditions. The opposite was found for children from quiet daycare centers.
Heft (1979)	Figure discrimination in matching task in quiet or noise.	Story reading. Noise ratings: 1 = low to 7 = high.	(94) ages 4-7 yrs.	Auditory distraction had less of a negative effect on children from noisy homes than on children from quiet homes.
Acute noise				
Tumure (1970)	Performance and glances away from a visual discrimination task.	Recording of child songs/stories. 60 dBA.	(30) ages 5.5, 6.5, 7.5 yrs.	No noise effects on glances, but performance worse in noisy than in quiet conditions.
Steinkamp (1980)	Multiple perceptual and cognitive tasks.	Classroom sounds and gadgets. Ambient noise.	(24) ages 6-8 yrs (hyperactive, non-hyperactive controls).	Classroom noise and distracting visual materials caused deficits on most tasks. No interaction with hyperactivity.

In two subsequent studies, Cohen et al. (1980; 1986) were unable to replicate these findings on noise and auditory discrimination using a different noise source (aircraft as opposed to traffic). The traffic noise study (Cohen et al., 1973) also drew primarily from working class families; whereas the airport study was conducted in a poverty area. Using a different auditory discrimination task, however, did reveal deficiencies in auditory discrimination in children chronically exposed to noise from airports (Cohen et al., 1986). Children were presented a constant signal (man reading a story) superimposed against four different white noise backgrounds. The task was

to choose the optimum signal to noise ratio. Children who attended noisy schools for longer periods were significantly poorer at this signal to noise discrimination task (see Table 4).

Not surprisingly, the acute noise experimental studies in Table 4 indicate that children have difficulty with auditory discrimination during acute noise exposure (Blue & Vergason, 1975; Glenn et al., 1978; Laraway, 1985; Nober & Nober, 1973). Thus noise can directly interfere with children's ability to discriminate between meaningful auditory stimuli. Noise, particularly irrelevant speech, also interferes with comprehen-

sion of spoken language (Glenn et al., 1978; Laraway, 1985; Lasky & Tobin, 1973). The Glenn et al. (1978) data are noteworthy because the researchers used simulated recordings of an institutional setting for the mentally retarded as their noise 'mask'. Typical, ambient levels from the institution were sufficient to produce marked deficits in discriminating speech sounds among mentally retarded children.

Although there are clear overall trends showing that concurrent noise can mask auditory discrimination, as well as speech, there may be individual differences in these effects. Blue and Vergason (1975) found racial differences in auditory discrimination with black children being more adversely affected than white children by concurrent noise. This study was conducted in the Southeastern United States and may not have controlled for the dialect used in stimulus materials. Laraway (1985) reported that only cerebral palsied children were adversely affected by a noise mask in a task in which children were asked to repeat auditorily presented digits. Lasky and Tobin (1973) revealed that only children with suspected learning disabilities had difficulties in tracking an auditory signal against a background of competing, irrelevant speech. The latter study also showed that speech, but not white noise of a similar volume, interfered with message comprehension.

An interesting and provocative question raised by Deutsch's original hypothesis and some of the subsequent empirical work is whether children chronically exposed to noise become so adept at filtering out noise, that they become resistant to its distracting properties. A number of studies shown in Table 5 present suggestive evidence in support of this hypothesis of differential resistance to noise distractors. However, the data are complex.

Kindergarten children from noisy homes were less distracted by irrelevant speech during a visual discrimination task than those from quiet homes (Heft, 1979). In this task, children selected one of several figures that correctly matched a standard figure. Cohen and colleagues (1980) found a similar pattern of results, but only for elementary students exposed to aircraft noise for two years or less. For those exposed longer, auditory distraction during a visual search task (crossing out e's in a text above reading level of the child) interfered more with the performance of noisy-

school children than it did for quiet-school children. This effect was also replicated in a different sample (Cohen et al., 1986). Hambrick-Dixon (1986) uncovered an even more complex pattern of data on a visual coding task among very young children. In this task preschool children placed colored discs next to animal drawings according to an initial set of model comparisons. For children from noisy daycare centers, performance on this task was better under noisy testing conditions than quiet ones; whereas for children from quiet daycare centers, performance was superior during quiet testing conditions than under noisy ones.

Thus, although there is some evidence that children chronically exposed to noise are less distractable by auditory stimuli during a task, with very long exposure (4+ years), they appear to lose this advantage over non-noise-exposed children. Children exposed for short periods of time to chronic noise, may be able to gate out auditory distractors more effectively during tasks; whereas children exposed for long periods of time, may lose this gating ability. This could occur because despite sustained efforts to gate out unwanted sounds, children learn that this coping strategy is ultimately ineffective since the noise remains as a potent distractor.

The type of task, type of noise, and some individual difference variables also may influence whether concurrent auditory stimuli are distracting during task performance. For example, although both Heft (1979) and Cohen et al. (1980; 1986) found that concurrent speech distracted children during a visual search task (finding target objects in a matrix, crossing out target letters in text, respectively), Hambrick-Dixon (1986) had no main effect of a distractor (background noise of a daycare free play period) on performance of a visual matching task (placement of colored discs next to animal drawings). Turnure (1970) found a distracting effect of speech on school children's performance on a visual discrimination task (choosing the odd geometric shape out of three stimuli). However behavioral manifestation of distraction (glancing up) was not observed. Zentall and Shaw (1980) found that classroom noise recordings did not affect a visual letter search task for normal children and degraded performance for hyperactive, elementary-aged children. Finally, Steinkampf (1980) found that the combination of recorded classroom sounds

Table 6. Effects of noise on memory

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Hambrick-Dixon (1986)	Serial, incidental, visual, paired-associates learning.	Train. 108 dBA peak.	(109 black) ages 4-6 yrs.	No noise effects.
Heft (1979)	Incidental memory of visual stimuli.	Noise ratings: 1 = low to 7 = high.	(94) ages 4-7 yrs.	Higher household noise level associated with poorer incidental memory.
Acute noise				
Fenton et al. (1974)	4 number digit-span.	White noise. 22-72 dBA.	(10 male) ages 9-11 yrs (LD and non-LD).	More errors made in the high noise than in the low noise conditions.
Hygge (1993)	Recall and recognition of reading passage.	Recorded simulations of aircraft, train, traffic, and verbal noise. 66-76 dBA.	(417) ages 12-14 yrs.	Within-subjects analyses revealed a marginal Noise x Source interaction: recall on difficult questions was lower among children in aircraft and traffic noise conditions than in control conditions; no differences in recall in train and verbal noise conditions relative to control condition. Between-subjects analyses also revealed a Noise x Source interaction: recall on difficult questions was lower among children in aircraft noise conditions than in controls; other noise sources did not affect recall. No noise effects on recognition task. Individual differences in learning ability did not moderate noise effects.
Johansson (1983)	Paired-associates learning and letter memory.	White noise. 51 dBA continuous; 55-78 dBA intermittent.	(66) age 10 yrs.	No noise effects.

Note: LD = learning disabled.

played at normal volume and the presence of interesting gadgets were distracting for several tasks among normal and hyperactive boys. Because the latter study did not separate ambient noise from visual distractors, the specific effects of noise cannot be determined.

It is difficult to discern any clear patterns in the above findings on acute, concurrent noise and distraction among children. Speech, as opposed to background noise (e.g., recordings of classroom noise), may be more distracting during task performance. Unfortunately since no studies have used the same task with different aged children, we cannot infer any developmental trends from the data. However it is noteworthy that studies showing no effects tested the youngest children.

Summary

Children chronically exposed to noise may suffer from attentional deficits. Although suggestive,

the work in this area suffers from sufficient methodological flaws (e.g., controls for SES) to prohibit definitive conclusions. Children chronically exposed to noise develop cognitive strategies to cope with the interruptive, distracting influence of noise. Some data suggest that children learn to ignore or tune out auditory stimuli if they have been chronically exposed to noise. At least during the first few years of exposure, children from noisy residential areas appear to be more resistant to acute auditory distractors, presumably because of their enhanced ability to tune out auditory stimuli. These same children may suffer deficits in auditory discrimination. Acute noise distracts children during cognitive task performance, especially when the distractors contain meaningful speech. These acute auditory distraction effects may be more problematic for certain subgroups of children, especially those with some pre-existing cognitive deficits. More research, particularly on groups potentially at risk should be a high priority.

Memory

The noise and memory literature on children (Table 6) is sparse but generally in agreement with the adult literature (Cohen et al., 1986; Smith, in press). There appears to be little or no effects of noise on simple memory tasks from chronic exposure (Hambrick-Dixon, 1986) or acute exposure (Johansson, 1983). However, if sufficient processing demands are placed upon memory, deficits begin to appear in children exposed to noise (Fenton et al., 1974; Hygge, 1993).

Hygge's (1993) experimental findings (see Table 6) are interesting because he compared relatively easy and difficult memory tasks under quiet and noisy conditions, finding that only the difficult tasks were sensitive to noise exposure. Heft's (1979) incidental memory deficits are also noteworthy because they fit with a typical noise and memory finding in adults. The adult incidental memory studies have been interpreted as indicative of attention narrowing or focusing on dominant stimuli (Cohen et al., 1986). Attention narrowing appears to be common under arousing conditions in general (Broadbent, 1971) and under noise specifically (Hockey, 1979). Greater attention to more central cues could lead to poorer encoding of more peripheral material.

Summary

Although there is little research on children's memory under chronic or acute noise conditions, the data are generally in accord with the adult literature on the subject. Noise exposure has little if any effect on children's short term or working memory. Memory tasks that put especially demanding loads on working memory, however, may show some deficits. Narrowing of attention to more central cues under noise may cause poorer memory for incidental information. The potential role of attentional processes in noise-related memory effects warrants further scrutiny.

Intellectual Achievement

Given the reasonable possibility that chronic noise exposure interferes with auditory discrimination and attentional mechanisms, it is not surprising that several researchers have uncovered evidence linking noise exposure with deficits in reading. It is important to note at the onset that unlike chronic effects of noise on cognition, studies of reading and achievement confound chronic and acute noise exposure since they all have relied

upon archival records of achievement tests. As indicated in Table 7, however, the handful of studies of acute noise on intellectual achievement find few if any negative effects. This suggests, indirectly, that the community noise and achievement findings are probably caused by chronic and not acute exposure.

Two clusters of chronic noise associations with intellectual achievement are shown in Table 7. The first group of studies, conducted primarily by Wachs and colleagues, have explored the impacts of early exposure to noise in the home on infants and toddlers. Their work in general finds positive evidence that noise can interfere with normal cognitive development. The findings have been replicated and extended in longitudinal studies (see Wachs & Gruen, 1982, for an overview of this research program). Measurements of cognitive development affected by noise include mental representations of objects, use of objects as tools to achieve goals, and relating words to objects.

One major weakness in Wach's and other research on noise and young children (e.g., Heft, 1979) is reliance on observer ratings of noise exposure rather than actual measurement of physical sound levels. Recently, however Wachs (1988) has validated this measurement approach against decibel meter readings. Another finding that indicates that the effects are due to noise is that access to a secluded quiet room or shelter within the home largely ameliorates the associations between noise ratings and measures of cognitive development (Wachs & Gruen, 1982). Michelson (1968) has found the same buffering effect of a stimulus shelter with home noise levels on elementary school aged children's reading ability. These data on buffering effects of quiet, secluded study spaces in noisy homes raise the possibility, however, that some of the apparent effects of residential noise exposure on cognitive development could be due to residential crowding. It is obviously difficult to disentangle the ecological covariation between these two environmental conditions. Moreover, both of them appear to be associated with deficits in reading acquisition in young children (Evans et al., 1990).

The second group of studies in Table 7, has examined the association between chronic noise exposure at school and/or home with standardized measures of reading and other intellectual achievement tests. With two exceptions, the data

Table 7. Effects of noise on intellectual achievement

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Bronzaft (1981)	Reading.	Train. 6-8 dBA sound reduction in noisy classrooms.	(955) grades 2-6.	After sound reduction with insulation on noisy side of school, students' reading scores on noisy side of school were equivalent to those of students on quiet side of school. In the year before insulation, students on noisy side of school had worse reading scores than students on quiet side of school.
Bronzaft & McCarthy (1975)	Reading.	Train. 59-89 dBA.	(161) grades 2, 4, 6.	Students' reading scores lower on noisy side of school than on quiet side, especially in higher grades.
Cohen et al. (1973)	Reading.	Traffic and street. 55-66 dBA.	(54) grades 2-5.	Noise associated with greater reading deficits in children living in apartments for 4 or more years.
Cohen et al. (1980)	Reading and math.	Aircraft. 95 dBA peak.	(262) grades 3-4.	No noise effects.
Cohen et al. (1981)	Reading and math.	Aircraft. 95 dBA peak.	(163) grade 3-4, longitudinal.	No noise effects.
Cohen et al. (1981)	Reading and math.	Aircraft. 16 dBA sound reduction in noise-abated classrooms.	(163) grade 3-4, cross-sectional.	Noise abatement results in 3rd grade only. Third graders in noise-abated classrooms performed better in math than 3rd graders in non-abated classrooms; 3rd graders in noise-abated classrooms also performed better in reading, but not significantly so.
Cohen et al. (1986)	Reading and math.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	No noise effects.
Gottfried & Gottfried (1984)	BSID, OP, MS, TELD	Noise ratings: 1 = normal level voices in home for 15 min. period to 4 = noise level voices in home for more than half 15 min. period.	(130) 12 mon. infants tested every 6 mon. up to 42 mon.	Higher household noise associated with lower scores on OP at 12-18 mon., on TELD at 39 mon., on BSID at 18 mon., and on MS scores at 42 mon.
Green et al. (1982)	Percent reading below grade level.	Aircraft. 96.2 dBA peak.	(8,240) grades 2-6.	Greater percentage of noisy-school children read below grade level. Effects strongest in higher grades.
Lukas et al. (1981)	Reading and math.	Traffic and street. 70 dBA peak.	(2500) grades 3,6 (100 classes sampled).	Reading scores lower for 3rd and 6th graders in noisier classes. Math scores lower in students in noisier 3rd grade classes, but higher in 6th grade students in noisier classes.
		Ambient classroom and community. 45-75 dBA.		Inverse correlations between community noise and math and reading scores were similar to but less consistent than those between classroom noise and math and reading scores. There also was a synergistic effect of home and school noise on reading.

Table 7. *Continued*

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Wachs et al. (1971)	IPDS	Noise ratings: 1 = normal level voices in home for 15 min. period to 4 = noise level voices in home for more than half 15 min. period.	(102) ages 7, 11, 15, 18, 22 mon.	Higher household noise associated with lower IPDS scores.
Wachs (1978)	SB	Ratings of noise: same as Wachs et al. (1971).	(23) ages 2-3 yrs. longitudinal.	Higher household noise associated with poorer SB performance in boys, no significant effect in girls.
Wachs (1979)	IPDS	Ratings of noise: same as Wachs et al. (1971).	(31) ages 2-3 yrs. longitudinal.	Higher household noise associated with lower IPDS scores in boys and higher IPDS scores in girls.
Wachs & Gandour (1983)	IPDS	Ratings of noise: same as Wachs et al. (1971).	(100) ages 7, 11, 15, 18, 22 mon.	Higher levels of household noise associated with lower IPDS scores, particularly in fussy and irritable infants.
Michelson (1968)	Language, spelling, and math.	Home environment ratings. Scale unavailable.	(710) grades 1-5.	Noise associated with language and spelling difficulties. Noise not associated with math achievement.
Maser et al. (1978)	Reading and math.	Aircraft. 90 dBA peak.	(1917) grades 3, 5, 7, 10.	Noise associated with reading and math deficits in 7th and 10th graders, but only marginal effects on 5th graders. Children with lower aptitudes were most adversely affected by noise.
Acute noise				
Christie & Glickman (1980)	SPM	Recorded classroom noise. 40 and 70 dBA.	(156) grades 1, 3, 5.	Noise x Sex interaction: Boys performed better in noisy than in quiet conditions; girls performed better in quiet than in noisy conditions.
Johansson (1983)	Reading and math.	White noise. 51 dBA continuous, and 55-78 dBA intermittent.	(66) age 10 yrs.	Noise x Intelligence interaction on multiplication and reading performance. Above-average intelligence children solved more multiplication problems in noise than in quiet; below-average intelligence children showed the opposite trend, but noise effects were not significant. Below-average intelligence children tended to have poorer reading speed under noise; there was little difference in reading performance between noise groups with above-average intelligence.
Kassinove (1972)	Math.	Recorded child stories and music. 70-80 dBA.	(80) grades 3,6.	No noise effects on response latency, accuracy, or time-out from task.
Slater (1968)	Reading and math.	Ambient classroom noise, music, stomping and banging, tractor-mower, or quiet crossed with taped white noise. 45-90 dBA and 50-80 dBA white noise.	(263) grade 7.	No noise effects on speed or accuracy.

Table 7. *Continued*

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Weinstein & Weinstein (1979)	Reading.	Classroom: Ambient noise levels during early (noisy) and late (quiet) time of day. 47-60 dBA.	(60) grade 4.	No noise effects.
Zentall & Shaw (1980)	Math.	Taped noise from 2nd grade class. 64 and 69 dBA.	(48) grade 2 (hyperactive, normal controls).	Noise x Hyperactivity interaction: Hyperactive children performed marginally worse in high noise than in low noise; non-hyperactive children performed worse in low noise than in high noise conditions.

Note: BS = Bayley scales of infant development, OP = object permanence scale, MS = McCarthy scales of children's abilities, TELD = test of early language development, IPDS = Piagetian-type measure of infant psychological development, SD = Stanford-Binet test of intelligence, SPM = standard progressive matrix test.

converge on the conclusion of a relation between community noise exposure and reading ability. Several of the studies have good controls for sociodemographic characteristics in the samples and some have screened out children with auditory deficits. Moreover, Green et al. (1982) found a dose response function between noise exposure and reading deficits. Furthermore, the effects in the Bronzaft studies (Bronzaft, 1981; Bronzaft & McCarthy, 1975) cannot be attributed to self-selection. Children were not assigned in any systematic manner to classrooms on the noisy or quiet side of a building located next to elevated train tracks. On the other hand, all of the studies except for Bronzaft (1981) and Cohen et al. (1981) are cross-sectional and neither of these longitudinal studies are prospective. The Bronzaft (1981) findings are particularly important because they indicate that classrooms on the side of an elementary school near elevated train tracks that previously had lower reading scores in comparison to classrooms on the opposite side of the building (Bronzaft & McCarthy, 1975) no longer differed in reading scores following noise insulation in the schools and on the tracks.

The two studies that have not found reliable noise effects on reading may have poor statistical power. Both Cohen et al. (1980; 1986) and Moch-Sibony (1984) tested children from different schools, with different teachers, and in the former case from different school districts. In addition, both restricted their analyses to children from lower grades and did not attempt to tease out the

effects of noise on children of differing ability.

As indicated in several of the citations in Table 7, children in higher grades appear to be more negatively affected by noise exposure on reading than their younger counterparts (cf., Cohen et al., 1973; Green et al., 1982; Lukas et al., 1981; Maser et al., 1978). Children who have lower aptitude or other difficulties may be more vulnerable to the harmful effects of noise on reading (Maser et al., 1978). We also noted earlier several distraction studies indicating more disruptive effects on children with various learning deficiencies. Finally, Lukas and colleagues (1981) uncovered a significant synergistic effect of home and school noise exposure on reading scores.

Summary

Acute noise exposure appears to have little effect on reading and other intellectual activities. During early development, however, residential noise appears to delay cognitive development. In addition, chronic exposure to noise has been associated with reading deficits in seven out of nine studies, particularly for children in higher elementary school grades. There is also evidence that children with lower aptitude and those who also live in noisier homes appear more susceptible to the association of chronic noise exposure at school with reading deficits. The latter trend is interesting to consider in light of attentional data also showing more negative effects of noise exposure on children with pre-existing cognitive deficits.

DISCUSSION

Overview

We know with a good deal of certainty that chronic exposure to noise is associated in children with modest elevations of resting blood pressure, attentional deficiencies, and deficits in reading. Other effects suspected from chronic noise exposure include diminished task motivation, deficits in auditory discrimination, shifts in resistance to auditory distractors, poorer memory when high information processing demands are present, and deficits in infant cognitive development. The latter group of suspected effects include inconsistent data in some cases (auditory discrimination, resistance to distraction) or trends that have only been uncovered in one or two studies (motivation, memory, infant cognitive development). Tables 1-7 provide summary information that forms the bases for these conclusions.

Two major methodological shortcomings are prominent in the literature we have reviewed. Most critically, there is a total lack of prospective, longitudinal designs in this research area. Prospective, longitudinal studies are the strongest, *quasi*-experimental designs that can be applied in field studies and help deal with the host of threats (e.g., self-selection, confounding third variables) that plague correlational designs (see Cohen et al., 1986; Evans & Lepore, in press, for further discussion of methodological problems in field studies of environmental stressors). Such prospective studies must include well matched comparison groups and collect important personal data known to relate to outcomes of interest. Besides their utility as potential control variables in nonexperimental study designs, background variables can enhance statistical power by reducing unexplained variance in the outcome measure of interest. Studies on cardiovascular outcomes, for example, need to collect data on family history of hypertension. Research on reading should collect information on parental education levels and child's intelligence. Prospective, longitudinal designs will have to contend, however, with the potential interfering effects of selective attrition. As documented earlier, Cohen and his colleagues (1981), in one of only two longitudinal studies of noise and children, found that a year later children with the highest levels of blood pressure in their initial

cross-sectional analysis of quiet and noisy schools had moved out of the area. No such selective attrition was found among children in quiet schools.

The second major methodological shortcoming in nonauditory noise research and children has been lack of precision in two aspects of procedural conditions during testing. Testing conditions must be uniform and quiet. Reliance on archival measures of reading, for example, confounds acute with chronic noise exposure since ambient noise sources are likely to be present during the conduct of achievement tests. Testing must occur under quiet conditions in order to determine whether chronic noise affects reading or some other outcome of interest. More thorough audiometric screening is needed in nonauditory studies of noise and children to insure that the effects are not due to hearing loss.

Ecological Perspective

The purpose of this section is to outline some major conceptual shortcomings in the existing work on the nonauditory effects of noise on children and to lay out a preliminary research agenda. An ecological perspective (Bronfenbrenner, 1979) would significantly advance our understanding of this topic. Such a perspective includes greater attention to temporal issues plus the social and environmental contexts in which chronic noise exposure occurs. It also entails examination of the underlying, mediational processes that may link some of the psychophysiological, motivational, and cognitive processes related to chronic noise exposure.

Temporal parameters

Foremost, there has been a severe lack of developmental analyses, except in a few reading studies and in some of Wach's work on infant development in the home environment (see Table 7), of the effects of chronic noise on children. Developmental research approaches are critical in noise studies because it is highly likely that noise has differential impacts on physiological, cognitive and motivational processes as a function of developmental status. Consider for example reading acquisition. It is well established that reading acquisition depends upon the development of certain language competencies (e.g., phonological awareness) that are age

dependent (Mann & Brady, 1988). Noise exposure prior to or following the development of phonological awareness may not affect reading acquisition in the same way as noise exposure during the critical period of phonological awareness learning. Unless a developmental approach is added to noise research, such questions cannot be addressed.

A related but distinct conceptual limitation has been neglect of temporal parameters such as age at time of exposure and history of exposure to noise. For example, several studies on resistance to distractors from noise indicate the effects are contingent upon noise exposure history (see Table 5). Children exposed to ambient noise levels for shorter periods of time appear to be more resistant to the distracting properties of noise (see Table 5). These findings could relate to work on motivational deficiencies from prolonged noise exposure. Perhaps children attempt to filter out noise during early periods of exposure but eventually give up on this strategy. Duration effects could also relate to the specificity of resistance to auditory distractors. It would be interesting, for example, to investigate children's ability to filter out aircraft noise versus white noise or irrelevant speech, as a function of length and type of chronic noise exposure.

Unfortunately, we cannot disentangle age effects from exposure duration effects. For example, the apparently stronger linkages between chronic noise exposure and reading scores among older children (see Table 7) could be a function of a critical period of exposure or the result of longer, cumulative adverse impacts. Related to this latter option, we know nothing at this stage about the long-term effects of early childhood exposure to noise. What happens in later childhood or adolescence to children who spend all or part of their early years attending school or living near an airport or busy street?

Context

Greater attention to the ecological context in which chronic noise exposure occurs may prove fruitful for future research on noise and children. This ecological context might include more ecologically valid noise exposure estimates, attention to the indirect effects of noise on children via adult caregivers, and measurement of other social and environmental conditions covarying with chronic noise exposure. With one

exception (Lukas et al., 1981) none of the field studies of noise and children have attempted to calculate overall noise exposure. It may be recalled that Lukas and colleagues found a synergistic effect of home and school noise exposure on reading.

Furthermore, the noise estimates that researchers have relied upon do not take into account children's mobility, exposure to noise sources in the home, or the attenuation properties of the structures they inhabit.

Nearly all of the work on noise and children involves comparisons between noisy and quiet settings. With one exception, Green et al. (1982), there is no information on dose response functions. Besides its evidentiary value, dose response curves would have public policy importance. We currently are unable to provide clear statements about what level of noise is harmful for children or to say what the efficacy would be of providing specific sound attenuation interventions.

Not only are children attending school or residing in homes in noisy areas exposed to noise but so are their principal caregivers. The behaviors of caregivers in noisy settings could indirectly influence children's responses to noise (Bronfenbrenner, 1979). For example, perhaps parents in noisy homes do not speak to their children or read to them as often as parents in quieter neighborhoods. Classroom observations and teachers' self-reports indicate that aircraft or train noises interrupt teacher lecturing (Crook & Langdon, 1974; Kyzar, 1977; Moch-Sibony, 1974), in one study causing a 10% reduction in total teaching time (Bronzaft & McCarthy, 1975). It is also well documented that teachers in noise-exposed classrooms report greater annoyance and fatigue during the school day in comparison to teachers from quiet classrooms (Crook & Langdon, 1974; Ko, 1979; 1981; Sargent et al., 1980). Therefore some of the adverse effects of noise on child development could be mediated through the negative impacts of noise on the child's primary caregivers. Parents and teachers may have less patience and energy to devote to children because of the adverse effects of noise on themselves. More directly, noise may alter the manner in which parents and teachers instruct children, altering reading or speaking patterns. Recent data indicate that parent-child interactions may be affected by household noise levels. Parents from noisier homes appeared less

interested in their children's activities and talked less with their children (Wachs, 1989; Wachs & Camli, 1991). Controls for education levels of the mother did not change these findings.

Ambient noise exposure rarely occurs in isolation of other social and environmental problems. Noisy environments frequently covary with crowding and pollution and are often part of the fabric of poverty, including substandard housing, conflictual households and various other psychosocial strains. Although the ecological covariation of noise with other adverse environmental and social factors makes it difficult to isolate the effects of noise on children, we should be mindful that the harmful effects of noise may be amplified by the context in which noise is often embedded. It may be precisely those children who develop under such impoverished physical and social circumstances who are most vulnerable to the harmful effects of noise (Bronfenbrenner, 1979; Evans et al., 1990). We have recently found among adults, for example, that the negative effects of residential crowding on psychological distress are significantly worsened by chronic strains associated with poverty (e.g., insufficient utilities, poor housing quality, financial insecurities) (Lepore et al., 1991).

Noise levels may also operate within a context of important individual differences among children. There is some evidence that some children are more at risk for adverse noise effects on cognitive development. Less intelligent children's math and reading performance appears more sensitive to noise exposure (Johansson, 1983; Maser et al., 1978). Studies of young children and infants suggest greater susceptibility to chronic noise-related problems among boys in comparison to girls (Wachs, 1978; 1987; 1989). On the other hand, girls may be more distracted by acute noise exposure (Christie & Glickman, 1980; Hambrick-Dixon, 1988). Cognitive performance during acute noise appears to be disrupted more by noise for individuals with pre-existing learning deficits (cerebral palsy, learning disabled).

In addition to alerting researchers and policy makers to the potential of subgroups of children at high risk for negative effects of noise, these findings also have another important implication. Some of the small or even conflicting nonauditory effects of noise reviewed herein may be conservative estimates of noise effects since they by and large have not examined interactive effects.

While in some cases there may be little if any overall noise effects on children, it would be erroneous to conclude from such data profiles that noise is an inconsequential environmental problem for children. There may be large segments of the child population whose development may be significantly compromised by noise exposure early in life.

Mediational processes

Another area of future research that might emanate from an ecological perspective on noise and children is greater scrutiny of the potential interplay among the various psychophysiological, cognitive, and motivational processes that appear to be affected by chronic noise exposure. Cohen and his colleagues (1973) examined Deutsch's (1964) hypothesis that children chronically exposed to noise may learn to tune out auditory stimuli indiscriminantly and thus not pay sufficient attention to speech. They found that children from noisier apartments were deficient in auditory discrimination. Of particular interest, this deficiency significantly accounted for the poorer reading abilities of the noise-exposed children. This study stands alone as the only analysis of an underlying process to explain how noise affects children.

Given the findings (see Table 4) that noise can mask speech and evidence that speech perception and other linguistic skills such as phoneme awareness are critical precursors to reading acquisition (Mann & Brady, 1988), more work is called for on the effects of chronic noise exposure on psycholinguistic processes and their potential mediating link with reading. Other pathways warranting further investigation include those between chronic noise exposure, motivation, attention, and reading.

There are also plausible interconnections among chronic noise exposure and several of the cognitive processes we have reviewed. For example, people chronically exposed to noise may become more resistant to the distracting effects of acute noise exposure during a task because they can ignore or filter out auditory distractors. This ability may occur as a result of learning to tune out or filter auditory sounds. Thus one would expect a relation between the ability to ignore auditory distractors and deficits in auditory discrimination associated with chronic noise exposure. Analogously, we would expect a mediational pathway

between chronic noise exposure, attentional focusing and deficits in incidental memory performance.

Thus rather than only treating different outcome variables such as reading, attentional processes, and resistance to distraction as separate correlates or effects of noise exposure, more thought and careful analyses are required to investigate how these variables may form causal links to one another. In other words, both the direct and indirect pathways of the nonauditory effects of noise on children need to be investigated. From a theoretical and public policy perspective, this is perhaps most crucial in the case of reading. Although stronger data on the adverse effects of chronic noise exposure on reading would be valuable from an evidentiary point of view, what is of paramount importance now is a shift in focus to explanations of why and how chronic noise adversely influences reading acquisition.

There may also be some potent interplay among psychophysiological processes and some of the cognitive strategies apparently influenced by chronic noise exposure. For example, presumably it takes some effort to tune out or ignore noise. Experimental data as well as field studies with adults indicate that cognitive efforts to maintain task performance during noise come at a price of heightened sympathetic arousal (Tafalla & Evans, 1993; Welch, 1979). When performance suffers under noise, slight or no sympathetic arousal is apparent. However, if performance is maintained under noise which is possible except under tasks of very high load demands on attention and working memory (Cohen et al., 1986; Smith, *in press*), then indices of sympathetic arousal should be substantially elevated during noise exposure.

The associations between chronic noise exposure in children (see Table 1) and heightened blood pressure raise several important questions about mechanisms. For example, are blood pressure elevations caused by repeated sympathetic arousal induced by the distracting and interfering properties of community noise conditions? Alternatively, are the elevations mediated by adrenocortical activity and thus primarily indicative of chronic stress? To our knowledge, no analyses of various psychoneuroendocrine pathways between noise and blood pressure elevations have been investigated. Given the central role of cognitive appraisal in psychological

stress, it would also behoove researchers to examine whether psychosocial factors such as perceived control, self-confidence to ignore/tune out noise, or annoyance, moderate the effects of noise on blood pressure and other psychophysiological processes among children.

Another fruitful area of psychophysiological research would be to investigate the potential role of chronic noise exposure in cardiovascular reactivity. Individual differences in reactivity to standard psychosocial elicitors of stress (e.g., mental arithmetic) may be predictive of cardiovascular disease (Krantz & Manuck, 1984; Matthews et al., 1986). Research on cardiovascular reactivity in both adults and children has ignored the potential etiological role of chronic exposure to environmental stressors. More detailed analyses, focusing on possible behavioral toxicological effects of in utero or neonatal noise impacts are also called for. This is especially pertinent in light of contemporary medical practices such as ultra sound monitoring or placement of premature infants in neonatal intensive care units.

Large numbers of children both in America and, in rapidly growing numbers in the Third World, are being exposed to levels of ambient noise that are not only a threat to hearing but may have harmful effects on physiological and cognitive development. The potential for harmful effects from chronic noise exposure on children's development is great; what we know with certainty about the problem is, unfortunately at the moment, insufficient. At the same time, there is a foundation of evidence clearly suggesting potentially harmful effects from chronic noise exposure among children. We also have enough data on hand to formulate preliminary models of underlying, mediating mechanisms that could account for the effects of noise. It is also clear that more longitudinal work with prospective designs is crucial to definitively demonstrate the relationships between chronic noise exposure and children's development. Such designs afford stronger internal validity given the impossibility of randomly assigning children to varying community noise levels. Longitudinal designs allow us to examine changes in behaviors over time plus provide the opportunity to examine whether self-selection has occurred prior to noise exposure.

ENDNOTE

This article is based in part on earlier presentations at the Fifth International Congress on Noise as a Public Health Problem, Stockholm, Sweden and A Strategy for Noise Prevention in the 90's, American Speech and Hearing Association, Washington, DC. Preparation of this article was partially supported by the National Heart Lung and Blood Institute, RO1 HL47325-01A1, the Nordic Noise Council, and the Swedish Environmental Protection Board.

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01-11-2010 09:58:10 AM

Effects of Aircraft Noise on Reading Ability of School-Age Children

KENDALL B. GREEN, Ph.D.
BERNARD S. PASTERNAK, Ph.D.
ROY E. SHORE, Ph.D.
Institute of Environmental Medicine
New York University Medical Center
550 First Avenue
New York, New York 10016

ABSTRACT. The percent of students reading below grade level from 1972 to 1976 was regressed on racial, socioeconomic, educational, and noise level variables for all elementary schools in Brooklyn and Queens, New York. Schools were assigned noise exposure scores based on Noise Exposure Forecast contours for New York City airports. The correlations between these noise scores and a variety of noise level metrics ranged from 0.74 to 0.97. The regression coefficients adjusted for confounding factors, indicated that an additional 3.6% of the students in the noisiest schools read at least 1 yr below grade level with 95% confidence limits from 1.5 to 5.8%. The dose-response relationship indicated that the percent reading below grade level increased as noise level increased.

SEVERAL STUDIES have examined the effect of exposure to high levels of environmental noise on children's reading ability. Cohen et al.¹ found that elementary school students living for at least 4 yr on the lower floors of an apartment complex above a heavily trafficked bridge in New York City showed greater impairment of reading ability than those living on higher floors. Indoor noise levels varied from 66 decibels (dB) on the lower floors to 55 dB on the higher floors. When differences in parental education level were controlled, however, the correlation between floor level and reading test scores was reduced to marginal statistical significance in the 54 students tested. No effect was observed in children living in the complex

for less than 4 yr, suggesting that the effect resulted from chronic noise exposure.

Bronzaft and McCarthy² found a statistically significant decrease in mean reading test scores of elementary school students whose classrooms faced an elevated subway line compared to pupils in the same school whose classrooms faced quiet streets. Noise levels increased to 89 dB whenever an elevated subway train passed by, but on the quiet side the noise level remained at 59 dB. Classrooms did not differ in overall intellectual or achievement level and pupil assignment to classrooms was random. However, the possibility that the observed differences in reading test scores were due to noise distraction while the students were taking the test was not eliminated.

Maser et al.³ reported that children who attended school under the Seattle-Tacoma airport flight paths showed a deficit on standardized tests of scholastic achievement compared to students in quiet schools. The deficit increased as the students continued in the noisy schools, becoming statistically significant by the seventh grade. The deficit was evident within groups of students divided into thirds based on their initial academic aptitude. However, other differences between the schools, such as teacher training or ability, racial composition, and socioeconomic level of the student body were not controlled.

Cohen et al.⁴ reported that reading and math test scores of third grade students in noise-abated classrooms were higher than those in classrooms without noise abatement after adjusting for race, number of months in school, and mean cognitive ability of the class measured in the first grade. Only the differences in the math test scores were

statistically significant. Students in the noise-abated classrooms, however, also scored higher than students in quiet classrooms in schools far away from the Los Angeles International Airport, the source of noise in this study. These quiet schools were in a different school district, and the authors believed that the different administration policies, quality of teaching, and level of Federal aid were more important than noise exposure in affecting performance on reading and math tests.

In summary, these studies suggest that elementary school students who live and attend school in noisy environments have reduced scores on reading tests. However, these studies have examined only a few selected schools and they have not examined the effects of different levels of noise exposure on reading ability. This study was designed to answer these objections. This study utilizes the vast amount of data on every school collected by the New York City Board of Education for several years and the published noise exposure contour maps for the major New York City airports. Multiple linear regression was used to control for confounding factors and to assess the significance of the noise exposure.

METHODS

Noise exposure estimation. Brooklyn and Queens elementary schools were divided into five groups based on Noise Exposure Forecast (NEF) contours for John F. Kennedy (JFK) and LaGuardia airports. Schools in each noise group were assigned a noise exposure score of 0, 1, 2, 4, or 8. Because of the large reduction in the size of the noise-impacted areas around JFK during the period under study, 1972-76, two sets of noise exposure scores were used. The first set, called the Noise 70 scale was based on 1970 contours for JFK⁵ and 1972 contours for LaGuardia.⁶ The second set, the Noise 78 scale, was based on 1978 contours for JFK⁷ and the same 1972 contours for LaGuardia. The criteria used to group the schools, the number of schools, and the noise exposure scores assigned to each group using the two noise scales are presented in Table 1.

Since the noise levels were not measured in the 362 schools, summary values from the long-term 24-hr noise measurements made by the Federal Aviation Administration⁸ and by Tom O'Hare of the Environmental Protection Agency (personal communication, 1978) were compared with the noise scores assigned to the measurement locations to examine the validity of the noise scales. Since the noise

scales were designed to measure only the relative noise exposure levels of the different schools, the product moment correlation between the noise scores and the noise levels is an appropriate measure of agreement. The results, presented in Table 2, indicate good agreement between the noise scales and a variety of noise level metrics. The correlations with the Noise 78 scale ranged from 0.81 to 0.97 and the correlations with the Noise 70 scale were lower, 0.74 to 0.91, as would be expected since the noise measurements were taken between 1975 and 1978. Thus, the grouping of schools by the NEF contours and the assignment of noise scale values seem to have enough validity to justify their use in a preliminary study where the expense of obtaining more exact estimates of the noise level in each of the 362 schools would be prohibitive.

Reading test statistics and other data. A magnetic tape obtained from the New York City Board of Education contained the aggregate results of the annual nationally standardized tests of reading ability given in the New York City public schools and data on racial composition, socioeconomic level, and various educational factors for each school during the period 1972 to 1976. The dependent variables used in this study were the percent of students in each grade whose test scores placed them either 1 or more yr below grade level, or 2 or more yr below grade level. The independent variables taken from the tape include the percent of students in each of five ethnic groups, the percent eligible for free lunch programs, the absentee, admissions and departure rates, the pupil-teacher ratio, the percent of teachers with 5 or more yr experience, and the percent of teachers on two pay scales which reflect the amount of post-baccalaureate education. The data for these variables were based on the entire school with the exception of the racial composition data which were specific for each grade after 1973. The means and standard deviations of the variables used in the regressions are presented in Table 3. As an example of the distribution of the dependent variables, Figure 1 presents a histogram of the percent of fourth grade students reading 1 or more yr below grade level.

The percent of students reading below grade level in each grade was regressed on the independent variables for each of the years 1972 to 1976 and for all 5 yr combined. The data from each school were weighted proportionally to the number of students who took the reading test. Regressions using the combined 5-yr data included indicator variables for the different years to allow for temporal

Table 1.—Criteria for Grouping School Attendance Zones, the Noise Scale Values, and the Number of Schools in Each Group

Criteria for Grouping School Attendance Zones	Noise Scale Value	No. Schools in Each Group Using	
		Noise 78	Noise 70
Outside of the NEF 30 contours	0	295	211
Touching the NEF 30 contours	1	30	41
Between the NEF 30 and 40 contours	2	24	86
Touching the NEF 40 contours	4	9	17
Within the NEF 40 contours	8	4	7

Table 2.—Noise Scale and Noise Level Measurements

Location	Noise Score		Peak Noise Level	L _{0.1} *	L ₁ †	L ₁₀ ‡	L _{dn} §	L _{eq} #	NEL//	% > 75**
	78	70								
Rockaway Park	8	8	95.5	88.2	80.4	66.1	75.5	67.7	5.88	2.28
Cedarhurst	4	8	94.6	87.6	78.2	62.8	71.3	66.9	4.90	1.36
Laurelton	2	4	90.6	80.0	71.3	60.6	67.2	61.4	1.38	0.26
S. Ozone Park	1	2	84.7	76.6	69.3	60.6	62.1	59.5	0.89	0.09
Belle Harbor	1	1	89.4	79.8	71.1	58.7	64.0	60.1	1.02	0.21
Howard Beach	4	4	96.2	85.1	75.8	65.7	72.1	66.9	4.90	1.47
16-41 156 St.	0	0	88.6	NA††	NA	NA	62.5	59.8	0.95	NA
76-48 268 St.	0	0	85.6	NA	NA	NA	57.1	55.4	0.35	NA
57-41 134 St.	2	2	NA	NA	NA	NA	67.3	66.6	4.68	NA
Correlation with 78 noise score		70	0.82	0.87	0.93	0.88	0.94	0.81	0.86	0.97
			0.78	0.91	0.94	0.74	0.86	0.79	0.84	0.88

*L_{0.1} = Noise level exceeded only 0.1% of the day in dB.
 †L₁ = Noise level exceeded only 1.0% of the day in dB.
 ‡L₁₀ = Noise level exceeded only 10% of the day in dB.
 §L_{dn} = Day-night weighted noise level in dB.
 #L_{eq} = Equal weighted noise level in dB.
 //NEL = Noise energy level = $10^{(L_{eq}/10)} \times 10^{-6}$ in N/m².
 **% > 75 = Percent of the day that the noise level was above 75 dB as estimated by linear regression of log dB vs. z scores of the percentiles.
 ††NA = Not available.

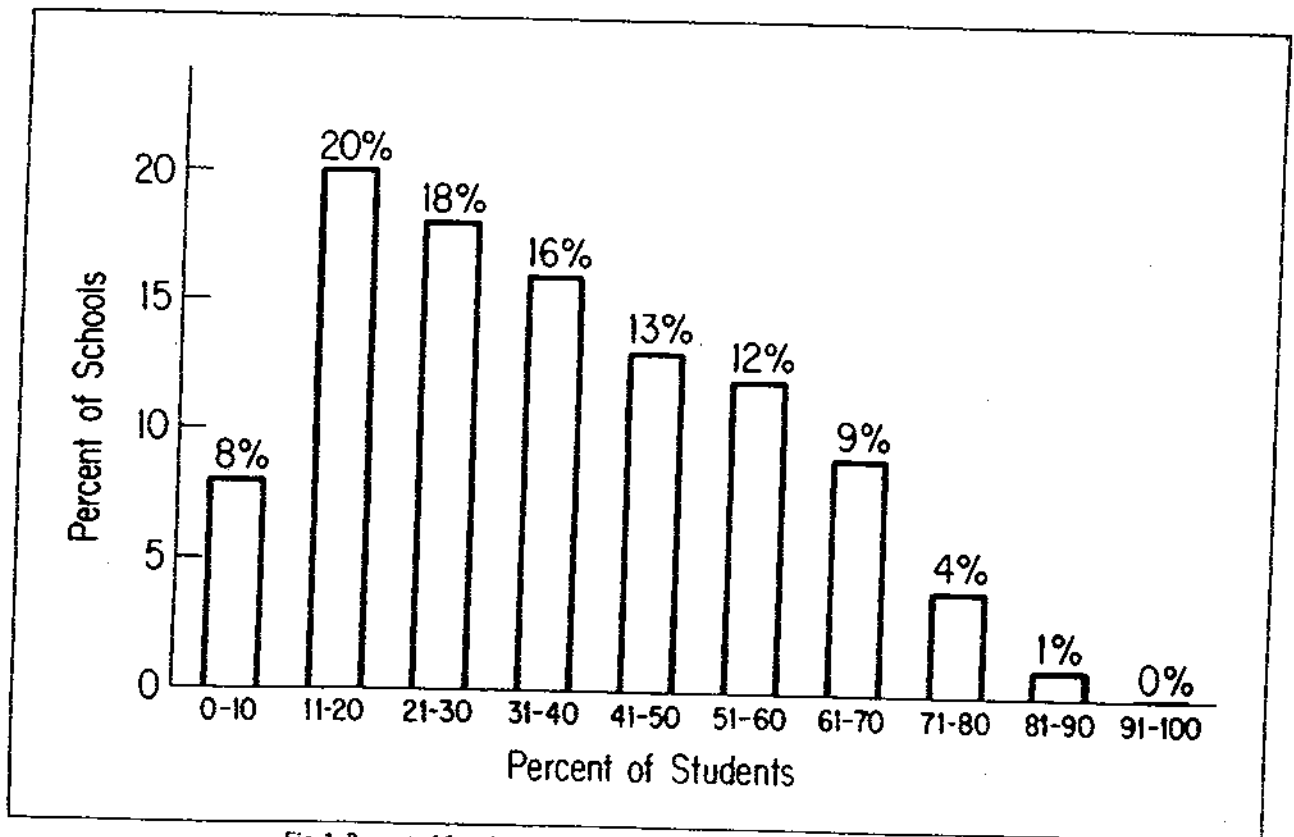


Fig. 1. Percent of fourth grade students reading 1 or more year below grade level.

Table 3.—Means and Standard Deviations of the Regression Variables by School Grade for 1972 to 1976 Combined

	Grade				
	2nd	3rd	4th	5th	6th
Number of observations*	1812	1803	1788	1779	1048
% Reading 1+ yr below grade level	10.0† (9.74)‡	27.9 (16.0)	37.4 (19.3)	33.5 (18.8)	35.8 (20.2)
% Reading 2+ yr below grade level		2.84 (3.65)	11.1 (9.61)	16.8 (13.4)	18.4 (14.6)
Noise 78 score	.364 (1.14)	.361 (1.13)	.361 (1.13)	.372 (1.15)	.402 (1.21)
Noise 70 score	.849 (1.42)	.853 (1.43)	.856 (1.43)	.870 (1.45)	.928 (1.56)
% Eligible for free lunch programs	50.9 (27.6)	51.2 (27.7)	51.1 (27.7)	50.3 (27.7)	45.9 (28.2)
% Black	39.9 (34.2)	40.6 (34.0)	41.3 (33.9)	41.2 (33.6)	36.5 (32.2)
% Puerto Rican	18.2 (21.9)	18.1 (22.0)	17.7 (21.8)	17.1 (21.2)	15.5 (20.2)
% Indian	.05 (.35)	.05 (.34)	.06 (.37)	.05 (.41)	.04 (.33)
% Oriental	2.07 (3.67)	1.97 (3.54)	1.92 (3.28)	1.88 (3.18)	2.09 (3.39)
% Hispanic	4.41 (7.64)	4.21 (7.51)	4.17 (7.48)	4.22 (7.64)	3.57 (5.17)
Pupil-teacher ratio	23.15 (6.48)	23.16 (6.93)	23.13 (6.46)	23.20 (6.07)	23.52 (3.91)
Absentee rate	.1247 (.0352)	.1243 (.0360)	.1239 (.0349)	.1233 (.0343)	.1200 (.0331)
Admissions rate	.3847 (.0998)	.3804 (.0968)	.3794 (.0966)	.3769 (.0946)	.3599 (.0897)
Departure rate	.2440 (.0847)	.2429 (.0841)	.2426 (.0835)	.2406 (.0835)	.2315 (.0857)
% Teachers with 5+ yr experience	73.19 (17.54)	73.05 (17.56)	73.13 (17.49)	73.78 (17.20)	75.07 (16.82)
% Teachers on C6 salary schedule §	35.10 (15.77)	34.99 (15.82)	35.04 (15.81)	35.55 (15.84)	37.25 (16.15)
% Teachers on C1 salary schedule #	20.74 (13.54)	20.83 (13.53)	20.76 (13.46)	20.25 (13.24)	18.96 (12.77)

*Number of schools with that grade summed over the 5 yr.

†Mean.

‡Standard deviation values appear in parentheses.

§C6 salary schedule reflects more than 60 hr post-baccalaureate education.

#C1 salary schedule reflects less than 30 hr post-baccalaureate education.

changes in the mean reading level. Squared, square root, and interaction terms for the percent Black, percent Puerto Rican, and the percent eligible for free lunch programs were included in the regressions to remove abnormal trends in the plots of residual values against these variables.

The relationship between the level of aircraft noise exposure and the percent reading below grade level, the dose-response relationship, was examined by regression analysis using indicator variables for each of the noise level groups instead of a single variable with the noise scale val-

ues. This method of analysis is explained further in the Appendix.

RESULTS

Noise scale variable coefficients. The partial regression coefficients for the noise scale variables (b), their two-tailed level of statistical significance (P value) and the square of the multiple correlation coefficient (R^2) are presented in Table 4 for the regressions using the combined 5-yr data. All of the coefficients are positive, indicating that

Table 4.—Partial Regression Coefficients, Statistical Significance, and R^2 for Reading Test Statistics vs. Aircraft Noise Scores

Grade	b^* (Noise 78)	P Value† (One or more Years below Grade Level)	R^2 ‡	b (Noise 70)	P Value	R^2
2	0.376	.013	0.50	0.438	< .001	0.50
3	0.926	< .001	0.67	0.906	< .001	0.67
4	0.764	< .001	0.76	0.842	< .001	0.76
5	0.697	.001	0.73	0.565	.001	0.73
6	0.757	.004	0.77	0.263	NS§	0.77
<i>Two or more Years below Grade Level</i>						
3	0.116	.067	0.40	0.181	< .001	0.40
4	0.688	< .001	0.62	0.662	< .001	0.62
5	0.375	.038	0.62	0.481	.001	0.62
6	0.541	.016	0.67	0.259	NS	0.67

* b = Partial regression coefficient.
 † P Value = two-tailed level of statistical significance.
 ‡ R^2 = Square of the multiple correlation coefficient.
 §NS = Not statistically significant.

the percent reading below grade level was higher in the noise-exposed schools. The coefficients were statistically significant at the .05 probability level in 15 of 18 regressions.

The coefficients from the regressions of the percent reading 1 or more yr below grade level range in magnitude from 0.263 to 0.926. By weighting each of these coefficients proportionally to the average number of students in that grade and inversely proportional to the variance of the coefficient, a summary coefficient of 0.62 with 95% confidence limits of 0.51 to 0.74 can be obtained.⁹ Since regression coefficients estimate the average change in the dependent variable that accompanies a one unit change in the independent variable, this coefficient suggests that a one unit increase in noise score would be accompanied by an increase of 0.62% in the number of students reading 1 or more yr below grade level in an average school.

The coefficients from the regressions using yearly data, which are not shown, were occasionally negative (11 of 90). Forty-one coefficients, all positive, were statistically significant. For the last 3 yr of the study, for which grade-specific racial composition data were available, all the coefficients were positive and 37 of 54 were statistically significant. These coefficients were of similar magnitude within each combination of grade, reading test statistic, and noise scale, indicating stability in the estimates of the effect of noise using data from different years.

Dose-response relationship. The difference in the percent reading 1 or more yr below grade level in the various noise exposure groups, as extrapolated from the indicator variable coefficients, is presented in Figure 2 along with a dotted line representing the linear dose-response relationship assumed by the use of the noise scale. The increase

in the indicator variable coefficients with increasing noise score was statistically significant indicating that the percent reading below grade level increased with increasing noise level. Although the percent reading below grade level appears to be higher than the linear dose-response relationship at moderate noise levels, and less than the linear relationship at high levels, tests of the goodness of fit, described in the Appendix, indicated that there was no significant improvement when the indicator variables were used rather than the noise scale variable in three of four

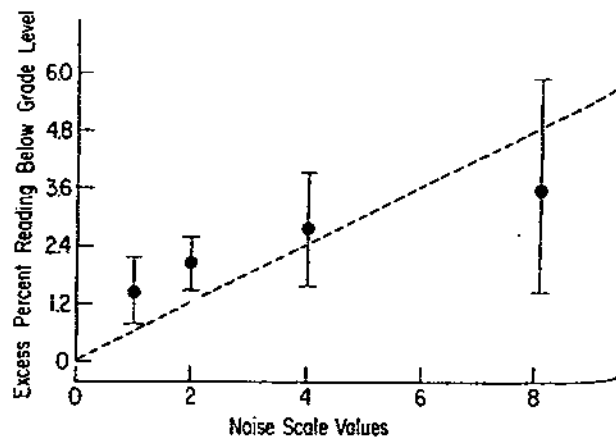


Fig. 2. Dose-response relationship between aircraft noise scale values and the difference in the percent reading below grade level in the noise scale zero group of schools and each of the other groups. Point estimates and 95% confidence limits for the effect at each level are plotted along with a dotted line representing the linear dose-response relationship assumed by the use of the noise scale values.

regressions. Thus, the data are largely compatible with a linear dose-response relationship.

The actual level of reading impairment in the different noise exposure groups can be directly estimated from the dose-response curve. The mean difference in the percent reading 1 or more yr below grade level in the noisiest schools, those within the NEF 40 contour, compared to the quietest schools, outside the NEF 30 contour, is 3.6% with 95% confidence limits from 1.5% to 5.8%.

DISCUSSION

Several limitations of this study need to be considered: (1) the noise exposure scale, (2) pupil transfers, (3) the variables used to control confounding, and (4) the aggregate nature of the statistics.

Although we do not know whether the effect of noise on reading ability is best related to the noise energy level, peak noise level, the amount of time the noise is above a certain level or some other metric, the noise scale used in this study correlated well with a variety of noise metrics. Thus it is doubtful that the use of another metric within the noise contours generated from it would result in a substantially different division of schools into noise groups. The results would, therefore, be similar if another noise scale were used.

The average noise exposure of all the students in a school zone is derived from local and domestic noise sources as well as aircraft. Examination of neighborhood noise contours¹⁰ indicated that the effects of local noise sources, such as elevated subway trains and heavily trafficked streets, were greatly reduced only a few blocks from the source. Thus it is doubtful that these noise sources would substantially alter the average noise exposure for all the students. Domestic noise exposure could not be directly estimated, therefore the results of this study depend on the assumption that this factor does not substantially confound the analysis.

Although elementary schools draw the vast majority of their pupils from the immediate neighborhood, transfers are allowed for a variety of reasons. If poor readers tended to transfer from noise-exposed schools into nonexposed, the noise variable coefficients would be decreased. Analysis of such transfers indicated that more poor readers transferred into nonexposed schools than would be expected from the percent of all students in nonexposed schools.¹¹ However, the number of such transfers, about 2% of the school population was too small to greatly affect the regression coefficients. Transfers of minorities for purposes of racial balance have also generally been from noise-exposed to nonexposed areas. These transfers would also tend to decrease the magnitude of the noise variable coefficients because these students, who are likely to be poor readers, are counted in the nonexposed schools although they live in noise-exposed areas. Thus, due to transfers, the noise variable coefficients would tend to underestimate the effects of noise on reading ability; however, the bias would probably be small.

Although this study includes adequate measures of many factors which affect reading ability, the only variable which directly measures the important factor of socioeconomic status is the percent of students eligible for free

lunch programs, the number of low income families. The racial composition variables are also highly correlated with socioeconomic status, and the use of squared, square root and interaction terms allows the model to accommodate nonlinear effects of these variables. Although it is doubtful that additional measures of socioeconomic level, such as parental occupation or educational level, would alter the results, they would be useful to demonstrate the adequacy of control over this important factor.

It is possible that there are other factors strongly correlated with both noise levels and reading ability and which would, therefore, affect the noise variable coefficients. However, an examination of maps constructed from basic racial, socioeconomic, educational, and residential data from the 1970 census¹² failed to reveal any factors which were strongly correlated with the noise contours around both airports. Census data were not included in the regressions because there are often considerable differences between the general population in a census tract and the families from that tract that have children in the public schools.

The major limitation of this study is the aggregate nature of the statistics which preclude examination of individual reading ability. Factors which affect the percent reading below grade level may not have the same effect on individual reading ability. To measure the effect of noise on individual reading ability, it would be necessary to relate each student's noise exposure from all sources to the student's reading test scores controlling for race, socioeconomic level, and other confounders. Such a study is recommended.

Table 5.—Variables Included in the Regression Analyses*

% FLUNCH, (% FLUNCH) ² , (% FLUNCH) ^{1/2}
% Black, (% Black) ² , (% Black) ^{1/2} , (% Black) × (% FLUNCH)
% Puerto Rican, (% Puerto Rican) ² , (% Puerto Rican) ^{1/2}
(% Puerto Rican) × (% FLUNCH), (% Puerto Rican) × (% Black)
% Other Hispanic
% Oriental
% American Indian
Absentee rate
Admissions rate
Departure rate
Pupil-Teacher Ratio
% Teachers with > 5 yr experience
% Teachers with < 30 hr post-baccalaureate education
% Teachers with > 60 hr post-baccalaureate education
Indicator variables for different yr
Noise score

*The following abbreviations are used in this table to indicate squaring a variable ()², taking the square root of a variable ()^{1/2} and forming an interaction term by multiplying two variables together () × (). The percent eligible for free lunch program is abbreviated % FLUNCH.

Table 6.—Dose-Response Relationship: Scaled Indicator Variable Coefficients and Weighted Averages

Noise Scale Values	Noise Scale, Grade and Reading Test Statistic				Weighted Average*
	Noise 78 Grade 4 Two Plus‡	Noise 70 Grade 4 One Plus§	Noise 70 Grade 5 Two Plus	Noise 70 Grade 5 One Plus	
1	1.26 (.866)†	3.70 (.966)	2.06 (1.51)	2.91 (1.52)	2.38 (0.58)
2	1.23 (.949)	3.88 (.707)	3.95 (1.10)	3.66 (1.11)	3.23 (0.47)
4	5.41 (1.50)	3.39 (1.36)	4.62 (2.05)	4.65 (2.06)	4.41 (0.94)
8	7.50 (1.91)	5.18 (2.15)	4.04 (3.25)	4.46 (3.27)	5.86 (1.65)

*Weights are proportional to the inverse of the variance.

†Standard errors of scaled coefficient are given in parentheses.

‡Two Plus = the percent of students reading 2 or more yr below grade level.

§One Plus = the percent of students reading 1 or more yr below grade level.

Table 7.—Regression Analysis of the Noise Scale Goodness of Fit

	Noise Scale, Grade and Reading Test Statistic			
	Noise 78 Grade 4 Two Plus‡	Noise 70 Grade 4 One Plus#	Noise 70 Grade 5 Two Plus	Noise 70 Grade 5 One Plus
SS Reg* (indicator variables)	10.28021	51.01620	20.32366	46.10372
SS Reg (Noise Scale)	10.27374	50.87240	20.28738	46.06004
Change in SS Reg	.00647	.14380	.03628	.04368
Change in SS Reg/3	.00216	.04793	.01209	.01456
Mean sq error†	.00354	.00871	.00679	.00948
F Statistic	.609	5.50	1.78	1.58
P Value §	.61	.01	.16	.20

*SS Reg = sum of squares due to regression. The regression model used is indicated in parentheses.

†Mean sq error = mean square due to error.

‡Two Plus = the percent of students reading 2 or more yr below grade level.

§P Value = probability level.

#One Plus = the percent of students reading 1 or more yr below grade level.

CONCLUSIONS

Although the conclusions of this study must be qualified because of the less-than-ideal measures of noise exposure and socioeconomic level that were available and the aggregate nature of the statistics, the results support the hypothesis that high levels of environmental noise are inversely related to reading ability in elementary school children. The regression coefficients indicate that an additional 3.6% of the students in the noisiest schools read at least 1 yr below grade level with 95% confidence limits from 1.5% to 5.8%. The dose-response relationship suggests that the percent reading below grade level increases with increasing noise level.

The Environmental Protection Agency estimates that 15% of the U.S. population is exposed to average noise levels above 65 dB and 1.5% is exposed to levels above 75 dB¹³ which are roughly equivalent to the noise levels at the NEF 30 and 40 contours, respectively. Since this study and others suggest that some children exposed to these noise levels would have decreased reading ability, additional studies are necessary to determine more precisely the extent of the reading impairment at environmental noise levels.

APPENDIX

The use of indicator variables to estimate the dose-response relationship is similar to using analysis of covari-

ance to estimate the effects of different levels of a non-metric factor (the noise exposure groupings) while adjusting for all the other variables listed in Table 5. Four indicator variables were used to code for each group of schools, using the schools assigned a noise score of zero as the reference group. All four indicator variables were given a value of zero for these schools in the reference group. Each of the other groups of schools had an indicator variable which was assigned a value of one for that group and zero for the other three. Thus the first indicator variable was coded zero for all schools except those assigned a noise scale value of one.

The coefficient for each indicator variable from the multiple regression analysis estimates the mean difference in the percent reading below grade level between the schools coded for by that indicator variable and the reference group, adjusted for the effects of the other variables. For example, the coefficient for the first indicator variable from a regression of the percent of fourth graders reading 2 or more yr below grade level was 0.867 (not given elsewhere in this paper). Thus, 0.867 was the average difference in the percent reading below grade level between schools with a noise score of one and those with a noise score of zero on the Noise 78 scale.

To combine this estimate of the effect of noise in that group of schools with estimates from other regressions, it was necessary to take into account the differences in the coefficients that result from using different grades and reading test statistics. These differences were eliminated by dividing the indicator variable coefficients by the noise scale variable coefficient obtained from regression on the same data. This standardized ratio expressed the change in reading ability in multiples of the noise scale variable coefficient. In this example, the noise scale variable coefficient was 0.688, as given in Table 4, and the ratio was 0.867/0.688, or 1.26.

The standardized ratios and the weighted averages for each noise scale group are presented in Table 6. Since these ratios are not as readily understood as the percent reading below grade level, the averages were transformed back into the latter by multiplying each by the summary noise scale variable coefficient, 0.62, for Figure 2. Thus, in the highest noise scale group, the weighted average of the noise scale variable coefficient was 5.9 which when multiplied by the summary noise scale variable coefficient, yields the estimate that an additional 3.6% of the students in an average-sized school in the noisiest zone would read at least 1 yr below grade level compared to schools in the quietest area.

In addition, the degree to which the regression model with the indicator variables fits the data better than the model with the noise scale variable can be determined from the difference in the sum of squares due to regression for each model. This difference divided by the number of additional parameters used, 3, and by the mean square due to error can be tested against the *F* distribution to determine the probability that chance alone could account for the difference in the sum of squares. The results, presented in Table 7, indicate that chance could easily account for the differences in the goodness of fit in all but one case.

Further details on the use of indicator variables in regression analysis can be obtained from several textbooks.^{14, 15}

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This research is part of a center program supported by Grant ES 00260 from the National Institute of Environmental Health Sciences.

Submitted for publication May 18, 1981; revised; accepted for publication November 15, 1981.

Requests for reprints should be sent to: Dr. B.S. Pasternack, Institute of Environmental Medicine, NYU Medical Center, 550 First Avenue, New York, NY 10016.

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Research Report

A PROSPECTIVE STUDY OF SOME EFFECTS OF AIRCRAFT NOISE ON COGNITIVE PERFORMANCE IN SCHOOLCHILDREN

Staffan Hygge,¹ Gary W. Evans,² and Monika Bullinger³

¹Centre for Built Environment, University of Gävle, Gävle, Sweden; ²Department of Design and Environmental Analysis and Department of Human Development, Cornell University; and ³Department for Medical Psychology, University of Hamburg, Hamburg, Germany

Abstract—Before the opening of the new Munich International Airport and the termination of the old airport, children near both sites were recruited into aircraft-noise groups (aircraft noise at present or pending) and control groups with no aircraft noise (closely matched for socioeconomic status). A total of 326 children (mean age = 10.4 years) took part in three data-collection waves, one before and two after the switch-over of the airports. After the switch, long-term memory and reading were impaired in the noise group at the new airport, and improved in the formerly noise-exposed group at the old airport. Short-term memory also improved in the latter group after the old airport was closed. At the new airport, speech perception was impaired in the newly noise-exposed group. Mediational analyses suggest that poorer reading was not mediated by speech perception, and that impaired recall was in part mediated by reading.

A consequence of modern means of transportation is widespread noise exposure. In Europe, almost 25% of the population is exposed to equivalent noise levels (L_{eq}) of 65 dBA or more (Berglund & Lindvall, 1995). At this level, annoyance is marked, sleep is disturbed, and some cognitive processes are impaired (Cohen, Evans, Stokols, & Krantz, 1986; Evans & Lepore, 1993; Smith & Jones, 1992). Noise exposure is consistently correlated with reading deficits and may interfere with speech perception and long-term memory in primary-school children (Evans & Lepore, 1993).

The simultaneous opening and closing of the new and former Munich Airport provided us with an unprecedented opportunity to conduct a prospective study of the effects of aircraft noise on children. This is the only prospective study of nonauditory effects of noise on children that has been undertaken. Moreover, cessation of noise at the old airport provided a unique opportunity to assess whether expected, noise-related impairments are reversible. Sociodemographically matched control groups exposed to little aircraft noise were formed at both airports. By testing the children in silence and not in everyday-noise settings, we eliminated confounds between chronic versus acute noise. Furthermore, examination of the interplay among attention, memory, and reading over time enabled us to test whether expected noise-related reading deficits could be accounted for by shifts in underlying cognitive processes.

Previous cross-sectional research (Cohen et al., 1986; Cohen, Glass, & Singer, 1973; Evans & Maxwell, 1997) indicated that noise-related reading deficits might be mediated by a cognitive strategy wherein children become less attentive to auditory stimuli as a way to cope with noise. It is unclear whether such shifts in attentional strategies are general to noise

or specific to speech. Laboratory noise also impairs both long-term memory (Hygge, 1997; Hygge, Boman, & Enmarker, in press) and short-term memory (Hamilton, Hockey, & Rejman, 1977; Hockey, 1979). Both speech perception and memory are related to reading acquisition (Crowder & Wagner, 1992; Mann & Brady, 1988).

In summary, we collected prospective data to assess how children's reading was affected by changes in ambient noise levels caused by modified airport operations. In addition, we investigated two cognitive processes, attention and memory, implicated in prior experimental work on acute noise exposure, and how they relate to speech perception.

METHOD

Design and Subjects

The two experimental groups comprised children who were (old airport) or would be (new airport) exposed to aircraft noise. The two control groups were selected from areas that had little exposure to aircraft noise. The control groups were matched with their respective experimental groups on the basis of sociodemographic characteristics. One wave of data collection started 6 months prior to the changeover of airports, the second wave was 1 year later, and the third wave 2 years later. A total of 326 children participated: 43 in the old-airport, no-noise group; 65 in the old-airport, noise group; 107 in the new-airport, no-noise group; and 111 in the new-airport, noise group. Their ages ranged from 8 to 12 ($M = 10.4$, $SD = 0.85$). The children at the new airport were tested 3 to 5 months before the children at the old airport, but there was no difference in average year of birth. Criteria for taking part in the study were a minimum of 2 years of residence and German fluency, which ruled out confounds with ethnicity. Normal hearing, as assessed by audiometric screening, was also a criterion for participation. The experimental and control groups at the two airports did not differ in age, gender, ethnicity, number of family members, parental occupation, or education, and attrition did not differ among the four groups, $\chi^2(3, N = 326) = 1.64, p > .10$.

Procedure and Materials

At each data-collection wave, the children were tested individually in silence for 1.5 hr on 2 consecutive days in a specially designed temperature-controlled and sound-attenuated mobile laboratory that traveled to their schools. The children worked individually on an array of different tasks. In this article, we present only the cognitive dependent measures. (For data on physiological stress and mental health, see Bullinger, Hygge, Evans, Meis, & von Mackensen, 1999; Evans, Bullinger, & Hygge, 1998; Evans, Hygge, & Bullinger, 1995.)

Address correspondence to Staffan Hygge, Laboratory of Applied Psychology, Centre for Built Environment, University of Gävle, SE-801 76 Gävle, Sweden; e-mail: staffan.hygge@hig.se.

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Reading

A standardized German reading test was employed (Biglmaier, 1969). The children read paragraphs and word lists of increasing difficulty. Some of the words in the lists were pseudowords, but phonologically appropriate in German.

Memory

On the first day, the children read a text in intermittent broadband noise at 80 dBA L_{eq} , and the number of lines read within the 12-min time limit was noted. On the second day, the children were tested for long-term memory (recall) in silence. We introduced noise exposure during encoding to make the task more difficult. Children's performance on this test is sensitive to acute noise exposure (Hygge, 1997). For the short-term memory test, strings of consonants were presented one per second over headphones. Randomly, the sequence was stopped, and the children were asked to write down as many consonants as they could remember, in the correct position, starting at the end of the sequence. Letters in the correct or adjacent positions were scored as correct. Acute noise is known to impair performance on this task (Hamilton et al., 1977).

Attention

Two indices of general attention were used: visual search and reaction time. The visual search task is sensitive to ventilation noise (Hygge, 1991) and chronic stress (Baum, Gatchel, & Schaeffer, 1983). For this task, the children were presented with 12 complex figures and 5 simple target figures and asked to identify which one of the target figures was embedded in each complex figure. In the reaction time task, the children responded to random occurrences of red and green lights by pressing two different buttons. The children performed this task first in a silent 5-min session and then in an equally long session with aircraft noise at 85 dBA L_{eq} .

Speech perception

The speech perception measure was adapted from Hygge, Rönnerberg, Larsby, and Arlinger (1992). The children heard a story against different noise backgrounds (aircraft noise, road noise, and broadband noise) and used buttons labeled "+" and "-" to adjust the sound level of the story when it dropped randomly by 10 dBA. They were instructed to readjust the volume to the point where they could understand what was said if they concentrated. Noise-exposed children appear to ignore or tune out speech-relevant stimuli (Cohen et al., 1973, 1986; Evans & Maxwell, 1997) and are expected to require better signal-to-noise ratios than children who have not been exposed to noise.

RESULTS

Noise Levels

Noise levels were measured with a Brüel & Kjær (Copenhagen, Denmark) Community noise-level analyzer for a 24-hr period during data collection at the mobile laboratory. The expected changes in noise levels were observed at both airports (see Table 1).

Table 1. Noise levels (24-hr dBA L_{eq}) before and after the airport switch

Airport and group	Before switch (Wave 1)	After switch (Wave 3)
Old airport—aircraft noise	68	54*
Old airport—no aircraft noise	59	55
New airport—aircraft noise	53	62
New airport—no aircraft noise	53	55

*This number is an average from Waves 2 and 3 because there was only one observation in Wave 3, at a suspect value of 49.

Reading

On the word-list part of the reading test, only difficult words showed differences between the groups (see Fig. 1). The Airport \times Group \times Wave interaction was significant, $F(2, 252) = 5.10, p = .007$. (All F tests with repeated measures of wave were treated as multivariate analyses of variance, MANOVAs, rather than univariate analyses of variance, ANOVAs. These MANOVAs yield higher p values,

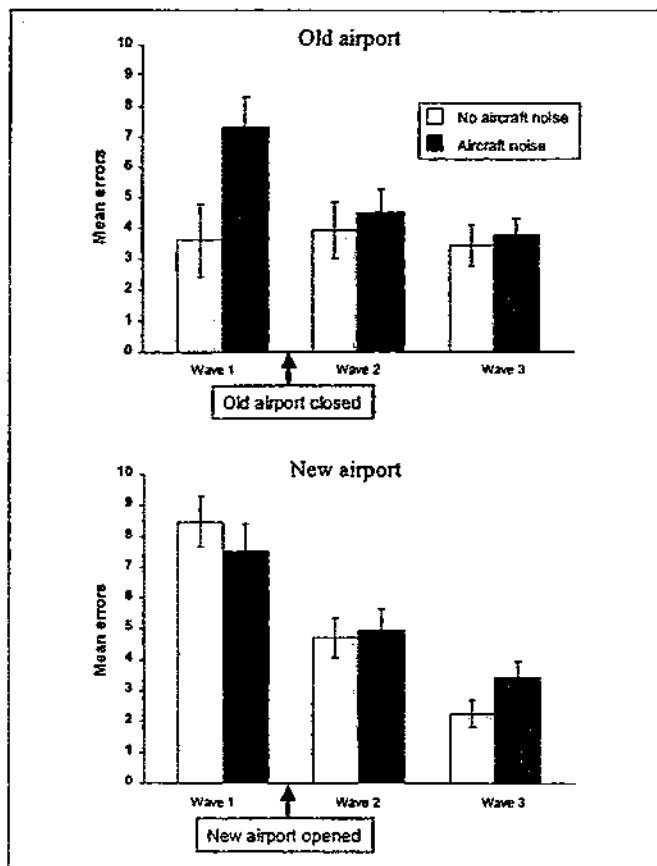


Fig. 1. Mean number of errors on the difficult word list as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

and thus are more conservative, than the corresponding univariate epsilon-corrected Greenhouse-Geisser ANOVAs.) Separate *t* tests (two-tailed throughout, except as noted) showed a difference between groups at the old airport at Wave 1, $t(99) = 2.68, p = .009$, but not at Waves 2 and 3 ($ts < 1$). At the new airport, there was a marginal difference between groups at Wave 3, $t(154) = 1.80, p = .074$, but not at Waves 1 and 2 ($ts < 1$).

The results for the prose component of the reading test were similar to those for the word-list test, but not as marked. For the most difficult paragraphs (Numbers 8–12), there was a weak Airport \times Group \times Wave interaction, $F(2, 172) = 2.16, p = .118$ (see Fig. 2). Separate *t* tests revealed a difference between groups at the old airport at Wave 1, $t(82) = 2.79, p = .007$, but not at Waves 2 and 3 ($ts < 1$). At the new airport there were no significant effects.

Memory

On the long-term recall task (see Fig. 3), there was a significant Airport \times Group \times Wave interaction, $F(2, 311) = 4.25, p = .015$. Separate *t* tests showed a marginally significant difference between groups at the old airport at Wave 1, $t(104) = 1.88, p = .062$, one-tailed, but not at Waves 2 and 3 ($ts < 1.28$). At the new airport, there was a difference between groups at Wave 3, $t(208) = 2.72, p = .007$, but not at Waves 1

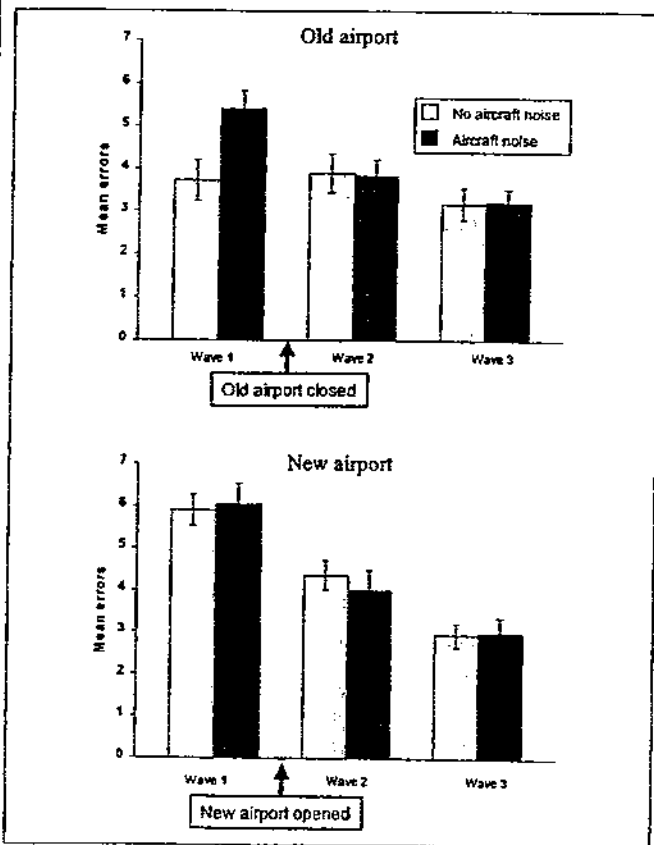


Fig. 2. Mean number of errors on the difficult paragraphs in the reading test as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

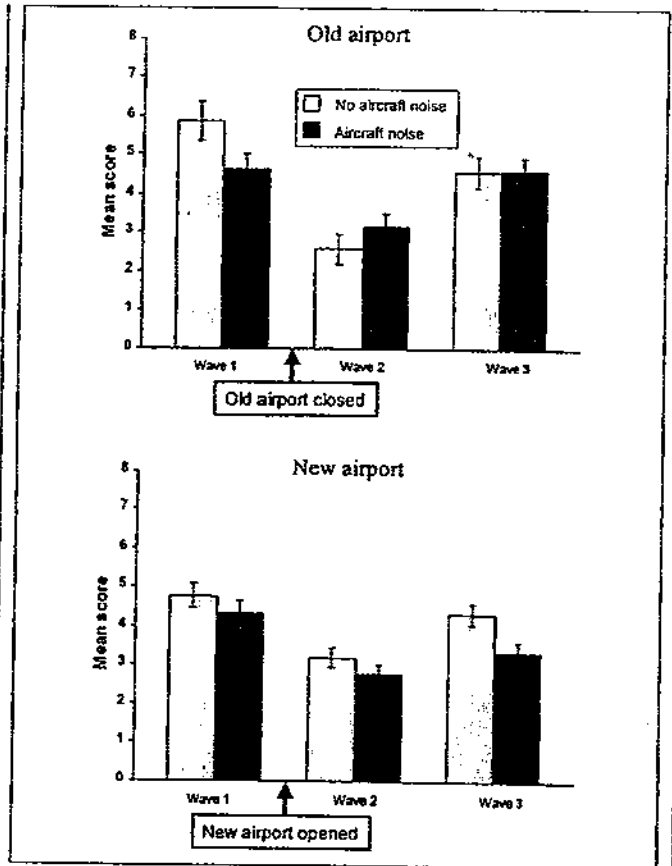


Fig. 3. Mean score on the long-term memory task as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

and 2 ($ts < 1.12$). For the number of lines completed, there were no noise effects.

At the old airport, the short-term memory test showed a significant Group \times Wave interaction, $F(2, 203) = 5.97, p = .004$. The poorer short-term memory performance of the noise group recovered to reach the level of the control group's performance at Waves 2 and 3 (see Fig. 4). Separate *t* tests showed tendencies toward more correct responses in the no-noise group than in the noise group at Wave 1, $t(104) = 1.70, p = .092$; the difference was in the opposite direction at Wave 2, $t(104) = 1.63, p = .108$, and there was no difference between groups at Wave 3. At the new airport, there were no differences between the groups across the waves.

Attention

For the embedded-figures task, there were no reliable interactions involving chronic aircraft noise over time.

For the reaction time task, a MANOVA of reaction time and errors together yielded an Airport \times Group \times Wave interaction, $F(4, 179) = 5.58, p = .004$. Performing the task in acute noise or no noise did not qualify this interaction, and there was no main effect of acute noise, $F_s < 1$. Only reaction time, not errors, contributed to the interaction. The aircraft-noise group at the old airport was slower than its control group

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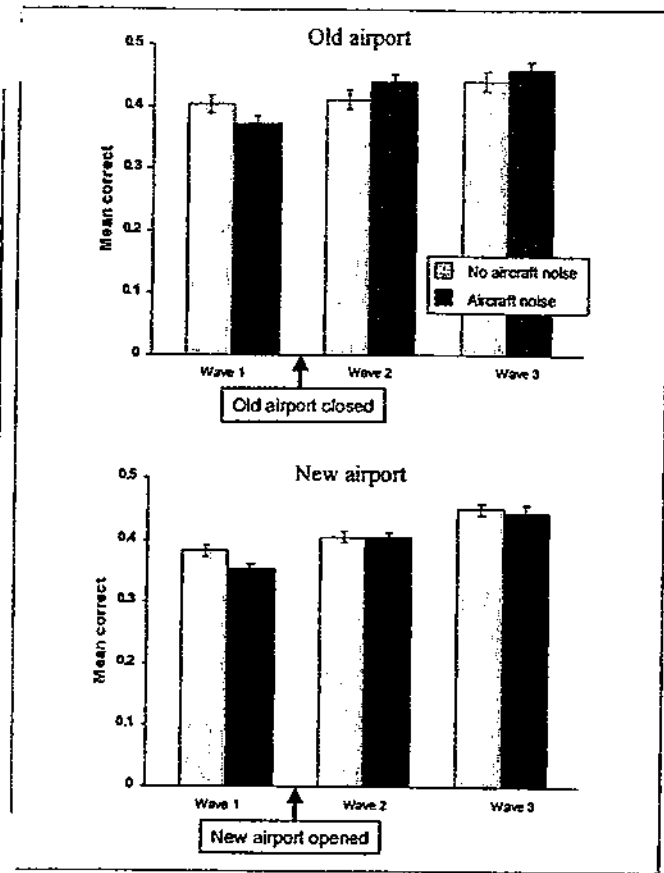


Fig. 4. Mean proportion of correct items on the short-term memory task as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

at Wave 2, $t(61) = 2.29, p = .026$, but not at the other waves ($ts < 1.34$). At the new airport, the aircraft-noise group was slower than the no-aircraft-noise group at Wave 3, $t(121) = 2.09, p = .039$.

Speech Perception

Because of apparatus failure and resulting low ns , data from Wave 2 on the speech perception task were discarded. As Figure 5 shows, speech perception improved from Wave 1 to Wave 3 at the old airport, but there was no differential improvement between the groups. At the new airport, the onset of aircraft noise seemed to block improvement in auditory discrimination from Wave 1 to Wave 3, as evidenced by the Group \times Wave interaction, $F(3, 150) = 7.63, p = .000$.

Mediation

To probe for mediation, we entered into path analyses (LISREL; Jöreskog & Sörbom, 1996) the difference scores between performance in the last and first measurement waves for the paragraph reading task, the difficult word list, the long-term memory task, the number of lines completed, the short-term memory task, and the speech perception task. The results of these path analyses were straightforward and showed a

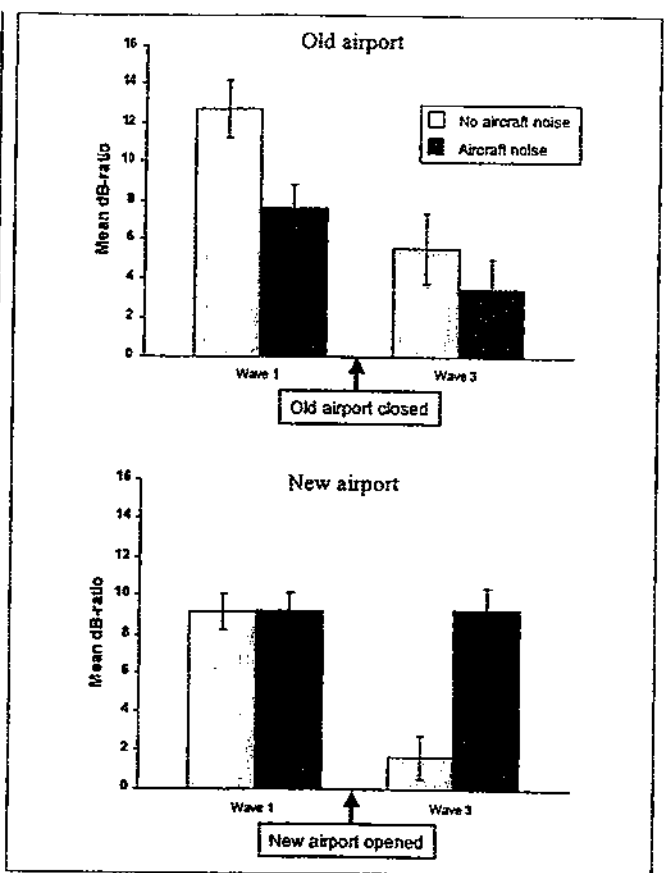


Fig. 5. Mean dB ratio of speech to noise on the speech perception task as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

very good fit between data from both airports and one of the models (see Fig. 6). Good fits were indicated by both a high p value ($> .05$) for chi-square and a low value of the root mean square error of approximation ($< .08$; Jöreskog & Sörbom, 1996). In this model, the noise effect on the reading tasks was not mediated by memory or speech perception. For long-term memory, there was a partial mediation by the word-list component of the reading task. For all the other tested variables in different combinations there were no indications of mediating links. The value of N in this analysis was low, mainly because of participants not finishing the difficult reading paragraphs in Wave 1. However, path analyses not including reading, and thus having a higher N , yielded path coefficients between the other variables that were of approximately the same strength as shown in Figure 6.

DISCUSSION

These longitudinal data complement nearly 20 cross-sectional studies showing adverse impacts of aircraft noise on reading in elementary-school children. Moreover, these effects occur prospectively and may be reversible. We have also demonstrated prospective impacts of chronic noise on long-term memory. More work is needed to determine the sensitivity of this effect to the duration of exposure, as well as children's age.

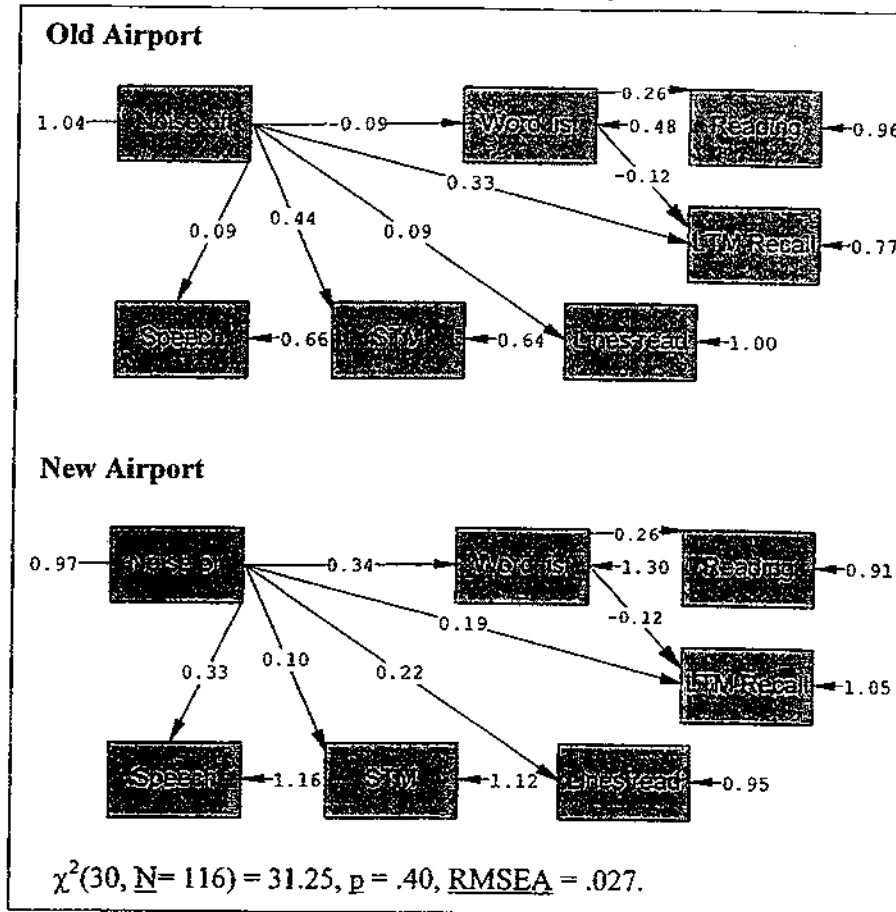


Fig. 6. Model fit (chi-square and root mean square error of approximation, RMSEA) and standardized path coefficients between cognitive measures. The cognitive measures were calculated as difference scores between the last and first measurement waves for the difficult word list ("Word list"), the paragraph reading task ("Reading"), the long-term memory task ("LTM Recall"), the number of lines completed ("Lines read"), the short-term memory task ("STM"), and the speech perception task ("Speech"). The paths from Word list to Reading (0.26) and LTM Recall (-0.12), with values in smaller print, were constrained to be equal at the two airports.

This is also the first study to show prospective impacts of chronic noise on a cognitive process, long-term memory. Weaker evidence suggests noise-induced deficiencies in speech perception and short-term memory.

Reading and long-term memory effects replicated, disappearing when the old airport closed and emerging after the new airport opened. This provides strong causal evidence for the vulnerability of central language processing to noise exposure, and the reversible nature of the impact. Additional research is needed to see whether the adverse noise effects on reading and recall continue over time. Note that at the new airport the negative effects were stronger at Wave 3 than at Wave 2, which suggests a cumulative noise effect.

The speech perception findings warrant further research. Differences in speech perception did not mediate noise effects on reading. The lack of mediation is inconsistent with prior cross-sectional studies (Cohen et al., 1973, 1986; Evans & Maxwell, 1997). The present longitudinal data raise doubts about the validity of inattention, or "tuning out," as an explanatory mechanism for the adverse impacts of noise on reading performance.

Furthermore, although children's reading worsened with cumulative noise exposure at the new airport and recovered following noise cessation at the old airport, speech perception deficits among noise-exposed children at the old airport did not recover. This suggests that speech perception did not mediate the noise effects on reading, a conclusion that is also indicated by the structural equation results. An explanation for this pattern of results may be the developmental timing of the noise exposure. Perhaps noise exposure damages the development of speech perception in different ways during the early and late portions of the reading-acquisition period.

Future research needs to address the importance of both the developmental timing and the duration of noise exposure in determining the effect of noise on reading and cognitive development. Research also needs to sample a wider range of noise levels in order to generate a dose-response function for reading, which would provide additional basic evidence and better inform public policy for noise protection of children.

Acknowledgments—This study was conducted while Staffan Hygge was with the National Swedish Institute for Building Research and with Kungl Tekniska Högskolan—Royal Institute of Technology, both in Gävle, Sweden. We are grateful to the families who cooperated with this research. We thank Gerhard Helm, Sylvia von Mackensen, Markus Meis, Gunnar Söderqvist, and Christian Wigren for their dedication to the project. This research was partially supported by the Society for the Psychological Study of Social Issues, the National Institute of Health (R01 HL 4732 01A), the National Institute of Child Health and Human Development (1 F33 HD 08473-01), the Nordic Scientific Group for Noise Effects, the Swedish Environmental Protection Agency, the German Research Foundation (DFG), and the National Swedish Institute for Building Research. The third author was also supported by a DFG Heisenberg Fellowship. We are particularly grateful to Nils Antoni, former director of the National Swedish Institute for Building Research, who efficiently made necessary funds available at the outset of the Munich study.

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(RECEIVED 12/1/00; REVISION ACCEPTED 11/1/01)

Nonauditory Effects of Noise on Children: A Critical Review

Gary W. Evans
Cornell University
New York, USA

Stephen J. Lepore
Carnegie Mellon University
USA

Large numbers of children both in the United States and throughout the economically developing world are chronically exposed to high levels of ambient noise. Although a great deal is known about chronic noise exposures and hearing damage, much less is known about the nonauditory effects of chronic ambient noise exposure on children. To estimate the risk of ambient noise exposure to healthy human development, more information about and attention to nonauditory effects such as psychophysiological functioning, motivation, and cognitive processes is needed. This article critically reviews existing research on the nonauditory effects of noise on children; develops several preliminary models of how noise may adversely affect children; and advocates an ecological perspective for a future research agenda.

Keywords: noise, stress, nonauditory effects, health, cognitive

INTRODUCTION

In 1973 nearly 10 million American school children were exposed to ambient noise levels that exceed federal standards for hearing protection in work settings (Environmental Protection Agency, 1974). Recent studies estimate that American children on average are exposed daily to noise levels in the range of 76-80 Leq (unweighted average of decibel levels for 24 hours) (Roche et al., 1982; Schori & McGatha, 1978). To put these figures in perspective, the EPA recommended limit for risk to hearing is 70 Leq daily exposure for children. Since these assessments of childhood noise exposure, there have been marked increases worldwide in the number of children exposed to noise levels loud enough to impair hearing: this is especially true in underdeveloped countries (Evans, 1990; Suter, 1991).

Many *nonauditory* effects of noise on children also have been detected during the past two decades of research. Nonauditory effects of noise refer to impacts not directly related to sound-

induced damage to the auditory system. Non-auditory effects of noise, such as elevated sympathetic nervous system activity or disturbances in attentional processes, are apparent in children exposed to noise levels far below those necessary to induce auditory damage.

Although there is abundant evidence and analysis of the auditory effects of noise on children (Kryter, 1985; Mills, 1975), there has been little systematic, critical analysis of the nonauditory effects of noise exposure among children. This is a critical omission if we are interested in estimating the true risk of noise exposure to healthy human development. The present article critically examines the empirical evidence on the nonauditory effects of noise on children. The work is organized into three general areas of functioning: physiological, motivation, and cognitive. Both conceptual as well as methodological limitations in the extant research are examined.

Physiological Effects of Noise

Work in animal models and in various occupational settings suggests heightened activation of the cardiovascular system among organisms

Correspondence may be addressed to Gary Evans, Department of Design and Environmental Analysis, College of Human Ecology, Cornell University, Ithaca, NY 14853-4401, USA.

Table 1. Effects of noise on cardiovascular outcomes

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Brackbill et al. (1982)	HR	1 h white noise for 4 consecutive days. 50 and 75 dBA.	(78 males) ages 1 mon. to 80 yrs.	In infants and 8-year olds, HR decreased as sound levels increased. No other main or interactive effects of noise.
Cohen et al. (1980)	BP	Aircraft. 95 dBA peak.	(262) grades 3-4.	Noisy-school children had higher SBP and DBP than quiet-school children.
Cohen et al. (1981)	BP	Aircraft. 95 dBA peak.	(163) grades 3-4, longitudinal sample.	In the longitudinal attrition sample, there were no effects of noise on BP.
Cohen et al. (1986)	BP	Aircraft. 16 dBA sound reduction in noise-abated classrooms.	(163) grades 3-4, longitudinal sample.	SBP marginally lower and DBP significantly lower in quiet- than noisy-school children. SBP and DBP marginally lower in quiet- than noise-abated school children. No BP differences in children in noisy vs. noise-abated school.
Cohen et al. (1986)	BP	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Noisy-school children had higher BP than quiet-school children if were enrolled for 2 yrs or less. No noise effects on children enrolled more than 2 yrs.
Karsdorf & Klappach (1968)	BP	Traffic and street. 63-84 phon.	(262) grades 7-10.	Children in quiet schools had normal BP; whereas those in moderately- to very-noisy schools had elevated BP, especially among older boys.
Ising et al. (1990)	BP	Low altitude military flights. 125 dBA peak/Leq 68 dBA.	(433) ages 10-13 yrs.	Noise-related increases in SBP and DBP for girls, but not boys. Noise-related HR deceleration in boys and girls, but deceleration only significant in boys.
Karagodina (1969)	BP	Aircraft. 112 dBA peak/Leq 58 dBA.	(unavailable) ages 9-13 yrs.	Noisy-school children had higher BP than quiet-school children.
Roche et al. (1982)	BP	Self-report of exposure to loud noise sources. 80-Leq.	(233) ages 12-14 yrs.	Self-reported noise exposure levels not associated with BP.

Note: HR = heart rate, BP = blood pressure, S = systolic, D = diastolic.

chronically exposed to noise (Kryter, 1985; Smith, in press). As shown in Table 1, several studies have also uncovered evidence of possible linkages between chronic noise exposure and elevated blood pressure among children.

With two exceptions, all of the studies shown in Table 1 report elevations of resting blood pressure among children chronically exposed to noise. The one experimental study (Brackbill et al., 1982) found habituation to noise, which is a well established psychophysiological finding with short-term noise exposures (Glass & Singer, 1972). The extent of blood pressure elevations found from chronic exposure are probably not clinically significant for children during their youth (Voors et al., 1976), but could portend elevations later in life that might be health damaging (Berenson, 1980). To our knowledge,

there have been no long-term follow up studies of children exposed to noise at an early developmental stage. We know essentially nothing about the long-term consequences of early noise exposure on developing cardiovascular systems.

Both of the studies in Table 1 that found nonsignificant correlations between noise exposure and chronic blood pressure levels have methodological limitations. Roche et al. (1982) relied on children's retrospective reports of exposure to noise events (e.g., motorcycle use) during the previous six months. No data were presented on the reliability or validity of these noise estimates. Furthermore, the children monitored did not live near especially high noise sources (e.g., airports). Instead exposure to point noise sources such as machinery was estimated. Finally, resting blood pressure was only estimated

with one reading. On the other hand, this is the only study to examine the association between typical, daily noise exposures and resting blood pressure among children. All other studies have assessed the association between chronic blood pressure and exposure to high noise sources such as airports, roads, or trains. Analyses of the health effects of typical noise exposure for children are needed but with more adequate measurements of both noise exposure and blood pressure.

The second study to find a nonsignificant association between chronic noise exposure and resting blood pressure levels was conducted with children exposed to high levels of noise from an airport. Cohen et al. (1981) found that a difference in blood pressure between children attending noisy versus quiet elementary schools in a cross-sectional analysis did not replicate when reassessed one year later. Attritional analyses suggested that the failed longitudinal replication was caused by emigration of the families of children in noisy areas with the highest levels of blood pressure. Among children attending quiet schools, on the other hand, there was no selective attrition related to blood pressure levels.

Unlike other studies listed in Table 1, the three studies by Cohen and colleagues (Cohen et al., 1980; 1981; 1986) include statistical controls (e.g., social class, education) to counter potential third variable explanations of the associations uncovered between noise exposure and chronic levels of blood pressure. However, none of the studies is prospective, nor do any show a dose response relation between noise and blood pressure. Furthermore, all of the extant studies have relied upon gross indices of noise exposure - typically peak readings measured at schools.

Noise in the fetal and neonatal environment may be particularly harmful to fetuses and newborns because they are in a period of great organismic plasticity. It is well established that environmental sounds and vibration influence physiological and behavioral responses in the fetus (Pikus, 1991). There are contradictory data on the relations between ambient noise exposure and birth weight (for reviews see Pikus, 1991; Smith, in press) but little or no definitive evidence for teratological effects of chronic noise exposure (Edmonds et al., 1979; Meyer et al., 1989). Nonetheless, it is critical for more thorough and extended investigation of the potential impacts of routine modern medical procedures such as ultrasound monitoring or

placement of premature babies in intensive care nurseries with extremely noisy equipment (Gottfried et al., 1981; Lawson et al., 1977).

Summary

Residing or attending school near a major noise source is associated with elevated blood pressure. More research is clearly called for, especially tracking children before, during, and after exposure to noisy environments. All evidence to date is correlational and even though some studies have included good controls, stronger, quasi-experimental designs are needed to firmly tie noise to the etiology of cardiovascular changes in children. The degree of blood pressure elevations is small, on the order of 4-8 mm of mercury, but these elevations do not appear to habituate with continued exposure (cf., Cohen et al., 1986). The clinical significance of such changes in childhood blood pressure is difficult to determine. The ranges of blood pressure among noise-exposed children are within normal levels and do not suggest hypertension. On the other hand, elevations in blood pressure among children appear to track into adulthood (Beren-son, 1980), increasing the potential risk for cardiovascular disease. It would also be of value to examine neuroendocrine makers of stress (e.g., cortisol) that have been implicated in the casual pathways between stressors and cardiovascular outcomes.

Emotional/Motivational Effects of Noise

The uncontrollability of chronic noise exposure may affect childrens' emotional and motivational states. When organisms are exposed to repeated, uncontrollable events, learned helplessness can occur (Abramson et al., 1978; Seligman, 1975). Learned helplessness means the organism learns that the outcomes of its behavior are independent of its responses. Learned helplessness is manifested as a lack of effort or responsiveness to environmental stimuli and challenges. Uncontrollable noise has been shown to induce helplessness in adults (Hiroto, 1974; Hiroto & Seligman, 1975; Krantz et al., 1974). Moreover, adults immediately following exposure to uncontrollable noise are less likely to persist on difficult or challenging aftereffect puzzles than their counterparts with prior exposure to controllable noise (Cohen, 1980; Glass & Singer, 1972).

Overall, though, very little is known about the

Table 2. Effects of noise on motivation (learned helplessness)

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Cohen et al. (1980)	Performance on moderately difficult puzzle after pretreatment with insoluble or soluble puzzle.	Aircraft. 95 dBA peak.	(262) grades 3-4.	Noisy-school children failed more on pretreatment soluble puzzle and difficult test puzzle, and were more likely to give up on difficult puzzle, than quiet-school children. There was a nonsignificant trend suggesting that longer exposure to a noisy school was associated with greater time to complete difficult puzzle.
Cohen et al. (1981)	Performance on moderately difficult puzzle.	Aircraft. 95 dBA peak.	(163) grades 3-4, longitudinal sample.	Noisy-school children were more likely to fail at the test puzzle and to take longer to solve the puzzle than quiet-school children. No noise effect on rate of giving up.
Cohen et al. (1981)	Performance on moderately difficult puzzle.	Aircraft. 16 dBA sound reduction in noise-abated classrooms.	(163) grades 3-4, longitudinal sample.	Sound attenuation improved children's performance on the original test puzzle.
Cohen et al. (1986)	Performance on moderately difficult puzzle.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Noisy-school children failed difficult puzzle more frequently than did quiet-school children.
Cohen et al. (1986)	Choice task.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Noisy-school children more likely than quiet-school children to give choice of reward to experimenter.
Moch-Sibony (1984)	Rosenzweig frustration tolerance test.	Aircraft. 29 vs 54 SIL.	(80) kindergarten.	Noise-related decreases in frustration tolerance.
Wachs (1987)	Observer ratings of mastery-oriented play behavior.	Ratings of noise: 1 = normal level voices in home for 15 min. period to 4 = noisy level voices in home for more than half 15 min. period.	(88) 12 mon.	Less mastery-oriented play behavior in noisier homes.

Note: SIL = speech interference level.

relations between chronic exposure to environmental stressors such as noise and the induction of helplessness in human beings. Community surveys of noise annoyance frequently note that while annoyance is common, complaints or other actions to intervene are rare (Evans & Tafalla, 1987). Most residents who are annoyed by noise report feeling unable or helpless to alter the situation (Jue et al., 1984). The small minority who do complain or take other actions report feeling greater self-efficacy to cope with the noise (Jue et al., 1984).

As shown in Table 2, a few studies have examined the effects of noise on children's motivational states. The significant relations between noise exposure and motivational deficits in one cross-sectional study (Cohen et al., 1980) were replicated both in a longitudinal study (Cohen et al., 1981) and in a second, cross-sectional study

(Cohen et al., 1986). Higher noise exposure in children has been associated with reduced persistence on challenging puzzles and greater abdication of choice over rewards (see Table 2). Perhaps the most persuasive data of reduced motivation in an achievement related situation is Cohen et al.'s (1980) findings on giving up. Not only were children from noisy schools less likely to solve a challenging puzzle within a four minute time period, a substantially greater proportion of them (15%) simply gave up before the allotted time had elapsed, often remarking that they couldn't do the task, in comparison to 2% of their quiet school counterparts who gave up.

Of additional interest, teachers from schools located in noisy settings report more difficulties motivating students to perform than do teachers from relatively quiet schools (Crook & Langdon, 1974; Kyzar, 1977; Moch-Sibony, 1984).

Even very young children appear to be less motivated to engage in object mastery or control over their environment, after prolonged exposure to noise. For example, 12-month-old infants living in noisier households tended to engage in less effective, mastery-oriented interactions with toys in their homes than did children from relatively quiet homes (Wachs, 1987).

Learned helplessness is more apt to occur when individuals make stable, personological attributions (e.g., ability) rather than ascribe global or temporary reasons (e.g., bad luck, poor effort) for their failures (Abramson et al., 1974; Silver et al., 1982). No research on noise and motivation has examined these underlying attributional processes. Future research should also directly manipulate contingencies in a task (e.g., provision of insoluble puzzles) and then examine differences in tendencies to become helpless along with attributional measures, as a function of chronic noise exposure. In addition, researchers should examine the possible mental health consequences of noise-related learned helplessness. If noise heightens vulnerability to helplessness, then it is reasonable to suspect possible connections between chronic noise exposure and certain psychological problems in children. In one exploratory study, Wachs (1988) found a positive association between noise levels in the home and adaptability, but noise was unrelated to several other indices of temperament. In another study, a composite index of noise and confusion/clutter in the home was linked to difficulty in care requirements for 18-month-old children, although not for 12-month or 24-month-olds (Wachs, 1989)

Summary

Brief exposures to uncontrollable noise are capable of inducing learned helplessness in adults. Chronic residential exposure to noise also appears to be associated with feelings of helplessness among adults living nearby airports. Although the evidence is scant, there are suggestive findings indicating that children chronically exposed to ambient noise sources may be more vulnerable to learned helplessness. Children attending schools in airport flight paths are less likely to solve or persist in attempting to solve challenging puzzles. They are also more likely to abdicate choice over a reward to an adult rather than exercising the choice option themselves. Teachers of children in noisy schools also report, on average, greater difficulties in

motivating children in their school work. Noise in the home may be associated with mastery motivation in very young children. In addition to the small number of studies, all of which are correlational, another drawback to this area of work has been a lack of systematic integration of more sophisticated developmental paradigms for the measurement of motivational deficits in children. The potential pathways among chronic noise exposure, helplessness, and psychological health warrant further research.

Cognitive Effects of Noise

Research on the cognitive effects of noise exposure on children has received the most attention from researchers. This area of research can be subdivided into three subtopics: (i) attention and perception, (ii) memory, and (iii) intellectual achievement.

Attention and perception

The cognitive ability to perceive order and contingency in the environment presumably depends on some modicum of sustained attention to event sequences as they unfold. The interruptive, distracting effects of high ambient noise levels might directly affect the young child's ability to sustain voluntary attention or to concentrate (Heft, 1985).

As shown in Table 3, studies by Karsdorf and Klappach (1968), Kyzar (1977) and by Moch-Sibony (1984) have revealed deficits in standardized measures of sustained attention among children chronically exposed to noise. The standardized tests involve searching for target geometric stimuli from among fields of similar objects. In addition, teachers report that children in noisy schools tend to have more difficulties in concentrating in comparison to children from relatively quieter schools (Crook & Langdon, 1974; Ko, 1979; Kryter, 1985; Kyzar, 1977).

Cognitive studies on children with variable exposures to chronic noise sources also indicate possible decrements in visual attention (see Table 3). Children from noisy homes took longer to locate target pictorial stimuli within an array of pictures than did children from relatively quiet homes (Heft, 1979). Children attending daycare centers located near train tracks performed marginally more poorly on a visual search task

Table 3. Effects of noise on attention

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Crook & Langdon (1971)	Teachers' reports of concentration.	Aircraft. 75 dBA peak.	(76 teachers) primary and secondary.	Teachers in noisy schools reported more concentration problems in students than did those in quieter schools.
Hambrick-Dixon (1986)	Cross-out letters in quiet or noise.	Train. 108 dBA peak.	(109 black) ages 4-6 yrs.	Children from noisy daycare performed task marginally worse than children from quiet daycare.
Hambrick-Dixon (1988)	Visual stimulus detection with verbal or key press response.	Train. 108 dBA peak.	(102 black) ages 5-7 yrs.	interaction between location of daycare, response mode, exposure duration, and sex: On key response, girls in noisy daycare less than 2 yrs made more errors than girls in quieter daycare less than 2 yrs. On verbal response, girls in noisy daycare more than 2 yrs made more errors than girls in quiet daycare more than 2 yrs. No differences in performance of boys in any condition.
Heft (1979)	Response latency in visual search.	Noise ratings: 1 = low to 7 = high.	(94) ages 4-7 yrs.	Higher household-noise level associated with longer response latency.
Karsdorf & Klappach (1968)	Errors and latency on Bourbon test.	Traffic and street. 63-84 phon.	(262) grades 7-10.	Noisy-school students had longer response latency and more errors than quiet-school students.
Ko (1979)	Teachers' reports of concentration.	Aircraft. 105 dBA peak.	(2100 teachers) primary and secondary.	Teachers in noisy schools reported more concentration problems in students than did those in quieter schools.
Kyzar (1977)	Minnesota clerical test.	Traffic and street. 62-94 dBA.	(56) elementary school.	Noise-related deficits in clerical-type task.
Kryter (1985)	Teachers' reports of concentration.	Aircraft. 87 dBA peak.	unavailable.	Teachers in noisy schools reported more concentration problems in students than did those in quieter schools.
Moch-Sibony (1984)	Zazzo sustained attention task.	Aircraft. 29-54 SIL.	(80) kindergarten.	Noisy-school children had poorer sustained attention than did quiet-school children.
Acute noise				
Zentall & Shaw (1980)	Visual search for letters.	Taped class noise from free time (71 dBA) and work time (57 dBA).	(36) grade 2 (hyperactive and non-hyperactive controls).	Noise x Hyperactivity interaction; Hyperactive children made fewer commission errors in low than in high noise conditions; non-hyperactive children unaffected by noise.

Note: SIL = speech interference level.

than did children from relatively quiet daycare centers (Hambrick-Dixon, 1986). In a subsequent study, Hambrick-Dixon (1988) uncovered a more complex relation between chronic noise exposure and attention, utilizing a vigilance task: Gender, exposure duration to train noise at the daycare center, and the response mode for the task (naming versus pressing a key) moderated the association between noise and performance.

Unfortunately, several of the sustained attention and noise studies suffer from methodological shortcomings. The Kyzar (1977) and Karsdorf and Klappach (1968) studies have inadequate controls

for sociodemographic factors. Furthermore, all of the studies are cross-sectional and only the Moch-Sibony (1984) study carefully screened children for normal hearing. The Heft (1979) study relied upon observer ratings of home noise levels, no actual noise measurements were taken.

The Hambrick-Dixon (1988) results are particularly complex and difficult to interpret. One possible explanation for the inconsistency between her results and those of other researchers is that she measured the ability of children to detect a visual signal using tachistoscopic presentation times (100 msec). Thus rather than

Table 4. Effects of noise on auditory discrimination/speech perception

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Cohen et al. (1973)	WAD	Traffic and street. 55-66 dBA.	(54) grades 2-5.	Noise associated with poorer auditory discrimination.
Cohen et al. (1980)	WAD	Aircraft. 95 dBA peak.	(262) grades 3-4.	No effects of noise on auditory discrimination.
Cohen et al. (1986)	WAD	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	No effects of noise on auditory discrimination.
Moch-Sibony (1984)	MP	Aircraft. 29 vs 54 SIL.	(80) kindergarten.	Noise associated with poorer auditory discrimination.
Acute noise				
Blue & Vergason (1975)	GFW	Recorded sounds (unspecified). 55 dBA.	(34) grades 1,3.	Race x Noise interaction: Black children's performance affected more negatively by noise than was white children's performance.
Nober & Nober (1975)	WAD	Recording of classroom noise vs ambient noise. 39.5-64.7 dBA.	(39) ages 5-7 yrs (healthy control, retarded, and speech-deficit).	Fewer errors when tested in quiet vs. normal classroom noise levels. Control and retarded children performed worse in noise than in quiet; speech-deficit group performed worse in noise than in quiet, but the effect was not significant.
McCroskey & Devens (1977)	WAD	Classroom noise recording. 4 dBA above ambient classroom noise	Unavailable.	Noise associated with decrements in auditory discrimination.
Glenn et al. (1978)	Speech discrimination	Recorded hospital sounds. 75 dB SPC (typical for hospitals).	(21) ages 9-14 yrs (institutionalized MR).	Noise mask significantly degraded speech discrimination.
Laraway (1985)	Digit discrimination	Intermittent white noise. 80 dB SPC.	(46) ages 5-21 yrs (CP, healthy controls).	Noise mask degraded performance of CP children but not controls. Noise effects greatest in younger (< 7 yrs) children.
Laskey & Tobin (1973)	Message comprehension	Speech and white noise. 74 dB SPC.	(22) ages 6-8 yrs (possible LD, non-LD controls).	Speech, but not white noise, interfered with auditory message comprehension in LD children. Control children unaffected by noise.

Note: WAD = Wepman auditory discrimination test, GFW = Goldman-Fristoe-Woodcock auditory discrimination task, MP = Massiot Phillips auditory discrimination test, SIL = speech interference level, LD = learning disabled, CP = cerebral-palsied, MR = mentally retarded.

measuring sustained visual attention, Hambrick-Dixon probably measured signal detectability.

As expected given the physical properties of noise, considerable attention has been given to auditory information processing among children exposed to chronic or acute noise sources. One of the cognitive strategies that children may learn in order to adapt to the distracting properties of chronic noise is to filter or tune out unwanted auditory stimuli. The tendency of children in noisy environments to tune out noise may become overgeneralized, such that various types of acoustic stimuli, including speech, are not attended to carefully (Deutsch, 1964). In a direct

test of the tuning out hypothesis, Cohen et al. (1973) compared the ability of children living in quiet and noisy apartments (proximity to a freeway) within the same building to discriminate between similar sounds under quiet conditions. Cohen et al. (1973) as well as Moch-Sibony (1984) found an association between chronic noise exposure and auditory discrimination (see Table 4). Both of these studies had good controls for socioeconomic status, and pre-screened children for hearing loss. Moreover, Cohen et al. (1973) showed that with longer exposure durations, the association between noise and deficits in auditory discrimination became stronger.

Table 5. Effects of noise on resistance to auditory distractors

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Cohen et al. (1980)	Cross-out letters in ambient or distracting (story recording) condition.	Aircraft. 95 dBA peak.	(262) grades 3-4.	Noise × Month enrolled interaction: with less than 2 yrs enrollment, noisy-school children performed better than quiet-school children under distraction. Between 2-4 yrs enrollment, no noise effects. With more than 4 yrs enrollment, noisy-school children performed worse than quiet-school children.
Cohen et al. (1981)	Cross-out letters in ambient or distracting condition.	Aircraft. 95 dBA peak.	(163) grades 3-4, longitudinal sample.	With 2-4 years enrollment, noisy-school children were less distracted than quiet-school children. With more than 4 yrs enrollment, performance was nearly the same across conditions.
Cohen et al. (1986)	Cross-out letters in ambient or distracting condition.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Children attending noisy schools for 2-4 yrs were less distracted than their quiet-school counterparts. However, after 4 yrs enrollment, performance was nearly the same across conditions.
Cohen et al. (1981)	Cross-out letters in ambient or distracting condition.	Aircraft. 16 dBA reduction in noise-abated classrooms.	(163) grades 3-4, longitudinal sample.	No effects of noise abatement on distractibility.
Hambrick-Dixon (1986)	Weschler IQ task and match animals with color disks in quiet or noise conditions.	Train. 108 dBA peak.	(109) black) ages 4-6 yrs.	Children from noisy daycare performed better in noisy than in quiet conditions. The opposite was found for children from quiet daycare centers.
Heft (1979)	Figure discrimination in matching task in quiet or noise.	Story reading. Noise ratings: 1 = low to 7 = high.	(94) ages 4-7 yrs.	Auditory distraction had less of a negative effect on children from noisy homes than on children from quiet homes.
Acute noise				
Turnure (1970)	Performance and glances away from a visual discrimination task.	Recording of child songs/stories. 60 dBA.	(30) ages 5.5, 6.5, 7.5 yrs.	No noise effects on glances, but performance worse in noisy than in quiet conditions.
Steinkamp (1980)	Multiple perceptual and cognitive tasks.	Classroom sounds and gadgets. Ambient noise.	(24) ages 6-8 yrs (hyperactive, non-hyperactive controls).	Classroom noise and distracting visual materials caused deficits on most tasks. No interaction with hyperactivity.

In two subsequent studies, Cohen et al. (1980; 1986) were unable to replicate these findings on noise and auditory discrimination using a different noise source (aircraft as opposed to traffic). The traffic noise study (Cohen et al., 1973) also drew primarily from working class families; whereas the airport study was conducted in a poverty area. Using a different auditory discrimination task, however, did reveal deficiencies in auditory discrimination in children chronically exposed to noise from airports (Cohen et al., 1986). Children were presented a constant signal (man reading a story) superimposed against four different white noise backgrounds. The task was

to choose the optimum signal to noise ratio. Children who attended noisy schools for longer periods were significantly poorer at this signal to noise discrimination task (see Table 4).

Not surprisingly, the acute noise experimental studies in Table 4 indicate that children have difficulty with auditory discrimination during acute noise exposure (Blue & Vergason, 1975; Glenn et al., 1978; Laraway, 1985; Nober & Nober, 1973). Thus noise can directly interfere with children's ability to discriminate between meaningful auditory stimuli. Noise, particularly irrelevant speech, also interferes with comprehen-

sion of spoken language (Glenn et al., 1978; Laraway, 1985; Lasky & Tobin, 1973). The Glenn et al. (1978) data are noteworthy because the researchers used simulated recordings of an institutional setting for the mentally retarded as their noise 'mask'. Typical, ambient levels from the institution were sufficient to produce marked deficits in discriminating speech sounds among mentally retarded children.

Although there are clear overall trends showing that concurrent noise can mask auditory discrimination, as well as speech, there may be individual differences in these effects. Blue and Vergason (1975) found racial differences in auditory discrimination with black children being more adversely affected than white children by concurrent noise. This study was conducted in the Southeastern United States and may not have controlled for the dialect used in stimulus materials. Laraway (1985) reported that only cerebral palsied children were adversely affected by a noise mask in a task in which children were asked to repeat auditorily presented digits. Lasky and Tobin (1973) revealed that only children with suspected learning disabilities had difficulties in tracking an auditory signal against a background of competing, irrelevant speech. The latter study also showed that speech, but not white noise of a similar volume, interfered with message comprehension.

An interesting and provocative question raised by Deutsch's original hypothesis and some of the subsequent empirical work is whether children chronically exposed to noise become so adept at filtering out noise, that they become resistant to its distracting properties. A number of studies shown in Table 5 present suggestive evidence in support of this hypothesis of differential resistance to noise distractors. However, the data are complex.

Kindergarten children from noisy homes were less distracted by irrelevant speech during a visual discrimination task than those from quiet homes (Heft, 1979). In this task, children selected one of several figures that correctly matched a standard figure. Cohen and colleagues (1980) found a similar pattern of results, but only for elementary students exposed to aircraft noise for two years or less. For those exposed longer, auditory distraction during a visual search task (crossing out e's in a text above reading level of the child) interfered more with the performance of noisy-

school children than it did for quiet-school children. This effect was also replicated in a different sample (Cohen et al., 1986). Hambrick-Dixon (1986) uncovered an even more complex pattern of data on a visual coding task among very young children. In this task preschool children placed colored discs next to animal drawings according to an initial set of model comparisons. For children from noisy daycare centers, performance on this task was better under noisy testing conditions than quiet ones; whereas for children from quiet daycare centers, performance was superior during quiet testing conditions than under noisy ones.

Thus, although there is some evidence that children chronically exposed to noise are less distractable by auditory stimuli during a task, with very long exposure (4+ years), they appear to lose this advantage over non-noise-exposed children. Children exposed for short periods of time to chronic noise, may be able to gate out auditory distractors more effectively during tasks; whereas children exposed for long periods of time, may lose this gating ability. This could occur because despite sustained efforts to gate out unwanted sounds, children learn that this coping strategy is ultimately ineffective since the noise remains as a potent distractor.

The type of task, type of noise, and some individual difference variables also may influence whether concurrent auditory stimuli are distracting during task performance. For example, although both Heft (1979) and Cohen et al. (1980; 1986) found that concurrent speech distracted children during a visual search task (finding target objects in a matrix, crossing out target letters in text, respectively), Hambrick-Dixon (1986) had no main effect of a distractor (background noise of a daycare free play period) on performance of a visual matching task (placement of colored discs next to animal drawings). Turnure (1970) found a distracting effect of speech on school children's performance on a visual discrimination task (choosing the odd geometric shape out of three stimuli). However behavioral manifestation of distraction (glancing up) was not observed. Zentall and Shaw (1980) found that classroom noise recordings did not affect a visual letter search task for normal children and degraded performance for hyperactive, elementary-aged children. Finally, Steinkampf (1980) found that the combination of recorded classroom sounds

Table 6. Effects of noise on memory

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Hambrick-Dixon (1986)	Serial, incidental, visual, paired-associates learning.	Train. 108 dBA peak.	(109 black) ages 4-6 yrs.	No noise effects.
Heft (1979)	Incidental memory of visual stimuli.	Noise ratings: 1=low to 7=high.	(94) ages 4-7 yrs.	Higher household noise level associated with poorer incidental memory.
Acute noise				
Fenton et al. (1974)	4 number digit-span.	White noise. 22-72 dBA.	(10 male) ages 9-11 yrs (LD and non-LD).	More errors made in the high noise than in the low noise conditions.
Hygge (1993)	Recall and recognition of reading passage.	Recorded simulations of aircraft, train, traffic, and verbal noise. 66-76 dBA.	(417) ages 12-14 yrs.	Within-subjects analyses revealed a marginal Noise x Source interaction: recall on difficult questions was lower among children in aircraft and traffic noise conditions than in control conditions; no differences in recall in train and verbal noise conditions relative to control condition. Between-subjects analyses also revealed a Noise x Source interaction: recall on difficult questions was lower among children in aircraft noise conditions than in controls; other noise sources did not affect recall. No noise effects on recognition task. Individual differences in learning ability did not moderate noise effects.
Johansson (1983)	Paired-associates learning and letter memory.	White noise. 51 dBA continuous; 55-78 dBA intermittent.	(66) age 10 yrs.	No noise effects.

Note: LD = learning disabled.

played at normal volume and the presence of interesting gadgets were distracting for several tasks among normal and hyperactive boys. Because the latter study did not separate ambient noise from visual distractors, the specific effects of noise cannot be determined.

It is difficult to discern any clear patterns in the above findings on acute, concurrent noise and distraction among children. Speech, as opposed to background noise (e.g., recordings of classroom noise), may be more distracting during task performance. Unfortunately since no studies have used the same task with different aged children, we cannot infer any developmental trends from the data. However it is noteworthy that studies showing no effects tested the youngest children.

Summary

Children chronically exposed to noise may suffer from attentional deficits. Although suggestive,

the work in this area suffers from sufficient methodological flaws (e.g., controls for SES) to prohibit definitive conclusions. Children chronically exposed to noise develop cognitive strategies to cope with the interruptive, distracting influence of noise. Some data suggest that children learn to ignore or tune out auditory stimuli if they have been chronically exposed to noise. At least during the first few years of exposure, children from noisy residential areas appear to be more resistant to acute auditory distractors, presumably because of their enhanced ability to tune out auditory stimuli. These same children may suffer deficits in auditory discrimination. Acute noise distracts children during cognitive task performance, especially when the distractors contain meaningful speech. These acute auditory distraction effects may be more problematic for certain subgroups of children, especially those with some pre-existing cognitive deficits. More research, particularly on groups potentially at risk should be a high priority.

Memory

The noise and memory literature on children (Table 6) is sparse but generally in agreement with the adult literature (Cohen et al., 1986; Smith, in press). There appears to be little or no effects of noise on simple memory tasks from chronic exposure (Hambrick-Dixon, 1986) or acute exposure (Johansson, 1983). However, if sufficient processing demands are placed upon memory, deficits begin to appear in children exposed to noise (Fenton et al., 1974; Hygge, 1993).

Hygge's (1993) experimental findings (see Table 6) are interesting because he compared relatively easy and difficult memory tasks under quiet and noisy conditions, finding that only the difficult tasks were sensitive to noise exposure. Heft's (1979) incidental memory deficits are also noteworthy because they fit with a typical noise and memory finding in adults. The adult incidental memory studies have been interpreted as indicative of attention narrowing or focusing on dominant stimuli (Cohen et al., 1986). Attention narrowing appears to be common under arousing conditions in general (Broadbent, 1971) and under noise specifically (Hockey, 1979). Greater attention to more central cues could lead to poorer encoding of more peripheral material.

Summary

Although there is little research on children's memory under chronic or acute noise conditions, the data are generally in accord with the adult literature on the subject. Noise exposure has little if any effect on children's short term or working memory. Memory tasks that put especially demanding loads on working memory, however, may show some deficits. Narrowing of attention to more central cues under noise may cause poorer memory for incidental information. The potential role of attentional processes in noise-related memory effects warrants further scrutiny.

Intellectual Achievement

Given the reasonable possibility that chronic noise exposure interferes with auditory discrimination and attentional mechanisms, it is not surprising that several researchers have uncovered evidence linking noise exposure with deficits in reading. It is important to note at the onset that unlike chronic effects of noise on cognition, studies of reading and achievement confound chronic and acute noise exposure since they all have relied

upon archival records of achievement tests. As indicated in Table 7, however, the handful of studies of acute noise on intellectual achievement find few if any negative effects. This suggests, indirectly, that the community noise and achievement findings are probably caused by chronic and not acute exposure.

Two clusters of chronic noise associations with intellectual achievement are shown in Table 7. The first group of studies, conducted primarily by Wachs and colleagues, have explored the impacts of early exposure to noise in the home on infants and toddlers. Their work in general finds positive evidence that noise can interfere with normal cognitive development. The findings have been replicated and extended in longitudinal studies (see Wachs & Gruen, 1982, for an overview of this research program). Measurements of cognitive development affected by noise include mental representations of objects, use of objects as tools to achieve goals, and relating words to objects.

One major weakness in Wach's and other research on noise and young children (e.g., Heft, 1979) is reliance on observer ratings of noise exposure rather than actual measurement of physical sound levels. Recently, however Wachs (1988) has validated this measurement approach against decibel meter readings. Another finding that indicates that the effects are due to noise is that access to a secluded quiet room or shelter within the home largely ameliorates the associations between noise ratings and measures of cognitive development (Wachs & Gruen, 1982). Michelson (1968) has found the same buffering effect of a stimulus shelter with home noise levels on elementary school aged children's reading ability. These data on buffering effects of quiet, secluded study spaces in noisy homes raise the possibility, however, that some of the apparent effects of residential noise exposure on cognitive development could be due to residential crowding. It is obviously difficult to disentangle the ecological covariation between these two environmental conditions. Moreover, both of them appear to be associated with deficits in reading acquisition in young children (Evans et al., 1990).

The second group of studies in Table 7, has examined the association between chronic noise exposure at school and/or home with standardized measures of reading and other intellectual achievement tests. With two exceptions, the data

Table 7. Effects of noise on intellectual achievement

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Bronzaft (1981)	Reading.	Train. 6-8 dBA sound reduction in noisy classrooms.	(955) grades 2-6.	After sound reduction with insulation on noisy side of school, students' reading scores on noisy side of school were equivalent to those of students on quiet side of school. In the year before insulation, students on noisy side of school had worse reading scores than students on quiet side of school.
Bronzaft & McCarthy (1975)	Reading.	Train. 59-89 dBA.	(161) grades 2, 4, 6.	Students' reading scores lower on noisy side of school than on quiet side, especially in higher grades.
Cohen et al. (1973)	Reading.	Traffic and street. 55-66 dBA.	(54) grades 2-5.	Noise associated with greater reading deficits in children living in apartments for 4 or more years.
Cohen et al. (1980)	Reading and math.	Aircraft. 95 dBA peak.	(262) grades 3-4.	No noise effects.
Cohen et al. (1981)	Reading and math.	Aircraft. 95 dBA peak.	(163) grade 3-4, longitudinal.	No noise effects.
Cohen et al. (1981)	Reading and math.	Aircraft. 16 dBA sound reduction in noise-abated classrooms.	(163) grade 3-4, cross-sectional.	Noise abatement results in 3rd grade only. Third graders in noise-abated classrooms performed better in math than 3rd graders in non-abated classrooms; 3rd graders in noise-abated classrooms also performed better in reading, but not significantly so.
Cohen et al. (1986)	Reading and math.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	No noise effects.
Gottfried & Gottfried (1984)	BSID, OP, MS, TELD	Noise ratings: 1 = normal level voices in home for 15 min. period to 4 = noise level voices in home for more than half 15 min. period.	(130) 12 mon. infants tested every 6 mon. up to 42 mon.	Higher household noise associated with lower scores on OP at 12-18 mon., on TELD at 39 mon., on BSID at 18 mon., and on MS scores at 42 mon.
Green et al. (1982)	Percent reading below grade level.	Aircraft. 96.2 dBA peak.	(8,240) grades 2-6.	Greater percentage of noisy-school children read below grade level. Effects strongest in higher grades.
Lukas et al. (1981)	Reading and math.	Traffic and street. 70 dBA peak.	(2500) grades 3,6 (100 classes sampled).	Reading scores lower for 3rd and 6th graders in noisier classes. Math scores lower in students in noisier 3rd grade classes, but higher in 6th grade students in noisier classes.
		Ambient classroom and community. 45-75 dBA.		Inverse correlations between community noise and math and reading scores were similar to but less consistent than those between classroom noise and math and reading scores. There also was a synergistic effect of home and school noise on reading.

Table 7. *Continued*

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Wachs et al. (1971)	IPDS	Noise ratings: 1 = normal level voices in home for 15 min. period to 4 = noise level voices in home for more than half 15 min. period.	(102) ages 7, 11, 15, 18, 22 mon.	Higher household noise associated with lower IPDS scores.
Wachs (1978)	SB	Ratings of noise: same as Wachs et al. (1971).	(23) ages 2-3 yrs. longitudinal.	Higher household noise associated with poorer SB performance in boys, no significant effect in girls.
Wachs (1979)	IPDS	Ratings of noise: same as Wachs et al. (1971).	(31) ages 2-3 yrs. longitudinal.	Higher household noise associated with lower IPDS scores in boys and higher IPDS scores in girls.
Wachs & Gandour (1983)	IPDS	Ratings of noise: same as Wachs et al. (1971).	(100) ages 7, 11, 15, 18, 22 mon.	Higher levels of household noise associated with lower IPDS scores, particularly in fussy and irritable infants.
Michelson (1968)	Language, spelling, and math.	Home environment ratings. Scale unavailable.	(710) grades 1-5.	Noise associated with language and spelling difficulties. Noise not associated with math achievement.
Maser et al. (1978)	Reading and math.	Aircraft. 90 dBA peak.	(1917) grades 3, 5, 7, 10.	Noise associated with reading and math deficits in 7th and 10th graders, but only marginal effects on 5th graders. Children with lower aptitudes were most adversely affected by noise.
Acute noise				
Christie & Glickman (1980)	SPM	Recorded classroom noise. 40 and 70 dBA.	(156) grades 1, 3, 5.	Noise x Sex interaction: Boys performed better in noisy than in quiet conditions; girls performed better in quiet than in noisy conditions.
Johansson (1983)	Reading and math.	White noise. 51 dBA continuous, and 55-78 dBA intermittent.	(66) age 10 yrs.	Noise x Intelligence interaction on multiplication and reading performance. Above-average intelligence children solved more multiplication problems in noise than in quiet; below-average intelligence children showed the opposite trend, but noise effects were not significant. Below-average intelligence children tended to have poorer reading speed under noise; there was little difference in reading performance between noise groups with above-average intelligence.
Kassinove (1972)	Math.	Recorded child stories and music. 70-80 dBA.	(80) grades 3,6.	No noise effects on response latency, accuracy, or time-out from task.
Slater (1968)	Reading and math.	Ambient classroom noise, music, stomping and banging, tractor-mower, or quiet crossed with taped white noise. 45-90 dBA and 50-80 dBA white noise.	(263) grade 7.	No noise effects on speed or accuracy.

Table 7. *Continued*

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Weinstein & Weinstein (1979)	Reading.	Classroom: Ambient noise levels during early (noisy) and late (quiet) time of day. 47-60 dBA.	(60) grade 4.	No noise effects.
Zentall & Shaw (1980)	Math.	Taped noise from 2nd grade class. 64 and 69 dBA.	(48) grade 2 (hyperactive, normal controls).	Noise x Hyperactivity interaction: Hyperactive children performed marginally worse in high noise than in low noise; non-hyperactive children performed worse in low noise than in high noise conditions.

Note: BS = Bayley scales of infant development, OP = object permanence scale, MS = McCarthy scales of children's abilities, TELD = test of early language development, IPDS = Piagetian-type measure of infant psychological development, SD = Stanford-Binet test of intelligence, SPM = standard progressive matrix test.

converge on the conclusion of a relation between community noise exposure and reading ability. Several of the studies have good controls for sociodemographic characteristics in the samples and some have screened out children with auditory deficits. Moreover, Green et al. (1982) found a dose response function between noise exposure and reading deficits. Furthermore, the effects in the Bronzaft studies (Bronzaft, 1981; Bronzaft & McCarthy, 1975) cannot be attributed to self-selection. Children were not assigned in any systematic manner to classrooms on the noisy or quiet side of a building located next to elevated train tracks. On the other hand, all of the studies except for Bronzaft (1981) and Cohen et al. (1981) are cross-sectional and neither of these longitudinal studies are prospective. The Bronzaft (1981) findings are particularly important because they indicate that classrooms on the side of an elementary school near elevated train tracks that previously had lower reading scores in comparison to classrooms on the opposite side of the building (Bronzaft & McCarthy, 1975) no longer differed in reading scores following noise insulation in the schools and on the tracks.

The two studies that have not found reliable noise effects on reading may have poor statistical power. Both Cohen et al. (1980; 1986) and Moch-Sibony (1984) tested children from different schools, with different teachers, and in the former case from different school districts. In addition, both restricted their analyses to children from lower grades and did not attempt to tease out the

effects of noise on children of differing ability.

As indicated in several of the citations in Table 7, children in higher grades appear to be more negatively affected by noise exposure on reading than their younger counterparts (cf., Cohen et al., 1973; Green et al., 1982; Lukas et al., 1981; Maser et al., 1978). Children who have lower aptitude or other difficulties may be more vulnerable to the harmful effects of noise on reading (Maser et al., 1978). We also noted earlier several distraction studies indicating more disruptive effects on children with various learning deficiencies. Finally, Lukas and colleagues (1981) uncovered a significant synergistic effect of home and school noise exposure on reading scores.

Summary

Acute noise exposure appears to have little effect on reading and other intellectual activities. During early development, however, residential noise appears to delay cognitive development. In addition, chronic exposure to noise has been associated with reading deficits in seven out of nine studies, particularly for children in higher elementary school grades. There is also evidence that children with lower aptitude and those who also live in noisier homes appear more susceptible to the association of chronic noise exposure at school with reading deficits. The latter trend is interesting to consider in light of attentional data also showing more negative effects of noise exposure on children with pre-existing cognitive deficits.

DISCUSSION

Overview

We know with a good deal of certainty that chronic exposure to noise is associated in children with modest elevations of resting blood pressure, attentional deficiencies, and deficits in reading. Other effects suspected from chronic noise exposure include diminished task motivation, deficits in auditory discrimination, shifts in resistance to auditory distractors, poorer memory when high information processing demands are present, and deficits in infant cognitive development. The latter group of suspected effects include inconsistent data in some cases (auditory discrimination, resistance to distraction) or trends that have only been uncovered in one or two studies (motivation, memory, infant cognitive development). Tables 1-7 provide summary information that forms the bases for these conclusions.

Two major methodological shortcomings are prominent in the literature we have reviewed. Most critically, there is a total lack of prospective, longitudinal designs in this research area. Prospective, longitudinal studies are the strongest, quasi-experimental designs that can be applied in field studies and help deal with the host of threats (e.g., self-selection, confounding third variables) that plague correlational designs (see Cohen et al., 1986; Evans & Lepore, in press, for further discussion of methodological problems in field studies of environmental stressors). Such prospective studies must include well matched comparison groups and collect important personal data known to relate to outcomes of interest. Besides their utility as potential control variables in nonexperimental study designs, background variables can enhance statistical power by reducing unexplained variance in the outcome measure of interest. Studies on cardiovascular outcomes, for example, need to collect data on family history of hypertension. Research on reading should collect information on parental education levels and child's intelligence. Prospective, longitudinal designs will have to contend, however, with the potential interfering effects of selective attrition. As documented earlier, Cohen and his colleagues (1981), in one of only two longitudinal studies of noise and children, found that a year later children with the highest levels of blood pressure in their initial

cross-sectional analysis of quiet and noisy schools had moved out of the area. No such selective attrition was found among children in quiet schools.

The second major methodological shortcoming in nonauditory noise research and children has been lack of precision in two aspects of procedural conditions during testing. Testing conditions must be uniform and quiet. Reliance on archival measures of reading, for example, confounds acute with chronic noise exposure since ambient noise sources are likely to be present during the conduct of achievement tests. Testing must occur under quiet conditions in order to determine whether chronic noise affects reading or some other outcome of interest. More thorough audiometric screening is needed in nonauditory studies of noise and children to insure that the effects are not due to hearing loss.

Ecological Perspective

The purpose of this section is to outline some major conceptual shortcomings in the existing work on the nonauditory effects of noise on children and to lay out a preliminary research agenda. An ecological perspective (Bronfenbrenner, 1979) would significantly advance our understanding of this topic. Such a perspective includes greater attention to temporal issues plus the social and environmental contexts in which chronic noise exposure occurs. It also entails examination of the underlying, mediational processes that may link some of the psychophysiological, motivational, and cognitive processes related to chronic noise exposure.

Temporal parameters

Foremost, there has been a severe lack of developmental analyses, except in a few reading studies and in some of Wach's work on infant development in the home environment (see Table 7), of the effects of chronic noise on children. Developmental research approaches are critical in noise studies because it is highly likely that noise has differential impacts on physiological, cognitive and motivational processes as a function of developmental status. Consider for example reading acquisition. It is well established that reading acquisition depends upon the development of certain language competencies (e.g., phonological awareness) that are age

dependent (Mann & Brady, 1988). Noise exposure prior to or following the development of phonological awareness may not affect reading acquisition in the same way as noise exposure during the critical period of phonological awareness learning. Unless a developmental approach is added to noise research, such questions cannot be addressed.

A related but distinct conceptual limitation has been neglect of temporal parameters such as age at time of exposure and history of exposure to noise. For example, several studies on resistance to distractors from noise indicate the effects are contingent upon noise exposure history (see Table 5). Children exposed to ambient noise levels for shorter periods of time appear to be more resistant to the distracting properties of noise (see Table 5). These findings could relate to work on motivational deficiencies from prolonged noise exposure. Perhaps children attempt to filter out noise during early periods of exposure but eventually give up on this strategy. Duration effects could also relate to the specificity of resistance to auditory distractors. It would be interesting, for example, to investigate children's ability to filter out aircraft noise versus white noise or irrelevant speech, as a function of length and type of chronic noise exposure.

Unfortunately, we cannot disentangle age effects from exposure duration effects. For example, the apparently stronger linkages between chronic noise exposure and reading scores among older children (see Table 7) could be a function of a critical period of exposure or the result of longer, cumulative adverse impacts. Related to this latter option, we know nothing at this stage about the long-term effects of early childhood exposure to noise. What happens in later childhood or adolescence to children who spend all or part of their early years attending school or living near an airport or busy street?

Context

Greater attention to the ecological context in which chronic noise exposure occurs may prove fruitful for future research on noise and children. This ecological context might include more ecologically valid noise exposure estimates, attention to the indirect effects of noise on children via adult caregivers, and measurement of other social and environmental conditions covarying with chronic noise exposure. With one

exception (Lukas et al., 1981) none of the field studies of noise and children have attempted to calculate overall noise exposure. It may be recalled that Lukas and colleagues found a synergistic effect of home and school noise exposure on reading.

Furthermore, the noise estimates that researchers have relied upon do not take into account children's mobility, exposure to noise sources in the home, or the attenuation properties of the structures they inhabit.

Nearly all of the work on noise and children involves comparisons between noisy and quiet settings. With one exception, Green et al. (1982), there is no information on dose response functions. Besides its evidentiary value, dose response curves would have public policy importance. We currently are unable to provide clear statements about what level of noise is harmful for children or to say what the efficacy would be of providing specific sound attenuation interventions.

Not only are children attending school or residing in homes in noisy areas exposed to noise but so are their principal caregivers. The behaviors of caregivers in noisy settings could indirectly influence children's responses to noise (Bronfenbrenner, 1979). For example, perhaps parents in noisy homes do not speak to their children or read to them as often as parents in quieter neighborhoods. Classroom observations and teachers' self-reports indicate that aircraft or train noises interrupt teacher lecturing (Crook & Langdon, 1974; Kyzar, 1977; Moch-Sibony, 1974), in one study causing a 10% reduction in total teaching time (Bronzaft & McCarthy, 1975). It is also well documented that teachers in noise-exposed classrooms report greater annoyance and fatigue during the school day in comparison to teachers from quiet classrooms (Crook & Langdon, 1974; Ko, 1979; 1981; Sargent et al., 1980). Therefore some of the adverse effects of noise on child development could be mediated through the negative impacts of noise on the child's primary caregivers. Parents and teachers may have less patience and energy to devote to children because of the adverse effects of noise on themselves. More directly, noise may alter the manner in which parents and teachers instruct children, altering reading or speaking patterns. Recent data indicate that parent-child interactions may be affected by household noise levels. Parents from noisier homes appeared less

interested in their children's activities and talked less with their children (Wachs, 1989; Wachs & Camli, 1991). Controls for education levels of the mother did not change these findings.

Ambient noise exposure rarely occurs in isolation of other social and environmental problems. Noisy environments frequently covary with crowding and pollution and are often part of the fabric of poverty, including substandard housing, conflictual households and various other psychosocial strains. Although the ecological covariation of noise with other adverse environmental and social factors makes it difficult to isolate the effects of noise on children, we should be mindful that the harmful effects of noise may be amplified by the context in which noise is often embedded. It may be precisely those children who develop under such impoverished physical and social circumstances who are most vulnerable to the harmful effects of noise (Bronfenbrenner, 1979; Evans et al., 1990). We have recently found among adults, for example, that the negative effects of residential crowding on psychological distress are significantly worsened by chronic strains associated with poverty (e.g., insufficient utilities, poor housing quality, financial insecurities) (Lepore et al., 1991).

Noise levels may also operate within a context of important individual differences among children. There is some evidence that some children are more at risk for adverse noise effects on cognitive development. Less intelligent children's math and reading performance appears more sensitive to noise exposure (Johansson, 1983; Maser et al., 1978). Studies of young children and infants suggest greater susceptibility to chronic noise-related problems among boys in comparison to girls (Wachs, 1978; 1987; 1989). On the other hand, girls may be more distracted by acute noise exposure (Christie & Glickman, 1980; Hambrick-Dixon, 1988). Cognitive performance during acute noise appears to be disrupted more by noise for individuals with pre-existing learning deficits (cerebral palsy, learning disabled).

In addition to alerting researchers and policy makers to the potential of subgroups of children at high risk for negative effects of noise, these findings also have another important implication. Some of the small or even conflicting nonauditory effects of noise reviewed herein may be conservative estimates of noise effects since they by and large have not examined interactive effects.

While in some cases there may be little if any overall noise effects on children, it would be erroneous to conclude from such data profiles that noise is an inconsequential environmental problem for children. There may be large segments of the child population whose development may be significantly compromised by noise exposure early in life.

Mediational processes

Another area of future research that might emanate from an ecological perspective on noise and children is greater scrutiny of the potential interplay among the various psychophysiological, cognitive, and motivational processes that appear to be affected by chronic noise exposure. Cohen and his colleagues (1973) examined Deutsch's (1964) hypothesis that children chronically exposed to noise may learn to tune out auditory stimuli indiscriminantly and thus not pay sufficient attention to speech. They found that children from noisier apartments were deficient in auditory discrimination. Of particular interest, this deficiency significantly accounted for the poorer reading abilities of the noise-exposed children. This study stands alone as the only analysis of an underlying process to explain how noise affects children.

Given the findings (see Table 4) that noise can mask speech and evidence that speech perception and other linguistic skills such as phoneme awareness are critical precursors to reading acquisition (Mann & Brady, 1988), more work is called for on the effects of chronic noise exposure on psycholinguistic processes and their potential mediating link with reading. Other pathways warranting further investigation include those between chronic noise exposure, motivation, attention, and reading.

There are also plausible interconnections among chronic noise exposure and several of the cognitive processes we have reviewed. For example, people chronically exposed to noise may become more resistant to the distracting effects of acute noise exposure during a task because they can ignore or filter out auditory distractors. This ability may occur as a result of learning to tune out or filter auditory sounds. Thus one would expect a relation between the ability to ignore auditory distractors and deficits in auditory discrimination associated with chronic noise exposure. Analogously, we would expect a mediational pathway

between chronic noise exposure, attentional focusing and deficits in incidental memory performance.

Thus rather than only treating different outcome variables such as reading, attentional processes, and resistance to distraction as separate correlates or effects of noise exposure, more thought and careful analyses are required to investigate how these variables may form causal links to one another. In other words, both the direct and indirect pathways of the nonauditory effects of noise on children need to be investigated. From a theoretical and public policy perspective, this is perhaps most crucial in the case of reading. Although stronger data on the adverse effects of chronic noise exposure on reading would be valuable from an evidentiary point of view, what is of paramount importance now is a shift in focus to explanations of why and how chronic noise adversely influences reading acquisition.

There may also be some potent interplay among psychophysiological processes and some of the cognitive strategies apparently influenced by chronic noise exposure. For example, presumably it takes some effort to tune out or ignore noise. Experimental data as well as field studies with adults indicate that cognitive efforts to maintain task performance during noise come at a price of heightened sympathetic arousal (Tafalla & Evans, 1993; Welch, 1979). When performance suffers under noise, slight or no sympathetic arousal is apparent. However, if performance is maintained under noise which is possible except under tasks of very high load demands on attention and working memory (Cohen et al., 1986; Smith, in press), then indices of sympathetic arousal should be substantially elevated during noise exposure.

The associations between chronic noise exposure in children (see Table 1) and heightened blood pressure raise several important questions about mechanisms. For example, are blood pressure elevations caused by repeated sympathetic arousal induced by the distracting and interfering properties of community noise conditions? Alternatively, are the elevations mediated by adrenocortical activity and thus primarily indicative of chronic stress? To our knowledge, no analyses of various psychoneuroendocrine pathways between noise and blood pressure elevations have been investigated. Given the central role of cognitive appraisal in psychological

stress, it would also behoove researchers to examine whether psychosocial factors such as perceived control, self-confidence to ignore/tune out noise, or annoyance, moderate the effects of noise on blood pressure and other psychophysiological processes among children.

Another fruitful area of psychophysiological research would be to investigate the potential role of chronic noise exposure in cardiovascular reactivity. Individual differences in reactivity to standard psychosocial elicitors of stress (e.g., mental arithmetic) may be predictive of cardiovascular disease (Krantz & Manuck, 1984; Matthews et al., 1986). Research on cardiovascular reactivity in both adults and children has ignored the potential etiological role of chronic exposure to environmental stressors. More detailed analyses, focusing on possible behavioral toxicological effects of in utero or neonatal noise impacts are also called for. This is especially pertinent in light of contemporary medical practices such as ultra sound monitoring or placement of premature infants in neonatal intensive care units.

Large numbers of children both in America and, in rapidly growing numbers in the Third World, are being exposed to levels of ambient noise that are not only a threat to hearing but may have harmful effects on physiological and cognitive development. The potential for harmful effects from chronic noise exposure on children's development is great; what we know with certainty about the problem is, unfortunately at the moment, insufficient. At the same time, there is a foundation of evidence clearly suggesting potentially harmful effects from chronic noise exposure among children. We also have enough data on hand to formulate preliminary models of underlying, mediating mechanisms that could account for the effects of noise. It is also clear that more longitudinal work with prospective designs is crucial to definitively demonstrate the relationships between chronic noise exposure and children's development. Such designs afford stronger internal validity given the impossibility of randomly assigning children to varying community noise levels. Longitudinal designs allow us to examine changes in behaviors over time plus provide the opportunity to examine whether self-selection has occurred prior to noise exposure.

ENDNOTE

This article is based in part on earlier presentations at the Fifth International Congress on Noise as a Public Health Problem, Stockholm, Sweden and A Strategy for Noise Prevention in the 90's, American Speech and Hearing Association, Washington, DC. Preparation of this article was partially supported by the National Heart Lung and Blood Institute, RO1 HL47325-01A1, the Nordic Noise Council, and the Swedish Environmental Protection Board.

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Source: *Praxis 2*, 5/13, 10/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000

Research Article

CHRONIC NOISE AND PSYCHOLOGICAL STRESS

Gary W. Evans,¹ Staffan Hygge,² and Monika Bullinger³¹Cornell University; ²Royal Institute of Technology, Gävle, Sweden; and ³University of Munich

Abstract—This article illustrates the value of incorporating psychological principles into the environmental sciences. Psychophysiological, cognitive, motivational, and affective indices of stress were monitored among elementary school children chronically exposed to aircraft noise. We demonstrate for the first time that chronic noise exposure is associated with elevated neuroendocrine and cardiovascular measures, muted cardiovascular reactivity to a task presented under acute noise, deficits in a standardized reading test administered under quiet conditions, poorer long-term memory, and diminished quality of life on a standardized index. Children in high-noise areas also showed evidence of poor persistence on challenging tasks and habituation to auditory distraction on a signal-to-noise task. They reported considerable annoyance with community noise levels, as measured utilizing a calibration procedure that adjusts for individual differences in rating criteria for annoyance judgments.

Since the early 1970s, psychologists have contributed insights to the analysis of environmental problems (Ittelson, 1976). Current concerns focus on human perceptions of environmental risks (Vaughan, 1993; Wandersman & Hallman, 1993) and the role of the physical environment in human health and well-being (Baum & Fleming, 1993). The concept of psychological stress has proven a useful heuristic to conceptualize human responses to suboptimal environmental conditions (Cohen, Evans, Stokols, & Krantz, 1986; Evans & Cohen, 1987). The present article provides evidence that chronic noise exposure is associated with psychophysiological, cognitive, motivational, and affective indices of psychological stress.

Laboratory studies have shown that acute noise degrades complex task performance (Smith & Jones, 1992) and elevates neuroendocrine and cardiovascular markers of psychological stress (Evans & Cohen, 1987). Chronic noise is associated with elevated cardiovascular functioning among children (Cohen et al., 1986) and is consistently correlated with reading deficits among elementary school children (Evans & Lepore, 1993). Experimental exposure to uncontrollable noise produces learned helplessness (Glass & Singer, 1972; Seligman, 1975), and long-term exposure to community noise may contribute to helplessness among children (Cohen et al., 1986).

The present study extends these earlier findings in several respects. This is the only study to examine neuroendocrine indices of chronic stress among persons exposed to community noise. Without neuroendocrine markers, it is difficult to interpret children's elevated cardiovascular reactions to chronic noise exposure as evidence of stress (Grunberg & Singer, 1990;

Krantz & Falconer, 1995). Furthermore, although resting cardiovascular levels are an important indicator of health, cardiovascular reactivity to acute stressors may contribute more to the etiology of coronary heart disease (Krantz & Manuck, 1984).

Several measures of human performance were also assessed in the present study. Speech perception was examined because of its relevance to noise and its potential role in reading acquisition (Mann & Brady, 1988). We also examined two attention tasks, choice reaction time and visual search. There is some evidence of deficits in both working memory (Hamilton, Hockey, & Rejman, 1977) and long-term memory (Hygge, 1993) during acute noise exposure. No research has examined the generalizability of these types of findings to persons chronically exposed to noise.

Many prior studies have uncovered associations between ambient noise levels and reading deficits (Evans & Lepore, 1993). Unfortunately, all of these studies have relied on archival reading achievement scores, thereby confounding chronic and acute noise exposure. We administered a standardized reading test under carefully controlled, quiet conditions.

Children chronically exposed to noise (Cohen et al., 1986) and to crowding (Rodin, 1977) suffer increased vulnerability to learned helplessness. We designed a conceptual replication of these earlier findings, adapting Glass and Singer's (1972) after-effects paradigm for use with children. Numerous acute stressors reliably decrease persistence on challenging puzzles presented immediately after stressor exposure (Cohen, 1980; Glass & Singer, 1972). This paradigm, to our knowledge, has never been adapted for children or been used to examine chronic stress and motivation.

Although adults living in noise-impacted communities react with annoyance (Evans & Cohen, 1987), very little is known about children's affective responses to noise. We investigated this issue in two ways. First, we examined children's annoyance to a series of standardized auditory stimuli, as well as to community noise sources. This procedure enabled us to examine both raw and calibrated annoyance ratings. Calibration may enhance the sensitivity of annoyance scales given large individual differences in response criteria for assessing annoyance (Berglund & Nordin, 1990). The second way we investigated children's affective reactions to chronic noise exposure was by assessing quality-of-life ratings. Quality of life can be assessed accurately in young children (Bullinger, von Mackensen, & Kirchberger, 1994), indexing perceived physical, psychological, social, and daily functioning.

Summarizing, we employed the concept of psychological stress as a heuristic to conceptualize human responses to suboptimal environmental conditions. Our analyses focused on psychophysiological, cognitive, motivational, and affective processes in relationship to chronic noise exposure among young children.

Address correspondence to Gary Evans, Department of Design and Environmental Analysis, College of Human Ecology, Cornell University, Ithaca, NY 14853-4401; e-mail: gwe1@cornell.edu.

METHOD

Subjects

Participants were 135 third and fourth graders (mean age = 10.78 years) living either in a high-noise-impact urban neighborhood (24-hr Leq = 68.1 dBA; peak = 79.8 dBA) surrounding the Munich International Airport or in a quiet urban neighborhood (24-hr Leq = 59.2 dBA; peak = 69.0 dBA) in Munich. An increase of 10 dBA is experienced as approximately twice as loud. Leq is an unweighted average of sound pressure intensity. Children in the quiet, comparison areas were matched to the children in the noise-impacted area according to socioeconomic status. Households did not differ in type of occupation, $\chi^2(4, N = 116) = 4.96$; parental education, $t(122) = 1.58$; or family size, $t(122) = 1.10$. All of the children in this study first passed an audiometric screening to ensure that none had hearing loss.

Dependent Measures

Psychophysiological

Blood pressure was measured with an automated blood pressure monitor (A&D Digital, UA 751) while the child was seated comfortably. Twelve-hour overnight urinary epinephrine and norepinephrine were assayed with high-performance liquid chromatography with electrochemical detection (Riggin & Kissinger, 1977), and cortisol was measured with a radioimmunoassay, iodine¹²⁵ (Baxter Travenol Diagnostics, Cambridge, Mass.). Sample volumes were determined, and a small amount of urine was randomly extracted and frozen at -70°C . Half of the extracted urine was also pH adjusted to further inhibit oxidation of catecholamines. See Grunberg and Singer (1990) and Lundberg (1984) for more details on utilizing urinary neuroendocrine measures as indices of chronic stress.

Cognitive

Cognitive measures included indices of attention, memory, and reading.

Attention. A signal-to-noise measure assessed speech perception against a noise background. Each child listened to a story at his or her preferred volume. This volume level defined continuous background noise (road traffic, aircraft, or broadband) played throughout the story. At fixed, random intervals, the storyteller's voice dropped 10 dBA, and the child readjusted the story volume to a comfortable listening level.

An embedded figures task required the children to search for any one of five target figures contained within complex line drawings.

In a simple choice reaction time task, the children were presented with random sequences of red and green lights and were instructed to press the key labeled "red" or "green" to indicate the color of each light. Two 8-min sequences were run. The first session was conducted in silence and the second one in aircraft noise (80 dBA Leq).

Memory. Each child read an interesting text. Random, intermittent broadband noise bursts (peak dBA = 80) were pre-

sented throughout the 12-min period. A day later, the child's long-term recall for the text was assessed.

Working memory span was assessed by presenting consonants at the rate of one per second. At random intervals, the sequence was stopped and the child was requested to recall, in order, as many consonants as possible. Accuracy was defined as correct recall of the consonants in serial position (Hamilton et al., 1977).

Reading. Children read paragraphs as well as word lists on the Biglmaier (1969) Reading Test (a valid and reliable German standardized test) under quiet conditions. Standardized scoring criteria were applied to each subscale.

Motivation, annoyance, and quality of life

Motivation. After reading the long-term memory text under noisy conditions, the children were given two line-tracing puzzles adapted from Glass and Singer's (1972) aftereffects paradigm. The puzzles consisted of animal names connected together by lines. Children "traveled" to each animal via the connecting lines but without lifting their pencils or retracing any line. They attempted the first puzzle until they solved it or gave up, and then moved on to the second puzzle. The initial puzzle was insoluble, and the index of motivation was the number of attempts to solve this puzzle. The second puzzle was soluble. The order of the two puzzles was deliberately fixed so that each child would experience success following initial failure on the first puzzle. All children solved the second puzzle. The task lasted 10 min. Attributions for failure on the initial puzzle were also assessed. These data are not included here because of space limitations.

Annoyance. The children provided magnitude estimates of noise annoyance (0 = not at all annoying; 100 = the most noise one could withstand without putting one's hands over one's ears) by moving their fingers along a vertical graphic scale. They were trained how to use this scale by first jumping as far as possible, which was designated as 100. They then jumped distances equivalent to magnitudes of 50, 25, 75, and 10.

Four-s noise bursts were randomly presented over headphones at 42, 54, 66, 78, and 90 dBA Leq. Broadband noise, aircraft noise, and road traffic noise were presented in separate sets. The annoyance rating for each noise burst was indicated on the vertical graphic scale from 0 to 100. The children also indicated how annoyed they were with community noise levels. Both Bandura and Schunk's (1981) original scale development and our own pilot work indicate high reliability for this magnitude estimation procedure with young children.

Nine uncalibrated noise ratings were summed to provide the community noise rating for each child. Calibrated scores were individually adjusted by the slope of the regression line fitting each child's annoyance ratings of the broadband-noise standard stimuli to his or her community noise estimates. For more details on calibration scoring procedures, see Berglund and Nordin (1990).

Quality of life. Quality of life was assessed by the KINDL, a valid and reliable index of the four principal domains of qual-

ity of life (physical, psychological, social, functional daily life; Bullinger et al., 1994).

Procedure

Testing occurred in a climate-controlled, sound-attenuated trailer at the children's school. Forty-eight-hr outdoor noise levels were monitored at the trailer 6 m above ground with a B&K Model 4426 Sound Meter.

Experimental tasks were conducted in fixed order on 2 consecutive days. Children were run individually in booths, with an experimenter sitting across a small table from each child. On Day 1, each child was first taught the magnitude estimation procedure (jumping), as described. Then an initial blood pressure reading was taken, and the child completed a brief mood scale. Then the following tasks occurred: noise annoyance; audiogram; blood pressure; mood scale; signal-to-noise measure; blood pressure; long-term memory text with noise, accompanied by blood pressure readings every 4 min; Glass and Singer aftereffects measure (line-tracing puzzles); and blood pressure. Total testing time for Day 1 was 85 min.

At the end of Day 1, parents were given a urine specimen bottle and instructions for collecting the 12-hr overnight sample. Parents were requested to collect in the container all urine the child voided that same night and the next morning between 20:00 and 8:00. This container was kept refrigerated and contained a preservative.

On Day 2, parents brought back the urine specimen container. Testing began with an initial blood pressure reading, followed by a mood scale and then a brief interview, a blood pressure reading, recall of the prose text from the day before, the standardized German reading test, a blood pressure reading, the embedded figures task, the test of working memory, another blood pressure reading, and finally the reaction time task, accompanied by blood pressure readings every 4 min. The child was then given a gift and provided the opportunity to ask questions about the study. Total time for Day 2 was 87 min.

The KINDL was administered at home prior to the laboratory testing.

RESULTS

Psychophysiological

Neuroendocrine

Overnight resting levels of urinary catecholamines were significantly different between the children chronically exposed to

aircraft noise and those unexposed: $t(120) = 2.89, p < .025$, for epinephrine and $t(120) = 3.43, p < .001$, for norepinephrine. (All statistical tests are two-tailed unless otherwise indicated.) As shown in Table 1, resting, baseline adrenomedullary neuroendocrine levels were elevated in association with chronic exposure to high levels of community noise. There was, however, no significant relationship between chronic exposure to aircraft noise and cortisol levels, $t(120) < 1.0$.

Baseline cardiovascular

There was a marginally significant relationship between noise exposure and baseline systolic blood pressure, $F(1, 109) = 3.03, p < .08$. (Degrees of freedom vary throughout because of missing data and in the case of blood pressure readings, because some readings were clearly incorrect.) Baseline diastolic blood pressure was unrelated to noise exposure, $F(1, 109) < 1.0$. Baseline measures were calculated by taking the average of three resting indices from Day 1 and three resting measures from Day 2. On each day, an initial resting blood pressure reading was taken to help desensitize children to the procedure. This initial reading is not included in the results reported here. The blood pressure analyses include a covariate (ponderosity) for body fat.

Cardiovascular reactivity

There was significantly lower reactivity in systolic blood pressure among children chronically exposed to aircraft noise in comparison to their quiet-community counterparts, $F(1, 109) = 15.62, p < .001$ (see Table 1). Diastolic reactivity was unrelated to chronic noise conditions, $F(1, 109) < 1.0$. Cardiovascular reactivity was calculated by subtracting the resting baseline index from the initial blood pressure reading during the prose reading for the long-term memory task.

Cognitive

Attention

As shown in Table 2, children from noisy communities chose a lower signal-to-noise ratio than did those from quiet communities, $t(103) = 1.78, p < .05$ (one-tailed). The type of background noise (road, aircraft, broadband) did not interact with the main effect of community noise level. Noisy children's habituation to auditory distractors generalized across different types of noise. Preferred volume level for the signal (story reading) under quiet conditions was equivalent between the two groups, $t(103) < 1.0$. The two noise groups did not differ in

Table 1. Psychophysiological measures

Variable	Quiet communities	Noisy communities
Epinephrine	368.62 ng/hr	526.36 ng/hr
Norepinephrine	766.22 ng/hr	1,108.82 ng/hr
Cortisol	3.62 μ g/hr	3.75 μ g/hr
Resting diastolic blood pressure	63.56 mm Hg	63.39 mm Hg
Resting systolic blood pressure	100.73 mm Hg	102.65 mm Hg
Reactivity diastolic blood pressure	-0.71 mm Hg	-0.34 mm Hg
Reactivity systolic blood pressure	1.66 mm Hg	-3.31 mm Hg

Chronic Noise and Psychological Stress

Table 2. Cognitive measures

Variable	Quiet communities	Noisy communities
Signal/noise	10.87 dB	6.81 dB
Embedded figure (number correct: 0-12)	5.60	6.10
Reaction time (quiet conditions)	440.7 ms	450.0 ms
Reaction time (noisy conditions)	438.0 ms	454.0 ms
Long-term recall (number correct: 0-25)	5.76	4.54
Reading (number of errors)		
Text	41.30	50.80
Word recognition	4.57	7.10

performance on the embedded figures task, $t(131) < 1.0$, nor in reaction times either under quiet ($t(108) < 1.0$) or under noisy ($t(108) < 1.0$) testing conditions.

Memory

On the long-term recall task, children from noisy communities performed worse than their counterparts, $t(130) = 2.13, p < .05$. There were slight reductions in working memory span among children chronically exposed to noise. Only one of these differences was statistically significant (the fifth serial position from the last item presented).

Reading

As shown in Table 2, children from noisy communities had significantly more errors on the text subscale of the German standardized reading test than children from quiet communities, $t(127) = 2.02, p < .05$. On the word list subscale, children from the noisy and quiet areas differed on the most difficult section of the test, $t(125) = 2.10, p < .05$. The two groups did not differ on the easy and intermediate portions of the test. Children from the two groups completed equivalent portions of both the prose and the word list tests.

Motivation, Annoyance, and Quality of Life

Motivation

Children from noisy communities persisted less than children from quiet communities on the insoluble puzzle in the aftereffects task, $t(130) = 2.35, p < .02$ (see Table 3).

Annoyance

Children living in noisier areas were significantly more annoyed by the noise in their communities, as indexed by calibrated community measures, $t(132) = 2.17, p < .05$. The raw, uncalibrated scores showed the same trend.

Quality of life

As can be seen in Table 3, trends on the KINDL index were generally in the expected direction, but only the difference on the psychological subscale proved statistically significant, $t(124) = 2.47, p < .01$.

DISCUSSION

This article demonstrates the value of integrating psychological principles into the environmental sciences. Psychophysiological stress processes linked to coronary heart disease; central cognitive processes, including speech perception, memory, and basic reading skills; motivation; and emotional affect are all associated with chronic exposure to noise among children.

Our data reveal a link between chronic exposure to noise in the community and elevated neuroendocrine markers of stress, along with marginally increased resting levels of systolic blood pressure. Similar small increments in blood pressure have been noted previously (Cohen et al., 1986), but these are the first data on neuroendocrine markers of chronic noise exposure. We also reveal differential cardiovascular reactivity in response to task demands as a function of chronic environmental stress. Our pattern of psychophysiological stress findings (elevated baseline indices, diminished reactivity to challenge) is potentially quite important to consider in light of theories about stress and disease. Chronic stressor exposure, particularly exposure to stressors unamenable to instrumental control, may deplete coping capacity, rendering the organism less able to mobilize resources when needed to respond to acute challenges (Lepore & Evans, in press). At the same time, chronically elevated baseline indices of neuroendocrine and cardiovascular functioning

Table 3. Motivation, annoyance, and quality-of-life measures

Variable	Quiet communities	Noisy communities
Motivation (number of attempts to solve insoluble puzzle)	6.77	5.48
Calibrated annoyance (broadband noise equivalents)	62.49	67.47
Quality of life ^a		
Psychological (11-55)	30.20	27.85
Physical (9-45)	26.88	26.91
Social (9-45)	26.42	26.06
Functional (11-55)	30.04	29.33

^aThe higher the score, the higher the quality of life.

can cause physical damage directly via changes in hemodynamics and arterial tissue structure and indirectly via suppressed immune functioning (Cohen, Kessler, & Gordon, 1995).

Several cognitive processes are associated with community noise levels. Prior studies have shown correlations between ambient noise exposure and reading levels (Evans & Lepore, 1993). We demonstrated this association with a standardized reading test administered under quiet, controlled conditions. All prior studies have utilized archival reading records of tests administered under ambient testing conditions in school and thus have confounded chronic levels of noise exposure with acute levels during the testing periods. An important policy question raised by our data is, once children fall behind in reading skills because of noise exposure, do these deficits persist, or continue to widen, with continued noise exposure? We also do not know whether noise-related reading deficits are reversible should children change their residence or if extensive sound attenuation is installed in buildings where the children spend most of their time (i.e., school, home).

The cognitive data reveal a mixed pattern of results. Long-term memory was worse among the schoolchildren from noisy communities. Asked to recall information from an interesting text they had read the day before, they performed less accurately than children from quiet communities. Similar trends have been shown in laboratory research on acute noise (Hygge, 1993). Chronic noise exposure may diminish working memory span, although the effects appear quite small.

Neither the embedded figures task nor the reaction time task revealed any associations with noise exposure. Both of these results replicate studies of acute noise (Broadbent, 1979; Smith & Jones, 1992).

Children chronically exposed to noise were less sensitive to distracting, background noise during a speech perception task than were children from quiet neighborhoods. The noise-exposed children consistently chose a lower signal-to-noise ratio when readjusting a speaker's voice against noisy background conditions. Moreover, this perceptual adaptation generalized across different noise sources. Broadband noise, road traffic noise, and aircraft noise all revealed the same pattern. Under quiet conditions, preference for volume level of the speaker's voice was the same for children from quiet and noisy neighborhoods. These perceptual adaptation findings are consistent with prior work suggesting that children cope with chronic noise exposure by tuning out auditory stimuli (Cohen et al., 1986).

Overall, the cognitive data add to the growing list of studies indicating selective impairments in cognitive functioning among children reared under poor environmental conditions. In young children, more complex, higher order skills, such as reading, problem solving, and comprehension of difficult materials, appear vulnerable to adverse environmental conditions (Cohen et al., 1986; Evans & Cohen, 1987; Wachs & Gruen, 1982). The perceptual adaptation findings also raise important questions about the long-term consequences of children's coping mechanisms. Children may cope with adverse environmental conditions by developing cognitive strategies (e.g., tuning out ambient noise) that have consequences for language acquisition and speech processing.

We adapted Glass and Singer's (1972) stressor aftereffect

paradigm to measure potential motivational impacts of chronic stressor exposure on the children. Children from noisy communities exhibited less persistence in task performance when challenged. These data conceptually replicate earlier findings utilizing a different paradigm to assess motivational deficiencies in children chronically exposed to crowding (Rodin, 1977) and to noise (Cohen et al., 1986). The potential role of adverse physical or psychosocial conditions in early motivational development is an important and largely neglected topic of psychological inquiry.

Children living in noisy communities find the levels of environmental noise where they live annoying. Both raw and calibrated, the magnitude estimations of annoyance indicate this trend. These children also rated the quality of life, particularly psychological, in their communities as poorer than did the children from quiet communities.

Although we demonstrated that the noisy and quiet communities were similar with respect to socioeconomic status, the correlational design of our study precludes causal conclusions. Nonetheless, our preliminary evidence warrants more intensive follow-up, utilizing prospective, longitudinal field studies of chronic environmental stressors and children's health and well-being.

To summarize, our results reflect a general pattern of adverse psychological stress reactions associated with chronic exposure to noise among elementary-school-aged children. The children who were studied showed no apparent auditory damage during standard audiometric examination. Both neuroendocrinological and cardiovascular indices of chronic stress were elevated; long-term memory, speech perception, and standardized reading test scores indicate deficits; and children living proximate to a major airport reported more annoyance and a lower quality of life than did children in quiet communities. These data are sobering when one considers that more than 10 million American schoolchildren are exposed to comparable noise levels and that worldwide population exposure to noise is escalating exponentially with accompanying industrial development (Suter, 1991). Psychological principles have much to offer to the conceptualization and analysis of environmental problems.

Acknowledgments—We are extremely grateful to the families who cooperated with this research project. We thank Sylvia von Mackensen, Gerhard Helm, Gunnar Söderqvist, and Christian Wigren for their dedication to this project. Financial support for this research came from the Society for the Psychological Study of Social Issues, the National Institutes of Health (RO1 HL 4732 01A), the Nordic Noise Group, the Nordic Scientific Group for Noise Effects, the Swedish Environmental Protection Agency, and the German Research Foundation. The third author was also supported by the DFG Heisenberg Fellowship.

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(RECEIVED 6/17/94; ACCEPTED 10/9/94)

Aftereffects of Stress on Human Performance and Social Behavior: A Review of Research and Theory

Sheldon Cohen
University of Oregon

A review of experimental and correlational studies of the aftereffects of stress on performance suggests that these effects occur as a consequence of a wide range of unpredictable, uncontrollable stressors including noise, electric shock, bureaucratic stress, arbitrary discrimination, density, and cold pressor. Moreover, these effects are not limited to a restricted range of stressful situations that involve a lack of predictability and controllability over a distracting stimulus, but they can also be induced by increased task demand. Interventions that increase personal control and/or stressor predictability are effective in reducing poststressor effects. There is also evidence for poststimulation effects on social behavior that generally involve an insensitivity toward others following stressor exposure. Studies of exposure to environmental stressors in naturalistic settings report effects similar to those found in laboratory settings. Several theories (e.g., psychic cost, learned helplessness, arousal) are examined in light of existing evidence. Although some theories receive more support than others, it is suggested that the reliability and the generality of poststimulation effects occur in part because of a multiplicity of causes.

The notion that continued exposure to a stressor may produce effects that appear only after stimulation is terminated has been central to the stress literature for a number of years. This assertion is derived principally from an adaptive-cost hypothesis which suggests that although humans can often adapt to extreme conditions, there are cumulative costs of adaptation. An early form of this hypothesis, which emphasized the biological costs of the adaptive process, was proposed by Selye (1956). He asserted that after prolonged exposure to a stressor, one's adaptive reserves are drained, resistance breaks down, and exhaustion sets in. Others (Basowitz,

Persky, Korchin, & Grinker, 1955; Dubos, 1965; Milgram, 1970; Wohlwill, 1966) make similar points in regard to poststressor effects on behavior. In the words of Dubos, "Although man is highly adaptable and can therefore achieve adjustments to extremely undesirable conditions, such adjustments often have . . . indirect effects that are deleterious" (1968, p. 139).

The early empirical work on the aftereffects of stress focused on stressor effects on physical and psychological health. For example, there are a number of studies on the cumulative effects of disease, malnutrition, and toxic chemicals on normal bodily functions (see Dubos, 1965). There is also an extensive research literature on the association between subjects' reports of recent life changes and subsequent changes in somatic and psychological health (cf. Dohrenwend & Dohrenwend, 1974).

It was only recently, however, that the first experimental studies of the postexposure effects of stressors on behavior were reported (Glass & Singer, 1972). The major emphasis

Preparation of this article was supported by National Science Foundation Grant BNS 77-08576 and by National Institute of Environmental Health Sciences Grant 1 R01 ES01764-01.

The author is indebted to Gary Evans, David Krantz, and Myron Rothbart for comments on an earlier draft.

Requests for reprints should be sent to Sheldon Cohen, Department of Psychology, University of Oregon, Eugene, Oregon 97403.

of Glass and Singer's research program was on determining whether the cognitive context of a stressor mediated performance on tasks administered immediately after stressor termination. Based on earlier research which demonstrated that the ability (or perceived ability) to predict or escape an aversive event reduced both the aversive quality of the stimulus (e.g., Corah & Boffa, 1970; Pervin, 1963) and the resultant physiological response (e.g., Champion, 1950; Corah & Boffa, 1970; Stotland & Blumenthal, 1964), they hypothesized that performance following stress exposure may be similarly mediated by stressor predictability and perceived control over stressor termination.

Glass and Singer's (1972) early work was strongly influenced by the adaptive-cost hypothesis. Specifically, they suggested that deleterious effects on performance following exposure to unpredictable, uncontrollable stressors should occur because the substantial effort required to adapt to these aversive events would leave one less able to cope with subsequent demands and frustrations. Since predictable and controllable stressors were viewed as considerably less aversive, adaptation to these stressors would presumably require less effort and therefore would be less likely to impair poststimulation performance. At the completion of their research program, Glass and Singer concluded that exposure to unpredictable, uncontrollable stressors produces poststimulation deficits in performance on a number of tasks and that the ability to predict and/or control the stressor ameliorates these effects. However, they also concluded that the adaptive process is not responsible for these poststress performance deficits.

Since the publication of the Glass and Singer (1972) book there have been over 30 published studies on the poststimulation effects of stressors on performance and social behavior. Moreover, a number of cognitive and motivational explanations for the aftereffects of stress have been offered and in some cases tested. This article reviews the existing laboratory and field research on the aftereffects of stress on performance and interpersonal behavior and outlines a number of possible explanations for these effects. The re-

search review is divided into five major sections. The first section examines studies that have attempted to determine whether there are effects of unpredictable, uncontrollable stress on performance following stressor termination. The second and third sections examine those studies that attempt to ameliorate poststimulation effects by providing subjects with a predictable version of the stressor and/or with control over the stressor. The fourth section describes studies of the poststimulation effects of stress on social behavior, and the fifth section reviews naturalistic studies of stress aftereffects. Finally, the theory review examines each of eight alternative explanations for poststress effects on performance and social behavior in light of existing data and reevaluates the adaptive-cost hypothesis.

Research Review

Aftereffects of Unpredictable and Uncontrollable Stressors

Studies reviewed in this section compare performance after exposure to an unpredictable, uncontrollable stressor with performance in an experimental control condition in which there was either a less intense form of the stressor or no stressor exposure. A number of these studies also included conditions in which the stressor was predictable and/or controllable. These conditions are not discussed here but are presented in later sections.

Noise. Glass and Singer (1972) reported five studies that examined poststimulation effects after exposure to unpredictable, uncontrollable noise (pp. 47, 50, 52, 55, 80). Their studies typically involved approximately 25 minutes of exposure to 108-110-dB (A) random-intermittent bursts of a broadband conglomerate noise made up of a number of fairly typical urban sounds. During noise exposure, the subject worked on simple cognitive tasks. Autonomic response was monitored during stressor exposure. Immediately after the noise exposure period, one or more of three measures were administered to the subject: the Feather (1961) tolerance for frustration task (studies reported in Glass & Singer, 1972, pp. 47, 52, 55), a proofreading

task (Glass & Singer, 1972, pp. 47, 50, 52, 55, 80), and the Stroop (1935) Color-Word task (Glass & Singer, 1972, p. 80).

The Feather measure requires a subject to work on two soluble and two insoluble line puzzles for 15 minutes. The subject can only work on one puzzle at a time and cannot return to a puzzle after moving on to the next. The puzzles are presented so that the first and third are insoluble and the second and fourth are soluble. The criterion measure (amount of tolerance for frustration) is the number of trials—puzzle cards—or amount of time spent on insoluble puzzles. The proofreading task involves correcting misspellings, grammatical mistakes, incorrect punctuation, transpositions, and typographical errors. Each subject is usually given between 8 and 15 minutes (although nothing is said about time), and the quality of performance is measured as the percentage of errors not found of the total number of errors that could have been detected at the point the subject was told to stop. In the Stroop task, task stimuli are the names of four colors (green, red, orange, and blue), each of which is printed in one of the other three colors. For example, the word *green* may be printed in red, orange, or blue. The four color words are presented randomly over a series of trials, and the subject is asked to name the color in which the word is printed. A control version of the task, in which subjects are required to name the colors of sets of asterisks or zeros, is also administered to each subject. Stroop interference scores (on accuracy and speed) are obtained by subtracting a subject's score on the control stimuli from the subject's Stroop score.

Poststimulation deficits in performance occurred in all five of the studies and on all three of the tasks. Except for a lack of effect on the proofreading task in one study (p. 80), the effects were totally reliable. Moreover, Glass and Singer (1972, p. 47; see also, Glass, Singer, & Friedman, 1969, Experiment 1) reported poststimulation effects following exposure to 56-dB random noise as well as to the more intense 108-dB bursts.

There have been a number of successful attempts at replicating the poststimulation ef-

fects of unpredictable high-intensity noise on human performance. Thus Rotton, Olszewski, Charleton, and Soler (1978) reported less tolerance for frustration among subjects exposed to 80-dB (A) random-intermittent bursts of conglomerate noise than among subjects working in quiet. Likewise, Gardner (1978) found that subjects exposed to random-intermittent bursts of conglomerate noise at 100 dB (A) provided poorer poststimulation performance on a proofreading task than did subjects not exposed to noise. Percival and Loeb (in press, Experiment 1) found less tolerance for frustration among subjects exposed to random-intermittent, 95-dB (A), conglomerate noise than among subjects exposed to a continuous, soft (46-dB) broadband sound. Percival and Loeb did not, however, find poststimulation effects on proofreading performance.

Studies of the impact of variable continuous noise, when there are unpredictable components of the noise (e.g., aperiodic bursts of static or office noise), also report poststimulation effects. Thus Wohlwill, Nasar, DeJoy, and Foruzani (1976) found less tolerance for frustration among subjects exposed to 30 minutes of continuous 80–85-dB (A) conglomerate noise than among subjects working in quiet. Sherrod, Hage, Halpern, and Moore (1977) found similar effects for 18 minutes of continuous exposure to 94-dB (A) conglomerate noise. Finally, Rotton et al. (1978) found that those exposed to 15 minutes of meaningful speech (two lectures on phobias) at 80 dB (A) had less tolerance for frustration following stimulus termination than did a no-speech (quiet) control group.

Attempts by Harris (Note 1) to replicate the poststimulation effects of unpredictable noise were less fruitful. Harris reported three studies, one in which he used noise [85–105 dB (A)] from an automobile horn and two in which he used a conglomerate noise of similar intensity. All three of the studies included both fixed and random-intermittent noise conditions and a quiet control group. Harris failed to find postnoise performance decrements on either proofreading (Experiments 1 and 2) or a serial search task (Ex-

periment 3). It should be noted, however, that the average level of proofreading performance for his subjects was very low in all conditions, which suggests a floor effect.

A failure to replicate the postnoise effect was also reported by Frankenhaeuser and Lundberg (1974). After exposure to 40 minutes of aperiodic bursts of 65-85-dB (A) conglomerate noise, subjects did not show less (or more) tolerance for frustration than after working on a task without noise or after relaxing. The tolerance for frustration score in this study was the time that a subject was willing to spend on an insoluble task after an obligatory period of 80 minutes on that task. It is likely that because of the long period of required work, this measure is considerably less sensitive than the Feather measure, which has no obligatory work period.

Two studies reported by Moran and Loeb (1977) similarly failed to find a noise aftereffect. Participants were exposed to recordings of aircraft overflights [peaking at 90-105 dB (A)] that were either continuous or random-intermittent. A quiet experimental control group was also included. There were no effects of the noise (continuous or random-intermittent) on either the tolerance for frustration or the proofreading task. The authors pointed out, however, that it is possible that neither of the noise conditions in these two studies was actually unpredictable, since aircraft noise peaks were always signaled by onset of the overflight noise. This explanation is supported by later work from Loeb's laboratory (Percival & Loeb, in press, Experiment 2) in which decreased persistence on the tolerance for frustration task was found to occur after exposure to random-intermittent bursts of conglomerate noise and after exposure to random-intermittent bursts of aircraft noise peaks (eliminating the gradual onsets and offsets) but not following exposure to recorded normal aircraft flyovers (which include gradual onsets and offsets). There were no effects of any of the noise exposure manipulations on poststimulation proofreading performance.

DeJoy (Note 2) failed to find poststimulation effects of either random or fixed-intermittent 85-dB (A) print shop noise on either

a proofreading or an insoluble anagrams task. Since the anagrams task was affected by task load during noise (discussed later), it appears that this task was sensitive to a poststimulation effect but that the noise failed to produce the effect.

Although the Glass and Singer (1972) work suggests that poststimulation effects occur only following unpredictable noise, two studies reported similar deficits following exposure to high-intensity, steady-state (no unpredictable components) continuous noise. Thus Hartley (1973) found deterioration of performance on a five-choice reaction time task following a 20-minute exposure to 100-dB (A) continuous broadband noise, as opposed to exposure to the same noise at 70 dB. Broadbent (1979) similarly exposed subjects to a broadband continuous noise of either 55 or 85 dB (C). The interference score on the Stroop Color-Word task was not affected by the sound level of the previous noise exposure. However, after noise, but not after quiet, subjects named patches of colored inks relatively faster than they read color names printed in black. Since both the Broadbent and the Hartley studies were primarily concerned with variations in sound level (there were no no-noise control groups), the effects they reported may depend on variations in intensity rather than on stimulus predictability (cf. Broadbent, 1977). This argument receives inferential support from Broadbent's (1979) failure to find effects of the high-versus low-intensity sound on Stroop interference, which has been reliably affected in those studies that compared an unpredictable noise condition to a quiet control group.

As is apparent from Table 1, nearly all of the studies that used steady-state continuous and variable continuous noise found poststimulation deficits in performance. As mentioned previously, it is possible that the effect of steady-state continuous noise depends on variations in intensity, whereas that of variable continuous noise depends on variations in predictability. As is apparent from Table 2, results of studies of random-intermittent exposure are less consistent. Possible reasons for the failure of a number of these studies to replicate the Glass and Singer

Table 1
Nature of Noise Stimulus and Aftereffect Measures in Studies That Used Continuous Noise

Study	Description of noise	Performance aftereffects measure	Duration of noise	Sound level	Mode of delivery
Broadbent (1979)	Broadband, steady state	Stroop interference	20 min.	85 dB (C)	Speakers
Hartley (1973)	Broadband, steady state	Color naming/reading names of colors ^a Five-choice reaction time ^a	40 min.	100 dB (A)	Speakers
Rotton, Oiszewski, Charleton, & Soler (1978)	Meaningful speech	Tolerance for frustration ^a	15 min.	80 dB (A)	Earphones
Sherrod, Hage, Halpern, & Moore (1977)	Conglomerate (with aperiodic bursts of electronic static)	Tolerance for frustration ^a	18 min.	94 dB (A)	Speakers
Wohlwill, Nasar, DeJoy, & Foruzani (1976)	Conglomerate (with aperiodic bursts of office noise)	Tolerance for frustration ^a	30 min	80-85 dB (A)	Speakers
Moran & Loeb (1977) Experiments 1 and 2	Aircraft sounds	Tolerance for frustration, proofreading	14.34 min.	90-105 dB (A) peaks	Not reported

^a The noise described was associated with a deficit in performance on that aftereffect task.

(1972) work (particularly, Frankenhaeuser & Lundberg, 1974; Moran & Loeb, 1977; Harris, Note 1) have been presented earlier and are noted in Table 2. There appear to be no consistent differences between those intermittent noise studies that found aftereffects and those that failed to find aftereffects on the number of noise bursts, duration of noise exposure, percentage of the total period that they were exposed to noise, sound level, and whether the noise was delivered through ear-phones or speakers.

In sum, the data on poststimulation effects of noise on performance are consistent for variable continuous and steady-state continuous noise and mixed for intermittent exposure. The relative reliability of the poststimulation effect following continuous as opposed to intermittent sound may be attributable to the greater exposure time (noise on) in continuous noise studies. Nevertheless, if we confine ourselves to those studies that used clearly unpredictable noise and reasonably sensitive aftereffects measures, even the intermittent literature provides considerable support for the reliability of the postnoise effect.

Crowding. Those who study the effects of crowding on human behavior have found it useful to distinguish between two kinds of density—social density and spatial density (cf. Loo, 1973). Social density is manipulated by varying the number of people occupying a fixed quantity of space, and spatial density is manipulated by varying the available space but keeping the number of people constant. Since there is evidence that the effects of density are to some degree dependent on this distinction (e.g., Baum & Koman, 1976), the following review of the effects of high levels of density on poststimulation performance will similarly distinguish between these two kinds of density.

In an early study of the aftereffects of spatial density, Sherrod (1974) had groups of eight female high school students perform a number of tasks in either a large or a small room. After 1 hour of exposure, subjects were moved into a large reception area. Each student, at her own desk, was administered the tolerance for frustration and proofreading

tasks. Those subjects who had been working in high density (small room) showed less tolerance for frustration than did their low-density (large room) counterparts. There were no differences on the proofreading task.

Similar postcrowding deficits on the Feather tolerance for frustration task are reported by Evans (1979) with mixed-sex groups of 10 persons and by Nicosia, Hyman, Karlin, Epstein, and Aiello (in press) for both male and female groups with 4 persons. The latter study, however, failed to find any poststimulation effects of high density on a visual search task and a problem-solving task. In a final study, Aiello, DeRisi, Epstein, and Karlin (1977) reported that following 30 minutes of sitting in a room with 3 other subjects, female undergraduates who were crowded (small room) scored lower on two measures of creativity than did their uncrowded (large room) counterparts. In sum, all four of the existing studies of the aftereffects of spatial density reported poststimulation effects.

There are two studies of the poststimulation effects of social density. The first was conducted by Saegert, Mackintosh, and West (1975, Experiment 2) in a railroad station in midtown Manhattan. Male and female subjects were asked to do a number of tasks during a crowded or uncrowded time of day. After task completion, the subject was brought to a quiet secluded place and administered the Stroop Color-Word task. Whereas females who had been exposed to high levels of density performed more poorly on the Stroop than did their low-density counterparts, males performed better after high- than after low-density exposure. Although other studies have found interactions between density and gender on a number of dependent measures (see Sundstrom, 1978, for a review), the relationship between one's gender and whether one experiences stress in a particular high-density setting is still unclear. As a consequence, we do not know whether it is the males or the females who are experiencing stress in this situation, and thus it is impossible to determine whether these data indicate a poststress effect.

In a study by Dooley (1978), groups of

Table 2
Nature of Noise Stimulus and Aftereffect Measures in Studies That Used Random-Intermittent Noise

Study	Description of noise	Performance aftereffects measure	No. of bursts	Duration of noise	Percentage of time on	Sound level	Mode of delivery	Comments
Gardner (1978)	Conglomerate	Proofreading ^a	24	3.6 min.	15	100 dB (A)	Earphones	
Glass & Singer (1972) (pp. 47, 50, 52, 55, 80)	Conglomerate	Tolerance for frustration ^a Proofreading ^{a,b} Stroop ^a	23-25	3.6-5 min.	15-20	55 and 108 dB (A)	Speakers	
Percival & Loeb (in press)								
Experiment 1	Conglomerate	Tolerance for frustration ^a Proofreading	24	3.6 min.	15	95 dB (A)	Speakers	
Experiment 2 ^a	Aircraft overflights Aircraft overflight peaks White noise Conglomerate noise	Tolerance for frustration ^a Proofreading	16	7.13 min.	29	95 dB (A)	Speakers	
Rotton, Olszewski, Charleton, & Soler (1978)	Conglomerate	Tolerance for frustration ^a	60	9 min.	60	80 min.	Earphones	
DeJoy (Note 2)	Printing shop noise	Proofreading frustration	60	10 min.	33	85 dB (A)	Speakers	
Frankenhaeuser & Lundberg (1974)	Conglomerate	Tolerance for frustration	20	40 min.	50	65-85 dB (A)	Speakers	Insensitivity of measure of frustration tolerance
Harris (Note 1)								
Experiment 1	Auto horn	Proofreading	30	3.8 min.	12.5	85-105 dB (A)	Not reported	Possible floor effect
Experiment 2	Conglomerate	Proofreading	30	3.8 min.	12.5	85-105 dB (A)	Not reported	on proofreading in
Experiment 3	Conglomerate	Serial search	30	3.8 min.	12.5	85-105 dB (A)	Not reported	Experiments 1 and 2
Moran & Loeb (1977)	Aircraft overflights	Tolerance for frustration	14	4.6 min.	29	90-105 dB (A)	Not reported	Aircraft noise peaks were always signaled by the onset of overflight noise

^a The noise described was associated with a deficit in performance on that aftereffect task.

^b A proofreading effect was found in all but one study (Glass & Singer, 1972, p. 80).

^c Decreased tolerance for frustration occurred following aircraft overflight peaks and conglomerate noise but not following aircraft overflights and white noise.

either three or nine male undergraduates performed a simulated marketing task in a small room. In an experimental control group, a single subject performed the same task alone. After task completion subjects were moved to individual cubicles in which they were administered a proofreading task. Results indicated that the poststimulation effects in this study were mediated by individual differences in personal space needs. Both high- and low-density conditions (as opposed to the alone condition) had a negative impact on the proofreading quality of subjects with far (need more) personal space but not on those with close (need less) personal space. It appears that the mere presence of others in the small room, rather than the manipulated level of high density, acted as the stressor in this study. Moreover, those subjects who were most likely to experience stress when involved in close interactions with others (i.e., those with far personal space) showed aftereffects. Those less likely to experience stress (i.e., those with close personal space) did not show the effects. In sum, there is evidence for a postdensity effect in cases in which the close presence of others is likely to be experienced as stressing.

Task load. Three studies have indicated that subjects who experience a high task load perform more poorly following task completion than those assigned a low task load. Thus Cohen and Spacapan (1978, Experiment 1) found in a four-choice reaction time experiment that those required to respond to 100 lights per minute had less tolerance for frustration following task completion than those responding to 50 lights per minute. There were, however, no effects of task load on proofreading performance. (This experiment controlled for subjects' perceptions of success-failure and thus is not explicable in those terms.) Hartley (1973) reports that those required to perform a serial reaction time task for the first 20 minutes of the experiment performed more poorly on the same task in the last 20 minutes than those who read during the initial stage of the study. (This effect may, of course, be attributable to boredom on the part of those required to perform the same task twice.) Similarly, Rot-

ton et al. (1978) found that the expectation that one would be required to recall a speech, even though one was never actually required to do so, resulted in lower tolerance for frustration following task completion than for those not expecting a recall test. DeJoy (Note 2), however, found no differences in tolerance for frustration (insoluble anagrams task) or proofreading following performance of a high-versus a low-load coding task.

Other social and nonsocial stressors. Glass and Singer (1972) also reported that poststimulation deficits in performance occur following electric shock, a frustrating experience with a bureaucracy, and an experience of arbitrary or sex discrimination. In the electric shock study (Glass & Singer, 1972, p. 110) those subjects exposed to unpredictable and uncontrollable shock performed more poorly on both the Stroop and proofreading tasks following exposure. A later study (Glass et al., 1973), found similar poststimulation effects of electric shock on the Stroop. Experiences of bureaucratic harassment (Glass & Singer, 1972, p. 124) similarly resulted in poorer proofreading for the harassed than for the nonharassed groups after the experience had ended, and the study of the effects of discrimination in the amount of pay received for participating in the experiment (p. 132) found that those who experienced discrimination performed more poorly on the Stroop following the experience than those who did not experience discrimination.

Conclusions. The previously cited studies provide evidence for both the reliability and generality of the poststimulation effect of stress on performance. These effects have appeared in the vast majority of studies, and these studies have used a wide range of stressors. The data suggest that the effect is most likely to occur when the stressor is clearly unpredictable and when a sensitive aftereffects measure is used. Moreover, factors that might mediate the stressfulness of the situation (e.g., subject gender and need for personal space in the social density studies) are important determinants of whether a particular manipulation will produce an aftereffect. The most reliable mea-

asures appear to be those used by Glass and Singer (1972), although the proofreading task has proved less reliable (e.g., Cohen & Spacapan, 1978; Glass & Singer, 1972, p. 80; Sherrod, 1974) than the Feather and Stroop tasks. The inconsistency of the proofreading measure may be attributable to the large variation among subjects' literary skills that often results in substantial error variance on proofreading scores. Although other measures have only been used in individual studies, poststimulation effects have been obtained on a serial reaction time task (Hartley, 1973) and a creativity task (Aiello et al., 1977). Aftereffects measures that have failed include visual search tasks (Nicosia et al., in press; Harris, Note 1) and a problem-solving task (Nicosia et al., in press). Since in all of the Glass and Singer studies and replications, the poststimulation tasks were administered shortly after stressor termination, there are no data on the time course of the effect.

Predictable Versus Unpredictable Stressors

Glass and Singer reported five studies that compared the poststimulation effects of predictable versus unpredictable noise. The first two studies (Glass et al., 1969, Experiment 1; see also, Glass & Singer, 1972, pp. 47, 52) compared fixed versus random-intermittent exposure to a broadband conglomerate noise made up of a number of fairly typical urban sounds. In both of these studies, those exposed to unpredictable noise performed more poorly than did the predictable noise group on both the tolerance for frustration and proofreading tasks. There was no difference between poststimulation performance of the predictable noise group and a no-noise control group. The first study also indicated that predictability of the noise was a more important determinant of poststimulation effects than was the intensity (56 vs. 108 dB) of the sound. In a third study (Glass & Singer, 1972, p. 55) predictability was manipulated by the use of signaled (by a light) versus unsignaled (light occurrence is random) noise bursts. Again, those exposed to unpredictable noise were less persistent on insoluble puzzles administered after noise

termination. The effect of unpredictable noise on proofreading was, however, not replicated.

Predictability was manipulated in two other studies that were primarily designed to assess the effect of inhibiting adaptation on post-stimulation effects. (See the section on Adaptive-Cost Hypothesis under Theory Review.) The first study was the only one in which Glass and Singer (1972, p. 141) reported a clear reversal of the predictability effect. For subjects working on difficult math problems during exposure, higher frustration tolerance and better proofreading occurred in the random-intermittent condition than in the fixed-intermittent condition. This was not true for those working on simple problems. The second study (Glass & Singer, 1972, p. 147) resulted in the usual predictability effect with those who were exposed to random-intermittent noise, whether the interburst intervals were 51 sec or 96 sec, performing more poorly on the proofreading task than those who were exposed to fixed-intermittent bursts.

Gardner (1978, Study 1, Table 1) similarly presented subjects with fixed or random-intermittent conglomerate noise of 100 dB. A proofreading task performed after noise exposure was performed more poorly by those exposed to unpredictable than by those exposed to predictable noise. Likewise, Percival and Loeb (in press) reported that subjects exposed to 24 minutes of 95-dB random-intermittent conglomerate noise showed less tolerance for frustration following exposure than either those exposed to equivalently intense fixed-intermittent sound or those exposed to a soft (46-dB) broadband sound. Studies by Harris (Note 1), Moran and Loeb (1977), and DeJoy (Note 2) described earlier also manipulated the predictability of the noise. As mentioned earlier, none of these investigations indicated aftereffects of either predictable or unpredictable sound.

In sum, the role of predictability in producing stress aftereffects has not received considerable attention since the publication of the Glass and Singer book. Existing evidence does, however, suggest that aftereffects are more likely to occur following exposure to the unpredictable rather than a predictable stressor.

Controllable Versus Uncontrollable Stressors

Glass and Singer (1972) reported a number of studies which indicated that the after-effects of stress occur following uncontrollable but not controllable stressors. First, there were two identical studies (pp. 64, 65) that used 108-dB aperiodic noise in which half of the subjects were instructed how to terminate the noise by pressing a button (perceived control). In fact, the perceived control subjects did not actually terminate the noise. In both studies, following noise exposure, those provided with perceptions of control over stimulus termination had more tolerance for frustration and performed better on the proofreading task than did their counterparts without perceptions of control.

In a third study, Glass and Singer (1972, p. 69; see also, Glass, Reim, & Singer, 1971) tested the proposition that indirect control (i.e., having access to another person who could terminate the noise) would be similar to having direct control over noise termination. Their hypothesis was confirmed. Following exposure to the 108-dB conglomerate noise, those with indirect control performed better than those lacking the perception that they (or their partner) could control the termination of the noise. In a final study, Glass and Singer (1972, p. 74) found that knowing that someone else was able to terminate the noise (for themselves) during the experiment but that one's own exposure could not be terminated (relative deprivation) did not increase poststimulation effects. However, as in previous studies, a proofreading task administered after stimulus termination was performed more poorly by those lacking perceived control than by those with control.

A replication of the aftereffects of noise that used a slightly different operation of perceived control is reported by Gardner (1978). An inability to replicate Glass and Singer when using an informed consent form that explicitly informed the subject that he or she could leave the experiment without loss of pay led Gardner to use the informed consent form as a way of manipulating control. Gardner reported that although it was impossible to replicate the aftereffects of unpredictable, uncontrollable noise with in-

formed consent, the effect was replicable when informed consent was not required. Unfortunately, those who received the informed consent were not only given the perception of control over termination of the stressor (i.e., they could leave at will) but also were making an explicit choice (to the extent of signing their names) to participate in the study prior to noise exposure. Thus, it is unclear whether the ameliorative effects of informed consent in this study are attributable to increased control or to increased choice and commitment.

Perceived control over the termination of the stressor was also examined in the previously described study of spatial density by Sherrod (1974). Besides the high-density (small room) and low-density (large room) conditions, an additional condition was included in which subjects were assigned to a high-density setting but were told that they could leave the room and work in a larger room if they so desired (density with perceived control). As in the noise studies, the perceived control subjects did not actually use this option. The high-density group showed the least persistence on the insoluble puzzles, followed by an intermediate level of persistence by those high-density subjects with perceived control, and finally, the most persistence was shown by the low-density group. As mentioned earlier, there were no effects on the proofreading task.

The previously described studies all provided subjects with the perceived ability to terminate the stressor, but in all cases subjects did not actually perform any coping responses. That is, they knew they could terminate the stressor but did nothing about it. A slightly different form of control was offered to subjects in a study of the after-effects of electric shock reported by Glass et al. (1973). During an initial trial block, all of the subjects received a series of 10 6-sec shocks and were required to press a reaction time key at the onset of each shock. During a second block of trials, the perceived control group was told that they could decrease the duration of each shock (from 6 to 3 sec) by maintaining a fast reaction time to the onset of the shock. For half of these sub-

jects, all shocks were halved (perceived control with reduction), and for the remaining subjects none of the shocks were halved (perceived control without reduction). Two experimental control groups received shocks of either 3 sec (no perceived control with reduction) or 6 sec (no perceived control without reduction) but were given no indication that shock duration was related to their behavior. Thus in this case, subjects with control were actually implementing that control by attempting to maintain fast reaction time. Performance on the Stroop, administered after the two blocks of shock trials were completed, indicated that subjects who were told that they could control the duration of the shock and ostensibly succeeded in doing so (perceived control with reduction) performed better on the Stroop than both of the no-perceived-control groups and better than the group given the expectancy that control was possible who actually failed to control (perceived control without reduction).

A number of studies of the learned helplessness phenomenon have also examined the effects of implemented control over a stressor on poststress performance. Compared with those with the ability to escape or avoid loud noise, those lacking control subsequently performed more poorly on anagrams (Gatchel, McKinney, & Koebernick, 1977; Hiroto & Seligman, 1975), a concealed figures test (Krantz & Stone, 1978), and a proofreading task (Krantz & Stone, 1978). In contrast to the previously described studies, subjects in the unavoidable, unescapable stress conditions in these studies experienced failure as well as stress. (The unavoidable stress conditions in these studies are similar to the perceived control no-reduction condition in the study by Glass et al., 1973, described previously.) The fact that control and success-failure are confounded in these studies makes it difficult to assess whether the mechanisms involved are the same as in the other aftereffects work (cf. Cohen, Rothbart, & Phillips, 1976; Griffith, 1977).

Two recent studies of helplessness induced by exposure to uncontrollable bursts of noise (tones) provide data that are inconsistent with those reported in the aftereffects litera-

ture (Gatchel, Paulus, & Maples, 1975; Gatchel & Proctor, 1976). Both of these studies included an experimental control group in which subjects were instructed to merely sit and passively listen to loud tones (no success or failure). This condition is similar to an unpredictable, uncontrollable stressor condition in the aftereffects paradigm and thus would be expected to result in poststimulation deficits in performance. Although a learned helplessness group, who thought they could escape the noise but actually could not, showed poststimulation deficits on an anagram task, the group who passively listened to the tones did not show deficits. The noise dose in these experiments, however, was small in comparison with previously cited noise studies.²

The research discussed previously has been limited to studies that provided control over the termination of a stressor. A study of the aftereffects of noise by Sherrod et al. (1977) extended this work by investigating the relative contribution of control over initiation of the stressor as well as over termination. Subjects with initiation control were allowed to choose whether they would be exposed to noise. The experimenter stressed, however, that for the purposes of the study, he would prefer that they turn the noise on (they all did). Subjects without initiation control were given no such choice. Termination control was provided in the same way as in the Glass and Singer studies. Following noise exposure the Feather task was administered. Sherrod and his colleagues reported that the least

² At the beginning of both of these studies, the subject, after hearing a sample tone, was offered the opportunity to withdraw from the experiment. As we outline later in this article, such a choice, by providing a form of control over the situation, is likely to ameliorate any poststimulation effects (cf. Sherrod et al., 1977). If we assume that the learned helplessness effect in these studies was a response to failure and not to a lack of control, it is possible that the ability to choose whether to participate in the study ameliorated control-related effects for the passive listening group but did not affect the learned helplessness (failure) group. Admittedly, however, these studies constitute an additional failure to replicate postnoise effects, and this post hoc explanation must be viewed as only tentative.

tolerance for frustration was shown by those who lacked any kind of control over the noise, intermediate tolerance was shown by those with initiation control, termination control caused an even greater increase in tolerance, and combined control (both initiation and termination) caused the greatest increase. Thus although initiation control was not as effective as termination control, increasing overall perceptions of control by combining initiation and termination was the most effective intervention.

In a field study of the stress involved in donating blood, Mills and Krantz (1979, Experiment 1) investigated the roles of providing information about a threatening event and of providing choices about that event in mediating poststress response. Information and choice were both conceptualized as forms of personal control because they presumably allow one to alter or affect their outcomes. In this study, blood donors were offered or not offered a choice of which arm blood would be drawn from. This manipulation offers some control over the procedure but not directly over either the initiation or termination of the stressor. Also, although all donors received some information prior to the procedure, in half of the cases (high information) this information dealt with the details of the procedure and the sensations the donor might expect, whereas in the remaining cases (low information) the information was limited to a general description of the Red Cross blood donor program. The Stroop Color-Word test was administered during the donor recovery period. There were no differences between conditions in Stroop performance. However, the authors pointed out that the nursing interventions during the procedure and the refreshments given to donors following the procedure precluded an adequate assessment of aftereffects in this setting. In addition, the time that elapsed between the stress experience and the aftereffects measure was long in comparison with previously discussed studies in which the aftereffects measures were administered either immediately or after a short respite.

A laboratory study of cold stress by the same authors (Mills & Krantz, 1979, Ex-

periment 2) similarly manipulated information about the stress experience and choice of hand to be placed in the cold water. In this case, however, those who were allowed to choose the hand to be used could also elect to remove their hand from the cold water if they chose to do so. The proofreading measure was administered following stressor exposure. Subjects with choice of hand and perceived control over stressor termination (high choice) were more accurate proofreaders than those given neither choice nor the perception of control (low choice). Also under low-choice conditions, providing information led to improved performance, whereas under high-choice conditions, providing information made little difference. It appears that in this case combining two forms of control did not further decrease poststress effects. It should be pointed out, however, that the high-choice condition itself involved two forms of control (hand choice and immersion time in cold water). Thus, it might be more accurate to conclude that the addition of a third form of control did not decrease poststress effects.

In a final study, DeJoy (Note 2) compared posttask performance of subjects who had some control over a difficult coding task (self-paced) with the performance of subjects who lacked task control (experimenter paced). The two conditions were yoked (average stimulus exposure time of self-paced subject used for experimenter-paced subject) to equate conditions on time on task. Experimenter-paced subjects performed more poorly on an insoluble anagrams task (tolerance for frustration) administered immediately following completion of the coding task than did self-paced subjects. There were no effects on the proofreading task.

Conclusions. The data are almost unanimous in supporting the role of both perceived and implemented control over termination of a stressor in ameliorating stress aftereffects. In some cases those groups with control performed as if they were not exposed to a stressor (e.g., Gardner, 1978; Glass et al., 1973), whereas in others (e.g., Sherrod et al., 1977) control provided some improvement in poststress task performance but did not com-

pletely ameliorate the effect. The single study of initiation control similarly suggests a lessening in poststress performance deficits. Initiation control does not, however, appear to be as effective as termination control. There is also some mixed evidence that providing subjects with choice over an aspect of the stress situation and/or with information about the procedure and expected sensations similarly lessens the poststimulation impact of the stressor.

Is providing someone with more than one kind of control a more powerful intervention than providing them with a single mode of control? The combination of initiation and termination control does prove to be more effective than either of these modes alone (Sherrod et al., 1977). However, the combination of two kinds of choice and one kind of information control does not seem to be more effective than either of these modes alone (Mills & Krantz, 1979). It could be that combined modes of control do help to reduce poststress performance deficits until one reaches levels equivalent to performance following no-stress conditions (as in the Sherrod et al., 1977, study), but additional control is unimportant if that level is already reached (as in Mills & Krantz, 1979).

The research clearly demonstrates that providing one with increased control over a stressor or over a stress setting decreases deficits in poststimulation performance. None of the reviewed studies, however, have investigated whether increased control over a setting is beneficial when there is no stressor present. (This assumes that the demanding coding task used in the DeJoy, Note 2, study was experienced as a stressor.) That is, since none of these studies included a condition that provided control over a nonstressing setting (e.g., perceived ability to leave if the experiment is not fun or choice of task or task order on a simple task), it is unclear whether there is an interaction between stress and control or a main effect for control. Since there is some evidence that perceived control over a simple task setting may improve performance in that setting (Perlmutter & Monty, 1977), an overall rather than stress-specific effect of control does seem possible.

Aftereffects on Social Behavior

Recent studies on the poststimulation effects of uncontrollable stress on social behavior have extended the scope of the original aftereffects research. For example, two studies have reported decreased poststimulation helping after exposure to unpredictable, uncontrollable stress. In an experiment by Sherrod and Downs (1974), subjects performed a task while listening to either a recording of a soothing simulated seashore or a stressing recording of dixieland jazz plus a male voice reading nonrelevant prose. In a third condition subjects listened to the stressing tape but were told that they could terminate the distracting stimulus if they wished (perceived control). After the completion of the 20-minute experiment, subjects left the laboratory and were confronted by a second experimenter who asked for voluntary help in pretesting some experimental materials. Subjects who listened only to soothing seashore sounds volunteered the most times, followed by subjects who listened to the stressing tape but who had perceived control, followed finally by stress-without-control subjects. Thus, exposure to uncontrollable stress decreased poststimulation helping with the addition of control over the termination of the noise partially ameliorating these effects.

Similar results were found in a study of the aftereffects of density and task load conducted in a large shopping center (Cohen & Spacapan, 1978, Experiment 2). Subjects were required to perform high- or low-information rate shopping tasks during periods in which the shopping center was crowded or uncrowded. After completing their task, subjects (on their way to meet the experimenter) entered a deserted corridor in which they encountered a woman who feigned dropping a contact lens. Those subjects who performed high-load tasks and/or were crowded helped less often and for less time than their low-task-load, uncrowded counterparts.

Increased aggressive behavior following exposure to uncontrollable stress was reported by Donnerstein and Wilson (1976). In their experiment, subjects completed a math task under either quiet, high-intensity noise or

high-intensity noise with perceived control over the termination of the noise. Following noise exposure, half of the subjects were angered (by the person they would later aggress against) and half of the subjects were not angered. Angered (but not nonangered) subjects with no control revealed an increase in aggression, whereas the level of aggression of perceived-control subjects was no different than that of no-noise subjects.

Three studies described earlier also used poststress measures of social behavior. Thus Rotton et al. (1978) found that both loud speech and the combination of conglomerate noise and a taxing task reduced one's ability to differentiate among people occupying different roles. Epstein and Karlin (1975) reported that groups of men who were crowded were less cohesive and more competitive following the stress experience. Women, however, were more cohesive and less competitive following the crowded versus noncrowded experience. Finally, Dooley (1978) failed to find any relationship among social density, volunteering for a future experiment, or rating of attractiveness of same-sex persons.

Overall, it appears that exposure to unpredictable and uncontrollable stress is followed by a decreased sensitivity to others. This includes a decrease in helping, a decrease in the recognition of individual differences, and an increase in aggression.

Naturalistic-Correlational Studies of Aftereffects

A number of recent studies have investigated the impact of living and/or working in a stressful environment on task performance and social behavior outside of the stressing environment. For example, several investigators have examined the effects of prolonged exposure to community noise on the performance of elementary school children. In one study, Cohen, Glass, and Singer (1973) tested children living in apartment buildings built on bridges spanning a busy expressway. When tested in a quiet setting, children who lived in noisier apartments showed greater impairment of auditory discrimination and reading ability than did those who lived in quieter apartments. The length of residence increased

the magnitude of the correlation between noise and auditory discrimination. Additional analyses ruled out social class variables and hearing losses as possible explanations. A study of children attending school in the air corridor of a busy metropolitan airport (Cohen, Evans, Krantz, & Stokols, 1980) indicated that children living and attending school in the air corridor were poorer on both a simple and a difficult puzzle-solving task and were more likely to give up on the task than their quiet neighborhood counterparts. Again, there were controls for social class and for hearing damage. Unlike the apartment noise study, this study did not find that children from noisy environments (schools) had poorer verbal abilities.

A study of 4½- to 6½-year-old children from homes described by their parents as either noisy or quiet similarly suggests poorer post-stimulation task performance on the part of children from noisier homes (Heft, 1979). The children performed a simple matching (visual search) task and then were administered a recall test for some of the incidental stimuli in that task. Children from noisy homes performed more poorly on both the matching and incidental memory tasks than those from quieter homes. Performance on a second matching task indicated similar deficits for children from noisy as opposed to quiet homes. Analyses controlled for age, preschool experience, and income level of parents. It should be noted, however, that self-reports of noise level do not usually correlate highly with objective noise measures (cf. Kryter, 1970) and thus limit the generality of these findings.

Two naturalistic investigations of crowding also suggest effects that occur outside of the stressing environment. Baum and Valins (1977) reported a number of studies of the behavior of dormitory residents who, because of dormitory design, were exposed to prolonged and repeated personal encounters with large numbers of other residents (long-corridor residents) versus those whose forced encounters included a comparatively small number of others (short-corridor and suite residents). Under controlled conditions outside of the dormitory, those who had a large

number of personal encounters showed less group consensus after a discussion, sat further away from, spent less time looking at, and initiated fewer conversations with a stranger (confederate), used a withdrawal strategy more often in a prisoner's dilemma game, and were less likely to assert themselves by asking questions in an ambiguous situation.

Two studies reported by Rodin (1976) similarly suggest aftereffects of residential density. In the first study 6-9-year-old children from high-density apartments of a low-income housing project were less likely than children from less dense homes from the same project to control (choose) their own outcomes. In a second study, eighth-grade children from high-density apartments were more adversely affected by a learned helplessness pretreatment—insoluble puzzles—than were their low-density counterparts. These effects persisted even after statistical control for social class and race were used.

The studies discussed previously suggest that prolonged exposure to a stressor is associated with a number of poststimulation effects on performance and social behavior. Although it is likely that some of these effects are specific to the stressor (e.g., the tendency of those who are forced into constant contact with others to avoid strangers in the Baum and Valins work), a number of the studies indicate a more general helplessnesslike effect (Baum & Valins, 1977; Cohen et al., 1980; Rodin, 1976). It is important to emphasize that these studies are all correlational and thus do not allow causal inference.

The Meaning of the Stressor and the Meaning of the Control Manipulation

Although the data on the effects of uncontrollable stressors on poststimulation performance and social behavior is reasonably consistent, there have been a number of published and unpublished² failures to replicate these effects. These inconsistencies are probably inevitable given the complexity of the situation being presented to a subject. First, it is likely that our responses to loud noise and to other potentially stressing stimuli are

mediated by cognitions other than control, and we may often unintentionally invoke such cognitions in our laboratories. For example, Cohen (in press) has outlined a number of situational characteristics of laboratory settings that may affect the meaning of the potential stressor for the subject and consequently, whether it will produce stress-related responses. Among others, these factors include (a) whether the participants in the study are aware that the exposure to the aversive stimulus will last for only a short period (cf. Altman, 1975), (b) the salience of the implied contract between the experimenter and the subject that suggests no harm will come to the subject during the experimental procedure, (c) whether the subject chose to participate in the study and whether an informed consent slip was signed.

Averill (1973) has pointed out that the stress-reducing properties of a personal control intervention similarly depend on the meaning of the control response for the individual. Thus telling a subject that pressing a button will terminate a loud noise may or may not suggest that he or she has control over the termination of the stressor. One alternative interpretation of this intervention might be that the stressor must be pretty dangerous if the experimenter needs to provide an escape mechanism.

Theory Review

Adaptive-Cost Hypothesis

Glass and Singer's (1972) working hypothesis was that the process of adaptation requires cognitive work. This work included searching for appropriate coping responses and/or attempting to redefine the stimulus. Moreover, they assumed that the work required to adapt to unpredictable and uncontrollable stressors was substantially greater than that required to adapt to predictable and controllable stimulation. According to Glass and Singer, the adaptive-cost hypothesis predicts that poorer performance on aftereffects tasks should vary directly with degree

² Unpublished research conducted in my own laboratory. (See, also, Baddeley, Note 3; Evans, Note 4; Stokols, Note 5.)

of adaptation, since a greater degree of adaptation implies a greater amount of adaptive effort. Presumably, increased adaptive effort would deplete one's available psychic energies and would thus result in deficits on subsequent demanding tasks.

Glass and Singer (1972) presented two arguments that led them to discard this hypothesis. First, they assumed that decrements in galvanic skin response (GSR) to noise and shock are valid indices of the cognitive effort involved in adaptation. This follows from their assumption that the greater the adaptation, the greater the amount of adaptive effort. There were no significant correlations between aftereffects scores and indices of GSR adaptation for subjects in various conditions. Thus there was no evidence for differential cognitive work. Second, they assumed that a situation in which one was exposed to unpredictable stress but in which adaptation was inhibited would not result in poststimulation effects. This should be true, since a lack of adaptation implies a lesser degree of adaptive effort. They were successful in inhibiting physiological adaptation in two studies (pp. 141-153) but found poststimulation effects even in the conditions in which subjects did not physiologically adapt. They thus concluded that "it is not the adaptive process that causes adverse aftereffects" (p. 153).

Although the authors describe the effort of adaptation as a cognitive process of searching for appropriate coping strategies and of redefining the stimulus, they take physiological evidence based on one index of autonomic response as the measure of adaptation. Existing knowledge concerning the relationship between cognition under stress and corresponding physiological fluctuations is equivocal at best (cf. Kahneman, 1973). Moreover, it is likely that those subjects who were prevented from physiologically adapting worked just as hard (if not harder) to cope with and redefine the stressor. In other words, it is possible that a significant amount of effort may be expended even if adaptation does not occur. Thus, aftereffects may occur because of the adaptive process even when adaptation fails. In sum, although the Glass

and Singer (1972) data do not provide support for the adaptive-cost hypothesis, neither do they provide convincing evidence to justify its rejection. Unfortunately, none of the more recent studies have attempted direct tests of this explanation.

Information Overload

An alternative form of a psychic cost hypothesis was recently proposed by Cohen (1978). He argued that unpredictable, uncontrollable stressors, because they are potentially threatening, substantially increase demands on attentional capacity. This increased demand might occur because individuals are required to continually monitor potentially threatening stimuli to evaluate their adaptive significance and to decide on appropriate coping responses (cf. Lazarus, 1966). Increased demand may also occur because of effort required in tuning out or inhibiting response to the distracting stimulus. Cohen further suggested that an individual's attentional capacity is not fixed but shrinks when there are prolonged demands. This shrinkage or *cognitive fatigue* presumably increases with both the attentional load of an activity and the duration of an activity. Thus prolonged exposure to an environmental stressor and/or to a high information rate task should result in cognitive fatigue—an insufficient reserve of attention to perform demanding tasks.

What are the implications of the cognitive fatigue hypothesis for the performance of ongoing and subsequent tasks? Task duration under experimental conditions is usually limited to between 20 minutes and an hour. Although this may be sufficient to cause a significant decay in available capacity, it may not affect performance on an ongoing task that by that point is well practiced and requires little effort. Subsequent tasks, however, that demand considerable attention on the part of the subject would be sensitive to fluctuations in available processing capacity. Thus we would expect depletions in attentional capacity resulting from prolonged task and environmental demand to be manifest in deficits on difficult tasks administered immediately after termination of the principal task.

Three recent studies (mentioned earlier) have provided direct support for the cognitive fatigue hypothesis. All three suggested that those experiencing a high task load perform more poorly on subsequent tasks than those experiencing lower task loads. For example, Hartley (1973) reported that both increased task load and increased noise result in poorer performance on a subsequent serial reaction time task performed in quiet. Moreover, there is an additive effect of task load and noise on poststimulation performance. Rotton et al. (1978) similarly reported that deficits on the Feather tolerance for frustration task increase with both task load of a previous task and the addition of noise to that task. Again, there is an additive effect when these conditions are combined. In a final study, Cohen and Spacapan (1978, Experiment 1) reported that deficits on the tolerance for frustration task (but not on the proofreading task) increased as task demand and task duration of a previously performed task increased. Moreover, self-reports of mental fatigue similarly increased with both task load and task duration. Thus subjects' self-perceptions were consistent with both the predictions of the cognitive fatigue hypothesis and the data from the tolerance for frustration task.

A study reported by Wohlwill et al. (1976) is not, however, consistent with the cognitive fatigue hypothesis. They reported that subjects who listened to noise but did not perform a concurrent task showed the same aftereffects as those who worked on a task while listening to noise. Since performing a task under noise should demand greater attentional capacity than merely being exposed to the noise, the cognitive fatigue hypothesis would suggest that the noise plus task condition would show a greater magnitude of aftereffects. Interpretation of this study is difficult, however, since the no-task subjects were given instructions that may have led them to assume that they were expected to process (possibly remember) task stimuli. Unfortunately, the investigators did not administer any self-report measures of cognitive fatigue or ask subjects how they perceived the experimental situation.

Cohen also suggested that posttask (or poststress) attentional deficits can have detrimental effects on interpersonal behavior. He argued that lacking adequate attention reserves, an individual sets priorities for use of his or her attention. The most common strategy is to focus available attention on inputs most relevant to one's own goals, neglecting other cues, social and nonsocial alike (cf. Milgram, 1970). Important social cues that are often neglected when attention is restricted include those that carry information concerning the moods and subtly expressed needs of others. The neglect of such cues results in a lowered probability of helping another, expressing sympathy for another, or reacting appropriately to another's needs. Other proposed social consequences of attentional focusing following high attentional demand include oversimplification and distortion in the perception and evaluation of communications and persons.

Evidence for the contention that conditions leading to cognitive fatigue will result in less sensitivity to others comes from a number of recent studies. In a study conducted in a field setting (Cohen & Spacapan, 1978, Experiment 2), after performing a high-load shopping task, subjects were less likely to help a woman search for a contact lens than their counterparts who performed a low-load task. Similarly, subjects who had been crowded were less likely to help than those who had not been crowded. Again, there is an additive effect in the high task load, high-density condition. Rotton et al. (1978) reported increased difficulty in differentiating between people who occupy different roles following both increased task load and noise exposure. Thus it appears that poststimulation task deficits and insensitivity to social cues can be induced by manipulation of task load as well as by unpredictable stress. Previously cited studies on poststress aggression (Donnerstein & Wilson, 1976) and poststress helping (Sherrod & Downs, 1974) can be similarly viewed from this perspective.

Learned Helplessness Theory

Glass and Singer (1972; see, also, Seligman, 1975) suggested that aftereffect deficits

are attributable to learned helplessness. They argued that subjects who are unable to predict and control a stressor learn that their reinforcements are independent of their responses, which results in motivational decrements that are manifested in poorer performance on poststimulation tasks. Such an interpretation requires at least two assumptions: (a) Learned helplessness can be induced when performance on the experimental task (task performed during stressor exposure) is not instrumental in escaping or avoiding the aversive stimulus; and (b) helplessness will generalize to a wide range of cognitive tasks, including tasks that do not require a direct problem-solving strategy. (Test tasks used in learned helplessness studies usually require subjects to initiate responses in a trial-and-error fashion; cf. Wortman & Brehm, 1975.)

Evidence relevant to this last assumption has been reported by Cohen et al. (1976). These authors found that task impairment on the Glass and Singer aftereffects tasks can be replicated when a more standard learned helplessness pretreatment is used. Employing a pretreatment used by Roth and her colleagues (e.g., Roth & Bootzin, 1974) in previous studies, Cohen et al. found that subjects who received noncontingent reinforcement showed deficits on the tolerance for frustration and the Stroop color word task similar to the deficits found by Glass and Singer for subjects exposed to uncontrollable noise. Further support for the helplessness explanation is provided by a study by Glass and Singer (1972) in which subjects who were told that solving experimental puzzles would terminate the noise, but who actually received insoluble puzzles, took more time to solve a final puzzle that was soluble than those subjects who had been working on soluble puzzles and perceived that they were shortening noise exposure (p. 89). Both of these studies confounded controllability and success-failure. (Cohen et al. did attempt to minimize this effect by yoking the contingent and noncontingent groups on number of reinforcements and number of trials.) As mentioned earlier, a number of learned helplessness studies involved the administration of

escapable or unescapable noise. However, since controllability and success-failure are also confounded in these studies, it is unclear whether they are appropriate analogs of the aftereffects paradigm.

The strongest source of support for the learned helplessness interpretation comes from the naturalistic studies of stress aftereffects. Work in crowded college dormitories (Baum & Valins, 1977), in high-density low-income housing (Rodin, 1976), and in schools located in the air corridor of a busy urban airport (Cohen et al., 1980) all suggested that those living under environmental stress show behavioral manifestations of helplessness.

Although the above data lend support to the helplessness hypothesis, there are recent data that call the helplessness interpretation into question. Seligman (1975) argued that a major consequence of experience with uncontrollable events is motivational—undermining the motivation to initiate voluntary responses that control other events. One manifestation of the motivational deficit is that “helplessness retards the initiation of aggressive as well as defensive responses” (Seligman, 1975, p. 33). A study by Donnerstein and Wilson (1976), however, indicated that after stimulation is terminated subjects who lack control over noise are more (not less) likely than subjects with perceived control over the noise to shock a person who angers them.

The helplessness interpretation is especially compelling because it provides an obvious explanation for poststimulation effects on the extremely reliable Feather task. That is, less persistence on a difficult task is characteristic of helplessness. It is, however, difficult to explain why increased task load would lead to helplessness, especially when success feedback is held constant across conditions (Cohen & Spacapan, 1978, Experiment 1). Moreover, helplessness is accompanied by a relatively negative affective state (Gatchel et al., 1975; Miller & Seligman, 1975; Pittman & Pittman, 1979; Seligman, 1975). Yet aftereffect studies generally reported no differences between conditions in reported affect following stressor exposure (e.g., Cohen & Spacapan, 1978;

Glass & Singer, 1972; Mills & Krantz, 1979, Experiment 2; Pennebaker, Burnam, Schaeffer, & Harper, 1977; Wohlwill et al., 1976). In addition, the overall mood tone of subjects in all conditions is sometimes positive (e.g., Coben & Spacapan, 1978; Wohlwill et al., 1976).

Arousal Theory

A number of investigators have mentioned the possible role of arousal in producing after-effects (e.g., Evans, 1978; Glass & Singer, 1972; Poulton, 1978). The most popular form of this theory assumes that those exposed to uncontrollable and unpredictable stressors show higher levels of arousal immediately following exposure than those exposed to predictable and/or controllable stressors. How would increased arousal affect poststimulation task performance and social behavior? It is generally believed that there is an optimal level of arousal for performance of a particular task (cf. Poulton, 1970). Performance increases with increments in arousal up to that optimal point and decreases as the arousal level increases above that point (the classic inverted U curve). This proposed relationship between arousal and task performance is often attributed to a narrowing of attention that occurs under conditions designed to induce arousal (Easterbrook, 1959). The first inputs to be reduced (dropped out) are those that are irrelevant or only partially relevant to task performance. As arousal increases, attention is further restricted and task relevant cues are also neglected. In some tasks, proficiency demands the use of a wide range of cues (e.g., dual-task performance or single tasks that require the integration of information from many sources). Any narrowing of attention is likely to adversely affect performance of such tasks because remaining attention would likely be less than that required to process task-relevant cues. In other tasks, proficiency demands the use of only a restricted range of cues. Such tasks improve with moderate reductions in attentional span (improvement in performance occurs only to the extent that reducing competing cues facilitates a particular task) but are detrimentally affected

when available attention falls below that required to process task-relevant cues. Thus, continued reduction in attentional span will improve and then impair performance.

It follows that the optimal level of arousal (and thus attentional focus) varies with the complexity (number of cues required) of the task. Optimal levels of arousal for complex tasks are lower than those for simple tasks. Thus high levels of arousal, like those that are presumably elicited by laboratory stress manipulations, are usually assumed to have detrimental effects on complex tasks but not on simple tasks. Assuming that the standard aftereffects measures are complex tasks and that subjects are experiencing a high level of arousal following stressor termination, arousal theory would account for poststimulation deficits in task performance. However, it is unclear whether the standard aftereffects tasks can be considered complex and/or whether they generally show performance deterioration under heightened levels of arousal. For example, existing data show that Stroop performance often improves under arousal-inducing conditions. (See the review in Broadbent, 1971.) This improvement is attributed to an arousal-elicited focusing of attention on appropriate task cues (colors) and to a consequent dropping out of competing cues (words). As an aftereffects task, Stroop performance suffered following exposure to unpredictable and uncontrollable stress. Moreover, the proofreading task could be classified as a simple rather than a complex task, since it involves processing of only a restricted range of cues (cf. Easterbrook, 1959). Thus we might also expect improved performance on proofreading under heightened arousal.

To further confuse the situation, Poulton (1978) has argued that postnoise effects on task performance are due to the level of arousal falling below normal following exposure. If we assume that the standard aftereffects tasks are simple, this approach would similarly provide an explanation for poststimulation effects, since optimal levels of arousal for simple tasks are presumed to be high and any decrease in arousal would cause a decrease in performance.

Insensitivity to social cues can also be ex-

plained by the arousal model if we assume that levels of arousal are increased following exposure to unpredictable, uncontrollable stress. Increases in arousal level are said to be associated with a focusing of attention on cues most relevant to task performance (Easterbrook, 1959; Kahneman, 1973). As suggested in our earlier discussion of Cohen's (1978) attentional model, attentional focusing could lead to an insensitivity to others' needs.

The omnipresent problem in making arousal theory interpretations is the elusiveness of the arousal concept. Although a detailed description of this problem is beyond the scope of this article, it is important to point out that it is unclear how an investigator is to determine a subject's level of arousal. Some argue for behavioral (subjects behave "as they should" when aroused) and self-report measures (cf. Poulton, 1970), and many investigators use physiological measures—usually measures of autonomic response. Unfortunately, behavioral, physiological and self-report measures of arousal do not consistently correlate with one another (cf. Poulton, 1970). Moreover, it is generally accepted that there is no unitary form of physiological arousal (cf. Lacey, 1967) and that individual physiological measures do not correlate with one another. (See the review by Sternbach, 1966.) Nevertheless, many investigations of arousal under stress in laboratory situations use only one or two measures and assume that they reflect a general level of arousal. Thus the first point to be made is that the existing data on the relationship between poststress arousal level and performance are suspect, since we are not sure what arousal is or how it is to be measured and since we are sure that the way it has been measured in the past is inadequate.

Do those exposed to unpredictable and uncontrollable stressors show different levels of physiological arousal than those exposed to predictable and/or controllable stressors after the stressor is removed? There are little existing data on physiological response after exposure is terminated, but there are considerable data on relative levels of arousal at or near the end of the stress session.³ Glass

and Singer (1972) used three phasic measures of arousal in their research: Palmar skin resistance, vasoconstriction of blood vessels in the fingertip, and an electromyographic (muscle tension) measure. They reported that subjects habituate on all three autonomic channels, irrespective of the unpredictability and perceived controllability of the noise. That is, by the end of the exposure period, there is no difference among experimental groups in the levels of reaction to stressor stimuli obtained. A similar lack of differences between conditions in phasic response was reported in two studies of perceived control over the termination of noise by Pennebaker et al. (1977). This lack of differences, however, is inconsistent with some earlier research which suggested that there are significant reductions in electrodermal response, in conditions in which the subject can control or predict the onset and/or offset of stressor stimuli (e.g., Champion, 1950; Corah & Boffa, 1970; Geer, Davison, & Gatchel, 1970).

It is, however, more generally acceptable to use tonic rather than phasic response as a measure of a general level of arousal (cf. Glass & Singer, 1972). The only study that compared tonic response after exposure to predictable or unpredictable noise (Weidner & Matthews, 1978) found that subjects exposed to noise as compared with quiet had

³ The exception to this is evidence that during the initial stage of an anagram test, administered after noise exposure, students exposed to inescapable noise (learned helplessness condition) had a lower skin conductance level (SCL) than did those exposed to escapable noise (Gatchel & Proctor, 1976; Gatchel et al., 1977). An experimental control group in which subjects merely listened to loud tones (equivalent to the Glass and Singer no-control condition) showed the lowest SCL. There were, however, no differences between conditions on skin conductance response in either study. Moreover, the earlier study (Gatchel & Proctor, 1976) found no differences among escape, experimental control, and no-escape (helplessness) conditions following noise for either spontaneous skin conductance fluctuations or heart rate. As suggested earlier, these studies did not find postnoise behavioral aftereffects in the experimental control condition that was similar to the no-perceived-control condition in the Glass and Singer studies.

elevated hand temperature and blood pressure but that subjects exposed to predictable versus unpredictable noise showed no difference. Glass and Singer also reported that there were no differences between various experimental conditions in their studies in the level of skin conductance during stressor exposure, and a later study of control over electric shock (Glass et al., 1973) similarly indicated no difference between conditions in tonic conductance. Some earlier studies, however, suggested that those with control over termination of a stressor do show lower tonic levels during stressor exposure (e.g., Geer et al., 1970), although the evidence is mixed (e.g., Glass et al., 1973; see, also, review by Averill, 1973).

Comparisons of tonic arousal levels under stress and no-stress conditions (no manipulations of control or predictability) have, however, suggested differences at or near the end of the stress session (e.g., Aiello, Epstein, & Karlin, 1975; Evans, 1979), but only mixed support for differences comes from the studies that assessed arousal after the stressor was removed (Frankenhaeuser & Lundberg, 1974; Rotton et al., 1978; Weidner & Matthews, 1978). Thus it appears that there is little evidence for differential levels of physiological response following stressor termination. However, as we have suggested, "the fact that one autonomic measure fails to reveal expected differences does not necessarily rule out the existence of arousal differences" (Glass & Singer, 1972, p. 146).

Self-report measures of stress also provide only meager evidence for differential levels of arousal among the various experimental conditions. Although Glass and Singer (1972) reported a study in which one self-report measure suggested greater stress for those in the unpredictable, uncontrollable stress conditions, as opposed to those exposed to predictable and/or controllable stress (p. 66), for the most part these measures covary with the presence or absence of the stressor but not with the presence or absence of control or predictability. Several later studies (Mills & Krantz, 1979, Experiment 2; Pennebaker et al., 1977) similarly reported no differences between those with and those without control

on self-reports of frustration, tension, and alertness. The previously described study by Sherrod and his colleagues (1977) also found that neither initiation nor termination control affected self-reports of stressfulness.

In sum, there is little evidence for differential levels of arousal following an unpredictable, uncontrollable stressor, as opposed to predictable and/or controllable stressor. Moreover, it is also unclear whether such differences in arousal level would have consistently negative effects on the standard aftereffects tasks.

Frustration-Mood Hypothesis

A simple explanation for the aftereffects of stress is that exposure to unpredictable, uncontrollable stressors causes frustration, annoyance, and irritation, which results in a less motivated performance on poststress tasks and in a lower likelihood of being sensitive to the needs of others. There is evidence that those who experience a negative mood state are less likely to help another (cf. Isen, 1970; Moore, Underwood, & Rosenhan, 1973) and that frustration often results in aggression and other negative interpersonal behaviors (e.g., Berkowitz, 1969). Evidence that those exposed to unpredictable, uncontrollable stressors experience negative mood states following stress termination is, however, equivocal.

The study that comes closest to testing the frustration-mood hypothesis is Donnerstein and Wilson's (1976) investigation of poststress aggression. Consistent with the frustration-mood hypothesis, those subjects who were exposed to noise without perceived control (and thus who were presumably frustrated) and who were also angered (additional frustration) administered more shock to a confederate than either subjects with perceived control over the termination of the noise or those who were not angered. A number of other studies, however, do not indicate any differences in poststress annoyance and irritation between those with and those without perceived control (Glass & Singer, 1972; Pennebaker et al., 1977; Sherrod et al., 1977). Moreover, even studies that compared unpredictable, uncontrollable stressors to no-

stress experimental control conditions often indicated that there were no reliable differences in reported mood between conditions (e.g., Cohen & Spacapan, 1978; Frankenhaeuser & Lundberg, 1974; Wohlwill et al., 1976) and that the overall mood of subjects in all conditions was positive following the experimental session (e.g., Cohen & Spacapan, 1978; Wohlwill et al., 1976). These studies, however, typically include only one or two global items about the "stressfulness" or "enjoyableness" of the experiment and thus may not provide a sensitive measure of mood. As summarized earlier (in the section on Arousal Theory), there is also little evidence for the differential levels of arousal that one might expect to be correlated with increased frustration and mood shifts. In sum, although a frustration-mood hypothesis is compelling because of its simplicity, there are few data which suggest that significant differences in mood or arousal actually exist following the various experimental conditions.

Persistent Coping Strategies

It is possible that those exposed to unpredictable, uncontrollable stressors use coping strategies during stressor exposure and maintain these strategies even after the stressor is terminated. Although a particular strategy may be adjustive during exposure, it may or may not prove to be adaptive after exposure termination. This persistence may be due to overlearning of a coping response (cf. Rodin & Baum, 1978). This approach suggests that the coping response is under stimulus control but is not voluntary. For example, one may cope with crowding by withdrawing and persist in withdrawing from strangers even when not crowded.

The laboratory study of spatial density by Epstein and Karlin (1975) provided evidence for the persistence of a coping strategy that is used during stress exposure. They reported that single-sex groups of women and men differed in their reaction to crowding stress. Consistent with cultural norms, women tended to share their distress with each other, whereas men tended to hide their distress. These norms of sharing and hiding persisted into the poststress session in which men who

had been crowded were less cohesive and more competitive than uncrowded men and in which women who had been crowded were more cohesive and less competitive than uncrowded women. Baum and Valins (1977) studies of dormitory design similarly suggested the persistence of a coping response. Those subjects from dormitories with a high level of forced interaction made more active attempts to avoid the possibility of contact with a stranger outside of the dormitory than those from dormitories with lower levels of interaction. Thus, an avoidance response that presumably developed as an attempt to cope with dormitory life seemed to persist even outside of the dormitory setting.

A persistent coping strategy as a response to prolonged exposure to noise was proposed by Deutsch (1964). She suggested that children reared in a noisy environment eventually become inattentive to acoustic cues; that is, they learn to "tune out" sound. In tuning out his or her noisy environment, a child is not likely to distinguish between speech-relevant and speech-irrelevant sounds. Thus he or she will lack experience with appropriate speech cues and will generally show an inability to recognize relevant sounds and their referents. The inability to discriminate sound is presumed to account, in part, for subsequent problems in learning to read. A child who cannot readily discriminate basic speech sounds faces a difficult task in learning to associate these sounds with their appropriate signs.

A study described earlier by Cohen et al. (1973) found some evidence for this hypothesis by establishing that children who spent their earlier years living in an intensely noisy environment were unable to develop adequate auditory discrimination ability and unable to acquire basic reading skills. There was, however, no direct measure in this study of the tuning out strategy. One strong alternative hypothesis is that the traffic noise made it difficult for the children to hear their parents (speech was masked) and consequently to learn auditory discriminations. A later study by Heft (1979), however, does provide evidence for the use of a tuning out strategy on the part of children living in

noisy environments. If children exposed to noise tune out their acoustic environment, they should be less affected by an auditory distractor than are children from quieter environments. Heft found that the performance of children from homes described by parents as noisy was less strongly affected by the presence of an auditory distractor than was the performance of those from homes described as quiet. Unfortunately, children from noisy homes performed more poorly under quiet conditions than those from quiet homes, which suggests that the lack of a distraction effect might be attributable to a base performance level that could not get much worse under any condition (floor effect).

In sum, evidence from laboratory and naturalistic research suggests that persistent coping strategies are responsible for at least some poststimulation effects. Although the data previously described are limited to situations in which the coping strategy is one that develops as a response to a particular stressor (e.g., withdrawal as a response to crowding), it is possible that general strategies that are used to cope with a wide range of stressors persist after stressor termination (cf. Milgram, 1970). For example, the strategy of focusing one's attention on the essential aspects of a task during exposure (e.g., Hockey, 1970; Wachtel, 1968) may persist even after exposure is terminated. This could account for the decrements in performance on complex tasks reported in the aftereffects literature.

Dissonance and Self-Perception

In their early effort to explain aftereffects, Glass and Singer (1972) alluded to cognitive dissonance (Festinger, 1957) and self-perception analyses (Bem, 1967). Briefly, these analyses suggest that since subjects with perceived control choose to be exposed to the noise for little incentive, they judge it less stressing and therefore do not show aftereffects. However, when Glass and Singer (1972, p. 106) turned to a classical dissonance manipulation—allowing or not allowing subjects to choose whether they would be exposed to noise—they were unable to produce aftereffects on the proofreading or

Stroop tasks. Sherrod et al. (1977), however, reported that allowing subjects to choose whether they would be exposed to noise did partially ameliorate poststimulation deficits in performance. On the other hand, although the choice manipulation in the Glass and Singer study affected a subject's willingness to participate in a future experiment, Sherrod et al. reported that willingness to participate in a future study was unaffected by manipulations of initiation and termination control. Thus the evidence relevant to this hypothesis is at best mixed.

Although these theories provide an explanation for the ameliorative effects of control, they do not explain why poststimulation effects occur in the unpredictable, uncontrollable stressor conditions. Moreover, it is difficult to apply this interpretation to studies in which subjects have control over an aspect of the situation but not directly over the stressor (e.g., choice of hand to be immersed in cold water, Mills & Krantz, 1979) and studies in which the subject actively copes or implements control (e.g., Glass et al., 1973).

Artifacts of the Experimental Situation

Most of the laboratory aftereffects research has been done with both the exposure task and aftereffects tasks conducted in the same laboratory setting and with the same experimenter. One likely explanation for these effects is that subjects exposed to the more aversive stress—that which is unpredictable and uncontrollable—develop a negative attitude about both the experimenter and the experimental setting. Once deciding that he or she does not like either the experimenter or experiments in general, a subject does not work as hard on subsequent tasks. Glass and Singer (1972) attempted to determine the subjects' attitudes about the experimenter by having them fill out an evaluation form following the experimental session. The form was presented in a way that guaranteed the subjects anonymity and suggested that negative evaluations would not be held against the experimenter. Although there were large mean differences (subjects with perceived control liked the experimenter more than

those without control), these differences did not reach statistical significance. Sherrod et al. (1977) also reported no differences between those with and those without control in either liking the experimenter or enjoying the experiment. Later studies that both separated the aftereffects task from the stress situation (e.g., Cohen & Spacapan, 1978; Sherrod & Downs, 1974) and assessed the effects of a naturalistically occurring stressor (e.g., Baum & Valins, 1977; Cohen et al., 1980; Rodin, 1976) are not subject to the artifactual explanation.

Discussion

What Do We Know?

The following is a list of the most striking contributions from the studies reviewed in this article:

1. The poststimulation effects of unpredictable, uncontrollable stress on performance have been replicated in a myriad of different laboratories and with a variety of subject populations. They occur as a consequence of a wide range of stressors including noise, electric shock, density, and cold pressor. Moreover, interventions that increase control and/or predictability are effective in reducing these effects. The bulk of the laboratory work, however, has used a limited number of aftereffects tasks whose common characteristics are not clear.
2. The aftereffects of stress can also be induced by high attentional demands. Thus these effects are not limited to a restricted range of stressful situations that involve a lack of predictability and control over a distracting and/or intense stimulus.
3. There are poststimulation effects on social behavior as well as on performance. These effects generally involve an insensitivity toward others following stress exposure.
4. Poststimulation effects of environmental stressors occur following prolonged exposure in naturalistic settings. These studies generally suggest that these effects are mediated by helplessness. It is, however, unclear whether the mechanisms involved in producing these effects are the same as those responsible for deficits in task performance and in interpersonal response following short-term exposure.
5. There is increasing evidence that various forms of control have ameliorative effects similar to those of perceived control over the termination of the stressor. These include termination control in which one actually performs a coping response (implemented control) as well as initiation, choice, and information control. Moreover, some evidence suggests that combining more than one mode of control will further improve poststimulation performance. This improvement, however, seems to reach asymptote at the performance level reached by the no-stress control condition.

We have documented a wide range of stress aftereffects. Although it would be parsimonious to suggest that after further investigation of the problem, the mechanism responsible for these effects will be isolated, the assumption of a unitary explanation for such a wide range of behaviors may be unreasonable. It is likely that the reliability and generality of poststimulation effects occurs in part because of a multiplicity of causes. Thus the eventual goal of research in this area should be to determine the specific conditions that elicit each of a number of cognitive or motivational mechanisms and to determine specific kinds of tasks and behaviors affected by each.

The research reviewed in this article does not provide evidence from which to accept or reject the adaptive-cost hypothesis from which this literature was spawned. However, many of the proposed explanations for stressor aftereffects are, in fact, forms of that hypothesis. They suggest that poststimulation effects are either directly or indirectly caused by the process of coping with stress. The mechanisms proposed included cognitive fatigue that results from the coping effort, feelings of helplessness that result from a failure to cope, and the overlearning of a coping response. Thus 10 years of intensive research has led to the recognition of the costs of adapting to stress, and although this work has answered few specific theoretical questions, it has provided us with an appreciation of the impact of the adaptive process.

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Received June 12, 1979 ■

Handbook
of
Health Psychology



Andrew Baum
Tracey A. Revenson
Jerome E. Singer



2001

LAWRENCE ERLBAUM ASSOCIATES, PUBLISHERS
Mahwah, New Jersey London

SAL00017

Environmental Stress and Health



Gary W. Evans
Cornell University

Although environmental conditions play a prominent role in health and psychological processes, antecedent factors in these processes have largely been neglected within health psychology. Instead, the focus has been on various markers of health, with considerable attention to stress-related mechanisms, interceding between the environment and health. Another focus within health psychology that has directed attention away from environmental factors has been coping resources, with the examination of either social support, personality, or coping strategies that potentially alter the impact of environmental demands on health. But what characteristics of the environment itself are likely to impinge on health and psychological processes? When this question has been addressed within health psychology, environment has been operationalized primarily in social terms. Family and work social climates, as well as sociocultural and economic conditions, predominate in the few environmental studies in health psychology. This chapter intends to draw greater attention to the potential role of the physical environment in health and psychological processes.

Why might the physical environment be important to health psychology? For one reason, the physical environment clearly impacts health. Adverse physical conditions can cause toxicological reactions, challenge homeostatic balance, produce physical trauma, or function as vectors bearing pathogens. Physical factors can also be a source of environmental demands that pressure coping resources.

A second reason the physical environment is worthy of scrutiny within health psychology is because the environment can be modified and thus becomes a potential intervention target to improve health and well-being. Third, environmental conditions are objective and thus can be measured more readily

in reliable and valid ways. For example, researchers can systematically monitor density or noise levels in precise, accurate ways that can then be examined as possible causal factors in health. Fourth, physical environmental conditions tend to be stable. Increasingly, research suggests that chronic environmental demands are most likely to have negative impacts on health (Lepore, 1995). Finally, the concept of psychological stress that is central to several formulations of health, behavior, and disease (see chap. 17, this volume) has been utilized to broaden understanding of how physical features of the environment can influence human health and well-being.

There are at least three major ways in which the physical environment might operate as a psychological stressor, straining human adaptive capacities. First, this can occur when a stressor directly loads, or pressures, the system. Both crowding and noise, for example, create a surfeit of stimulation that can directly overload the system, causing discomfort, negative affect, and under some circumstances, the marshaling of adaptive resources. Both negative affect and adaptive responses to challenge or threat in turn directly affect neuroendocrine and cardiovascular functioning. Physical stressors can also interact with psychosocial conditions to exacerbate negative affect and/or psychophysiological mobilization. For example, noise plus high workload demands leads to more serious health outcomes than workload levels alone. Noise and crowding frequently covary with other psychosocial risk factors (e.g., poverty, inadequate working conditions), and thus have the potential to contribute to multiple risk situations.

A second manner in which the physical environment can contribute to stress is by damaging or ameliorating coping resources themselves. People rarely respond to suboptimal physical or psychosocial conditions passively; instead, they

invoke various coping strategies to reestablish some modicum of balance between environmental demands and personal resources. Evidence is presented herein, for example, that crowding interferes with the development and maintenance of socially supportive relationships in the residential environment. Both chronic noise and chronic crowding appear to contribute to learned helplessness, adversely affecting self-efficacy and related motivational processes.

The third way in which physical conditions can operate as stressors is to elicit coping strategies that in turn lead to poor health. Studies of noise, for example, reveal that increases in substance abuse occur under noisy working conditions.

Another aspect of research on psychological stress and health relevant to this chapter on environmental stressors are the concepts of vulnerability and resilience (Cohen, Kessler, & Gordon, 1995; Rutter, 1983). Just as certain personal or situational characteristics can render individuals more or less vulnerable to social stressors, there is evidence of vulnerable subgroups among the population who appear more adversely affected by noise and by crowding, respectively. Thus throughout both direct, main effects and associations between environmental stressors and health, as well as occasions with vulnerable subgroups, are noted.

The field of environmental stress (Cohen, Evans, Stokols, & Krantz, 1986; Evans, 1982; Evans & Cohen, 1987) is sufficiently developed such that exhaustive coverage is impossible. A small amount of environmental stress research has examined climatic conditions as potential psychological stressors influencing human stress responses (Bell & Greene, 1982; Evans, 1994). Research on housing conditions as a possible stressor have also been undertaken (Freeman, 1984). The focus of this chapter is on the two most studied environmental stressors, crowding and noise. Health outcomes include physical health and psychological health. Moreover, the chapter examines underlying psychosocial and psychophysiological processes that may help explain the linkages between noise and crowding and major physical and psychological health outcomes. Psychophysiological mechanisms, immune function, social resources, coping strategies, and motivational processes are examined.

CROWDING

The element of crowding that relates most strongly to physical and psychological health is people per room. Traffic congestion may also prove to be a potent stressor. Area measures of crowding, such as people per acre, generally have little or no relation to health. Although some studies of crowding separate group size effects from density effects, the vast majority of studies have confounded these two factors, manipulating or measuring density as it covaries with group size. Therefore, some of the effects attributed to crowding may be due to group size rather than the amount of space per person. At the same time, when attempts have been made to distinguish between these related concepts, density and group size, the impacts of density typically persist.

Physical Health

Early interest in crowding in the public health field emanated from concerns about the spread of disease among crowded populations (Cox, Paulus, McCain, & Karlovac, 1982). There is a large literature on this topic. Physical health has been operationalized in this literature as rates of illness based on archival data, visits to infirmary, physical development among children, and self-reports of somatic symptoms. Archival evidence for positive associations between crowding and ill health come from studies in prisons (McCain, Cox, & Paulus, 1976; Paulus, 1988), refugee camps (Arnow, Hierholzer, Higbee, & Harris, 1977), and schools (Essen, Fogelman, & Head, 1978; Koopman, 1978). The Arnow et al. (1977) study is noteworthy because they demonstrated good correlation over time between Vietnamese refugee camp population fluctuations with changes in a highly contagious disease (acute conjunctivitis). There is also evidence that crowded residential conditions are linked to disease both among children (Booth & Johnson, 1975; Jacobson, Chester, & Fraser, 1977) and among adults (Levy & Herzog, 1978; McGlashen, 1977; Menton & Meyers, 1977; Sims, Downham, McQuillin, & Gardner, 1976; Wyndham, Gonin, & Reid, 1978; Yarnell, 1979). Yodfat, Fidel, Cohen, and Eliakim (1979) found that linkages among residential crowding and asthma were due to number of children rather than density per se. Booth (1976) found that male adults, but not women, had greater levels of disease in crowded homes. Traffic congestion levels among commuters is also associated with illness-related absenteeism from work (Novaco, Stokols, & Milanese, 1990).

Several studies of residential crowding find little or no correlates with disease (Brett & Benjamin, 1957; Collette & Webb, 1974; Mackintosh, 1934; McKinlay & Truelove, 1947; Quinn, Lowry, & Zwaag, 1978), and Winsborough (1965) uncovered an inverse relation between areal density and tuberculosis. Schmitt and colleagues also found no relation between residential density and disease rates, but found small, positive correlations with areal density (people per acre) measures (Schmitt, 1966; Schmitt, Zane, & Nishi, 1978). Similar trends have been uncovered by Levy and Herzog (1974). Kellett (1984) made the important point that certain diseases should be expected a priori to correlate with crowding more so than others. Kellett examined mortality patterns for specific diseases in London for a 5-year period. As in prior work, persons per room rather than people per acre appeared more useful in predicting mortality. Second, diseases wherein a major stress component is believed to be operative (e.g., hypertension, myocardial infarction, vascular disorders, asthma) were related to household crowding whereas many other diseases (e.g., various forms of cancer) were not.

Freedman and colleagues challenged many of these studies of crowding and disease, noting that poor or nonexistent controls for other variables such as socioeconomic status are common in the crowding and epidemiological literature. They found in a well-controlled epidemiological analysis that residential crowding was not a significant predictor of disease (Freedman, Heshka, & Levy, 1975). However, the prison

studies and a few of the residential studies (e.g., Menton & Meyers, 1977) do have good controls for SES. Furthermore, there are trends in the data indicating that when individual levels of exposure to density and individual indices of health are compared rather than aggregated population statistics, such as used by Freedman and colleagues, stronger results occur. Nonetheless, Freedman and colleagues' cautious perspective on crowding and disease is well taken. Overall findings are suggestive but not rigorously or consistently supportive of a crowding-disease link. It would be useful to include, in the same individual-based study, disease rates for disorders that ought to vary with stress exposure plus inclusion of immunological measures.

A handful of studies in institutional contexts have examined crowding and infirmary visits. These studies converge on positive associations between levels of crowding and infirmary visits among shipboard military personnel (Dean, Pugh, & Gunderson, 1975, 1978), college campus residents (Baron, Mandel, Adams, & Griffen, 1976; Stokols, Ohlig, & Resnik, 1978), and prisoners (Paulus, 1988). The prison effects were most noticeable among inmates forced to live under dormitory-like conditions rather than in single cells. Trends also indicated that the associations in prisons were somewhat stronger for men than women and for African American in comparison to Anglo prisoners (Paulus, 1988). Wener and Keys (1988) found that increases in density (doubling up cell mates) markedly elevated (nearly 50%) sick call rates among prison inmates.

A few studies have examined physical development among crowded children, uncovering evidence of negative associations between household density and physical stature (Booth, 1976; Essen et al., 1978; Goduka, Poole, & Aotaki-Phenice, 1992). Crowded children, particularly boys, are shorter. Shapiro (1974) also found that boys, but not girls, motoric development appeared to be inhibited in crowded homes. Moreover, this effect was amplified among children of less educated mothers. More recently, Widmayer and colleagues (1990) found delayed psychomotor development among infants as a function of household density, controlling for socioeconomic status (SES).

Self-reported levels of physical illness are positively associated with crowding in prisons (Cox, Paulus, & McCain, 1984; McCain et al., 1976), among college dormitory women but not men (Karlin, Epstein, & Aiello, 1978), and among crowded home settings (Gove & Hughes, 1983)—although Booth (1976) found this association among men, but not women, in crowded homes. Giel and Ormel (1977) and Baldassare (1979) failed to replicate the association between home crowding levels and self-reported illness. The validity of all the self-report data on illness and crowding is suspect given retrospective self-report indices. On the other hand, Cox et al. (1984) found a dose-response function between number of inmates per cell and self-reported illness levels among male prisoners. Of additional interest, Gove and Hughes (1983) provided some evidence that heightened illness levels associated with crowded residences are related to lack of sleep and lower resistance when exposed to other sick family members (all self-reported).

There is evidence that some of the association between crowded living conditions and self-reported health symptoms is mediated by loss of perceived control over the living environment. Ruback and associates found that both female and male prisoners' reports of ill health in association with crowding were also negatively related to perceived control (Ruback & Carr, 1984; Ruback, Carr, & Hopper, 1986). Another way in which environmental stressors like crowding can impinge on health is through injuries. Rhesus monkeys when crowded, for example, show a 5-fold increase in incidents of injuries (Boyce, O'Neill-Wagner, Price, Haines, & Suomi, 1998).

Psychophysiological

Several studies have examined the relation between crowding and blood pressure in people. Laboratory studies with random assignment to density levels have found small but significant elevations among crowded versus uncrowded participants (Epstein, Lehrer, & Woolfolk, 1978; Evans, 1979). Field studies of prisoners (D'Atri, 1975; Paulus, McCain, & Cox, 1978) and automobile commuters (Novaco, D. Stokols, Campbell, & J. Stokols, 1979; Schaeffer, Street, Singer, & Baum, 1988; Stokols et al., 1978) have also revealed correlational evidence for elevated blood pressure under more crowded or congested living or commuting conditions. The commuting studies have found that the effects are stronger for car poolers rather than solo drivers, for Type B rather than Type A drivers, among external versus internal locus of control drivers, and among drivers with less residential choice. One field study found no relations between chronic residential crowding and blood pressure or neuroendocrine indices among adults (Booth, 1976), although small, statistically significant elevations in serum cholesterol were noted among crowded men. No such correlation was noted among women. Booth's sample did not vary much in density, which may have weakened his findings. Evans, Lepore, Shejwal, and Palsane (1998) found elevated blood pressure among crowded boys, but not girls, among working-class families in India.

Another cardiovascular function, blood pressure reactivity, has been related to chronic crowding in adults. Residents of more crowded neighborhoods had higher reactivity (increase from baseline in blood pressure levels) and took longer to return to resting baseline levels (Fleming, Baum, Davidson, Rectanus, & McArdle, 1987). Both heightened reactivity and protracted recovery to baseline are potentially important precursors to the development of coronary heart disease.

Neuroendocrine markers of stress, typically urinary catecholamines and cortisol, have been noted in several studies of crowded commuters (Lundberg, 1976; Singer, Lundberg & Frankenhaeuser, 1978) and among bus drivers operating under more congested driving conditions (Evans & Carrere, 1991).

Pedestrian exposure to more crowded urban areas elevates neuroendocrine activity, at least for males (Heshka & Pylypuk, 1975), and residence in neighborhoods perceived as more crowded because of commercial establishments and more people on the street is associated with increased urinary catecholamine levels (Fleming, Baum, & Weiss, 1987). Dor-

mitory crowding, however, had no apparent effects on neuroendocrine activity among college students (Karlin et al., 1978). A small sample size may have rendered low power. These authors did find, however, that uncrowded residents' neuroendocrine indices dropped over the course of the semester, whereas crowded residents' neuroendocrine levels increased over the same time period. Schaeffer, Baum, Paulus, and Gaes (1988) found that prisoners housed in more open, unpartitioned dormitories felt more crowded and experienced elevated chronic catecholamine levels in comparison to prisoners living in smaller groups.

The critical role of control has been implicated in some of these psychophysiological crowding studies. Lundberg (1976) and his colleagues found that passengers with greater choice over seating were less negatively impacted by congested commuting. Evans and Carrere (1991) found that the neuroendocrine effects of traffic congestion on bus drivers were largely mediated by perceived control on the job. On the other hand, perceived control did not mediate the positive relation between prison crowding and neuroendocrine elevations (Schaeffer, Baum, Paulus, & Gaes, 1988).

A few laboratory studies have also utilized skin conductance as an index of psychophysiological stress, generally finding elevations among more crowded participants (Aiello, Epstein, & Kalin, 1975; Aiello, Nicosia, & Thompson, 1979; Bergman, 1971; Nicosia, Hyman, Karlin, Epstein, & Aiello, 1979). Studies of crowding and skin conductance are evenly split on gender differences, with some studies finding more pronounced effects among males than females and other studies finding no sex differences. There is also evidence that skin conductance may be more strongly affected by crowding when physical touching occurs. McCallum, Rusbult, Hong, Walden, and Schopler (1979) found that acute crowding elevated palmar sweat but only when experimental subjects were motivated to maintain high levels of group performance. When performance was permitted to deteriorate under crowding, no physiological elevations were noted. Finally, in a field study, Cox, Paulus, McCain, and Schkade (1979) found a significant positive correlation between the palmar sweat index and crowding among prison inmates.

Although indirect, some findings by Hutt and Vaizey (1966) may shed some light on psychophysiological mechanisms associated with crowding and psychophysiological responses. Chronically overaroused children responded to high density laboratory conditions by extreme social and physical withdrawal; whereas chronically underaroused children and children without arousal disturbance reacted in the opposite direction, becoming more engaged and aggressive with other children.

Many animal studies have examined endocrine activity among crowded species both under laboratory and field conditions (see Evans, 1978, for a review). Generally, this research indicates support for a population regulation feedback mechanism whereby crowded animals' fertility declines. This occurs more markedly among subordinate rather than dominant animals and appears to be mediated by adrenal cortical activity. Attempts to link crowding with population regulation among human beings have proven futile.

Immune Function

Animal but not human work has examined immunological processes as a function of crowding, generally finding evidence of compromised immune functioning among more crowded animals (Christian, 1963; E. A. Edwards & Dean, 1977; Thiessen & Rodgers, 1961). These effects appear to be stronger among subordinate rather than dominant animals and among animals without a history of crowded living conditions (Cassel, 1971). Cassel (1974) pointed out, however, that compromised immune function alone cannot account for changes in morbidity among crowded animals because both infectious and noninfectious diseases are elevated among crowded animals.

Psychological Health

Ever since 1962 when Calhoun published his famous *Scientific American* study of pathology among overpopulated rats, researchers and policymakers alike have wondered about the potential role of crowded living conditions on mental health. The chapter first reviews research on linkages between density and psychological distress and then turns its attention to recent work examining possible underlying mechanisms for this linkage.

Many studies have uncovered positive relations between residential density and self-reported psychological distress (Edwards, Fuller, Sermsri, & Vorakitphokatorn, 1990; Evans, Palsane, Lepore, & Martin, 1989; Gabe & Williams, 1987; Gove & Hughes, 1983; Hassen, 1977; Jain, 1987; Lakey, 1989; Marsella, Escudero, & Gordon, 1970). Mitchell (1971) found greater worrying among crowded families but only if they were also poor. Crowding in Mitchell's study was unrelated, however, to more serious indices of psychiatric illness. Lepore, Evans, and Schneider (1991) found evidence that residential crowding causes psychological distress in a prospective, longitudinal study of crowding and mental health. Controlling for educational levels and income, they found that crowded residents did not differ from uncrowded residents in psychological distress symptoms during initial occupancy ($r = .12$), but after 2 months and 8 months the associations became significant ($r = .21$; $r = .27$). This is the only prospective study of crowding and health. Webb and Collette (1975) found an association between residential density and use of prescription hypnotics.

Booth (1976), Baldassare (1979), and Giel and Ormel (1977) failed to find a positive association between residential crowding and psychological distress. These studies had little variance in density. Moreover, Baldassare relied on mental health indices of questionable sensitivity (one dichotomous item in one case, and three dichotomous items in a second case). Two studies of neighborhood crowding levels have also found linkages to psychological distress (Collette & Webb, 1974; Fleming, Baum, & Weiss, 1987).

Studies utilizing archival indices such as psychiatric admissions or suicide rates generally find very weak or insignificant associations between crowding and pathology when measured in the aggregate (Freedman et al., 1975; Gove &

Hughes, 1980; Schmitt, 1966; Schmitt et al., 1978). In some studies negative associations between density and psychiatric admissions have been uncovered, probably created by the association of living alone and mental disorder (Galle, Gove, & McPherson, 1972; Levy & Herzog, 1974, 1978). One exception to these generally negative trends in archival indices of mental health and crowding is notable. Several prison studies have found clear, strong associations between the total population size of prison populations and indices of psychiatric illness (Paulus, 1988).

Quite a number of studies have examined psychological symptoms among children living in crowded homes. Plant (1937) described several case studies noting a pattern of low self-sufficiency and little idealism among children from crowded homes. He attributed these patterns to mental strain associated from always having to get along with others and to exposure to adults under close quarters that made it difficult to look up to or idealize grownups. Crowded children have increased levels of various symptoms of psychological distress (Booth, 1976; Gasparini, 1973; Murray, 1974; Saegert, 1982; Wachs, 1987). Parents in more crowded homes report relief when their children are outside (Gove & Hughes, 1983), have more difficulty supervising their children (Mitchell, 1971), and are generally less responsive and involved with their children (Bradley & Caldwell, 1984; Evans, Maxwell, & Hart, 1999; Wachs & Camli, 1991) in comparison to uncrowded parents of comparable social class. These trends appear to be exacerbated in the presence of other risk factors, particularly poverty (Baldassare, 1981; Bradley et al., 1994).

Psychosocial Resources

Some of the relation between high residential density and psychological distress in children may be linked to family interactions, which have been found to be more contentious under crowded living conditions (Booth, 1976; Gasparini, 1973; Saegert, 1982). There may also be greater incidence of physical punishment and open expression of anger between parents and children in crowded homes (Booth & Edwards, 1976; Light, 1973), although Gove and Hughes' (1983) study did not support this finding.

Another factor that may help explain the link between high residential crowding and symptoms of psychological distress in children is withdrawal. Aiello, Thompson, and Baum (1985) reviewed several field and laboratory studies documenting increased social withdrawal under crowded conditions among young children. Similar trends exist in the adult literature, indicating that crowded adults interact with housemates less (Baum & Valins, 1977, 1979; Proshansky, Ittelson, & Rivlin, 1970); are less friendly with their neighbors (McCarthy & Saegert, 1978), and have impaired social support with those they live with (Evans et al., 1989; Lakey, 1989; Lepore et al., 1991). Baldassare (1979) did not replicate linkages between residential crowding and neighboring. People under crowded conditions also tend to be less affiliative in their behaviors toward others (R. L. Munroe & R. H. Munroe, 1972) and view others in more negative or suspicious terms (Bickman et al., 1973; Grifit & Veitch, 1971; McCarthy &

Saegert, 1978). There is also evidence that crowded working conditions lead to greater social withdrawal from coworkers (Oldham & Fried, 1987). Finally, as already noted, parents in crowded homes are less responsive to their children (Bradley & Caldwell, 1984; Wachs & Camli, 1991). Furthermore, this relative unresponsiveness partially accounts for less complex parent to child verbalizations to infants and toddlers (Evans, et al., 1999).

Evidence that social withdrawal and impaired social relationships are a primary mechanism accounting for the relation between crowding and psychological distress has been documented in some detail by two research programs. Baum and colleagues found that more crowded dorm residents report more unwanted social interaction in their dorms. These same crowded residents also evidence greater behavioral indices of withdrawal outside of the dorm. They sit farther away from other research participants and withdraw more in group interaction games (Baum & Valins, 1977, 1979). Residential exposure to high levels of street traffic is also associated with less neighboring (Appleyard & Lintell, 1972; Halpern, 1995). Evans and Lepore showed direct evidence for a similar pattern. They found both cross-sectionally (Evans et al., 1989) and in a prospective, longitudinal design (Lepore et al., 1991) that the negative effects of residential crowding on psychological distress (with controls for social class) are mediated by social support. Similar patterns also appear to occur among children in crowded residences (Evans, et al., 1998).

Evans and Lepore (1993a) also found that crowded relative to uncrowded residents were less likely to offer support to a confederate under stress in an uncrowded laboratory setting. Of additional interest, crowded residents in comparison to uncrowded residents were also less responsive to offers of social support during a stressful situation (see Fig. 20.1). *Ignored* meant that the subject did not look at or made no verbal acknowledgment of the confederate; *acknowledgment* meant some brief comment or a head nod was given in response to offers of support; and *accepted* meant the subject was very re-

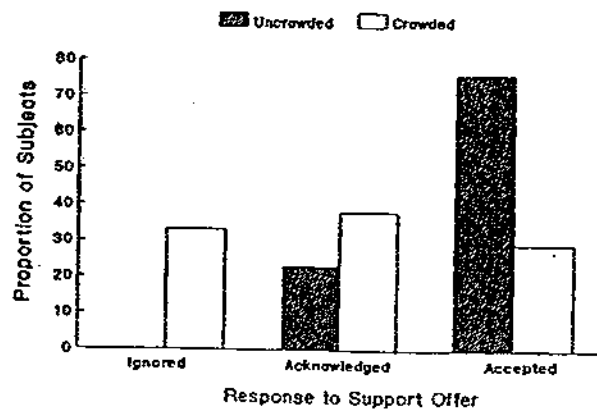


FIG. 20.1

sponsive to the confederate's offers of support, elaborating or embellishing on their offers of support.

Motivation

Many theorists have postulated that a prime reason why crowding can have negative impacts on psychological health is because of reduced behavioral options and greater difficulty in regulating social interaction (Altman, 1975; Baron & Rodin, 1978; Schmidt & Keating, 1979). An important psychological consequence of prolonged exposure to an aversive, uncontrollable stressor, such as crowding, may be learned helplessness. Persons chronically exposed to crowding report feeling a greater sense of powerlessness over their living environments than their less crowded counterparts (Baum & Valins, 1977, 1979; Baron et al., 1976; Carr, Hopper & Ruback, 1986; Saegert, 1978). Sherrod (1976), Aiello, DeRisi, Epstein, and Karlin (1977), Evans (1979), Nicosia et al. (1979), and Dooley (1978) all found negative aftereffects immediately following laboratory exposure to crowded conditions. Sherrod, Evans, and Nicosia and colleagues each utilized the Glass and Singer (1972) aftereffects paradigm that measures persistence on challenging puzzles. Giving up sooner in the face of challenge in an achievement context may be indicative of greater helplessness (Cohen, 1980; Glass & Singer, 1972). Dooley (1978) incorporated proofreading performance as her aftereffects measure. Saegert, Mackintosh, and West (1975) reported that crowded train stations produced negative aftereffects in women only. Nicosia's data also indicated more severe aftereffects of crowding among women.

Parallel trends to the laboratory work have been noted in studies of more chronic, crowded living conditions, finding less persistence on difficult puzzles among persons living in more crowded neighborhoods (Fleming, Baum, & Weiss, 1987). Moreover, perception of control over social interactions largely accounted for the main effect of neighborhood crowding on the helplessness indicator. Residents of crowded dorms feel less control over social interaction than their uncrowded counterparts (Baum & Valins, 1977, 1979) and exhibit behavioral strategies in a group prisoners' dilemma game consistent with helplessness (Baum, Aiello, & Calesnick, 1978; Baum, Gatchel, Aiello, & Thompson, 1981). Interestingly, the development of helplessness strategies in the game over the course of the initial semester under crowded conditions was mirrored by residents growing external attributions for problems in the dormitory over this same time period (Baum et al., 1981). Uncrowded residents generally felt self-efficacy over problems in their dormitory over the course of the semester and these internal attributions remained stable over time. Crowded dormitory residents are also less likely to seek clarification when given ambiguous instructions about an impending laboratory procedure than were uncrowded dormitory residents.

Traffic congestion also is related to motivational deficits. Greater traffic congestion levels have been related to decreased task motivation on challenging puzzles and proofreading (Novaco et al., 1979; Schaeffer et al., 1988; D. Stokols, et al., 1978).

The most direct evidence for helplessness induced by crowding comes from a pair of studies on residential crowding and children by Rodin (1976). Matched on socioeconomic indicators, elementary-aged schoolchildren living in more crowded public housing were less likely to control the administration of outcomes in an operant conditioning paradigm in comparison to their less crowded counterparts. In a second study, helplessness was induced in adolescents by a classic helplessness paradigm, pretreatment with an insoluble versus a soluble puzzle. Helplessness was monitored on a second challenging but solvable puzzle. The main effect of pretreatment solvability (the helplessness induction) was significantly moderated by residential crowding with heightened vulnerability to the induction of helplessness among the more crowded children. In their study of children in India, Evans, et al., (1998) replicated Rodin's effects (but for girls only). Saegert (1982), however, did not replicate these findings examining a sample of children from public housing projects in New York City.

Summary

Residential crowding has little impact on physical morbidity among the general population. Residential crowding may be linked, however, to ill health among vulnerable subgroups of the populations, particularly young children and extremely crowded, captive populations (e.g., prisons, refugee camps). Evidence linking high density exposure either under controlled conditions or in the field to elevated cardiovascular functioning is quite strong. Neuroendocrine functioning also appears elevated, although less data are available. The potential clinical implications of these two data patterns has not been explored in the crowding literature.

Psychological distress is increased by residential crowding. Individual but not aggregate level analyses continue to uncover a positive association between crowded living conditions and poorer psychological health. Several studies have excellent controls for sociodemographic factors and one is a prospective, longitudinal analysis. Psychological distress associated with residential crowding may be caused by a typical coping strategy for dealing with chronic high density living conditions—social withdrawal. An unintended consequence of this social withdrawal may be a breakdown in socially supportive relationships. There is not strong evidence, however, that human crowding is associated with more extreme forms of psychopathology characterized in some animal studies as a behavioral sink.

There is also evidence that crowding may lead to the development of motivational deficits, particularly among children in achievement-related contexts. There is indirect evidence suggesting that these motivational deficits are related to learned helplessness from diminished perceived control over the environment.

NOISE

Noise, which is defined as unwanted sound, is typically measured in decibels. Decibels is a logarithmic scale with a

change in 10 decibels perceived as approximately twice as loud. There is considerably more research on noise and health in comparison to research on crowding and health. The bulk of the noise and health research has occurred in industrial settings. More recently, studies of noise and health have also focused on people living in airport impact zones or near to road traffic noise. Prolonged exposure to high levels of noise is clearly linked to hearing damage (Kryter, 1994). Because the thrust of this chapter is on environmental stress, the noise-related hearing damage literature is not discussed.

Physical Health

Studies have examined exposure to either occupational noise or community noise and disease. Outside of cardiovascular problems, there appears to be little relation between noise exposure and physical disease. In industrial settings, noise has been associated with increased risk for myocardial infarction (Ising, Babisch, & Günther, 1999), reductions in cardiorespiratory efficiency (Semczak & Gorny, 1971), difficulties in peripheral circulation and cardiac problems generally (Jansen, 1961), electrocardiogram abnormalities suggestive of coronary heart disease (Cuesdan et al., 1977), general sickness-related absenteeism (Cohen, 1973), and self-reported fatigue (Carlestam, Karlsson & Levi, 1973; Melamed & Bruhis, 1996). Several industrial studies have found no associations between occupational noise exposure and rates of coronary heart disease (Lees, Romeril, & Wetherall, 1980) or rates of total illness (Lees et al., 1980).

Community airport noise studies have shown that higher levels of noise exposure are associated with greater contact with physicians for coronary-related problems (Knipschild, 1977a) and, for women only, use of drugs to treat hypertension (Knipschild & Oudshoorn, 1977; Koszarny, Maziarka, & Szata, 1981). These studies also show an association with greater physician contact in general (Knipschild, 1977b), rates of colds (Ising et al., 1990), as well as total health symptoms (Pulles & Stewart, 1990), and higher levels of coronary heart disease symptoms among women but not men (Koszarny et al., 1981). Graeven (1974) and Hiramatsu, Tamamoto, Taira, Ito, and Nakasone (1993), however, found no differences in self-reported health symptoms between persons living in airport impact zones versus citizens in quiet neighborhoods.

Turning to road traffic noise, Cameron, Robertson, and Zaks (1972) found little relation between community noise levels (self-reported) and illness rates. Babisch, Elwood, Ising, and Kruppa (1993) found slight elevated risk (1.2 odds ratio) in noisier traffic areas in three different sites for men residing in areas above 65 dBA Leq. However, when comparing across different noise levels varying from > 50 dBA Leq to 70, they uncovered no linear relation.

Another area of physical health worthy of note in the noise literature is birth defects and other abnormalities during pregnancy. Not surprisingly, findings in this area are highly controversial and not at all definitive. Jones and Tauscher (1978) found higher rates of birth defects in high airport noise impact zones relative to quieter areas, but Edmonds, Layde, and

Erickson (1979) could not replicate the findings. Several rodent studies have found abnormal fetal development following noise exposure (Welch, 1973). There is evidence that women working under very noisy conditions, particularly if subjected to additional stressors like shiftwork, have more pregnancy complications such as vaginal bleeding and pregnancy-induced hypertension (Nurminen & Kurppa, 1989). Babies born in areas with high noise impact have lower birth weights (Ando & Hattori, 1977; Knipschild et al. (1981) with controls for socioeconomic status. Ando (1987) also found an increase in low birth weight babies following the opening of a new airport. Schell (1981) also noted that female infants, but not males, had significantly shorter gestation periods in high airport noise impact zones. Moreover, Ando and Hattori (1977) showed diminished levels of human placental lactogen levels in mothers living in high noise airport impact zones. Finally, Schell and Ando (1991) found a dose-response function relating airport noise levels and 3-year-olds' physical stature (but not weight) in a large epidemiological study. The data on possible linkages between noise and early development are sobering to consider in light of environmental surveys of neonatal, intensive care units that are often populated by premature babies. Levels of noise match or exceed recommended standards for ambient traffic exposure and health (Lawson, Daum, & Turkewitz, 1977).

Psychophysiological

Although previous reviews of noise indicate that cardiovascular responses (typically blood pressure or pulse) to noise under acute exposures rapidly habituate (Glass & Singer, 1972; Kryter, 1994), more careful scrutiny of this literature indicates important exceptions. Persons who are noise sensitive do not easily habituate (Conrad, 1973; Stansfeld & Shine, 1993), nor do individuals who are hypertensive (von Eiff, Friedrich, & Neus, 1982). Short-term habituation is blocked when people perform demanding cognitive tasks under noise (Carter & Beh, 1989; Conrad, 1973; Mosskov & Ettema, 1977). Evans et al. (1996) also showed that noise significantly increases blood pressure over a 20-minute period without habituation, if it follows exposure to a psychological stressor (i.e., giving a speech, taking a final examination).

Other psychophysiological indices examined under acute noise have included electrodermal activity, ECG, EEG, and neuroendocrine activity. Results parallel the cardiovascular data, indicating rapid habituation (Finkle & Poppen, 1948; Fruhstorfer & Hensel, 1980). Recent findings suggest, however, that when short-term exposure to loud noise is accompanied by demanding tasks, habituation may be blocked (Frankenhaeuser & Lundberg, 1977; Ising, Rebentisch, Poustka, & Curio, 1990; Lundberg & Frankenhaeuser, 1978). Work by Tafalla and Evans (1997) indicated a central role of effort in the performance/physiological activation tradeoff. Performance can be maintained, at least under many circumstances (e.g., short-term tasks that do not demand large amounts of attention or memory), by additional cognitive effort. Such maintenance of performance, however, appears to exact a cost of greater psychophysiological

activation. It is noteworthy that McCallum et al. (1979) found a very similar pattern for performance under crowded laboratory conditions.

There is also evidence indicating that habituation is interfered with by calling attention to the potential negative impacts of noise on the person (Vera, Vila, & Godoy, 1992). This latter finding might explain why noise sensitive persons apparently do not readily habituate to repeated exposures of acute noise in the laboratory. Perhaps they are more threatened or concerned about potential harmful effects of the noise.

Field research on noise and psychophysiologic outcomes has occurred primarily in industrial settings. The occupational noise and psychophysiologic literature is too large to review exhaustively herein. Several reviews of this literature (Kryter, 1994; Thompson, 1981, 1993; Welch, 1979) have characterized the findings similarly. Unfortunately, nonexperimental designs have frequently been employed in the occupational noise and health literature with poor or nonexistent controls, and many studies have relied on poor estimates of noise exposure. Furthermore, blood pressure is often poorly measured. Many of the industrial studies have relied on one or two measures of blood pressure taken during a physical at work by medical personnel. Moreover, annual medical examinations or other medical screenings may seriously bias estimates since some workers become excluded.

Thompson concluded from her two reviews that workers with adequate hearing protection are unlikely to show much effect of noise on the cardiovascular system. Kryter (1994) reflected greater concern but also remained skeptical, noting the paucity of well-designed research studies; Welch (1979) sounded a considerably greater sense of alarm about cardiovascular health risks from chronic, occupational exposure to noise. Interestingly, Welch's review is based primarily on Eastern European literature that includes worksites with generally very high levels of occupational noise exposure, often coupled with a paucity of hearing protection programs. The bulk of the literature in the other major reviews is based on North American and Western European studies where occupational noise levels tend to be lower and hearing protection programs more common.

Difficulties in exposure estimation in industrial studies of noise and cardiovascular functioning are illustrated by one of the most thorough investigations (Talbot et al., 1985). Although these investigators found no significant differences in blood pressure readings that were carefully administered to men from noisy and from quiet manufacturing plants, they also uncovered a clear, consistent positive link between elevated diastolic blood pressure and severe hearing loss in the noisy plant. Moreover, looking at the subset of men who had worked for at least 15 years in the two respective manufacturing plants, occupational noise exposure did significantly relate to both systolic and diastolic blood pressure (Talbot et al., 1990). See Lercher (1996) for an in-depth discussion of noise exposure estimation and health outcomes.

It is also conceivable that subsets of workers may be particularly vulnerable to the chronic effects of noise exposure on their cardiovascular systems. For example, Tarter and Robins (1990) found that male, African American automobile plant

workers suffered increased blood pressure, whereas their Anglo counterparts, who were exposed to comparable levels of high noise at work, did not show this relation. Tarter and Robins speculated that perhaps racial differences in propensity for hypertension might explain these findings. Given the fact that individual differences in noise sensitivity interfere with habituation to acute noise exposure as reviewed earlier, it might be hypothesized that noise sensitivity creates vulnerable subgroups within occupationally noise-exposed groups. This idea has not been tested, although mixed support of such a pattern has been uncovered in community studies of aircraft noise (Neus, Ruddel, & Schulte, 1983; Stansfeld, 1993).

A few longitudinal studies of noise and cardiovascular functioning in industrial settings have been conducted. By comparing the same worker in quiet and noisy periods, some of the weaknesses most endemic to cross-sectional studies (e.g., selection bias) are reduced. The U.S. Raytheon (1975) study, for example, found a significant reduction in medical problems after the implementation of a hearing conservation program in the plant. No changes in similar health indices occurred over the same time period among workers in quiet plant areas. Moreover, the greater the level of compliance observed (e.g., wearing hearing protection), the greater the apparent health benefit. Hypertension and cardiovascular disease were included in the overall health records monitored but could not be singled out because of insufficient sample size. Antonova (1971) compared miners before and after their workshifts in either noisy or quiet areas of the mine. Noise significantly elevated mean arterial pressure with no changes in the quiet group pre and post work. Systolic blood pressure was significantly elevated among brewery workers when they did not wear ear plugs in comparison to days in which they did (Ising & Melchert, 1980). Cortisol fluctuations were also shown to be dependent on the use of earplugs in a similar design (Melamed & Bruhis, 1996).

Another more rigorous approach to studying industrial noise exposure and psychophysiological responses is to simulate occupational noise exposure under experimental conditions with random assignment to noise conditions. Three-hour exposure to jet turbines significantly elevated blood pressure over resting levels among workers in a jet assembly plant (Ortiz, Arguelles, Crespini, Sposari, & Villafane, 1974). Mosskov and Ettema (1977) and Rovekamp (1983) found elevations in blood pressure in 2- to 3-hour noise exposures but at much lower intensities of noise than employed by Ortiz and colleagues. Cartwright and Thompson (1975) found no effects, however, of a 1-hour exposure to loud noise, but Carter and Beh (1989) were able to significantly elevate cardiovascular parameters from 1 hour of exposure, as long as participants simultaneously worked at a difficult task.

This latter finding, along with other experimental findings reviewed earlier on the multiplicative effects of noise and task demands on cardiovascular and neuroendocrine functioning, is interesting to consider in light of a small number of occupational noise studies that have also incorporated additional measures of working conditions. A Russian industrial study reviewed by Welch (1979) found elevated cardiovascular functioning in a noisy manufacturing plant among workers

with higher levels of workload demands. Workers with low workloads did not reveal any cardiovascular correlates of occupational noise exposure. Parallel results were recently uncovered in a longitudinal study (Melamed, Boneh-Kristal, & Froom, 1999). Cottington, Matthews, Talbott, and Kuller (1983) also reported a significant interaction of job stress and noise on diastolic blood pressure. Job stress was associated with higher blood pressure in a noisy manufacturing plant but not a quiet one with good controls for SES and cardiovascular risk. Similarly, Lercher, Hortnagl, and Kofler (1993) found that annoyance with noise at work had a small positive association with diastolic blood pressure. This relation was significantly amplified, however, among workers who also reported job dissatisfaction and low levels of social support on the job. Occupational exposure to noise levels may also interact with shift work. Ottmann, Rutenfranz, Neidhart, and Boucsein (1987) and Cesana et al. (1982) both found elevated catecholamine levels related to noise levels at work but only among workers on rotating shifts. Nonshift workers in noisy work areas did not reveal these associations. Lercher et al. (1993) also found higher levels of blood pressure among workers annoyed by noise who also engaged in shiftwork relative to nonshiftwork employees.

There has been a small number of industrial studies or simulation studies with prolonged noise exposure that have examined neuroendocrine and other biochemical markers of stress rather than cardiovascular functioning. Mixed results have been uncovered with no relation between noise exposure and cholesterol (Brown, Thompson, & Folk, 1975), cortisol (Brandenberger, Follenius, & Tremolieres, 1977; Cavatorta et al., 1987; Slob, Wink, & Radder, 1973), and with one or more catecholamines (Carlestam et al., 1973; J. Osguthorpe, Mills, & N. Osguthorpe, 1983; Paulocci, 1975; Slob et al., 1973). Other studies have uncovered significant, although typically small, associations between noise levels on the job or from simulated exposures and various psychophysiological indicators, such as reduced urine volume and 17-ketosteroid levels (Gibbons, Lewis, & Lord, 1975), elevated fatty acids (Ortiz et al., 1974; Proniewska et al., 1972), higher levels of cholesterol (Cantrell, 1974; Ortiz et al., 1974; Rai, Singh, Upadkay, Patil, & Nayer, 1981), increased epinephrine levels (Cavatorta et al., 1987; Ortiz et al., 1974; Slob et al., 1973), elevated cortisol (Cantrell, 1974; J. Osguthorpe et al., 1983; Rai et al., 1981), and increased levels of ACTH and oxytocin (Fruhstorfer & Hensel, 1980). Although there are more published positive findings, it is important to keep in mind that most of these noise and biochemical studies find small changes, and null results are more difficult to get published. On the other hand, there is also a large animal literature generally consistent with significant biochemical outcomes from acute noise exposure under controlled conditions (B. Welch & A. Welch, 1970).

Increasingly, researchers have turned their attention to community studies of noise and psychophysiological parameters, particularly blood pressure. Traffic noise levels appear to have no relation to blood pressure in community samples (Elwood, Ising, & Babisch, 1993; Lercher & Kofler, 1993; Knipschild & Sallé, 1979) or show a small positive associa-

tion (von Eiff, Friedrich, & Neus, 1982; Neus, Ruedel, Schulte, & von Eiff, 1983; Wu, Chiang, Huang, & Chang, 1993). Regecova and Kellcova (1995) found that traffic noise both at home and at school was associated with elevated blood pressure among 3- to 7-year-olds. Interestingly, there were multiplicative effects as well of school and home noise. The Neus study is noteworthy because it is longitudinal. The Wu study bears mention as well since they found that traffic noise elevated young children's blood pressure as a function of hearing status. Congenitally deaf children were unaffected by road noise, whereas their able-hearing counterparts suffered small elevations. Herbold, Hense, and Keil (1974) noted a small positive relation between traffic noise levels and hypertension prevalence among adults and Babisch, Fromme, Beyer, and Ising (1996) found elevated overnight neuroendocrine stress hormones. Simulated exposure to traffic noise under controlled conditions elevates both cardiovascular and neuroendocrine activity as a function of sound intensity (Ising, Dienel, & Markert, 1980; Osada, Ogawa, Hirokawa, & Haruta, 1973). Ising's study is particularly interesting because, as in several of the acute noise exposure studies noted earlier, he found that exposure to simulated traffic noise while working had significant effects on both cardiovascular and neuroendocrine levels, especially when mental loads were higher. In one of the more rigorous tests of ambient noise exposure and cardiovascular health, Peterson, J. S. Augenstein, Tanis, and D. G. Augenstein (1981) were able to produce sustained, elevated arterial blood pressure in monkeys exposed for long periods of time to simulated recordings of aircraft and traffic noise played at typical ambient levels ($Leq = 78$). Their work also showed that these monkeys sustained no hearing damage.

Studies of airport noise, which is typically louder and less predictable than road traffic noise, generally find stronger associations between noise exposure and elevated cardiovascular functioning in comparison to the road traffic noise studies. Most studies have focused on children rather than adults, which might also explain the generally more consistent, positive results than those uncovered in the road traffic noise literature.

Knipschild (1977a) found a dose-response relation between community airport noise exposure and hypertension among adult residents in Amsterdam. Two studies of simulated, military aircraft flights at low altitude have shown significant increases in blood pressure among elderly residents (Michalak, Ising & Rebentisch, 1990) and in catecholamines among middle-aged adults (Maschke, Breinl, Grimm, & Ising, 1992). Several studies have found significant relations between exposure to aircraft noise and elevated blood pressure in children (Cohen, Evans, Krantz, & Stokols, 1980; Cohen et al., 1986; Evans, Hygge & Bullinger, 1995; Ising et al., 1990; Karagodina, Soldatkina, Vinokur, & Klimukhin, 1969; Karsdorf & Klappach, 1968; Schmeck & Poustka, 1993). Several of these studies have very thorough statistical controls for socioeconomic status. One study has found no relation between airport noise levels and blood pressure (Cohen, Evans, Krantz, Stokols, & Kelly, 1981), but these data were explained by selective attrition (persons in noisy areas with

the highest levels of blood pressure left the area). Roche, Chumlea, and Siervogel (1982) found no association between ambient noise exposure in suburban communities with no nearby airports or major highways. This study is flawed because of unreliable blood pressure measurement procedures and use of self-reports for noise exposure estimation.

Evans and colleagues (1995) also investigated reactivity to a noise source, as well as chronic neuroendocrine activity levels as a function of community airport noise exposure. As shown in Table 20.1, they found evidence of elevated catecholamine activity, but no shifts in cortisol among elementary schoolchildren living in the flight path of a major international airport. Of further interest, children chronically exposed to noise appeared less reactive to an acute noise source while reading.

Ising and his colleagues found parallel trends for epinephrine, but not norepinephrine, and also found elevated cortisol in two sets of studies with adults that simulated exposure to night-time aircraft operations (Maschke, Ising, & Arndt, 1995). Of additional interest, in one study they generated a dose-response function between elevated overnight hormonal levels and sound intensity levels. Finally, Evans, Bullinger, and Hygge (1998) replicated their cross-sectional aircraft noise and young children's health findings in a prospective, longitudinal study of children living in the vicinity of the new, Munich international airport.

Immune Function

A large number of animal studies have utilized noise as a stressor to investigate altered immune function. The results, like those of the few human studies are quite mixed (Bly, Goodard, & McLean, 1993). Sieber et al. (1992), for example, found that uncontrollable but not controllable noise significantly decreased natural killer cells among healthy male subjects; Weisse et al. (1990) found the opposite pattern with controllable noise causing lymphocyte resistance to mitogens to drop.

Coping Behaviors

An alternative pathway by which noise and other environmental stressors may impact physical health is the exacerbation of substance abuse. Cigarette smoking and alcohol consumption both increase under stress (Cohen et al., 1986). In the presence of loud noise, nicotine ingestion reduces muscle tension (Hutchinson & Emley, 1973) and accelerates habituation (Friedman, Horvath, & Meares, 1974). In a

particularly interesting study, Cherek (1985) demonstrated a dose-response function between cigarette smoking (objective, experimental measures) and controlled exposures to varying noise levels (60-90 dBA).

Psychological Health

Several different types of studies have examined chronic noise exposure and mental health. The first set of studies explored possible relations between psychiatric admissions and aircraft noise exposure with decidedly mixed results. Several studies have found positive correlations between admission rates and high noise exposure (Abey-Wickrama, A'Brook, Gattioni, & Herridge, 1969; Herridge & Chin, 1972; Jenkins, Tarnopolsky, & Hand, 1981; Meecham & Smith, 1977). Nonsignificant relations have been found by Gattioni and Tarnopolsky (1973), and Jenkins, Tarnopolsky, Hand, and Barker (1979) found an inverse relation between noise levels and psychiatric admissions in the same region (Heathrow, to the West of London) utilized by Abey-Wickrama and by Jenkins et al. (1981). Kryter (1990), in a further analysis of some of Jenkins' data, discovered large ethnic differences that might have explained Jenkins' puzzling findings. Many of these studies have poor controls for social class and all are cross-sectional.

Self-reports of psychological distress were unrelated to road traffic noise levels in two cross-sectional studies (Tarnopolsky & Morton-Williams, 1980; Tarnopolsky, Watkins, & Hand, 1980) and in a prospective, longitudinal study (Stansfeld, 1993). The absence of support for a link between road traffic noise exposure and psychological health could be due, in part, to noise measurement. Halpern (1995) found that peak noise levels predicted several indices of psychological health, controlling for socioeconomic status of residents. Mean levels of traffic noise had no mental health correlates. Physician treatment for psychological problems, as well as use of hypnotic drugs, was associated with aircraft noise around Amsterdam (Knipschild, 1977b). Koszarny et al. (1981) demonstrated a similar relation, but only among women. Knipschild and Oudshoorn (1977) also found a clear relation among prescription rates for tranquilizers and aircraft noise over a 7-year period. Moreover, these authors found longitudinal trends in use of hypnotic pharmaceuticals that tracked changes in noise levels in airport impact zones. At the same time, they noted lower and consistently similar utilization rates among quiet neighborhoods of comparable socioeconomic composition. Grandjean, Graf, Lauber, Meier, and Muller (1976) found a dose-response function linking airport noise exposure to self-reported use of sleeping pills and tranquilizers. Watkins, Tarnopolsky, and Jenkins (1981), however, could not replicate the linkages between drug usage and aircraft noise exposure. One study has also uncovered a coarse dose-response function between occupational noise exposure and psychological symptoms among blue-collar workers (McDonald, 1989). Interestingly, in light of earlier work on crowding, social support and psychological health, Mc Donald also noted that impaired interpersonal relationships at work appeared to play a role in the mental health-noise links.

TABLE 20.1
Twelve-Hour, Overnight Neuroendocrine Measures

Variable	Quiet	Noisy
Epinephrine	368.62 ng/hr	526.36 ng/hr
Norepinephrine	766.22 ng/hr	1,108.82 ng/hr
Cortisol	3.62 ug/hr	3.75 ug/hr

Motivation

Interestingly, the initial study of helplessness and human beings utilized inescapable noise as the induction stimulus. Hiroto (1974) demonstrated that short-term exposure to inescapable noise induces helplessness. Adults were exposed to noise or quiet during an initial phase of an experiment. Half of the noise subjects could avoid the noise by learning an avoidance response. For the other half of the noise subjects, the noise was inescapable. The groups were then tested in a similar situation where noise could easily be avoided by a simple manual response. A second series of experiments replicated Hiroto's findings and also demonstrated that the helplessness induced by inescapable noise generalized to persistence on subsequent task performance (Hiroto & Seligman, 1975). Subjects exposed to inescapable noise exhibited significantly greater helplessness in the second testing phase, regardless of the similarity of the helplessness induction and testing phase (Hiroto & Seligman, 1975). Furthermore, the helplessness effects of inescapable noise were greater for external locus of control individuals (Hiroto, 1974). Krantz, Gikass, and Snyder (1974) found similar results in two studies of inescapable versus escapable noise. One final detail of Hiroto and Seligman's work worthy of note is that the learned helplessness effects of inescapable noise were quite similar to the induction of helplessness produced by exposing subjects to insoluble concept formation problems.

A large number of studies, initiated by Glass and Singer's pioneering work on perceived control and stress (1972) have examined performance aftereffects, immediately following exposure to uncontrollable noise. The basic paradigm includes exposing participants to noise while working on a cognitive task for a period of about 30 minutes. The participant then leaves the room and is asked to do another, apparently unrelated task where noise is no longer present (see Cohen, 1980, for an overview of this paradigm). Uncontrollable noise causes deficits in task persistence on puzzles (Gardner, 1978; Glass & Singer, 1972; Glass, Singer, and Friedman, 1969; Percival & Loeb, 1980; Sherrod, Hage, Halpern, & Moore, 1977; Wohlwill, Nasar, DeJoy, & Foruzani, 1976). Work by Glass and Singer (1972) also showed that the controllability, and to a lesser extent the predictability, of the noise is a critical component of these aftereffects. In a test of the external validity of the initial Glass and Singer findings, Moran and Loeb (1977) utilized tape-recorded aircraft noise and found, unexpectedly, that such noise did not appear to induce aftereffects in the laboratory. Percival and Loeb (1980) reasoned that perhaps airport noise, because of its temporal qualities, is rather predictable. Thus, they replicated the original Moran and Loeb finding utilizing the same stimuli, but of particular interest, found that when the aircraft noise bursts were sudden rather than the typical slow onset pattern of an approaching aircraft, negative aftereffects could be reliably produced. Rotton, Olszewski, Charleton, and Soier (1978) also showed that meaningful speech rather than noise could induce the same negative aftereffect. Evans et al. (1996) indicated that these negative aftereffects are amplified if exposure to uncontrollable noise occurs among subjects already under psychological stress. Finally,

Glass and Singer (1972) found that uncontrollable noise interferes with subsequent proofreading accuracy.

A small number of studies has also examined possible relations between chronic noise exposure and susceptibility to helplessness. Evans et al. (1995) adapted the Glass and Singer aftereffects puzzle for young children. They found that children living in high airport noise zones were less likely to persist at solving line tracing puzzles than their quiet community counterparts. Cohen and colleagues (Cohen et al., 1980, 1981) found that aircraft noise-exposed children were significantly less likely to solve a difficult, challenging puzzle than quiet comparison groups. Of particular interest, noise-impacted children were also more likely to simply give up on the puzzle before the allotted 4 minutes had passed. Fifteen percent of children from noisy schools failed the puzzle by giving up in comparison to only 2% of children from quiet schools. It is worth noting that the puzzles were designed and pretested to be fun and engaging to elementary-aged schoolchildren. These effects were replicated by Cohen and colleagues and similar trends were also found for home noise levels (Cohen et al., 1986). Both the Evans and Cohen studies had well-matched SES comparison groups. Moch-Sibony (1984) found very similar results in kindergarten children exposed to higher levels of aircraft noise in Paris. Wachs (1987) also showed that infants exposed to more noise at home manifest less mastery-oriented play as indexed by a standardized observation instrument. Of additional interest, teachers in noisy schools frequently report more difficulties motivating students than do teachers from quiet schools (see Evans & Lepore, 1973b, for a review). Finally, Cohen et al. (1986) uncovered a relation between children's willingness to relinquish choice and chronic noise exposure. Children from noisy schools relative to quiet schools were significantly more likely to allow an experimenter to choose a reward at the conclusion of their experiments rather than make their own choice.

Summary

Both industrial and community studies find no clear, consistent pattern of data on noise and morbidity. Similarly, data on acute noise exposure and altered immune functions are mixed. Although not plentiful, there is a confluence of findings suggestive of noise impacts on in utero development that warrant followup. Several studies point to noise as a factor in elevated smoking.

Acute noise produces short-lived elevations in cardiovascular and neuroendocrine functioning. Recent research suggests, however, that individuals sensitive to noise as well as situations with high workload demands can diminish and perhaps even block such habituation. A plethora of methodologically weak, occupational noise and health studies reveal decidedly mixed findings on noise and blood pressure. Some longitudinal studies indicate small, positive associations between occupational noise exposure and blood pressure elevations. Road traffic noise appears to have no significant impact on blood pressure of community residents, but persons living in the proximity of airports, particularly children, are at risk

for elevated blood pressure. The clinical significance of these elevations is unknown at this time.

Data on noise and psychological health are unclear. The preponderance of poorly designed studies links community noise levels to rates of psychiatric illness. There are better studies indicating some link between community noise exposure and utilization of pharmaceutical hypnotics. Both laboratory and field studies reveal that noise, particularly uncontrollable noise, can contribute to diminished motivation related to learned helplessness. Children chronically exposed to noise may be particularly susceptible to this phenomenon.

DISCUSSION

Application of the construct of psychological stress to examine the role of the physical environment in human health has proven useful in the case of crowding and noise. The primary contributions to date have been the identification of stress-related outcome measures likely to be related to environmental stressors and the preliminary development of a conceptual model for thinking about how and under what conditions noise, crowding, and other environmental stressors might adversely impact human well-being.

Conceptual Issues

A central deficiency has been an inattention to the role of underlying psychophysiological processes or social resources in the environmental stressor-disease link. In searching for answers to the question, why does crowding or noise cause disease?, there are very little data that has tested mechanisms like elevated cardiovascular functioning or diminished self-efficacy. What the data generally show, as depicted in Fig. 20.2, is a broad set of outcome measures independently assessed.

More studies are needed that simultaneously investigate physical or psychological health outcomes and one or more underlying processes in the same sample of individuals. For example, Evans and Lepore (Evans et al., 1989; Evans & Lepore, 1993a; Lepore et al., 1991) showed evidence for the model shown in Fig. 20.3—namely, that high residential density causes deterioration in social support resources, which in turn accounts for the linkage between density and psychological ill health.

There are an unbelievably large number of studies of noise and cardiovascular functioning (principally blood pressure) that have not also looked at some disease endpoint. Similarly, no studies have examined crowding, immune function, and physical morbidity.

Several psychophysiological mechanisms are prime candidates for more in-depth scrutiny as intervening processes that could link environmental conditions to ill health. Alterations in neuroendocrine functioning affect cardiovascular activity, primarily via adrenomedullary action as well as alter immune functioning via adrenocortical pathways (Baum & Grunberg, 1995).

Cardiovascular reactivity is another process warranting analysis. Two viable, competing hypotheses exist. Sustained, chronic exposure to uncontrollable, environmental stressors

like crowding or noise may deplete the organism's ability to respond adequately to challenge with cardiovascular mobilization (Dienstbier, 1989). Alternatively, heightened sensitivity and vigilance from chronic stressor exposure might exacerbate reactivity (Krantz & Manuck, 1984).

Learned helplessness and other motivational processes related to chronic environmental stressor exposure have not been adequately developed. It seems clear that one of the potentially most injurious aspects of chronic environmental stressors is their intractability. Several aspects of motivation and chronic environmental stress warrant additional research. The role of attributional processes, which is well documented in the helplessness literature, has not been applied to environmental stress research. It is clear that attributional processes are salient to environmental stressors like noise and crowding. Noise annoyance is strongly affected by attributions about the origins of noise stimuli, as well as their perceived health impacts (Koelega, 1987). Feelings of arousal induced by personal space invasions (Worchel & Teddlie, 1976), expectancies (Schmidt & Keating, 1979), or informational cues (Langer & Saegert, 1977; Paulus & Matthews, 1980) can all be attributed to crowding or other environmental conditions with varying consequences. The potential interplay among environmental stressors and uncontrollability, helplessness, and negative health outcomes (such as depression) is an area ripe for further study. Motivation or effort to maintain task performance or productivity under suboptimal conditions may be a salient factor, as well, in determining the long-term health consequences of chronic exposure to adverse environmental conditions. Several noise studies both in the laboratory and the field, as well as one crowding study indicate that task performance can be sustained under adverse conditions but at a "cost" of psychophysiological activation. The long-term health consequences of people expending additional effort to do their job when the environment is not optimal is an important and unresearched topic.

Studies of underlying psychosocial processes, such as social support or control, also raise provocative conceptual issues about environment, stress, and coping. Social support and control have each traditionally been conceptualized as exogenous factors that moderate stressor-outcome relations. As can be seen herein, however, chronic exposure to crowding or to noise directly effects social support and control processes, respectively. These psychosocial processes mediate rather than moderate the impacts of these chronic environmental demands. Other chronic stressors may have similar effects on coping resources.

In considering hypothetical mechanisms, it is also prudent to carefully scrutinize the traditional practice of statistically controlling risk factors in environmental epidemiology. For example, several noise and coronary heart disease investigations control for smoking levels. However, what if noise exposure increases smoking as a coping device, as suggested by some studies already reviewed? By statistically partialling out a "risk" factor, a psychologically relevant process that may underlie the noise-health link has been eliminated.

At a more abstract level, the construct validity implications of statistical controls or the practice of random assign-

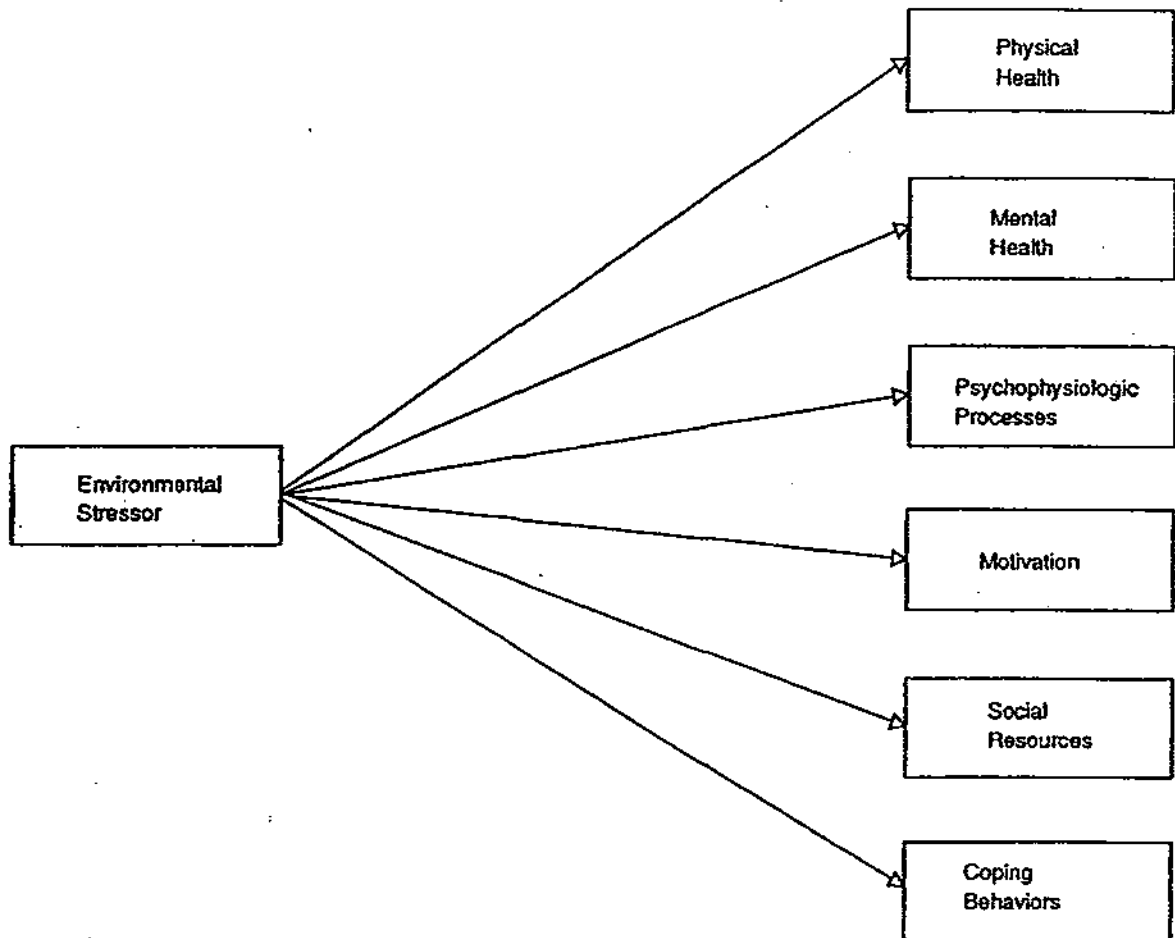


FIG. 20.2

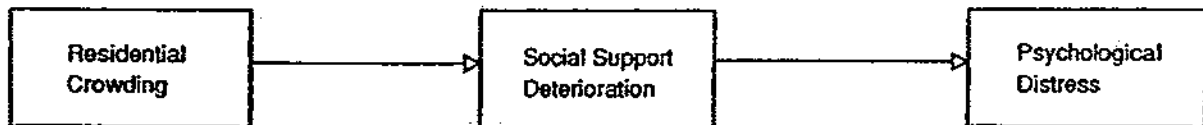


FIG. 20.3

ment in experimental studies of stress and health should be carefully considered. By removing environmental stressors from their natural context (i.e., poverty, other suboptimal environmental factors) for the purposes of study, ecological validity of the stressor–health relation may be distorted. Perhaps crowding and poverty together or noise and certain job requirements together, respectively, lead to pathology. By isolating one independent variable either through statistical or experimental design means for purposes of causal modeling, the actual incidence of adverse outcomes from suboptimal en-

vironmental conditions may be dramatically underestimated (Lepore & Evans, 1996).

It might also be valuable to conceptualize the physical environment not only as a source of stress but also as a source of coping resources (Becker, 1990). Research on coping, like stress, tends to overly focus on intrapsychic mechanisms, missing the potential role of the social and physical environment to promote or interfere with health. For example, research on crowding suggests that floorplan layouts that incorporate greater intervening, hierarchically arranged

spaces, buffer the negative effects of residential crowding on psychological distress (Evans, Lepore, & Schroeder, 1996). Similarly, children in crowded homes who have a place where they can spend some time by themselves appear to suffer fewer negative outcomes (Wachs & Gruen, 1982).

Although children exposed to multiple risk factors are more likely to suffer adverse physical and mental health outcomes, some children are more resilient than others (Rutter, 1987). Bradley and colleagues (1994) found that low residential density was a significant, independent, protective factor among poor, low birth weight babies tested 1 and 3 years later on a wide array of physical and psychological health measures.

Methodological Issues

In addition to some of the conceptual issues associated with statistically controlling for risk factors, statistical approaches that partial out variables in order to "control" for possible confounding effects are also fraught with analytic problems. Statistical models that partial or covary out variables are based on the assumption of no interaction between the independent variable and the potential control variable on the outcome. Controlling for social class, for example, presupposes that noise or crowding do not interact with social class to affect health or well-being. The same statistical problem may occur with controls for certain risk factors, such as family history of coronary heart disease, hypertension status, or age, to name some common examples. Utilization of analysis of covariance or its regression equivalents assumes that the slopes of the respective regression lines between the outcome variable and the independent variable and the covariate (partial b) are parallel (i.e., no statistical interaction). Researchers should not employ covariance or analogous regression procedures to control for risk factors or contextual factors, such as socioeconomic status, without first assessing this basic statistical assumption.

Another analytic issue concerns effect size considerations. When the correlation coefficient between noise exposure and blood pressure, for example, is squared, not a lot of variance is explained. But this is also true if the same is done for cigarette smoking and lung cancer. It is also true that the variance explained in mental health by crowding is on the same order of magnitude as the variance explained by income (Evans et al., 1998; Gove & Hughes, 1983). Critics of the apparently small role of the physical environment in health need to grapple with this issue more in comparative, rather than in absolute, terms.

There is critical need for prospective, longitudinal designs in the field. There is only one crowding study incorporating such a design (Lepore et al., 1991) and just a handful of industrial studies of noise and health that incorporate a longitudinal component. Self-selection into noisy or crowded environments, as well as possible spuriousness, loom as major threats to internal validity in most of the field studies reviewed herein. Too many cross-sectional field studies exist. Furthermore, not enough integrated research programs have examined the same environmental stressor and health in the lab and in the field. The value of integrating lab and field work is illustrated by Cohen and colleagues' work on aircraft noise and

children where laboratory-based concepts and measures were brought to bear on the study of chronic, community noise exposure (Cohen et al., 1986).

Caution is needed in generalizing from aggregate level, epidemiological studies to individual health responses to the physical environment. Several examples of this ecological fallacy were previously reviewed, particularly in crowding field studies, where people per room as indexed by census tract did not yield the same pattern of results as when individual health measures were assessed. Parallel trends were noted in the noise and health literature (Lercher, 1996). One reason aggregate-level comparisons can be misleading is related to exposure estimation. Large degrees of variance in exposure are truncated into a single estimate of exposure when aggregate level data are examined. Furthermore, the actual environment as experienced is even further removed from the exposure metric in comparison to individual residential or work environment assessments.

The problems of exposure estimation and adequate representation of physical stressors in studies are common in the environmental stress literature. Many studies have only gross estimates of actual exposure to the physical stressor. Crowding and noise are typically estimated indirectly and do not account for individual movement throughout the day across settings. One indication of the importance of this issue is found in the noise literature where several studies on industrial noise show that duration of exposure is a critical variable. Similarly, utilization of hearing protection affects noises and health findings in industrial settings. Residential room location can also impact noise exposure (Lercher, 1996). An interesting example of the importance of exposure estimation comes from a recent study by Maxwell (1996) of crowding in preschoolchildren. Children in more crowded day-care centers had greater behavioral and emotional problems only if they also lived in crowded homes.

Moreover, the range of environmental variables in many studies is often truncated and/or the distribution of environmental exposures is badly skewed. Both of these problems strain the general linear model that forms the underlying statistical basis employed in most studies of the physical environment, stress, and health. For example, many studies of crowding have hardly any people in homes with more than 1.5 persons per room. Most laboratory studies expose people to quiet or noise and several community noise studies transform continuous data into a noise/quiet dichotomy. Badly skewed data, as well as use of dichotomous categories, reduce statistical power.

Furthermore, there is some indication of threshold effects for noise and crowding health effects. Recall for example some recent evidence that traffic noise above 65 dBA Leq appears necessary before cardiovascular risk elevates. This nonlinearity also adversely affects statistical power. Studies of traffic congestion and health outcomes indicate that log transformations (Halpern, 1995), or use of indices such as percentage of time at high congestion levels (Evans & Carrere, 1991), predict outcomes significantly better than do mean levels of exposure. This nonlinearity can also appear at the opposite end of the environmental exposure spectrum. Living alone is associ-

ated with psychological impairment as well as low social support (Gabe & Williams, 1987; Galle et al., 1972). Crowding studies that calculate persons per room as the density metric that include people living alone distort the estimate of association between crowding and health outcomes.

Outcome measures are also wanting. Several studies of psychological health employed one item or scales of unknown psychometric properties. Studies of health sorely need standardized, sensitive indicators. Immune function would be a particularly valuable adjunct to environmental morbidity studies. Several studies of blood pressure incorporated one or two readings, often taken in a medical setting. Such data are unreliable and of questionable validity.

Health psychology has demonstrated that individual, biological, and personal characteristics are central to understanding health and disease. A smaller body of work within health psychology has also examined the potential role of sociocultural factors in human health. Hopefully, this chapter has directed attention to the potential direct, indirect, and interactive roles the physical environment can play in health and human behavior.

ACKNOWLEDGMENTS

Preparation of this chapter was partially supported by grants from the National Institutes of Health (1 RO1 HL47325-01) the National Science Foundation (BNS-8920483) and the U.S. Department of Agriculture (Hatch-NY 327407). I am grateful to Jana Cooperman and Tamir Ebbin for bibliographic assistance. I thank Steve Lepore, Paul Paulus, and Shirley Thompson for critical feedback on earlier drafts.

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Research Report

CHRONIC NOISE EXPOSURE AND PHYSIOLOGICAL RESPONSE: A PROSPECTIVE STUDY OF CHILDREN LIVING UNDER ENVIRONMENTAL STRESS

Gary W. Evans,¹ Monika Bullinger,² and Staffan Hygge³

¹Cornell University; ²Universitätskrankenhaus Eppendorf, Hamburg, Germany; and ³Kungl Tekniska Högskolan, Gävle, Sweden

Abstract—Chronic exposure to aircraft noise elevated psychophysiological stress (resting blood pressure and overnight epinephrine and norepinephrine) and depressed quality-of-life indicators over a 2-year period among 9- to 11-year-old children. Data collected before and after the inauguration of a major new international airport in noise-impacted and comparison communities show that noise significantly elevates stress among children at ambient levels far below those necessary to produce hearing damage.

People typically characterize environmental issues as physical health or technological problems. But the physical environment may also have adverse psychological impacts. Suboptimal environmental conditions, such as noise and crowding (Cohen, Evans, Stokols, & Krantz, 1986; Evans & Cohen, 1987), air pollution (Evans, 1994), or disasters (Baum & Fleming, 1993), may elicit psychological coping reactions, including cardiovascular and psychoneuroendocrine activation (Baum, Grunberg, & Singer, 1982; Frankenhaeuser, 1986; Lundberg, 1984). In the present article, we provide prospective, longitudinal evidence that chronic noise elevates psychophysical stress and depresses perceived quality of life.

Although noise can cause hearing deficits (Kryter, 1994), nonauditory, stress effects of noise have not been demonstrated definitively because of methodological and conceptual limitations in prior research. Laboratory studies indicate that acute noise elevates psychophysiological stress (e.g., blood pressure, epinephrine), but these responses habituate rapidly (Evans, in press; Glass & Singer, 1972; Hygge, 1997).

Psychophysiological stress responses to chronic noise have been investigated in industrial settings and in communities proximate to highways and airports. These cross-sectional studies, unfortunately, are subject to an array of plausible alternative explanations, particularly self-selection bias. Although suggestive trends linking occupational noise exposure and hypertension exist, the designs of these studies are so weak that definitive conclusions cannot be drawn (Evans, in press; Thompson, 1993). Poor or nonexistent control groups, nonrigorous assessments of blood pressure (e.g., one reading while on the job), and insufficient estimation of noise exposure plague industrial studies of noise and cardiovascular parameters.

Community studies of aircraft noise reveal elevated psychophysiological stress among children (Evans, Hygge, & Bullinger, 1995; Evans & Lepore, 1993). All of these studies are cross-sectional and, with one exception (Evans et al., 1995), limited to blood pressure. Knipschild (1977) has also shown a dose-response function between noise exposure in the community and hypertension among adults around the Amsterdam airport. The most clear-cut evidence that noise causes ele-

vated psychophysiological stress comes from a primate laboratory study (Peterson, Augenstein, Tanis, & Augenstein, 1981). Simulated air- and road-traffic noise produced stable, elevated arterial blood pressure over a several-week period in the laboratory.

Many noise studies have obscured not only methodological issues, but also important conceptual issues. First, with few exceptions, investigators have not screened for hearing damage. One cannot presently say with any confidence whether stress correlates of community and occupational noise exposure are mediated by hearing loss. Second, nearly all the field studies have confounded acute and chronic noise exposure. Typically, testing has occurred in situ. If individuals are not tested under quiet, carefully controlled conditions, one cannot confidently attribute stress responses to chronic versus acute noise exposure.

The present study took advantage of a natural experiment created by the opening of a new international airport located in a rural area 35 km outside of Munich, Germany. Resting blood pressure, overnight levels of neuroendocrine hormones, and quality of life were measured over a 2-year period among elementary school children residing in the flight paths of this airport before and after its inauguration. Comparison groups of sociodemographically well-matched children from nearby rural communities were also assessed over the same time period.

METHOD

Subjects

Participants were 217 third- and fourth-grade children (mean age = 9.90 years at the study's onset) living either proximate to the new Munich International Airport or in nearby communities outside the noise impact zone of the new facility. The total of 217 participants reflects attrition of 10 and 14 children, respectively, from the noisy and quiet areas. Attrition was unrelated to the outcome variables.

The measures of noise were 24-hr dBA Leq, an unweighted mean of energy level expressed in decibels, and dBA L01, the dBA level exceeded 1% of the time over the sampling period (24 hr in the present case). The dBA scale is logarithmic, and the human observer experiences an increase in 10 dBA as approximately a doubling of loudness. Following inauguration of the new airport, dBA Leq equaled 62, with a dBA L01 of 73, in the noise-impacted communities. Among the quiet communities at the same time period, dBA Leq was 55, with a dBA L01 of 64. Prior to the opening of the new airport, dBA Leq was 53, with a dBA L01 of 63, in the airport communities, and noise levels were comparably low in the comparison areas (dBA Leq = 53, dBA L01 = 64).

Children in the quiet comparison communities were matched to the children in the noise-impacted communities according to socioeconomic status. Households did not differ in the type of occupation, $\chi^2(4, N = 197) = 8.91$; parental education, $t(214) < 1.0$; or family size, $t(214) < 1.0$. All of the children in the study were screened for normal hearing with an audiometric examination.

Address correspondence to Gary Evans, Department of Design and Environmental Analysis, Cornell University, Ithaca, NY 14853-4401; e-mail: gwe1@cornell.edu.

Noise Exposure and Physiological Response

Procedure

Testing occurred in a sound-attenuated, climate-controlled mobile laboratory parked outside the child's elementary school. A microphone (6 m above ground) interfaced with a B&K Model 4426 Community Noise Level Analyzer monitored 24-hr outdoor noise levels at the trailer. Data were collected 6 months prior to the opening of the new airport (Wave 1), 6 months after the opening (Wave 2), and again 18 months after the opening (Wave 3), for a total of three assessment phases per participant.

Resting blood pressure was assessed with an automated monitor (A & D Digital, UA 751) while the child sat comfortably with his or her right arm supported at heart height on a table. Baseline readings were calculated by taking the average of six resting indices taken on 2 consecutive days. On each day, four readings were taken after an orientation to the automated monitor, and the first reading was discarded. Reliability estimates for the six readings exceeded an alpha of .85 for both diastolic and systolic blood pressure.

Twelve-hour overnight urine samples were collected between 20:00 on the evening of the initial testing day and 8:00 the following morning. The container was kept refrigerated and contained a preservative. Parents returned the urine specimen container the next day to the trailer. Total volume was measured, and small replicate samples of urine were extracted and deep frozen at -70°C until assayed. Half of the replicates were also pH adjusted to reduce oxidation further for the catecholamine assays. Epinephrine and norepinephrine were assayed by high-performance liquid chromatography with electrochemical detection (Riggin & Kissinger, 1977). Cortisol was determined by a radioimmuno assay (Baxter Travenol Diagnostics, Cambridge, Mass.). (For further information about procedures for the collection and assay of urinary neuroendocrine samples, see Baum & Grunberg, 1995, and Grunberg & Singer, 1990.)

Quality of life was assessed by the KINDL, a valid and reliable index of the principal domains of quality of life (physical, psychological, social, functional daily life; Bullinger, von Mackensen, & Kirchberger, 1994). These domains were combined for the present analysis ($\alpha = .92$).

RESULTS

The data analytic strategy was to conduct a 2×3 repeated measures multivariate analysis of variance (MANOVA). The principal statistic of interest is the exact F test for the interaction of group (noise impacted vs. quiet) and time (Wave 1 vs. Wave 2 vs. Wave 3).

As can be seen in Table 1, blood pressure increased in the noise-impacted communities after Wave 1, with the opening of the new airport; much smaller changes occurred among the quiet, comparison communities. The interaction of group and time was significant for systolic blood pressure, MANOVA exact $F(2, 214) = 4.50, p < .01$, and marginal for diastolic blood pressure, $F(2, 214) = 2.83, p < .06$.

The overnight urinary neuroendocrine results are shown in Table 1 as well. Consistent with the elevations in blood pressure, both epinephrine, $F(2, 200) = 36.86, p < .001$, and norepinephrine, $F(2, 200) = 22.31, p < .001$, increased sharply among children living in the flight paths of the new airport after it opened; smaller increases were seen over the same period among the children residing in quiet communities. Changes in urinary cortisol over time were not systematically related to noise conditions, $F(2, 200) = 1.73, n.s.$ Degrees of freedom vary because of missing data.

As indicated in Table 2, quality of life declined significantly in the noise-impacted communities 18 months after the opening of the new airport, but remained relatively stable in the quiet, comparison communities, $F(2, 202) = 3.07, p < .05$.

Table 1. Measures of psychophysiological stress in the noise-impacted and quiet communities

Measure and community	Wave		
	1	2	3
Systolic blood pressure (mm Hg)			
Noise	97.2 (11.6)	101.6 (9.9)	102.4 (10)
Quiet	100.8 (8.9)	102.2 (8.9)	102.6 (12)
Diastolic blood pressure (mm Hg)			
Noise	60.5 (7)	63.2 (6.1)	64.4 (6.2)
Quiet	62.6 (7.1)	63.6 (6.4)	64.8 (6.8)
Epinephrine (ng/hr)			
Noise	229.2 (153.4)	328.1 (130.4)	341.9 (168.1)
Quiet	251.8 (57)	280.9 (64.6)	246.2 (83.7)
Norepinephrine (ng/hr)			
Noise	610.7 (338.6)	1,228.5 (659.7)	1,556.3 (703.6)
Quiet	660.0 (506.9)	879.7 (457.7)	950.7 (525.5)
Cortisol ($\mu\text{g/hr}$)			
Noise	3.56 (1.89)	4.36 (5.39)	5.14 (6.89)
Quiet	3.31 (1.89)	2.37 (6.14)	3.78 (2.89)

Note. The data shown are means, with standard deviations in parentheses.

Table 2. Quality of life in the noise-impacted and quiet communities

Community	Wave		
	1	2	3
Noise	110.3 (13.8)	112.4 (13.9)	104.8 (16.0)
Quiet	112.5 (16.4)	112.1 (17.0)	109.6 (15.5)

Note. The scale for the quality-of-life measure ranges from 40 to 200, with greater values indicating higher perceived quality of life. The data shown are means, with standard deviations in parentheses.

DISCUSSION

Chronic exposure to ambient aircraft noise elevates psychological stress in human beings. Children living proximate to the new Munich International Airport experienced significant elevations in resting blood pressure after the airport opened. During this same time period, well-matched children in nearby, similar communities experienced stable levels of resting blood pressure. The catecholamine data, which are consistent with the blood pressure effects, underscore the value of conceptualizing noise and other suboptimal environmental conditions as stressors. Elevated urinary catecholamines have consistently been shown to reliably and sensitively mark chronic exposure to stressors (Baum et al., 1982; Frankenhaeuser, 1986; Lundberg, 1984). Urinary cortisol has proven less reliable as an index of chronic stress exposure (Frankenhaeuser, 1986; Lundberg, 1984).

The self-report data show the same pattern, but with a delayed time course. Childrens' perceived quality of life dropped more markedly in the noise-impacted communities than in the quiet communities, but this drop did not occur until 18 months after the new airport opened.

As in any field study, some questions remain. We cannot disentangle the apparent effects of chronic noise from the uncontrollability of that exposure. Although the primary environmental change near the new airport was dramatic increases in sound levels, the surrounding community also witnessed increased land development, more road traffic, and the like.

Our prospective data add evidence to previous cross-sectional results that have shown elevated stress among adults and children working and residing, respectively, in chronically noisy environments. In young children, chronic noise exposure appears to cause increased psychological stress, as measured by cardiovascular, neuroendocrine, and affective indicators. These effects occur among children who suffer no detectable hearing damage while living in the immediate vicinity of an airport.

Acknowledgments—We are grateful to the families who cooperated with this research. We thank Sylvia von Mackensen, Markus Meis, Gerhard Helm, Gunnar Söderqvist, Christian Wigren, Nils Antoni, and Pat O'Keefe for their dedication to this project. This research was partially supported by the Society for the Psychological Study of Social Issues, the National Institutes of Health (R01 HL 4732 01A), the Nordic Scientific Group for Noise Effects, the Swedish Environmental Protection Agency, and the German Research Foundation. The second author was also supported by the DFG Heisenberg Fellowship.

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(RECEIVED 3/15/97; ACCEPTED 5/9/97)

**DEVELOPMENT OF HEALTH
CRITERIA FOR SCHOOL
SITE RISK ASSESSMENT
PURSUANT TO HEALTH
AND SAFETY CODE
SECTION 901(g):**

PROPOSED CHILD-SPECIFIC
REFERENCE DOSES (chRDs)
FOR SCHOOL SITE RISK
ASSESSMENT – Cadmium,
Chlordane,
Heptachlor/Heptachlor Epoxide,
Methoxychlor, and Nickel

DRAFT REPORT

June 2003



Integrated Risk Assessment Section
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

Draft Report

June 2003

**Development of Health Criteria for School Site
Risk Assessment Pursuant to Health and Safety
Code Section 901(g):**

**Proposed Child-Specific Reference Doses (chRDs)
for School Site Risk Assessment – Cadmium,
Chlordane, Heptachlor/Heptachlor Epoxide,
Methoxychlor, and Nickel**

Office of Environmental Health Hazard Assessment
California Environmental Protection Agency
1001 I Street, 12th Floor
P.O. Box 4010
Sacramento, California 95812-4010

LIST OF CONTRIBUTORS

Authors

David Chan, D.Env., Susan A. Knadle Ph.D., DABT and
Kathleen Stewart

Primary Reviewers

David Siegel, Ph.D., DABT., Chief, Integrated Risk Assessment Section
Jim Carlisle, DVM, Senior Toxicologist, Integrated Risk Assessment Section

Secondary Reviewers

Joseph Brown, Ph.D.
Jim Donald, Ph.D.
Mari Golub, Ph.D., DABT
Poorni Iyer, Ph.D.
Robert Howd, Ph.D.
Lubów Jowa, Ph.D.
Susan Klasing, Ph.D.
David Morry, Ph.D.
Tom Parker, M.S.
Karen Randles, M.S.

Library Support

Jerry McGovern

Website Posting

Laurie Monserrat

DRAFT FOR PUBLIC REVIEW
Proposed chRDs for School Site Risk Assessment

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**Development of Health Criteria for School Site Risk Assessment
Pursuant to Health and Safety Code Section 901(g):**

Proposed chRDs for School Site Risk Assessment

Executive Summary

As mandated by Part 2 of the Health and Safety Code, section 901(g), the Office of Environmental Health Hazard Assessment (OEHHA) reviewed five chemicals to consider the development of child-specific reference doses (chRDs). This report summarizes OEHHA's review of pertinent scientific studies in proposing these chRDs. Any chRDs established as a result are intended for use in the risk assessment of proposed or existing California school sites.

OEHHA completed Part 1 of that mandate, which called for the identification of chemical contaminants commonly found at school sites and determined to be of greatest concern to children. The report, "Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code, Section 901(g): Identification of Potential Chemical Contaminants of Concern at California School Sites," was posted on OEHHA's website in June, 2002. In summary, OEHHA identified seventy-eight chemicals that will likely be found as contaminants of California school sites and have the potential for causing adverse effects in children. This should be viewed as a living compilation – chemicals may be added or removed as new information becomes available.

OEHHA chose five chemicals from the compilation for an in-depth evaluation of non-carcinogenic effects: cadmium, chlordane, heptachlor and its metabolite heptachlor epoxide, methoxychlor, and nickel. The criteria used to select these chemicals for the first round of reviews are discussed in Chapter 1.

In reviewing the applicable scientific literature, OEHHA identified relevant quantitative studies from which to propose a chRD for each chemical. The chRD for the non-carcinogenic effects of cadmium is based on a 1999 study by Buchet et al. The authors reported a strong relationship between cadmium body burden and renal tubular dysfunction in adult humans. This study identified a lowest observed adverse effect level (LOAEL) of 1×10^{-3} mg/kg-day. From this LOAEL, OEHHA calculated a chRD of 1×10^{-5} mg/kg-day using an uncertainty factor of 30 (10 to account for human variability and 3 to extrapolate from the LOAEL to the no observed adverse effect level (NOAEL). A factor of 3 (rather than the usual default of 10) was used for extrapolating from a LOAEL to a NOAEL because the LOAEL was based on the minimal adverse effect observed. A child protective modifying factor of 3 was used to account for the child/adult difference in gastrointestinal absorption of cadmium for a combined uncertainty and modifying factors of 90.

The chRD for the non-carcinogenic effects of chlordane is based on a 1994 study by Cassidy et al. The authors demonstrated changes in sex-steroid mediated behaviors, including increased male-typical spatial abilities in female rats and increased male-typical mating behaviors in male rats, following pre- and postnatal exposure. This study identified a LOAEL of 0.1 mg/kg-day, from which OEHHA calculated a chRD of 3.33×10^{-5} mg/kg-day using an uncertainty factor of 3000 (10 for interspecies variability, 10 for human variability, 10 to extrapolate to the LOAEL from the NOAEL, and a modifying factor of 3 to account for an inadequate hematotoxicity/immunotoxicity and neurotoxicity database—toxicities to which children may be particularly sensitive).

The chRD for the non-carcinogenic effects of heptachlor is based on two studies. One is a 2001 study by Moser et al., which shows decreased performance on measures of cognitive function in male rats following pre- and postnatal exposure, through postnatal day 21. The other is a 2001 study by Smialowicz et al., which shows suppression of the primary IgM and secondary IgG antibody responses following exposure during the last half of gestation through puberty. Both studies identified a LOAEL of 0.03 mg/kg-day. OEHHA calculated a chRD of 3×10^{-5} mg/kg-day using an uncertainty factor of 1000 (10 each for interspecies variability, human variability, and extrapolation from LOAEL to NOAEL). The chRD for the non-carcinogenic effects of heptachlor epoxide utilizes the same study selected by U.S. EPA for its reference dose (RfD) and OEHHA for its Public Health Goal (PHG.) A LOAEL of 0.0125 mg/kg-day for liver-to-body weight ratio was reported when adolescent dogs were fed heptachlor epoxide for 60 weeks (Dow Chemical Co., 1958). Since exposure was to adolescent animals, OEHHA utilized the U.S. EPA RfD for its chRD of 1.3×10^{-5} mg/kg-day and utilized the same uncertainty factor of 1000 (10 each for interspecies variability, human variability, and extrapolation from LOAEL to NOAEL).

The chRD for the non-carcinogenic effects of methoxychlor is based on two studies as well. One is a 1995 study by vom Saal et al., which demonstrates increased urine marking in male mice, an index of territorial behavior, subsequent to prenatal exposure. The other is a 1999 study by Welshons et al., which shows an increase in adult prostate size following prenatal exposure. The LOAEL identified from these studies is 0.02 mg/kg-day. OEHHA calculated a chRD of 2×10^{-5} mg/kg-day using an uncertainty factor of 1000 (10 each for interspecies variability, human variability, and extrapolation from LOAEL to NOAEL).

The chRD for the non-carcinogenic effects of nickel is based on the observed pup mortality in three reproductive studies – Smith et al., 1993, and Springborn Laboratories, 2000 a and b. In reviewing these three studies in totality, OEHHA concludes that the 1.1 mg nickel/kg-day (5 mg nickel sulfate hexahydrate/kg-day) dose constitutes the appropriate NOAEL. From this NOAEL, OEHHA calculated a chRD of 3.7×10^{-3} mg/kg-day, using an uncertainty factor of 300: 10 each for interspecies extrapolation and human variability) and a child protective modifying factor of 3 to account for the child/adult difference in gastrointestinal absorption of nickel.

Table ES 1 below compares the chRDs and U.S. EPA's RfD, which are based on studies in adult animals.

Table ES 1 OEHHA's chRD and U.S. EPA's RfD

	OEHHA's Proposed chRD (mg/kg-day)	U.S. EPA's RfD (mg/kg-day)
Cadmium	1×10^{-5}	5×10^{-4}
Chlordane	3.3×10^{-5}	5×10^{-4}
Heptachlor	3×10^{-5}	5×10^{-4}
Heptachlor epoxide	1.3×10^{-5}	1.3×10^{-5}
Methoxychlor	2×10^{-5}	5×10^{-3}
Nickel	3.7×10^{-3}	2×10^{-2}

These proposed chRDs were reviewed internally. OEHHA is currently releasing this draft report for external peer review and public comment. Any chRDs established by this process are intended for use in risk assessment of proposed or existing school sites in California.

1. Introduction

This report summarizes the first-year effort of the Office of Environmental Health Hazard Assessment (OEHHA) in developing health criteria for five selected chemicals for use in school-site risk assessment. The following provides the context for this effort.

1.1 Mandate

As part of a series of legislative provisions in California to protect children from exposure to environmental contaminants, OEHHA has been tasked under Health and Safety Code, Section 901(g), to fulfill the following directives:

1. On or before January 1, 2002, OEHHA, in consultation with the appropriate entities within the California Environmental Protection Agency (Cal/EPA), shall identify those chemical contaminants commonly found at school sites and determined by OEHHA to be of greatest concern based on criteria that identify child-specific exposure and child-specific physiological sensitivities.
2. On or before December 31, 2002, and annually thereafter, OEHHA shall publish and make available to the public and other state and local environmental and public health agencies and school districts, numerical health guidance values for five of those chemical contaminants identified until the contaminants identified have been exhausted.

1.2 Identification of Chemicals

The first part of the mandate, identifying those chemical contaminants commonly found at school sites and determined to be of greatest concern based on criteria that identify child-specific exposures and physiological sensitivities, was completed earlier. Available data did not permit us to definitively identify those chemicals that are commonly found at school sites and for which children have unique physiological sensitivities. However, we have identified a group of candidate chemicals that will likely be found as contaminants at school sites (200 chemicals), and another group where evaluation of review literature provided some indication the chemicals may have the potential for causing adverse effects on school-age children (198 chemicals). The methods used to implement the first part of the mandate are summarized below; a detailed description can be found in the OEHHA June 2002 report, "Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code, Section 901(g): Identification of Potential Chemical Contaminants of Concern at California School Sites," which can be downloaded at:

http://www.oehha.ca.gov/public_info/public/kids/pdf/ChildHealthreport60702.pdf.

In identifying contaminants likely to be found at California school sites, OEHHA considered chemicals that have been targeted by federal and state agencies as being pervasive in pertinent environmental media, in addition to contaminants that have been found at school sites or were on the list of analytes for monitoring studies at California school sites. Using these criteria, OEHHA considered the following as candidate contaminants that are likely to be found at school sites:

- Ninety-four soil contaminants that have been reported in school site Preliminary Endangerment Assessments (PEA) and reviewed by the Department of Toxic Substances Control (DTSC).
- Ninety Toxic Air Contaminants that were emitted to, or detected in, California's ambient air.
- Sixty potential classroom contaminants targeted for monitoring by the Department of Health Services (DHS) and the Air Resources Board (ARB), as part of their Portable Classroom Program.
- Forty-seven toxic chemicals targeted by U.S. EPA in its National Human Exposure Assessment Survey (NHEXAS).
- Twenty-six contaminants targeted by U.S. EPA in its Total Exposure Assessment Methodology (TEAM) studies.

Because of overlap among the chemicals reported or targeted by the above federal and state agencies, the final compilation consists of 200 chemical contaminants likely to be found at school sites.

In identifying chemicals with potential child-specific sensitivities, OEHHA considered the following:

- Chemicals with one or more citations in review articles from the scientific literature indicating the potential for adverse effects on the development of the nervous, respiratory, reproductive, endocrine, or immune system.
- Chemicals that initiated cancer following exposure during the perinatal period or childhood.
- Chemicals identified as Proposition 65 Developmental and Reproductive Toxicants by OEHHA, excluding chemicals not likely to be found at school sites, such as pharmaceuticals. While Prop 65 deals with chemical exposures that occur during pregnancy, the inclusion of these Prop 65 chemicals are useful for screening chemicals that may also impact developing organ systems postnatally.

The final compilation consists of 198 chemicals to which children are potentially more sensitive, 87 of which are from the Proposition 65 list.

To aid in implementing the second part of the mandate, the two compilations were merged into one comprehensive list of 78 chemicals that met both criteria. This list is given in table ES 1 in OEHHA's June 2002 report (page 5) and will be updated as new data become available. The information obtained to produce this compilation is not

sufficient to conclude that the compiled chemicals are found in most schools or that children have a greater sensitivity compared to adults. The compilation has been prepared to assist OEHHA scientists in selecting chemicals for further in-depth review to determine if sufficient studies on toxicity to developing organ systems in the young exist to create a health guidance value specific for children. The list has no regulatory status.

1.3 Numerical Health Guidance Values

The second part of the mandate, which is the subject of this report, requires OEHHA to annually publish numerical health guidance values for five of those chemical contaminants identified in the June 2002 report until the contaminants identified have been exhausted. In order to prioritize chemicals from the compilations generated in Phase I for in-depth review, OEHHA outlined the following criteria, which was also described in the June 2002 report, for selecting chemicals for in-depth reviews. It should be emphasized that these four criteria are not permanent, but are being used to help us prioritize which chemicals to evaluate first. The compilation of chemicals will continue to be updated and reviewed.

1. Chemicals having a strong indication of their presence at school sites according to monitoring studies or other reliable sources.
2. Chemicals cited to have possible adverse effects in three or more of the systems that are undergoing critical development during childhood: the neurological, immunological, respiratory, reproductive, or endocrine systems.
3. Where applicable, chemical carcinogens with existing reference toxicity levels based on studies in adult animals that approximate the dose associated with a 10^{-4} (one in ten thousand) to 10^{-6} (one in a million) lifetime cancer risk.
4. Chemicals that other OEHHA programs have identified as a public health concern based on studies pertinent to children.

The first criterion addresses the possibility that children will be exposed to a given chemical while at school, since a chemical must have some probability of being found at a school site in order to warrant consideration under this mandate. The compilation of chemicals potentially found at school sites (OEHHA, 2002) was used to gauge the likelihood of a chemical being present at California school sites.

The second criterion helps select those chemicals that appear to have multiple effects on organ systems that are still undergoing development and maturation after birth. The nervous, immune, respiratory, reproductive and endocrine systems are being targeted because chemical insults at relatively low doses to any of these organ systems could

produce adverse effects, many of which may not be recognized until maturity (OEHHA, 2002).

In focusing on these critical organ effects, we have targeted non-cancer endpoints. In a separate task, OEHHA is developing a cancer evaluation methodology for children pursuant to HSC Section 901(e). Because that methodology will not be available until 2004, we are focusing on identifying and evaluating the non-cancer effects of chemicals. We will assess the cancer endpoint when the children's cancer methodology is developed.

The criteria for selecting chemicals identified in review articles as having effects on multiple developing organ systems was intended to increase the probability of identifying relevant literature during the in-depth search and review phase. Targeting chemicals with evidence of effects in three or more systems may miss an important developmental toxicant for which either only one system is affected or only one system has been adequately researched. However, given time and budget constraints, we felt this was an effective way to prioritize the chemicals on the list this year.

The third criterion helps target those chemicals that could conceivably be non-cancer risk drivers when new child-specific data were considered. If current data suggest that both carcinogenic and non-carcinogenic effects of concern occur at similar dose levels in adults, and studies on developing organ systems show that exposure may produce irreversible non-carcinogenic effects in children at dosages lower than those that are toxic to adults, then the chemical should have a high priority for further evaluation.

The fourth criterion allows us to build on related work done by other OEHHA programs. This year we utilized the peer-reviewed PHGs for drinking water contaminants developed by OEHHA. More information on the PHG process can be found at the web address <http://www.oehha.ca.gov/water/phg/allphgs.html>. The PHG effort provides an excellent springboard from which to conduct our current review for developing child-specific chRDs because the Pesticide and Environmental Toxicology Section's (PETS') reviews are recent and they cover the chemicals of interest.

Using the above criteria OEHHA selected cadmium, chlordane, heptachlor and its metabolite heptachlor epoxide, methoxychlor, and nickel as the first five chemicals for in depth review. Under contract with OEHHA, the Public Health Library at the University of California at Berkeley searched the following databases: PubMed, Toxline/DART, Excerpta Medicus (EMBASE), Chemical Abstracts, BIOSIS, International Pharmaceutical Abstracts (IPA), and ISI Web of Science. We searched by keywords that describe specific effects on developing organ systems. The keywords used in searching these databases are listed in Appendix A.

OEHHA evaluated the citations returned by the literature search (105 citations for cadmium, 65 for chlordane and heptachlor/heptachlor epoxide combined, 82 for methoxychlor, and 18 for nickel), and reviewed relevant qualitative background papers and quantitative studies. In addition, OEHHA reviewed pertinent studies cited in papers

obtained via the literature search. Because so few citations were returned for nickel, an alternate, very inclusive approach (discussed in Section 2.5) was used to ensure that we were not missing important studies.

1.4 Child-Specific Reference Dose (chRD)

U.S. EPA and the March of Dimes sponsored a workshop -- Identifying Critical Windows of Exposure for Children's Health -- in September 1999 to systematically review the state of knowledge on prenatal and postnatal exposures and subsequent outcomes (Environmental Health Perspectives Volume 108, Supplement 3, June 2000). In reviewing data on organ systems that are still undergoing development and maturation in children, workshop participants noted that data pertaining to children's sensitivities to environmental contaminants during various critical developmental periods are limited. In particular, very little attention has been given to peripubertal/adolescent exposures or adult consequences from childhood exposure. However, these limited data do suggest that children could be more sensitive than adults when their developing organ systems were exposed to harmful chemicals. For example, several developmental immunotoxicants (chlordane, dioxin, lead, and benzo[a]pyrene) demonstrate that perinatal exposures can produce toxicity at doses that do not affect adults and/or they produce irreversible changes which do not occur with adult exposure.

Endocrine disruptors, a group of chemicals that may produce differential toxicity to the young, have been the subject of much recent scientific and regulatory debate (Cranmer et al., 1984; Colborn et al., 1993; U.S. EPA, 1998). While not all chemicals reviewed in this first year are endocrine disruptors, the endocrine disruptors do pose a great concern because they could interfere with the proper hormonal signaling that is essential for growth and development of school children. An endocrine disruptor may be defined as an exogenous agent that interferes with the synthesis, secretion, transport, binding, action, or elimination of natural hormones in the body (U.S. EPA, 1997). Exposure to endocrine disruptors during critical "programming" periods in development, in contrast to exposure during adulthood, may produce irreversible effects on the reproductive, nervous, and/or immune system (Bigsby, 1999). In adulthood, these endocrine disruptors might only produce reversible effects by participating in the "seesaw" process of stimulation and feedback inhibition.

The effects of endocrine disruptors are more difficult to evaluate than chemicals which have a direct toxic effect on an organ system. Endocrine disruptors can act directly on hormone receptors of developing target organs, or they can act indirectly by interfering with the synthesis or metabolism of natural hormones. An endocrine disruptor having a direct interaction with either intracellular receptors or membrane-bound receptors can mimic a natural ligand by acting as an agonist, or if it inhibits binding, as an antagonist. The best known examples are methoxychlor, chlordecone (Kepone), DDT, some PCBs, and alkylphenols (Mueller and Kim, 1978; White et al., 1994; U.S. EPA, 1997). The antiandrogenic action of vinclozolin is the result of the affinity of its metabolites for the

androgen receptor (van Ravenzwaay, 1992; Kelce et al., 1994). O,p-DDT and chlordecone inhibit binding to both estrogen and progesterone receptors (Laws, 2000).

An endocrine disruptor can have an indirect effect on a target organ if it changes the quantity of a hormone or the ratio of several hormones at target organs by altering hormonal storage and/or release, transport in the blood and clearance, or post-receptor activation. Many different mechanisms can produce these changes.

Disruption of normal signaling, whether it causes a direct effect on a target organ, or whether it alters hormone ratios or levels, can produce an adverse effect on a single organ system -- the reproductive, immune or nervous system -- if the disruption occurs during a critical period in development (Kavlock et al., 1996). Disruption of normal signaling can also produce adverse effects on multiple organ systems. For example, estrogen receptors can be found in the gonads, thymus, and brain; and the disruption of estrogen signaling could simultaneously affect the reproductive, immune, and nervous systems (Colborn et al., 1993; Diel, 2002). To complicate the matter further, one endocrine axis can impact another in a "cross-talk" (WHO, 2002). For example, in humans and some other mammals, most of the testosterone and estradiol circulating in the bloodstream are not bioavailable because of their binding to sex hormone binding globulins (SHBG). Not surprisingly, SHBG production is regulated by testosterone and estradiol (Prinsloo and Van Aswegen, 2000; Pugeat et al., 1996). However, via cross-talk, SHBG is also regulated by insulin. Thus, an insulin disruptor that causes an elevated insulin level would suppress SHBG production, leading to an increase in testosterone and estradiol bioavailability (Pugeat et al., 1996).

Given the complexity of hormonal signaling processes, it is also not surprising to find the relationship between dose and response to be another controversial issue. Endocrine disruptors often act by mimicking or antagonizing the actions of naturally occurring hormones that may be already at physiologically functional concentrations (WHO, 2002). The National Toxicology Program's Report of the Endocrine Disruptors Low Dose Peer Review concluded that biological changes occurred in the range of human exposures or at doses that are lower than those typically used in the EPA's standard testing paradigm for evaluating reproductive and developmental toxicity for endocrine active agents (<http://ntp-server.niehs.nih.gov/htdocs/liason/LowDosePeerFinalrpt.pdf>). Too little is known about the dose-response curves for immunotoxicity, neurotoxicity, or endocrine effects to decipher the independent or interactive effects of endocrine disruptors on these systems. The shape of the dose response curve varies with the endpoint and dosing regimen and it may be low-dose linear, threshold-appearing, or it may be shaped like an upright U or an inverted U (<http://ntp-server.niehs.nih.gov/htdocs/liason/LowDosePeerFinalrpt.pdf>; Markowski et al., 2001; vom Saal et al., 1997).

The above observations underscore some of OEHHA's challenges in implementing HSC Section 901(g) pertaining to the development of health criteria based on children's sensitivities. As discussed by Ginsberg et al. (2002) and Miller et al. (2002), the risks

that children incur from exposure to environmental contaminants could differ from adult risks as a result of the following factors:

- Greater exposure in young children from a higher inhalation and food ingestion rate per body weight; and greater contact with soil, house dust and other media that may contain contaminants.
- Pharmacokinetics differences between children and adults with respect to absorption, metabolism, clearance, protein binding, and volume of distribution, once exposure has occurred.
- Pharmacodynamic differences between children and adults; that is, the sensitivity of rapidly developing tissues/organs in children may differ from that in adults.

The exposure differences will be addressed under a separate task -- developing the school exposure assessment guidelines -- pursuant to HSC Section 901(f). Based on available pharmacokinetic and pharmacodynamic data, we will evaluate if existing U.S. EPA RfDs or OEHHA toxicity criteria are appropriate, or if child-specific ones should be proposed, for school-site risk assessment in California.

From a public health protection standpoint, OEHHA has adopted two policies in developing chRDs. First, in order to protect children from conception through the time they leave school, chRDs must consider school-aged children up to age 18; and infants and toddlers in daycare facilities located at school sites. Second, OEHHA opts to consider the most sensitive species and endpoints in our evaluations, meaning that the lowest LOAEL or NOAEL from available literature would be selected. Moreover, the paucity of data has underscored the reality that the databases for sensitive endpoints may be incomplete. An uncertainty factor for database deficiency will be considered as appropriate.

Our mandate, which is driven by environmental health policies, has charted OEHHA's course of action. We view this approach as an iterative process. Any chRD established will be subject to review and refinement as the state-of-the-science progresses.

2. Evaluation of Five Chemicals

This chapter is divided into five sections, one for each chemical reviewed in 2002. Each section provides information specific to the particular chemical, including background and exposure information; how the chemical meets our criteria for evaluation; existing pertinent health guidance values; findings from our literature review; and OEHHA's recommendation. The recommendation includes a discussion of the study (or studies) used in developing the chRD, the uncertainty and modifying factors used, the calculation, and the proposed chRD.

2.1 Cadmium

Cadmium is an important industrial chemical with diverse applications. It is used for the production of nickel-cadmium batteries, pigments, alloys, plastics, and synthetics. It is also used in metal plating. The Toxic Chemical Release Inventory of 2000 shows that 2,292 pounds of cadmium were emitted into the air, 792 pounds were discharged into surface water, 69,000 pounds were injected underground, and 663,895 pounds were released to land in the U.S. In comparison, 16 pounds of cadmium entered the air and 36,104 pounds were disposed of on land in California during 2000 (U.S. EPA, TRI2000).

Given its indestructible nature, cadmium persists in the environment, and can enter the food chain. OEHHA identified air, drinking water, soil, and food as the primary pathways for human exposure to cadmium (OEHHA, 1999a). U.S. EPA and ARB/DHS have deemed cadmium as a chemical of interest in their NHEXAS and Portable Classroom Study, respectively (OEHHA, 2002). ARB reported the occurrence of cadmium in California air and DTSC reported the presence of cadmium at 10 percent of the potential school sites reviewed by the Department, making it a relatively frequently observed contaminant.

In reviewing literature for the purpose of establishing a Public Health Goal (PHG) for cadmium in drinking water (OEHHA, 1999a), OEHHA found some evidence that cadmium may elevate blood pressure in both animals and humans. Renal toxicity of cadmium is well known. Cadmium tested positive in several mutagenic assays and in an epidemiological study; it was observed that individuals with higher levels of cadmium in their urine ($>3 \mu\text{g/L}$) had more frequent chromosomal aberrations in their lymphocytes. A number of studies in rats and mice indicated the developmental and reproductive toxicity of cadmium. Neurological and immune effects were also reported. Finally, tumors of the prostate, testes and hematopoietic system in the rat were associated with oral cadmium exposure; and human lung and prostate cancers had been associated with inhalation exposure. Thus, it is regarded as a potential human carcinogen by the oral route and a human carcinogen by the inhalation route.

OEHHA selected cadmium for an in-depth review in this first cycle not only from the standpoint of its exposure potential at school sites, but also because of its adverse effects

on various organ systems; some of which are still undergoing development in school children.

Pertinent Guidance Values

U.S. EPA RfD: 0.5 µg/kg-day (water) and 1.0 µg/kg-day (food)

U.S. EPA's RfD is based on cadmium's effect on the kidney. A concentration of 200 µg cadmium (Cd)/g wet human renal cortex is the highest renal level not associated with significant proteinuria (U.S. EPA, 1985). A toxicokinetic model is available to determine the level of chronic human oral exposure (NOAEL) which results in 200 µg Cd/g wet human renal cortex; the model assumes that 0.01 percent day of the Cd body burden is eliminated per day (U.S. EPA, 1985). Assuming 2.5 percent absorption of Cd from food or 5 percent from water, the toxicokinetic model predicts that the NOAEL for chronic Cd exposure is 0.005 and 0.01 mg Cd/kg-day from water and food, respectively (i.e., levels which would result in 200 µg Cd/g wet weight human renal cortex). Thus, based on an estimated NOAEL of 0.005 mg Cd/kg-day for Cd in drinking water and an uncertainty factor (UF) of 10 that accounts for intra-human variability, an RfD of 0.0005 mg Cd/kg-day (water) was calculated; an equivalent RfD for Cd in food is 0.001 mg Cd/kg-day.

U.S. EPA gives a high confidence to its cadmium RfD. The choice of NOAEL does not reflect the information from any single study. Rather, it reflects the data obtained from many studies on the toxicity of cadmium in both humans and laboratory animals. These data also permit calculation of pharmacokinetic parameters of cadmium absorption, distribution, metabolism and elimination.

OEHHA PHG: 0.07 µg/L (a safe dose of 1×10^{-5} mg/kg-day)

OEHHA deemed the Buchet investigation (Buchet et al., 1990) as the best study for use in developing a Public Health Goal (PHG) for cadmium in drinking water. The study avoided the healthy worker effect by performing a cross-sectional examination on 1699 Belgian subjects between the ages of 20 and 80 years. The investigators found a strong relationship between cadmium body burden and renal tubular dysfunction. They observed a risk of renal effects at or above the urinary excretion rate of 2 µg cadmium/24 hours. Assuming an oral absorption rate of 5 percent and a daily excretion rate of 0.005 percent of body burden, Buchet estimated that this excretion rate corresponded to a mean renal cortex concentration of about 50 ppm or 50 µg/g (wet weight). In non-smokers (investigators' design to subtract a major source of cadmium from tobacco smoke), this level is reached after 50 years of an oral daily intake of 1.0 µg/kg body weight. As such, a LOAEL of 1.0 µg/kg-day was established.

OEHHA (1999a) applied this LOAEL in conjunction with an aggregated uncertainty factor (UF) of 100 (10 for intra-human variability, 3 for LOAEL to NOAEL extrapolation, and 3 for uncertainty in applying adult biokinetics to the entire age range from infancy to adulthood) for calculating a safe dose of 0.01 µg/kg-day. A factor of 3

(rather than the usual default of 10) was used for extrapolating from a LOAEL to a NOAEL because the LOAEL was based on the minimal adverse effect observed. The safe dose in turn was used to derive the PHG.

Current Evaluation Results

Because the cadmium data have recently been reviewed under the PHG process, we used the PHG review as a baseline for the current evaluation. Accordingly, we focused our literature search and review on the information that was not covered by the PHG evaluation. An attempt was also made to target literature pertaining to cadmium's effect on sensitive organ systems that are still undergoing postnatal development.

Based on the above search criteria, we compiled a list of references. From that list, we identified a number of papers relevant to cadmium's effects on testes and semen of rabbits exposed before and after puberty (Foote, 1999); pubertal and postpubertal cadmium exposure on the hypothalamic-pituitary-testicular axis function in rat (Lafuente et al., 2000); cadmium induction of apoptosis in the immune system (Tsangaris et al., 1998); postnatal cadmium exposure and long-term behavioral changes in rat (Smith et al., 1982); effects of cadmium and lead on cognitive functioning in children (Thatcher et al., 1982); and neurotoxic effects of cadmium in young rats (Wong et al., 1982). However, these were either qualitative/mechanistic, semi-quantitative, or quantitative studies with a LOAEL higher than that on which the PHG was based.

Recommendation

The renal effect of cadmium seems to be the most sensitive endpoint (with the lowest LOAEL), even when it is compared with developmental and reproductive study endpoints identified in the OEHHA PHG document or those identified by OEHHA's current evaluation. The rate of cadmium absorption affects its rate of accumulation in the kidney, and in turn its toxicity. Thus, available data suggest the PHG LOAEL should be retained for our current consideration. This LOAEL is lower than the NOAEL used by U.S. EPA in developing its RfD. Both the safe dose from which the PHG was derived and U.S. EPA's RfD are based on cadmium's effect on renal function. In developing these two health criteria, long-term cumulative exposure data were used. Both U.S. EPA and Buchet et al. applied a 5 percent absorption in their respective biokinetic modeling, based on adult human absorption of 4.7 to 7 percent of the cadmium intake (Rahola et al., 1972, cited in Mahaffey, 1983). In proposing the PHG, OEHHA applied a factor of 3 to account for the uncertainty associated with Buchet's modeling in which he applied adult biokinetics to the entire age range from infancy to adulthood. According to Alexander et al. (1974), the absorption of cadmium by children, from early infancy through 8 years of age, averages 55 percent.

To illustrate the appropriateness for applying the factor of three for developing the chRD, OEHHA ran a model similar to Buchet, using his modeling assumptions. Using a daily dose of 1 µg/kg, an absorption rate of 5 percent, and a daily clearance rate of 0.005

percent of body burden, OEHHA estimated that the urine excretion of 2 µg cadmium /24 hour (LOAEL biomarker) would be reached by age 53, which was in good agreement with Buchet's study. However, by changing the absorption rate to 55 percent through age 8, then decreasing it linearly to 5 percent at age 21, while keeping the other parameters the same, a daily dose of 0.51 µg/kg would be required to produce an urine excretion of 2 µg cadmium /24 hour by age 53. Thus, using child-specific absorption results in a difference of about 2-fold in the daily dose to produce the LOAEL effect. To be public health protective, OEHHA proposes to apply a child-protective factor of 3 to account for childhood absorption differences.

Calculation of the non-cancer chRD for cadmium is based on the following equation:

$$\text{chRD} = \frac{\text{LOAEL}}{\text{UF} \times \text{CP}} = \frac{1 \mu\text{g/kg-day}}{30 \times 3} = 0.01 \mu\text{g/kg-day}$$

Where,

LOAEL = Lowest-observed-adverse-effect-level from Buchet et al., 1990.

UF = Uncertainty factor of 30 (10 for intra-human variability, 3 for LOAEL to NOAEL extrapolation because the LOAEL is based on the minimal effect observed and this is consistent with that applied to calculate the PHG).

CP = Child protective factor of 3 to account for the GI absorption difference between children and adults.

Accordingly, OEHHA is proposing a chRD of 0.01 µg/kg-day for cadmium's non-cancer effect to be used in school-site risk assessment instead of the U.S. EPA's RfD that did not account for a greater GI absorption of cadmium by children.

2.2 Chlordane

Chlordane is a cyclodiene pesticide, one of many organochlorine insecticides. Chlordane was used in large quantities until the U.S. EPA issued a notice of suspension except for use on subterranean structural termite control in 1976 (McConnachie and Zahalsky, 1992). It was banned for all uses in the United States in 1988, but it is still manufactured for export. Like DDT, it persists in the environment, and it is considered a priority persistent, bioaccumulative toxic (PBT) chemical by U.S. EPA (U.S. EPA, 2002).

Chlordane is not a pure chemical pesticide, and all studies investigating its toxicity or mechanism of action have used technical grade chlordane, which is a mixture. Infante et al. (1978) analyzed technical chlordane and reported that it contained 38-48 percent cis- and trans-chlordane, 3-13 percent heptachlor, 5-11 percent nonachlor, 17-25 percent other chlordane isomers, and a small amount of other compounds. Dearth and Hites (1991) identified 147 different compounds in a preparation of technical chlordane that included cis-chlordane (15 percent), trans-chlordane (15 percent), trans-nonachlor (15 percent), and heptachlor (3.8 percent).

OEHHA included chlordane in the "Compilation of Chemicals Potentially Found at School Sites" because it has been targeted by federal and state agencies as a chemical that may present environmental health risks. Chlordane appears on all but one of the chemical compilations that OEHHA has selected to identify chemicals that may be found at school sites. These compilations include:

- Soil contaminants identified at potential school sites in environmental investigations reviewed by the Department of Toxic Substances Control
- Toxic Air Contaminants (TACs) in California identified by OEHHA
- Analytes in the Department of Health Services/Air Resources Board (DHS/ARB) Portable Classroom monitoring study
- Analytes in the U.S. EPA National Health Exposure Assessment Study (NHEXAS)

Chlordane was placed by OEHHA in the compilation of "Candidate Chemicals Based on Critical Health Effects" because 1) it is on the Proposition 65 Developmental and Reproductive Toxin List and 2) a survey of recent scientific literature indicated that it possesses toxicity to organ systems that are developing in children, including the immune system, neuroendocrine and female reproductive systems (Ahmed, 2000; Barone et al., 2000; Barnett et al., 1990; Blyler et al., 1994; Brucker-Davis, 1998; DeRosa et al., 1998; Holladay et al., 2000; Holladay, 1999; Luster et al., 1990; Olea et al., 1998; Reigart, 1995; Spyker-Cranmer et al., 1982; Theus et al., 1992a and 1992b; Voccia et al., 1999). Chlordane exposure has also been associated with childhood cancer (Zahm et al., 1998.)

OEHHA staff prepared a PHG for chlordane in 1997 (OEHHA, 1997). The study on which the PHG is based showed that chlordane acted as an endocrine disruptor and

altered sex steroid-mediated behaviors when exposure occurred during gestation and lactation (Cassidy et al., 1994).

Endocrine disruptors, such as chlordane, are the subject of recent scientific and regulatory concern (U.S. EPA, 1998). They mimic or antagonize estrogens, androgens, and thyroid hormones, as well as their antagonistic analogs, and consequently disrupt the processes or tissues these hormones affect. Organ systems responsive to the sex steroids include the male and female reproductive organs, the central nervous system, and the immune system. The thyroid hormones affect most tissues (Bigsby, 1999). They are of particular concern in regard to children's health because they may disrupt the action of estrogen, androgen and thyroid hormones during critical periods of development and lead to permanent alterations in the reproductive, nervous, and immune systems that are developing during prenatal growth and childhood (Bigsby, 1999).

Existing Health Guidance Values

U.S. EPA Carcinogen Slope Factor: 3.5×10^{-1} per mg/kg-day

Chlordane is classified as B2; probable human carcinogen, using the 1986 Guidelines for Carcinogen Risk Assessment (Integrated Risk Information System (IRIS), 2003, <http://www.epa.gov/iris/subst/0142.htm#carc>). IRIS also reports that "under the 1996 Proposed Guidelines, it would be characterized as a likely carcinogen by all routes of exposure. These characterizations are based on the following summaries of the evidence available: (1) human epidemiology studies showing non-Hodgkin's lymphoma in farmers exposed to chlordane and case reports of aplastic anemia; chlordane associated with home use are inadequate to demonstrate carcinogenicity; (2) animal studies in which benign and malignant liver tumors were induced in both sexes of four strains of mice and occurred with an elevated, but not statistically significant, incidence in a fifth strain, as well as liver toxicity but no tumors in rats of two strains; and (3) structural similarity to other rodent liver carcinogens." The U.S. EPA oral slope factor is 3.5×10^{-1} per mg/kg-day. This value represents the geometric mean for five data sets with a range from individual data sets of 1.1×10^{-1} to 8.6×10^{-1} using the linearized multistage model (<http://toxnet.nlm.nih.gov/>). The EPA IRIS data base reported that the studies are of good quality and "the confidence is high that chlordane is a mouse liver carcinogen at dietary concentrations above 10 ppm. Although there is indication that the dose-response curve is sublinear in the dose region between 5 and 60 ppm, linearity at low doses cannot be ruled out on theoretical grounds. The tentative evidence is that the hematopoietic system, rather than the liver, is the target organ in humans."

U.S. EPA RfD: 5×10^{-4} mg/kg-day

The oral RfD established by U.S. EPA is 5×10^{-4} mg/kg-day based on a NOAEL of 0.15 mg/kg-day and LOAEL of 0.75 mg/kg-day in a mouse study (Khasawinah and Grutsch, 1989). The critical effect for the LOAEL was liver necrosis, with an uncertainty factor of 300 (10 for interspecies extrapolation, 10 for human variability, and 3 for deficiencies in

the database). The overall confidence given this RfD assessment is medium, both for the quality of the principal study and the sufficiency of the database. The principal study, assigned a confidence of medium, is a rat chronic oral study performed with relatively large group sizes, in which histopathological analyses on the known animal target tissue, the liver, were thoroughly performed. However, the discussion in IRIS stated that "available occupational studies, although limited, give no indication that the liver is a target organ in humans as a consequence of chronic exposure to low levels of chlordane" (<http://www.epa.gov/iris/subst/0142.htm#umfinhal>).

IRIS also reports that "recent evidence indicates that neurotoxicity, a known human endpoint in acute exposures, may be a relevant endpoint in chronic human exposures, and no chronic animals studies have examined neurotoxicity. Studies on pre-and postnatal animals indicating chlordane mimicry of sex-steroids raise reproductive concerns and no multigenerational reproductive studies, by any route, exist. Thus, there is some concern that the appropriate endpoints have not been examined adequately in the existing database." IRIS further states that "an area of scientific uncertainty in this assessment concerns the role of neurotoxicity, and possibly hematotoxicity, in chronic chlordane toxicity in humans." IRIS also notes that "another area of scientific uncertainty in this assessment concerns the toxicological significance of endocrine mimicry effects of chlordane. Toxicity data for this chemical include a study demonstrating biochemical and behavioral alterations consistent with technical chlordane (or its metabolites) mimicking male sex-steroids (Cassidy et al., 1994). That these effects could include reproductive behaviors is suggested in this study" (<http://www.epa.gov/iris/subst/0142.htm#quaoral>).

Studies on these endpoints would be of concern for children's health because accidental poisoning studies by chlordane in children have reported neuropsychiatric symptoms, which included learning disabilities, at an incidence four times that found in the general population according to the National Center for Health Statistics (Sherman, 1999). In 20 poisoned children, 20 percent had hematological problems and an additional 15 percent had hematological dyscrasias which may be early indicators of leukemia and aplastic anemia (Sherman, 1999).

OEHHA PHG: 0.02 ppb (a safe dose of 1×10^{-5} mg/kg-day)

The PHG developed by OEHHA is 1×10^{-5} mg/kg-day, or 0.02 ppb in drinking water, based on a LOAEL of 0.1 mg/kg-day because of disruption of sex steroid-mediated behaviors in rat identified by Cassidy et al., 1994. The health-protective drinking water concentration for carcinogenic endpoints is calculated to be 0.03 ppb. The U.S. EPA drinking water unit risk is 1×10^{-5} per ($\mu\text{g/L}$) which translates into risk levels of 10^{-4} to 10^{-6} at concentrations of 3 ppb and 0.03 ppb, respectively (U.S. EPA, 1996).

Current Evaluation Results

Chlordane has been shown to have critical effects on two developing systems due to endocrine disruption. It adversely affects the developing immune system of mice (Spyker-Cranmer et al., 1982; Barnett et al, 1985a; Barnett et al., 1985b; Barnett et al.,

1990; Theus et al., 1992a; Theus et al., 1992b; Blyler et al., 1994), and it alters sex-mediated neurobehavioral endpoints (Cassidy et al., 1994). These effects on the developing endocrine and immune systems show an age-related susceptibility to chlordane. Adult animals exposed to similar or higher doses of chlordane did not show similar effects (Johnson et al., 1986; Barnett et al., 1990; Barnett, 1997).

An endocrine disruptor such as chlordane can act at the level of the hypothalamic-pituitary-adrenal (HPA) axis, disrupting the negative feedback loop between the brain and the immune system. Under normal physiological conditions, activation of the immune system stimulates the release of cytokines, which can then act on the HPA axis to trigger the release of corticosterone. However, if increased levels of corticosterone are released, due to the presence of endocrine disruptors, these high corticosterone levels produce immuno-suppression on virtually all levels of the immune system (Gaillard and Spinedi, 1998; Morale et al., 1995), including depression of the delayed-type hypersensitivity response (Okimura et al., 1986), suppression of granulocyte and macrophage migration (Mizobe et al., 1997), and inhibition of hematopoietic cytokines such as IL-3 and CFU-GM (Gaspar Elsas et al., 2000 and Mucha et al., 2000).

In addition, high levels of glucocorticoids can disrupt all aspects of the hypothalamic-pituitary-gonadal (HPG) axis, including reproductive behavior and the synthesis and release of sex steroids (Viau, 2002) and can interfere with the functioning of the hippocampus, the part of the brain responsible for learning and memory (Kim and Diamond, 2002). It has been shown that the release of adrenocorticotrophic hormone (a hormone that stimulates the release of corticosterone) is associated with increased sexual excitation in male rats (Szechtman et al., 1974), and Bowman and colleagues (2001) demonstrated that female rats exposed to stress-induced increases in corticosterone levels showed altered spatial memory performance.

A key finding, suggesting that chlordane disrupts the HPA and HPG axis, was the observation that exposure of the dihybrid mice dams to 0.16 mg/kg-day of analytical reference standard chlordane (which has the same products as technical grade chlordane) from 0-18 days of gestation (Table 2.2.1) produced significantly elevated corticosterone in male and female offspring when they were assayed as adults at 100 and 400 days of age (Cranmer et al., 1984). This indicated a permanent (or long-lasting) effect on the offspring. This dose of technical grade chlordane also reduced metabolism of corticosterone in female BALBc mice and elevated resting plasma corticosterone in male mice at 100 days of age (Spyker-Cranmer et al., 1982). Corticosterone, like cortisol, is synthesized from progesterone by a series of hydroxylations. Testosterone is also synthesized from progesterone, and estradiol is synthesized from testosterone (Stryer, 1981). Chlordane can alter corticosterone levels, and corticosterone is an intermediate in the synthesis of steroids. By this mechanism, chlordane can affect the developing immune system, and it could permanently alter characteristic differences between males and females in non-reproductive and reproductive measures (such as body weight, development of sexual organs, circulating steroid levels, mating behavior, spatial abilities, activity level, or mixed function oxidase levels (Weiss, 2002). The endocrine

disruptive effect of chlordane appears to be corroborated by the study of Cassidy and colleagues (Cassidy et al., 1994) in which a dose of 0.1 mg/kg-day chlordane to the dam and then to the pups until postnatal day 80 caused sex steroid-mediated changes in gender-specific behaviors and functions (Cassidy et al., 1994). There was a dose-responsive decrease in plasma testosterone, which was significant at 5 and 0.5 mg/kg-day, but not significant at 0.1 mg/kg-day.

Table 2.2.1 Summary of Significant Studies on Chlordane

Reference	Protocol	Doses	Critical Effects
Spyker-Cranmer et al., 1982	Pregnant BALB/C mice were dosed until day 18 of gestation and pups nursed on their natural mothers until 21 days of age	0.16 and 8 mg/kg maternal body weight	Delayed Type Hypersensitivity (DTH) was significantly depressed at 8 mg/kg; and depressed but not significantly at 0.16 mg/kg
Cranmer et al., 1984	Pregnant F2 Dihybrid mice were dosed until day 18 of gestation and pups nursed on their natural mothers until 21 days of age.	0.16 and 8 mg/kg maternal body weight	Plasma corticosterone was significantly elevated at 101 days and 400 days in male mice whose mothers were dosed with 0.16 mg/kg-day. It was elevated in female mice at 400 days of age
Barnett et al., 1990	Pregnant BALB/C mice were dosed until day 18 of gestation and pups nursed on their natural mothers until 21 days of age	4 and 8 mg/kg maternal body weight	Hematopoietic stem cells (CFU-GM and CFU-S) in offspring were significantly decreased at 100 and 200 days of age. Adult animals treated with 8 mg/kg chlordane did not have any decrease or differ from controls.
Cassidy et al., 1994	Sprague-Dawley CD rats were dosed from Day 4 of gestation until Day 21 of lactation. Pups were dosed individually from post natal day (PND) 22 until PND 80.	0.1, 0.5, and 5 mg/kg maternal body weight	Females had significant improvements in spatial abilities in the Cincinnati Water Maze test at all doses, males exhibited dose-dependent increases in male-typical mating behavior, and both exhibited maximum response to auditory startle at 0.1 mg/kg when tested at 80 days.

The effects of chlordane on the developing immune system, and their persistence into adulthood, were demonstrated in a series of related studies using prenatal and postnatal exposure to chlordane (Spyker-Cranmer et al., 1982; Barnett et al, 1985a; Barnett et al., 1985b; Barnett et al., 1990; Blyler et al., 1994; Theus et al., 1992a; Theus et al., 1992b). The experimental protocol common to all the studies was to feed pregnant mice 0.3 mg of peanut butter which was spiked with technical chlordane to provide a maternal dose of 0.16 mg/kg, 4 mg/kg, 8 mg/kg or 16 mg/kg maternal body weight, although not all doses were used in the assay of each immune system parameter. The pups were allowed to

nurse through day 21. Assays of immune system parameters were performed at various postnatal days, ranging from day 42 to day 200, although not each immune system parameter was assayed at each postnatal time point. Chlordane is fat-soluble, having a log K_{ow} (octanol-water coefficient) of 5.16, so it should be readily transferred from plasma to milk. The total amount of chlordane reaching the pups was determined to be 3.5 mg/kg by analyzing chlordane and its metabolites in the conceptus and in pups at intervals during gestation and through the end of lactation (Theus et al., 1992)

Immune responses, such as delayed type hypersensitivity (DTH), were significantly depressed in offspring at 100 days of age after exposure in utero to a maternal dose of 8 mg/kg-day body weight. A maternal dose of 0.16 mg/kg-day also depressed DTH, although not significantly (Spyker-Cranmer et al., 1982). Pups received chlordane from 0-18 days of gestation, when the mother was dosed, and through 21 days of nursing, when dosing of the mother had ceased. Thus, the pup's exposure dose was actually lower than either 8 mg/kg-day or 0.16 mg/kg-day for its exposure duration.

A decreased DTH response occurs due to functional abnormalities in T lymphocytes, specifically the CD4 T_H1 helper cells. There are three kinds of effector T cells: cytotoxic CD8 T cells, which kill infected cells, and two kinds of CD4 T cells (T_H1 , or T helper 1, and T_H2) with different functions (Parham, 2000). It is noteworthy that a decrease in the number of helper/inducer T cells is found in acquired immune deficiency (AIDS) disease, and this decrease is thought to allow infections such as Kaposi's sarcoma, *Pneumocystis carinii* pneumonia, and cytomegalovirus (CMV) retinitis (Lane and Fauci, 1985).

A critical effect on the developing immune system was a significant reduction in the number of granulocyte-monocyte committed stem cells (CFU-GM) and multipotential stem cells (CFU-S) in adult offspring (100 and 200 days of age) of pregnant mice exposed to 4 mg/kg and 8 mg/kg chlordane (Barnett et al., 1990). The bone marrow of offspring exposed to 4 or 8 mg/kg-day chlordane had 63 percent and 75 percent of control CFU-GM at 100 days of age, and at 50 percent and 77 percent at 200 days of age in offspring exposed to 4 mg/kg-day. The multipotential stem cells (CFU-S) were similarly depressed. Female and male offspring exposed prenatally to 8 mg/kg chlordane had 67 percent and 64 percent respectively of control CFU-S, while those exposed to 4 mg/kg-day chlordane had 78 percent and 87 percent of control CFU-S. At 200 days of age the bone marrow CFU-S in female offspring was almost unchanged, and that in males was still significantly reduced. This significant reduction in stem cells which could divide and differentiate into mature functional blood cells could produce life-threatening consequences. This decrease, as well a decrease in Interleukin-3 (IL-3) stem cells, was confirmed to be present at 42-49 postnatal days when specific recombinant growth factors were utilized (Blyler et al., 1994). IL-3 is a cytokine produced by T helper (T_H1 and T_H2) cells and it is a growth factor for multipotential progenitor hematopoietic cells (Parham, 2000). This toxicity endpoint is significant for humans because blood dyscrasias and bone marrow failures have been reported in people following accidental dermal or inhalation exposure to chlordane at unspecified dose levels (Infante et al., 1978; Klemmer et al., 1977; Furie and Trubowitz, 1976).

Clonogenic assays for hematopoietic progenitors have been used in clinical hematology for 30 years (Parent-Massin, 2001) and in research to predict adverse effects of drugs or toxicants, as the rapid rate of cell renewal and differentiation makes the hematopoietic system a susceptible target for xenobiotic toxicity. Xenobiotics that interfere with cell proliferation and differentiation can lead to "bone marrow failure." The two major groups of bone marrow failure are aplastic anemia, where the failure lies in the pluripotent stem cell (colony forming unit – stem cell or CFU-S), and single cytopenia, where the failure lies in the stem cell for one of the committed cell lines, such as the granulocyte/monocyte cell line, the CFU-GM (Parent-Massin, 2001). Most bone marrow failures are characterized by inadequate production of blood cells and, if severe, death of the organism results because existing numbers of stem cells have an inadequate ability to produce mature cells to provide oxygen (anemia), clot blood (thrombocytopenia), or to protect the organism from infection.

Endocrine disruptors such as chlordane can affect neuroendocrine/neurobehavioral endpoints, as well as immune endpoints. The studies of Cassidy and colleagues (Cassidy et al., 1994) confirmed that perinatal chlordane could mimic sex steroids and /or change their levels to masculinize sexually dimorphic functions and behaviors. They dosed pregnant rats with technical chlordane at 0.1 mg/kg, 0.5 mg/kg, and 5 mg/kg during gestation, and they dosed the offspring during 21 days of lactation and from postnatal day 22 to postnatal day 80. Female offspring committed fewer errors than controls in three assays of cognitive and spatial ability in the Cincinnati Water Maze test, appearing to behave more like males, and male offspring exhibited dose-dependent increases in male-typical mating behaviors. The differences in behavior compared to unexposed animals demonstrate that sexual differentiation of the neuroendocrine system has been altered by early life exposure to chlordane. The neuroendocrine-gonadal axis regulates the developmental organization and adult expression of behaviors critical for mammalian survival and reproduction (competitive aggression, exploration, and sexual and parental behaviors), so neurobehavioral alterations induced by endocrine disruptors may impact the survival and fitness of an individual in its environment (Palanza et al., 2002)

Recommendation

Based on studies that describe endocrine disruption and effects on the developing hematopoietic, immune and neuroendocrine systems in young animals, OEHHA recommends that a chRD be developed. The critical effects are alterations in characteristic behavior differences between males and female at doses of 0.1 mg/kg-day maternal body weight and 0.1 mg/kg-day pup weight (Cassidy et al., 1994), and disruption of the hematopoietic and immune systems at a maternal dose as low as 0.16 mg/kg-day maternal body weight (Cranmer et al., 1984).

OEHHA recommends that a non-cancer child-specific RD be calculated on the study by Cassidy and colleagues (Cassidy et al., 1994) that showed that a chlordane dosage of 0.1 mg/kg-day (to the pups, as well as the mother) disrupted sex hormone mediated

behaviors. Differences from control were significant at the lowest dose, indicating that 0.1 mg/kg dose is a LOAEL. Because these effects are indicative of endocrine disruption, it is possible that the hematopoietic/immune effects described in the other studies may also occur at this low dose.

Calculation of the non-cancer child-specific RD for chlordane is based on the following equation:

$$\text{chRD} = \frac{\text{LOAEL}}{\text{UF}} = \frac{0.1 \text{ mg/kg-day}}{3000} = 3.33 \times 10^{-5} \text{ mg/kg-day}$$

Where,

LOAEL = Lowest Observed Adverse Effect Level (Cassidy et al, 1994)

UF = Uncertainty factors of 3000 (10 for LOAEL to NOAEL, 10 for interspecies extrapolation, 10 for human variability, and 3 for inadequate database for hematotoxicity, immunotoxicity, neurotoxicity, and the lack of a valid developmental study).

Accordingly, OEHHA is proposing a non-cancer chRD of 3.3×10^{-5} mg/kg-day for chlordane.

Uncertainty and Modifying Factors

OEHHA has applied the additional uncertainty factor 3 for inadequacies in the database for each of three endpoints, hematotoxicity, neurotoxicity, and reproductive toxicity that data suggest may be of concern to human children. This uncertainty factor has been applied in accordance with U.S. EPA (1994) and Renwick et al., (2000), that it is appropriate "if a valid developmental toxicity study was not performed", or "if the study did not examine all developmental endpoints". In the discussion of chlordane on the IRIS database, U.S. EPA noted that "studies on pre-and postnatal animals indicating chlordane mimicry of sex steroids raise reproductive concerns and no multigenerational reproductive studies, by any route, exist. Thus, there is some concern that the appropriate endpoints have not been examined adequately in the existing database" (<http://www.epa.gov/iris/subst/0142.htm#umfinhal>).

The U.S. EPA RfD was based on hepatic necrosis in mice, even though the discussion on the IRIS database noted that "occupational studies, although limited, give no indication that the liver is a target organ in humans as a consequence of chronic exposure to low levels of chlordane." U.S. EPA reduced confidence in their RfD noting that "an area of scientific uncertainty concerns the role of neurotoxicity and possibly hematotoxicity in chronic chlordane toxicity in humans" (<http://www.epa.gov/iris/subst/0142.htm#umfinhal>). Neurotoxicity and hematotoxicity

have been reported as principal endpoints of acute chlordane toxicity in both experimentally poisoned animals and accidentally poisoned humans (Grutsch and Khasawinah, 1991; Fleming and Timmeny, 1993). The uncertainty increases when considering exposure of children, rather than adults, because these organ systems are undergoing critical development during childhood.

The reduced numbers of hematopoietic stem cells in offspring, after they had reached maturity, from exposure to a 4 mg/kg-day maternal dose (Barnett et al., 1990a), provides low confidence that a LOAEL which produced minimally significant adverse hematological effects was identified. Immune system toxicity from chlordane is a concern because a report of outcomes from exposure of 20 children to chlordane from pesticide applications noted that 20 percent had hematological problems and an additional 15 percent had hematological dyscrasias (Sherman, 1999). Blood cell dyscrasias are a concern to clinicians because they may later manifest themselves as leukemias and aplastic anemias. The outcome of reduced numbers of stem cells can be bone marrow failure.

The database on chlordane toxicity to children is also considered inadequate because no animal studies have adequately assayed neurotoxicity due to low chlordane exposure concentrations, and there are case reports of human neurotoxicity (Kilburn and Thornton, 1995; Kilburn, 1997). Al-Hachim and Al-Baker (1973) reported that when pregnant mice were exposed to 1 mg/kg-day technical chlordane for only seven consecutive days the pups had poor learning ability or altered motivation in the assay for conditioned avoidance response, raised seizure threshold, and increased exploratory activity. Reports of accidental human exposure to termiticides have resulted in neurobehavioral impairments in adults (Kilburn and Thornton, 1995; Kilburn, 1997) and 70 percent of 20 child patients exposed to chlordane had neuropsychiatric symptoms, which included learning disabilities at an incidence four times that found in the general population, according to the National Center for Health Statistics (Sherman, 1999). School-age children were reported to develop new problems: headaches, visual difficulties, hyperactivity, learning disabilities, frequent ear-nose-throat and chest problems, and gastrointestinal disturbances (Sherman, 1999).

The Food Quality Protection Act required a 10 fold safety factor be applied "for infants and children" for pesticide risk assessments "to take into account...completeness of the data with respect to ... toxicity" and OEHHA utilized the 10 fold factor in creating a public health goal (PHG) for chlordane. However, U.S. EPA has been limiting the composite factor to 3,000 when human-equivalent doses are used (U.S. EPA, 1994). As the low dose in the Cassidy et al. (1994) study, which forms the basis for the child-specific RfD, was based on serum levels found in the United States at the 99th percentile (i.e. 1% of the U.S. values are higher), OEHHA decided to utilize only a 3-fold modifying factor to account for the inadequacies in the database.

Additional Comments/Studies:

The experiments from Barnett and colleagues (Spyker-Cranmer et al., 1982; Barnett et al., 1985a; Barnett et al., 1985b; Barnett et al., 1990; Theus et al., 1992a; Theus et al., 1992b; Blyler et al., 1994) support an equivalent or lower dose than the one derived from the Cassidy et al., 1994 study. The experimental protocol of Barnett and colleagues differed from that of Cassidy et al., 1994, in that the pup was not individually dosed. A maternal dose of 8 mg/kg-day was reported to produce a *total* dose of 3.5 mg/kg of chlordane in the pup (Theus et al., 1992). If an equal fraction of 3.5 mg/kg dose were delivered each day of the 18 days of gestation, when the mother was dosed, and the 21 days of lactation, when the mother was not dosed, the pup would receive 0.09 mg/kg-day over the 39 day period. This estimated pup dose is very close to the 0.1 mg/kg-day dose that Cassidy et al. (1994) gave to dams, *and* to pups following weaning and until sacrifice on day 80.

The experiment of Cranmer et al. (1984) suggests that the LOAEL could be lower than 0.1 mg/kg-day. In this study, the dams were dosed with either 0.16 mg/kg-day or 8 mg/kg-day chlordane during gestation. As noted above, the maternal dose of 8/mg/kg-day was shown to produce a total dose of 3.5 mg/kg in the pups when the concentration of chlordane metabolites analyzed on successive days during the 39 days of gestation and lactation were totaled. The average daily dose to the pup was 0.09 mg/kg-day. If the toxicokinetics from the 0.16 mg/kg-day maternal dose is proportional to that from the 8 mg/kg-day maternal dose, then the pups of a dam dosed with 0.16 mg/kg-day (Cranmer et al., 1984) would receive 0.0018 mg/kg-day. Emerging understanding of the hypothalamic-pituitary-adrenal (HPA) axis substantiates the possibility that a low dose may impair the developing immune system.

2.3 Heptachlor/Heptachlor Epoxide

Heptachlor (heptachlorodicyclopentadiene) was used primarily as an agricultural insecticide from 1952 to 1976, as a narcissus bulb and seed treatment and insecticide for fire ant control on pineapple crops until 1976, and as a treatment for subterranean termites until 1987 (Fendick et al., 1990). In 1985, heptachlor alone or in combination with chlordane, accounted for 60-65 percent of the termiticides used in the U.S. (EPA 1987 – see Fendick et al.). In 1987, the EPA and the Agency for Toxic Substances and Disease Registry (ATSDR) classified heptachlor as a priority Group 1 Hazardous Substance, making Superfund money available for cleanup of heptachlor-contaminated sites.

Technical heptachlor contains heptachlor plus related reaction products in approximately a 5:2 ratio (Fendick et al., 1990). Heptachlor is a moderately persistent compound (Ware et al., 1990). In the soil it undergoes multiple transformation and degradation reactions by at least three pathways: epoxidation, hydrolysis, and dechlorination. Epoxidation generates the more persistent and bioaccumulative metabolite, heptachlor epoxide, while hydrolysis is a detoxification reaction (Fendick et al., 1990). U.S. EPA has considered heptachlor and heptachlor epoxide two separate chemicals, and it has established separate RfDs, probably because heptachlor epoxide absorbs strongly to soil and is extremely resistant to biodegradation (Hazardous Substances Databank, <http://toxnet.nlm.gov>), persisting in soils for a long time (Ware, 1988).

OEHHA included heptachlor/heptachlor epoxide in the “Compilation of Chemicals Potentially Found at School Sites” because it has been targeted by federal and state agencies as a chemical that may present environmental health risks. Heptachlor appears on all but two of the chemical compilations that OEHHA has selected to identify chemicals that may be found at school sites. These compilations include:

- Soil contaminants identified at potential school sites in environmental investigations reviewed by the Department of Toxic Substances Control
- Toxic Air Contaminants (TACs) in California identified by OEHHA
- Analytes in the U.S. EPA National Health Exposure Assessment Study (NHEXAS)

OEHHA also included heptachlor/heptachlor epoxide in the compilation of “Candidate Chemicals Based on Critical Health Effects” because heptachlor epoxide is on the Proposition 65 Developmental and Reproductive Toxicant List, and a survey of recent scientific literature indicated that heptachlor and heptachlor epoxide are toxic to organ systems that are developing in children. These organ systems are the immune, nervous, endocrine, and male and female reproductive systems (Brucker-Davis, 1998; DeRosa et al., 1998; Moser et al., 2001; Nicolopoulou-Stamati et al., 2001; Rani et al., 1995; Smialowicz et al., 2001; Voccia et al., 1999). Heptachlor and heptachlor epoxide were also reported to produce cancer (Zahm et al., 1998 and <http://toxnet.nlm.nih.gov>).

Existing Health Guidance Values

U.S. EPA Carcinogen Slope Factor: 4.5 per mg/kg-day

Heptachlor is classified by EPA as a B2, probable human carcinogen, based on several studies. Davis (1965) fed groups of 100 male and 100 female C3H mice diets with 0 or 10 ppm heptachlor (purity not specified) for 2 years. Survival was low, with 50 percent of the controls and 30 percent of the treated mice surviving until the end of the experiment. A two-fold increase in benign liver lesions over the controls was reported. After a histologic reevaluation, Reuber (as cited in Epstein, 1976), as well as four other pathologists, remarked a statistically significant increase in liver carcinomas in the treated male (64/87) and female (57/78) groups by comparison to controls (22/73 and 2/53 for males and females, respectively). The NCI (1977) reported a significant dose-related increase of hepatocellular carcinomas in male and female B6C3F1 mice.

U.S. EPA RfD: 5×10^{-4} mg/kg-day

The current oral RfD for heptachlor given by U.S. EPA in 1991 is 5×10^{-4} mg/kg-day (<http://toxnet.nlm.nih.gov>). This value was derived from a three ppm dietary NOAEL in a two-year rat feeding study where the critical effect was liver weight increase (Velsicol Chemical, 1955, cited by U.S. EPA <http://toxnet.nlm.nih.gov/>). The LOAEL in this study was 5 ppm or 0.25 mg/kg-day and an uncertainty factor of 300 was employed. EPA reports that there is low confidence that this RfD is accurate because the principal study is of low quality; the database on chronic toxicity is incomplete. There are no teratology, reproductive, or studies in young animals.

An RfD for heptachlor epoxide was based on a study in which adolescent dogs were fed heptachlor epoxide for 60 weeks (Dow Chemical Company, 1954). The LOAEL of 0.5 ppm (0.0125 mg/kg-day) was based on an increased liver-to-body weight ratio in both males and females as a critical effect (Dow Chemical Co., 1958, cited in U.S. EPA IRIS online file, <http://toxnet.nlm.nih.gov/>). An uncertainty factor of 1000 was employed. EPA indicates there is low confidence that the RfD is accurate because the principal study is of low quality, and the chronic toxicity studies are of low quality. There were no rat or rabbit teratology studies.

OEHHA PHG: 8 ppt (a safe dose of 1×10^{-4} mg/kg-day)

OEHHA staff prepared a Public Health Goal (PHG) for heptachlor of 8×10^{-6} mg/L drinking water, based on a cancer slope factor of $4.1 \text{ mg/kg-day}^{-1}$ and a 1×10^{-6} cancer risk (OEHHA, 1999b). Heptachlor exposure produced a dose-related increase in the incidence of hepatocellular carcinoma in male and female B6C3F1 mice (NCI, 1977) and hepatocellular carcinoma in male and female C3H mice (Davis, 1965).

OEHHA (1999) considered two studies when non-cancer effects were reviewed. The first was the two-year rat feeding study where the critical effect was liver weight increase that was used by EPA when it last revised the heptachlor RfD (Velsicol Chemical, 1955, cited by U.S. EPA, <http://toxnet.nlm.nih.gov>). Uncertainty factors of 10 for interspecies variability and 10 for interindividual variability were used. The second study (Cassidy et al., 1994) reflected the recent concern about the endocrine disruption effects of chlorinated cyclodiene and other chlorinated pesticides. The critical effect in this study was the alteration of sex steroid-mediated behaviors by prenatal and early-in-life exposure to 0.1mg/kg/day technical chlordane which contains 10percent heptachlor. In this calculation, the uncertainty factors are: LOAEL to NOAEL extrapolation (10), interspecies variability (10), and interindividual variability (10), resulting in a "safe" non-cancer human dose of 1×10^{-4} mg/kg/day

Current Evaluation Results

The effects of heptachlor that are specific for children are its disturbance of the development of the endocrine system and of the organs that respond to endocrine signals when exposure occurs during prenatal and/or early postnatal life (Colborn, 1993). These effects are permanent.

Contamination of the commercial milk supply of Oahu, Hawaii, with heptachlor for 15 months, from 1981 to 1982, and the subsequent finding of heptachlor epoxide in human milk, prompted new studies on rats to look for possible effects of heptachlor and its persistent primary metabolite at the concentrations to which children were exposed. The Hawaii Heptachlor Research and Education Foundation (HHREF) cosponsored these studies with the U.S. EPA and NIEHS in order to evaluate many aspects of the impact of heptachlor exposure during the perinatal/juvenile period of development, using a broad battery of tests of immune and reproductive system function.

The doses (0, 0.3, 3, or 30 mg/kg-day of 99% pure heptachlor) employed were adjusted so that the low dose gave milk values of heptachlor epoxide that approximated the 95th percentile of human milk heptachlor and heptachlor epoxide values in Oahu, Hawaii in 1981 (Baker et al., 1991; Siegel, 1988 in Smialowicz et al., 2001). The period of exposure was designed to approximate the last trimester of pregnancy through 18 years of age in humans. The experimental design for the studies of endocrine disrupting effects on immune, neurobehavioral, and reproductive is given in Figure 2.3.1.

Figure 2.3.1 Experimental Design

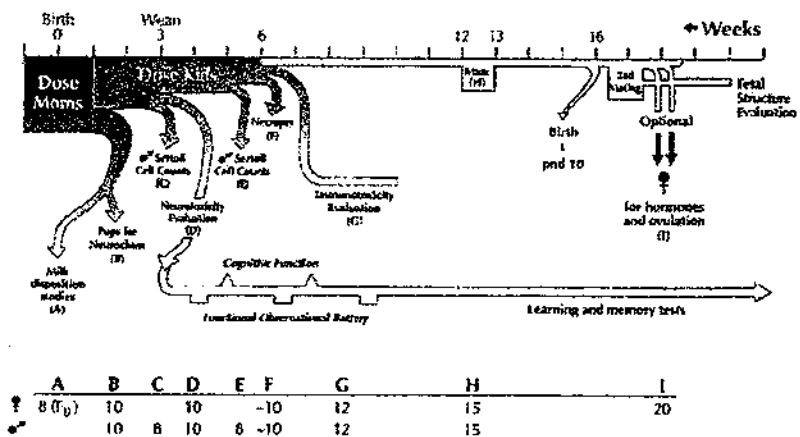


Figure taken from Moser et al., 2001 and Smialowicz et al., 2001)

The results of one subset of this study (Smialowicz et al., 2001) indicated that exposure of rats to heptachlor during the last trimester of gestation through puberty adversely affects adult functioning of the immune system by suppressing the primary IgM and secondary IgG antibody response in male offspring. Rats were exposed to 0, 0.3, 3, or 30 mg/kg-day from gestation day 12 to postnatal day 7, followed by direct dosing through postnatal day 42. The LOAEL was identified as 0.3 mg/kg-day because the primary IgM antibody response to Sheep Red Blood Cells (SRBCs), as measured by enzyme linked immunosorbent assay (ELISA) was suppressed at 8 weeks of age and at 21 weeks of age. At the same dose, the secondary IgG response was also suppressed at 25 weeks of age. These responses require three major immune cell types: macrophages, the CD4+ T-helper cells, and B cells. Alterations in or dysfunction of any of these cells and cell interactions can result in aberrant antibody production (Luster et al., 1988 in Smialowicz, 2001). The suppression of these T cell-dependent antibody responses persisted through the first six months of life at all doses employed, including the lowest dose, 0.3 mg/kg-day, which was administered through 6 weeks of age.

The response to SRBC is one of the most sensitive functional parameters in animals exposed to immunosuppressants (Luster et al., 1992). Consequently, it is included in the battery of tests required by the Federal Insecticide, Fungicide, and Rodenticide (FIFRA) guidelines for detection of immunosuppressants (Smialowicz, 2001). In both animals and humans, T-cell dependent responses are involved in protection against viral, bacterial, and parasitic infections (Blanden, 1974 in Smialowicz, 2001). Consequently, the suppression of the primary IgM and secondary IgG antibody responses suggests potential increased susceptibility to infectious diseases.

In another subset of rats from the same large study, heptachlor produced significant differences in tests for cognitive abilities that are associated with the development of neuroendocrine pathways (Moser et al., 2001). Rats were evaluated for neurological and behavioral alterations using a functional observational battery (FOB), an automated measure of motor activity, passive avoidance, and a Morris water maze test (Moser et al., 2001). Rats dosed prenatally and postnatally until day 21 had changes in activity measures, but those in which dosing continued until day 42 had alterations in autonomic, neuromuscular, and excitability measures. The most pronounced effects of heptachlor occurred in rats treated until day 42 and tested with the Morris water maze test. The Morris water maze test (Morris, 1984) was devised to resolve theoretical controversies about the basis of spatial and working memory. Normal rats learn very quickly to swim directly towards a platform from any starting position at the circumference of a pool. The accurate directionality of their escape behavior provide evidence that the rats escape by learning the position of the platform relative to distal cues. Thus, their performance can be compared to those of animals exposed to potential neurotoxins to assay spatial learning and memory (Morris, 1984).

Heptachlor exposure slowed acquisition of the spatial task and impaired recall during probe trials: the treated male rats at all dose levels did random searching for the platform, rather than developing an efficient search strategy. Working memory, which was assayed by requiring the rats to learn a new position for the platform each day, was significantly decreased in the low dose (0.03 mg/kg-day) male rats which had been dosed with heptachlor prenatally and postnatally until Day 21. The escape latency (mean time to find the new location) was 27.9 seconds compared to 20.5 seconds in control (Smialowicz, et al., 2001).

Cyclodiene pesticides bind to the chloride channel portion of the receptor for the neurotransmitter gamma aminobutyric acid (GABA)_A, block the inhibitory actions of and thus affect a variety of neurological functions in both adult and young animals (Abalis et al., 1986; Cole and Casida, 1986; Gant et al., 1987 in Moser, 2001). Acute actions of cyclodiene pesticides include excitation, hyperstimulation, and convulsions (Cole and Casida, 1986; Fendick et al., 1990). In young mammals, the development of the nervous system is quite protracted, and specific processes of migration, proliferation, and differentiation occur from gestation throughout childhood and into adolescence. These processes occur in sequence, so disturbance of earlier processes can disrupt later developmental events. Cyclodiene insecticides alter expression of the GABA_A receptor. Since the neurotransmitter, GABA, influences development of serotonergic, dopaminergic, and cholinergic neurotransmitter systems, cyclodiene pesticides may produce long-lasting alterations in brain function (Lauder et al., 1998 in Smialowicz et al., 2001).

Recommendation

Heptachlor:

The experiments of Smialowicz et al. (2001) and Moser et al. (2001) describe several critical effects in young male rats at a LOAEL of 0.03 mg/kg-day heptachlor during the last half of gestation and the first 21 or 42 postnatal days. The most significant effects include suppression of the primary IgM and secondary IgG antibody response (Smialowicz et al., 2001), and decreased performance on measures of cognitive function, such as impaired recall (Moser et al., 2001).

Technical grade heptachlor and chlordane are mixtures of pure compound plus related reaction products (Ware, 1990). The PHG developed by OEHHA in 1999 utilized a study (Cassidy et al., 1994) that described a disruption of sex-steroid mediated behaviors in female mice at a dose of 0.01 mg/kg-day of technical grade chlordane, which contains 10 percent heptachlor. More recent studies (Smialowicz et al., 2001, Moser et al., 2001), which used heptachlor of 99 percent purity, have allowed OEHHA staff to develop the chRD for heptachlor without the ambiguity associated with testing a mixture.

Calculation of the non-cancer chRD is based on the following equation:

$$\text{chRD} = \frac{\text{LOAEL}}{\text{UF}} = \frac{0.03 \text{ mg/kg-day}}{1000} = 3.0 \times 10^{-5} \text{ mg/kg-day}$$

Where,

LOAEL = Lowest Observed Adverse Effect Level from Smialowicz et al., 2001 and Moser et al., 2001

UF = Uncertainty factor of 1000 (10 for LOAEL to NOAEL, 10 for inter-species extrapolation, 10 for human variability)

Accordingly, OEHHA is proposing a non-cancer chRD of 3.0×10^{-5} mg/kg-day for heptachlor.

Heptachlor Epoxide:

Heptachlor has not been used since 1987 when its use was restricted. Heptachlor in the soil undergoes multiple transformation and degradation reactions, and epoxidation generates the more persistent and bioaccumulative metabolite, heptachlor epoxide (Fendick et al., 1990), so children at school sites may be exposed to heptachlor epoxide.

The principal study used by U.S. EPA to calculate an RfD (<http://toxnet.nlm.nih.gov>) was a 60-week dog feeding study (Dow Chemical Co., 1958) in which the LOAEL was an increased liver-to-body weight ratio. Although liver-to-body weight ratio is not a child-

specific endpoint, the exposure period began in adolescence and continued into young adulthood.

Since adolescent animals were exposed, OEHHA has decided to utilize the same study and the same uncertainty factors to calculate a non-cancer child-specific RD as the U.S. EPA RfD:

$$\text{chRD} = \frac{\text{LOAEL}}{\text{UF}} = \frac{0.0125 \text{ mg/kg-day}}{1000} = 1.3 \times 10^{-5} \text{ mg/kg-day}$$

Where,

LOAEL = Lowest Observed Adverse Effect Level from Dow Chemical Co, 1958

UF = Uncertainty factor of 1000 (10 for LOAEL to NOAEL, 10 for inter-species extrapolation, 10 for human variability)

Accordingly, OEHHA is proposing a non-cancer chRD of 1.3×10^{-5} mg/kg-day for heptachlor epoxide.

2.4 Methoxychlor

Methoxychlor, 2,2-bis(p-methoxyphenyl)-1,1,1-trichloroethane, is structurally related to DDT. Because of its lower toxicity and bioaccumulation potential, methoxychlor became an attractive replacement of DDT (ATSDR, 1994). It was registered as an insecticide against a wide range of pests, including houseflies, mosquitoes, cockroaches, and various arthropods commonly found on fields crops, vegetables, fruits, stored grain, livestock, and domestic pets.

While DTSC's school site review efforts continue, methoxychlor has already been detected at a school site. Recent studies show that demethylated metabolites of methoxychlor are an endocrine disruptor. Accordingly, OEHHA believes it is important to further review methoxychlor pursuant to Health and Safety Code Section 901(g). As endocrine disruptors, methoxychlor metabolites may have adverse effects on different developing organ systems. These chemicals may disrupt the development and functioning of the female reproductive system, and the brain, and the male reproductive system (vom Saal et al., 1983, 1997; Nonneman et al., 1992; Hess et al., 1997). As such, the effect of methoxychlor or its metabolites could affect the development of school children. Moreover, earlier studies may have inadequately characterized the dose-response relationship of methoxychlor (NTP, 2001). In reviewing environmental estrogens, the NTP Peer Review Subpanel found that overall the classic estrogenic activity of methoxychlor was limited to doses greater than 5 mg/kg-day because testing at lower doses had not been incorporated into the experimental design. An updated review of the pertinent literature is necessary to ensure that the appropriate LOAEL or NOAEL will be considered in setting a child-specific guidance value.

Pertinent Guidance Values

U.S. EPA RfD: 0.005 mg/kg-day

U.S. EPA used the 1986 Kincaid Enterprises, Inc. study to establish its RfD. Young adult female New Zealand White rabbits were assigned into 3 dose groups of 17 animals each, 5.01, 35.5, and 251.0 mg/kg-day, and a control group (a total of 68 animals). The females were artificially inseminated and the day of insemination considered as gestation day 0. All animals were dosed from days 7 through 19 of gestation. All surviving dams were sacrificed on gestation day 29.

Maternal toxicity was observed as excessive loss of litters (abortions) and statistically significant decreases in body weight in the mid- and high-dose groups, and the deaths in the high dose group. No specific toxicity was noted in the low dose (5.01 mg/kg-day), which was deemed to be the NOAEL.

An uncertainty factor of 1000 was applied to the NOAEL in developing the RfD; of which 100 was used to account for the inter- and intra-species differences and an

additional 10 was used to account for the poor quality of the critical study and for the incomplete database on chronic toxicity.

OEHHA PHG: 0.03 mg/L (a safe dose of 0.005 mg/kg-day)

In reviewing literature for the purpose of establishing a Public Health Goal (PHG) for methoxychlor in drinking water (OEHHA, 1999c), OEHHA found the chemical to be negative in several mutagenicity tests. However, a positive test was reported for the induction of forward mutations in the mouse lymphoma assay. Large doses of methoxychlor decreased locomotor activity and caused tremors. Reproductive effects have been caused by the estrogenic activity of the o-demethylated metabolites of methoxychlor. These metabolites also bind estrogen receptors in animal and human tissues.

OEHHA identified the investigation by Chapin et al. (1997) as the most relevant study for use in developing a PHG for methoxychlor in drinking water. The investigation focused on effects of perinatal methoxychlor exposure on adult rats' nervous, immune, and reproductive system function. Dams were dosed orally at gestation day 14 through postnatal day (pnd) 7 and then pups were directly dosed at pnd 7 through pnd 42 at dosages of 0, 5, 50, and 150 mg/kg-day. Critical effects included a reduction in serum FSH, ovary weight and uterine weight at all dosages. The findings suggested that methoxychlor, as an exogenous estrogenic agent, had interfered with the normal programming of the ovarian-pituitary axis.

Applying the LOAEL of 5 mg/kg/day and an uncertainty factor of 1000 (10 each for inter-species extrapolation, intra-human variability, and LOAEL to NOAEL extrapolation), OEHHA calculated a safe dose of 0.005 mg/kg-day. This in turn was used to derive a PHG of 0.03 mg/L.

Current Evaluation Results

Stoker et al. (1999) investigated the effect of perinatal exposure of methoxychlor on the prostate of adult rat. The study showed that a perinatal dose of 50 mg/kg methoxychlor to the dam only from gestation day 18 to postnatal day 5 resulted in offspring with increased lateral prostate weight and inflammation at 90 days of age.

Welshons et al. (1999) reported increases in adult prostate size in mice from fetal exposure to methoxychlor. Females were dosed from day 11 to day 17 of pregnancy at 20 or 2000 µg/kg maternal body weight per day. Pups were weaned on postnatal day 23. When males reached 8.5 months old (adult), a randomly selected male from each litter was individually housed for 4 weeks to eliminate any effects of having been housed with other males before the selected male was sacrificed for various examinations. Prostatic weights were significantly increased in the 20 and 2000 µg/kg groups.

Table 2.4.1 Effects of Methoxychlor on Prostate Weight

	Prostate (mg)
Control	40.0±3.0
Methoxychlor (20 µg/kg)	64.5±3.7
Methoxychlor (2000 µg/kg)	60.3±4.1

The finding is not surprising as the prostate contains both androgen and estrogen receptors (Kumar et al., 1995) and it has been observed that estrogen can stimulate the growth of the stromal compartment of the prostate (Ekman, 2000). The study also illustrates the irreversible impact of endocrine disruptors during development.

vom Saal et al. (1995) discussed evidence that during fetal life, hormones have marked effects on subsequent behaviors. Male mice are particularly active in urine-marking behavior to indicate their social status. Urine marking was used as the end point to measure the effect of methoxychlor. Females received 0, 1, 10, 100, 1000, or 5000 µg/d from day 11 to day 17 of pregnancy. Two males from each litter were randomly selected when they were 60 days old and housed individually for four weeks to eliminate any effects of having been housed with other males. Urine-marking tests were conducted for one hour in clean cages with the floor lined by a sheet of Whatman No. 2 filter paper. The filter paper was then removed and discrete urine marks (which fluoresce under UV light) deposited on it were counted. The lowest dose (1 µg/day or 20 µg/kg-day based on 0.05 kg maternal weight) of methoxychlor significantly increased urine-marking behavior in male offspring.

Recommendation

OEHHA recommends that a chRD for methoxychlor be developed based on the data from Welshons et al. (1999) and vom Saal et al. (1995). While the exposure period used to demonstrate the significant effect on the prostate or neurobehavior was in the fetal period, OEHHA feels that both the prostate and neurobehavioral data (territorial marking) are applicable for school age children. The human prostate development is biphasic, with much of the growth occurring at puberty. It is small (weighs about 2 g) in childhood and undergoes exponential growth to about 20 g at puberty (Hayward et al., 2000). On the other hand, the process of brain development and maturation continues into adolescence (Rice et al., 2000). These systems remain vulnerable during the K-12 schooling period. Therefore, the Welshons and vom Saal data are an appropriate basis for evaluating hazards at schools.

OEHHA has also considered the appropriateness of using the maternal dose to calculate the chRD. OEHHA finds that methoxychlor crosses the placenta and partitions into the

lipids of milk (OEHHA, 1999). It is likely that the corresponding pup dose is higher on a per kilogram body weight basis. However, the demethylated (phenolic) metabolites rather than methoxychlor were shown to be the active species that displayed the endocrine disruption potential. The polar metabolites would not cross the placenta effectively. Additionally, methoxychlor that crosses the placenta would not be metabolized effectively by the pup whose P-450 enzymes are not fully developed. Thus, it would not be too conservative to use the maternal dose in this case to calculate the chRD.

Calculation of the non-cancer chRD for methoxychlor is based on the following equation:

$$\text{chRD} = \frac{\text{LOAEL}}{\text{UF}} = \frac{20 \mu\text{g/kg-day}}{1000} = 0.02 \mu\text{g/kg-day}$$

Where,

LOAEL= Lowest-observed-adverse-effect-level based on Welshons et al. (1999) and vom Saal et al. (1995)

UF= Uncertainty factor of 1000 (10 for inter-species extrapolation, 10 for intra-human variability, and 10 for LOAEL to NOAEL extrapolation)

Accordingly, OEHHA is proposing a non-cancer chRD of 0.02 $\mu\text{g/kg-day}$ for methoxychlor to be used in school-site risk assessment.

2.5 Nickel

Nickel, an important industrial metal, comprises 0.008 percent of the earth's crust (Duke, 1980 as cited in ATSDR, 1997). The production, use, and disposal of nickel have led to its mobilization in the environment and human exposure. Nickel is used in aircraft frames, jet engines, gas turbines, and turbosuperchargers, boats, hulls, propellers, and pumps (OEHHA, 2001). Nickel alloys are used in pumps and pipes to resist corrosion in petro-chemical industries. In addition, nickel is used in making coins and jewelry; as catalysts; and in magnets, batteries, and color pigment. Nationwide in 2000, 651,000 pounds of nickel were emitted into the air (with nickel plating operations as a major source of emission), 30,000 pounds were discharged into surface water, 17,000 pounds were injected underground, 2,032,000 pounds were disposed of onsite, and 8,700,000 pounds were disposed of offsite (U.S. EPA, TRI2000).

Nickel was selected for further evaluation pursuant to Health and Safety Code Section 901(g) because it meets both criteria for selection identified in OEHHA's 2002 report (OEHHA, 2002):

- DTSC reported the presence of nickel at two percent of the potential school sites evaluated to date. ARB reported its occurrence in California air (OEHHA, 2002). In addition, U.S. EPA and ARB/DHS have deemed nickel as a chemical of interest in their NHEXAS and Portable Classroom Study, respectively.
- OEHHA (2001) found a number of studies concerning the reproductive effects of nickel compounds. Nickel also adversely affected the immune functions in animals. The administration of nickel to rats increased the concentration of the metal in the hypothalamus and pituitary and inhibited prolactin secretion.

Pertinent Guidance Values

U.S. EPA RfD: 0.02 mg/kg-day

U.S. EPA's RfD is based primarily on the results of a two-year feeding study using rats given 0, 100, 1000 or 2500 ppm nickel (estimated as 0, 5, 50 and 125 mg Ni/kg bw) in the diet (Ambrose et al. 1976). In the 1000 and 2500 ppm groups (50 and 125 mg Ni/kg bw, respectively) body weights were significantly decreased compared with controls and the females had significantly higher heart-to-body weight ratios and lower liver-to-body weight ratios than controls. Since no significant effects were reported at 100 ppm (5 mg Ni/kg bw), this dose was a NOAEL. In this study, two-year survival was poor, particularly in control rats of both sexes (44 of 50 died), raising some concern about the interpretation of the results of this study. A subchronic study conducted by American Biogenics Corp. (ABC, 1986) also found 5 mg/kg-day to be a NOAEL, which supported the Ambrose et al. (1976) chronic NOAEL of 5 mg/kg-day.

An uncertainty factor (UF) of 300 (10 for interspecies extrapolation, 10 to protect sensitive populations, and 3 to account for inadequacies in the reproductive studies) was applied to the NOAEL of 5 mg/kg-day to compute an RfD of 0.02 mg/kg-day.

OEHHA PHG: 11.8 µg/L (a safe dose of 1.1×10^{-3} mg/kg-day)

OEHHA (2001) established a Public Health Goal (PHG) for nickel in drinking water that is based on three reproductive studies in rats (Smith et al., 1993; Springborn Laboratories, 2000a, b). In the Smith study 61-64 day old female rats (at puberty) were dosed at 0, 1.3, 6.8, or 31.6 mg/kg-day for 11 weeks prior to mating and then continuously during two sequential gestation and lactation periods. Breeder males were unexposed. The proportion of dead pups per litter was significantly increased in the 31.6 mg/kg-day group in both breedings and also in the 1.3 mg/kg-day group in the second breeding. Thus, 1.3 mg/kg-day was considered the LOAEL for this study.

The first Springborn report (Springborn Laboratories, 2000a) summarized a one-generation reproduction range-finding study in rats. 102 day-old animals (at sexual maturity) were dosed at 0, 10, 20, 30, 50, or 75 mg nickel sulfate hexahydrate/kg-day for two weeks prior to mating. OEHHA observed significant pup mortality at the lowest dose (10 mg nickel sulfate hexahydrate/kg-day or equivalent to 2.2 mg nickel/kg-day) and deemed it as the LOAEL for this study.

Following the range-finding study, Springborn Laboratories (2000b) conducted a two-generation reproduction study. Nickel sulfate hexahydrate was administered at 0, 1, 2.5, 5, or 10 mg/kg-day. Dosing of the F₀ animals began at 10 weeks prior to mating and dosing of the F₁ rats began on postpartum day 22 (just after weaning, at a young age). For both generations, daily dosing of the dams was continued until lactation day 21. In this two-generation study, no adverse effects were observed even at the highest dose, 10 mg/kg-day (2.2 mg nickel/kg-day).

In reviewing these three studies in totality, OEHHA concluded that the 1.1 mg nickel/kg-day (5 mg nickel sulfate hexahydrate/kg-day) dose in the two-generation study was the appropriate NOAEL for use in calculating the PHG. It represents the highest NOAEL that is lower than the LOAEL from either the Smith, or Springborn range-finding, study.

OEHHA applied this NOAEL in conjunction with an uncertainty factor of 1000 (10 for inter-species extrapolation, 10 to account for human variability, and 10 for database deficiencies for carcinogenic effect via oral route) for calculating a safe dose of 1.1 µg/kg-day. The safe dose was in turn used to derive the PHG.

Current Evaluation Results

Nickel has been cited in the PHG report as having adverse effects on several sensitive organ systems that are undergoing development in school children (OEHHA, 2001). For

example, it affected the hypothalamus-pituitary axis and inhibited prolactin secretion; it reduced a variety of T-lymphocytes and natural killer cell-mediated immune functions; and it impacted the reproductive system and viability of offspring. Against this background, OEHHA targeted the literature search using the criteria outlined in the Introduction Section. We came up with a list of 18 references; all of which were qualitative studies and thus not usable in the context of the current task.

OEHHA modified its strategy, which stipulated a broad-based literature search. A total of 18,410 references were compiled. These references and their abstracts were put into a Procite database. The database, in turn, was queried in an attempt to identify quantitative studies with nickel doses in the range, or below that, of 1.1 mg/kg-day. The purpose is to run another check that we have identified the "lowest" LOAEL or NOAEL during the PHG review. The results support that conclusion.

Recommendation

The current broad-based literature search has not identified data to suggest that the NOAEL should be changed from that used as the basis for the PHG. The PHG NOAEL addresses the reproductive end point that is one of the targeted organ systems for this review, and the exposure time and duration of rats stipulated in the Smith and Springborn studies covers the critical windows for exposure of pre-school and school children. As such, the PHG NOAEL should be used to develop a child-specific RD for use in school-site risk assessment.

OEHHA has considered the appropriateness of using an oral absorption factor for calculating the chRD for nickel. OEHHA noted that human absorption of nickel depends on the dietary matrix (OEHHA 2001). Absorption is significantly higher when water is used as the administration vehicle, compared to when food is used. Alexander et al. (1974) estimated a 40 percent absorption for healthy children on a balanced diet that consisted of milk, cereal, and other food. McNeely et al. (1972), on the other hand, estimated a 1.6 percent absorption for adults on a regular diet (water and food). These data suggest the appropriateness of applying a child protective factor of three to account for the absorption difference between children and adults.

Because a PHG can be based on a cancer or non-cancer endpoint, OEHHA applied a factor of 10 to account for database deficiencies for carcinogenic effect via oral route in deriving a PHG safe dose for nickel. Since a non-cancer chRD by definition addresses the non-cancer endpoint only, OEHHA in this situation has not applied that database deficiency factor in calculating the chRD for nickel.

Calculation of the chRD for nickel is based on the following equation:

$$\text{chRD} = \frac{\text{NOAEL}}{\text{UF} \times \text{CP}} = \frac{1.1 \text{ mg/kg-day}}{100 \times 3} = 3.7 \text{ } \mu\text{g/kg-day}$$

Where,

NOAEL = No-observed-adverse-effect-level from Smith et al., 1993;
Springborn Laboratories, 2000a, b.

UF = Uncertainty factor of 100 (10 for inter-species extrapolation, 10
for human variability).

CP = Child protective factor of 3 to account for the GI absorption
difference between children and adults.

Accordingly, OEHHA is proposing a non-cancer chRD of 3.7 $\mu\text{g}/\text{kg}\text{-day}$ for nickel to be
used in school-site risk assessment.

3. Conclusion

This report summarizes OEHHA's evaluation of cadmium, chlordane, heptachlor (and its metabolite heptachlor epoxide), methoxychlor, and nickel. Based on the evaluation, OEHHA proposes to establish a chRD for each of these chemicals pursuant to the second part of Health and Safety Code Section 901(g). They are listed in Table 3.1 along with other pertinent numerical health criteria.

Table 3.1 Numerical Non-cancer Health Criteria

	OEHHA's Proposed chRD (mg/kg-day)	OEHHA's PHG Safe Dose (mg/kg-day)	U.S. EPA's RfD (mg/kg-day)
Cadmium	1×10^{-5}	1×10^{-5}	5×10^{-4}
Chlordane	3.3×10^{-5}	1×10^{-5}	5×10^{-4}
Heptachlor	3×10^{-5}	1×10^{-4}	5×10^{-4}
Heptachlor epoxide	1.3×10^{-5}	1.3×10^{-5}	1.3×10^{-5}
Methoxychlor	2×10^{-5}	5×10^{-3}	5×10^{-3}
Nickel	3.7×10^{-3}	1.1×10^{-3}	2×10^{-2}

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APPENDIX A

Keywords Used in Literature Search

gestation*	utero	vagina
infant	early postnatal exposure	clitoris
neonatal	synaptogenesis	testes
neonate*	cell physiology	seminal vesicles
newborn	myelination	prostate seminal ducts
perinate	myelin sheath	penis
perinatal	apoptosis	breast/gd
perinatally	locomotor skill	mammae
lactation	motor activity	udder
puberty	learning	sperm count
adolescent	Psychological	sperm motility
adolescence	Phenomena and	sex maturation
kids	Processes	vaginal opening
young	memory	preputial separation
youth	pseudoglandular	litter size
children	canalicular	Estrogens
child	saccular	androgens
juvenile	morphogenesis	Leydig Cell Tumor
school	Respiratory Tract	Leydig Cells
pediatric	Diseases	Sertoli Leydig Cell
prepubertal	Splenic diseases	Tumor
peripubertal	spleen	Sertoli Cell Tumor
age	hematopoeisis	Sertoli Cells
sacrificed	extramedullary	maze learning
lactation	thymus gland	sex hormones
pup	autoimmunity	steroid
pups	endocrine glands	receptors
postnatal*	brain	GABA
preweanling	gonads	body weight
weanling*	ovary	cincinnati maze
early postnatal exposure	testis	navigation times
offspring	urogenital system	escape reaction
immature	kidney	Startle reaction
childhood	ureters	startle
developmental	bladder	spatial behavior
growth	urethra	crowding
developing	ovaries	personal space
development	uterus	territoriality
rotarod	fallopian tubes	mating behavior

sex behavior
motor activity
chloride channels
gaba receptors
auditory startle
Neuropsychological
Tests
Reaction Time
Psychomotor
Performance
Battery
Physiology
Nervous System
Psychological
Phenomena and
Processes
Behavior and Behavior
Mechanisms
Psychological Tests
Behavioral Disciplines
and Activities
Ovarian Function Tests
Pain Measurement

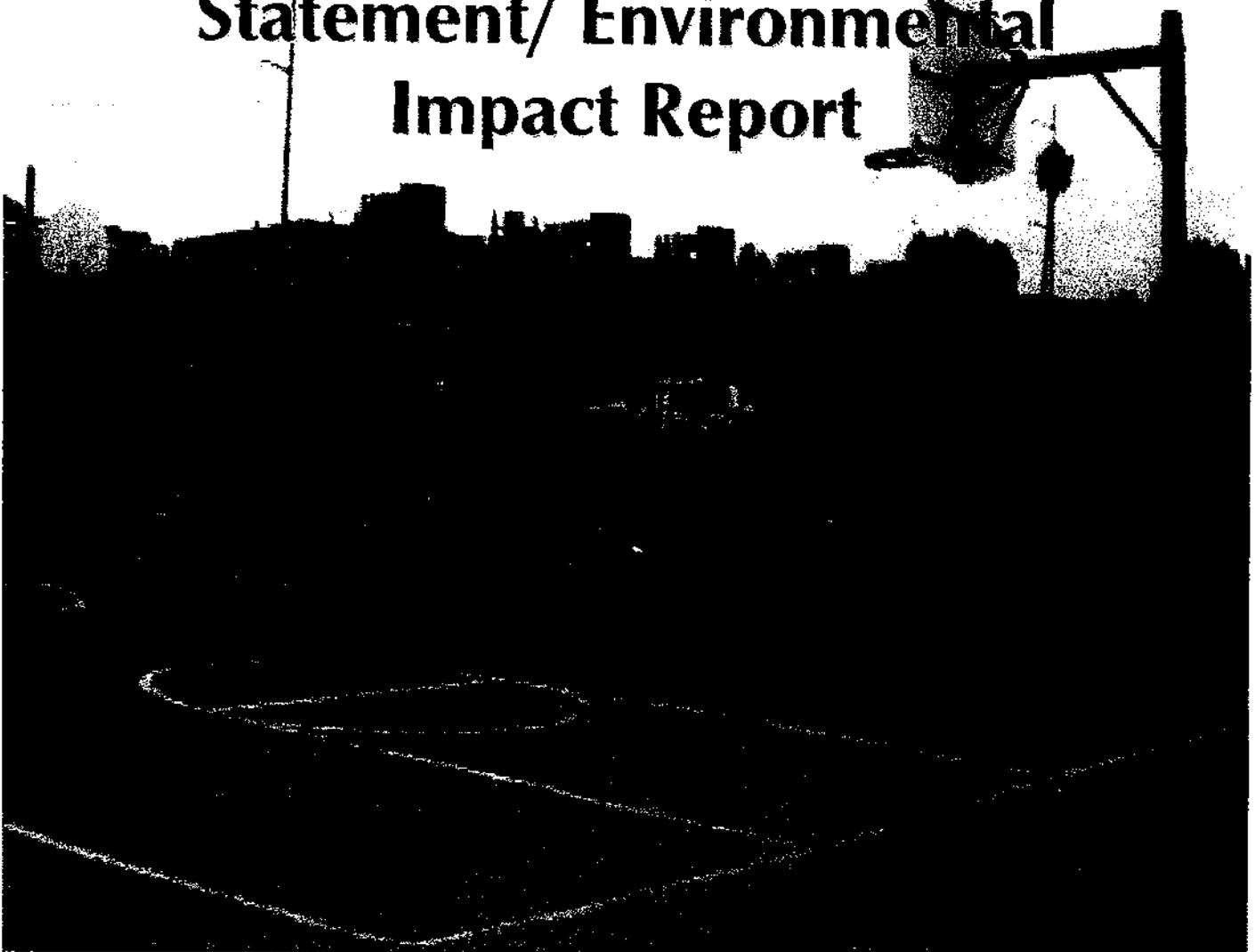
placental Function Tests
Pulmonary Ventilation
Respiratory Function
Tests
Speech Articulation
Tests
Speech Discrimination
Tests
Thyroid Function Tests
Pancreatic Function
Tests
Ethology
hearing tests
vision
visual perception
ethological
photic stimulation
uterotrophic
Immune system
immunity
immunotox*
Nervous system
nervous system diseases

Neurologic
Manifestations
neurotox*
Respiration system
Respiratory Tract
Diseases
respirat*
lung
lungs
nasal
airway
Neurosecretory Systems
neuroendocrin*
Psychomotor Agitation
Neurobehavioral
Manifestations
Psychomotor
Performance
Psychophysiology
behavior
neurobehav*
reproduction

Lennox School District



Response and Comments on the Supplement to the Draft Environmental Impact Statement/ Environmental Impact Report



**LENNOX SCHOOL DISTRICT
10319 Firmona Avenue
Lennox, California 90304**

**RESPONSE AND COMMENTS ON THE
SUPPLEMENT TO THE DRAFT
ENVIRONMENTAL IMPACT STATEMENT/
ENVIRONMENTAL IMPACT REPORT**

**TO: United States Department of Transportation
Federal Aviation Administration**

**City of Los Angeles
Los Angeles World Airports**

DATE: November 6, 2003

PREPARED BY:

**Orbach & Huff LLP
1901 Avenue of the Stars, Suite 575
Los Angeles, CA 90067**

In consultation with:

**The Phylmar Group, Inc.
2342 Manning Avenue
Los Angeles, CA 90064-2208**

**Martin Newson & Associates LLC
501 Santa Monica Boulevard,
Suite 508
Santa Monica, CA 90401**

**Iris Environmental
1615 Broadway, Suite 1003
Oakland, CA 94612**

**Professor Gary W. Evans
Director of Graduate Studies
Cornell University
E306 Martha Van Rensselaer Hall
Ithaca, NY 14853-4401**

**Austin-Foust Associates, Inc.
2020 North Tustin Avenue
Santa Ana, CA 92705**

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INTRODUCTION

On September 21, 2001, the Lennox School District submitted its Response to the original Los Angeles International Airport ("LAX") Draft Environmental Impact Statement/Environmental Impact Report ("Original EIS/EIR"). The Lennox School District now respectfully submits its Response to the Supplement to the Draft LAX Environmental Impact Statement/Environmental Impact Report ("SEIS/EIR") prepared by the City of Los Angeles, Los Angeles World Airports ("LAWA") and the Federal Aviation Administration. (The Original EIS/EIR and SEIS/EIR are referred to collectively as "EIS/EIR".)

Pursuant to applicable provisions of the California Environmental Quality Act ("CEQA") and the National Environmental Policy Act ("NEPA"), due to its proximity to LAX and the significant environmental impacts LAX has upon Lennox schools, the Lennox School District is an interested party with whom LAWA must consult regarding the SEIS/EIR. (14 *California Code of Regulations* § 15086(a)(4).) Accordingly, the Lennox School District reviewed and analyzed the SEIS/EIR as well as retained qualified experts in the fields of aircraft noise assessment, the effects of noise on human health, behavior and learning, air emissions, regulation and planning, human health risk assessment, traffic engineering and planning, public policy, and environmental and real property law. The work product of these experts is incorporated in the body of this Response.

Although the Lennox School District has undertaken the task of providing this Response, it believes it to be procedurally incorrect and financially unfair for a school district of extremely encumbered financial resources to be burdened with the costs of conducting the initial research and analysis required to be in the SEIS/EIR but omitted.

To the extent new facts and issues are raised in the SEIS/EIR, the Lennox School District provides its response below. To the extent that the SEIS/EIR relies upon or is consistent with the Original EIS/EIR, the Lennox School District incorporates its September 21, 2001 Response and Comments by reference herein. This Response also incorporates the exhibits from the September 21, 2001 Response, and continues numbering the exhibits from that document.

Based upon its review and analysis of the Original EIS/EIR and the SEIS/EIR, the Lennox School District respectfully submits the EIS/EIR fails to satisfy the requirements of either CEQA or NEPA. Accordingly, the Lennox School District respectfully requests LAWA substantially revise its EIS/EIR to: (1) include additional alternatives that address LAWA's new paramount safety and security objectives; (2) specifically address the impacts of the Alternative D discussed herein, as well as the other alternatives contained in the Original EIS/EIR; and (3) provide for proposed mitigation at Lennox School District schools for the benefit of the disproportionately affected children in attendance.

DISCUSSION

PART ONE

THE ENVIRONMENTAL JUSTICE ANALYSIS OF THE SUPPLEMENT TO THE DRAFT EIS/EIR VIOLATES CEQA

All of the alternatives presented by LAWA in its EIS/EIR, including Alternative D presented in the SEIS/EIR, disproportionately impact minorities. The students of the Lennox School District receive an unfair share of the burdens of Alternative D, including educational and health impairments.

1. The SEIS/EIR Is Bound by Environmental Justice Considerations.

LAWA is mandated by federal and state law to identify and address environmental justice issues in its environmental review. *Executive Order 12898* requires that each federal agency "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." ("Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," *Executive Order 12898*, February 11, 1994, Exhibit 15.)

State law similarly requires consideration of environmental justice issues in environmental impact reports. (*California Public Resources Code* § 71110 *et seq.*) The California Environmental Protection Agency is obligated to "[p]romote enforcement of all health and environmental statutes within its jurisdiction in a manner that ensures the fair treatment of people of all races, cultures, and income levels, including minority populations and low-income populations of the state." (*California Public Resources Code* § 71110(b).)

Thus, the SEIS/EIR must (1) identify disproportionate, adverse environmental and health effects on minority and low income populations and (2) present mitigation measures to alleviate the unfair effects of its project alternatives upon minority and low income populations.

2. Alternative D Unfairly and Disproportionately Burdens Minority Schools.

The Southern California Association of Governments concluded in its 2001 Regional Transportation Plan, ". . . limiting further expansion of LAX is the best possible Plan outcome from an environmental justice perspective. This is due to the relatively high concentration of low-income and minority populations in the vicinity of LAX." The SEIS/EIR admits the "Effects on public schools associated with aircraft noise exposure would fall on schools that are located predominantly within minority and/or low-income communities . . ." (SEIS/EIR, *Environmental Justice*, Section 4.4.3, p. 4-324.)

The Lennox School District is primarily a minority, low-income district. (Original EIS/EIR, *Environmental Justice Technical Report*, Figure 1 and 2, Table 3.) The student population of Lennox School District is 95.6% Latino. (Education Data Partnership ("Ed-Data"), "Fiscal, Demographic, and Performance Data on California's K-12 Schools,"

<http://www.ed-data.k12.ca.us>, Exhibit 16.) According to the 2000 United States census, the Lennox community is 89.8% Latino, 4.1% African American and 3.5% White Non-Hispanic. (United States Census Bureau, <http://factfinder.census.gov>.) The median annual household income is \$28,273 in Lennox. Over 30% of Lennox families are below the poverty line. (*Id.*) More than half of Lennox families are below 150% of the poverty line. (*Id.*) The United States Secretary of Labor has indicated that the Lennox area has one of the highest unemployment levels of the nation. (*Lennox Demographic Information*, Original EIS/EIR Response Exhibit 1.) An average of 95% of students in the Lennox School District are eligible for free or reduced lunches. (*Id.*)

Given the acknowledged burdens placed on Lennox School District schools by Alternative D, options that address the environmental justice impacts should be set forth in the SEIS/EIR.

a. Significant impacts of increased noise on education in Lennox School District schools.

As with the alternatives proposed in the Original EIS/EIR, Alternative D would have a significant adverse impact on the education of students in the Lennox School District. Table S17 of the *Supplemental Aircraft Noise Technical Report* of the SEIS/EIR presents data which provides an indication of the time that the increased airplane overflights under Alternative D will take out of each school day. When considering these numbers, it is important to note that, not only does the interruption lasts at least six seconds (SEIS/EIR, *Noise*, Section 4.1.6.1.5.4.2, p. 4-66), but there is anticipation time as the deafening noise immediately approaches, as well as time spent settling back into instruction after the disruption has receded.

For example, Table S17 suggests Felton Elementary School will lose a total of 45.3 minutes of instructional time each day once Alternative D is implemented. What real impact will this 45.3 minutes have on actual instruction? Approximately 151 times per day, instruction, reading and/or test taking will be stopped or interrupted in the classrooms at this school.¹

Moreover, Buford Elementary School will suffer from an unimaginable 141 interruptions of instruction per day - - over 17 per hour. Children in classes will have to consistently disengage and reengage to classroom instruction, or will simply fail to hear the teacher, every few minutes during each and every class, every day of school. This is, of course, a conservative extrapolation - - the actual number of classroom interruptions is probably far higher. This is also an increase over the baseline. These noise interference numbers are substantially similar to those suggested by Table S31, *Supplemental Aircraft Noise Technical Report*, Section 6.2.2, p. 151.

¹ Assuming overflights occur at a constant rate over a 24 hour day (which, of course, they do not - rather they occur more frequently during the time of instruction): 45.3 minutes = 2718 seconds; 2718 seconds divided by 6 second intervals = 453 occurrences; 453 occurrences divided by 24 hours = 18.8 occurrences per hour; 8 hours of instruction during the day = 151 occurrences per day during the time of instruction.

Furthermore, most students in Lennox schools speak English as a second language. A total of 71.2% of the students in the Lennox School District are "English Learner" students, who are not proficient in English. (Education Data Partnership ("Ed-Data"), "Fiscal, Demographic, and Performance Data on California's K-12 Schools," *supra.*) In fact, 80.3% of students at Felton Elementary School and 74% of the students of Buford Elementary School do not speak English as their first language. (*Id.*) The numerous noise interruptions are particularly debilitating to these students. This fact is not addressed in the SEIS/EIR.

b. Significant impacts of increased noise on students, teachers, staff and administration.

As noted by the World Health Organization, noise interference with speech comprehension results in a large number of personal disabilities, handicaps and behavioral changes. Children in the process of language and reading acquisition are noted to be particularly vulnerable. Problems with behavior, concentration, fatigue, uncertainty and lack of self-confidence, irritation, misunderstandings and a decrease in work capacity have been reported by researchers. (World Health Organization, *Environmental Health Information, Guidelines for Community Noise*, "Adverse Health Effects of Noise," Section 3, April 2001, Original EIS/EIR Response Exhibit 2.)

A study conducted in 1976 in Highline School District looked at the relationship between school test scores for school grades 3-7 and 5-10 for children attending schools exposed to high levels of aircraft noise and other children attending quiet schools. (Maser, A. L., Sorensen, P.H., Kryter, K.D., and Lukas, J.S. *Effects of Intrusive Noise on Classroom Behavior: Data From a Successful Lawsuit*. West. Psychol. Assoc. San Francisco. April 1978, Original EIS/EIR Response Exhibit 3.) While high academic-aptitude students in schools exposed to aircraft noise scored as well in standardized tests as their counter-parts in quiet schools, middle and especially low academic-aptitude students in noisy schools showed progressive deterioration in tests with continued school attendance relative to the students of equal aptitude in quiet schools. (*Id.*)

A study of the impact of various levels of freeway noise on reading test scores highlighted the cumulative adverse effect of noise exposure on school children. (Lukas, J.S., DuPree, R.B. and Swing, J.W. *Effects Of Noise On Academic Achievement And Classroom Behavior*. FHWA/CA/DOHS-81/01 Office of Noise Control, California Dept. Of Health Services, Sacramento. 1981, Exhibit 17.) An apparent degradation in reading achievement with classroom noise that was noted for third-graders, was accelerated by the sixth grade. (*Id.*)

Other research has demonstrated the link between chronic exposure to aircraft noise and many adverse effects including learning, motivational deficits, a significant decrease in total quality of life, increase in psychophysiological stress and susceptibility to helplessness. (Gary Evans and Lorraine Maxwell, "Chronic Noise Exposure and Reading Deficits. The Mediating Effects of Language Acquisition." *Environment and Behavior*, Vol. 29 No. 5, September 1997 [learning deficits], Original EIS/EIR Response Exhibit 4; Cohen S., Krantz, D.S., Evans G.W., Stokols D., and Kelly S., "Aircraft noise and children: Longitudinal and cross-sectional evidence on adaptation to noise and the effectiveness of noise abatement." *J. Pers. Soc. Psychol.* 40: 331-345, 1981 [learning deficits], Exhibit 18; Bullinger, M., Hygge, S., Evans, G.W., Meis, M. and von Mackensen, S., "The Psychological Cost of Aircraft Noise for Children," *Zentralblatt fur*

Hygiene und Umweltmedizin, 202:127-138, 1977 [quality of life decrease], Original EIS/EIR Response Exhibit 5; Gary W. Evans, Monika Bullinger and Staffan Hygge, "Chronic Noise Exposure and Physiological Response: A Prospective Study of Children Living Under Environmental Stress." *Psychological Science*, Vol. 9, No. 1, January 1998 [psychophysiological stress], Original EIS/EIR Response Exhibit 6; World Health Organization, *Guidelines, supra*. [helplessness].)

A 1980 study showed elevated blood pressure of children attending schools under the LAX flight paths compared to children in quiet schools. (Cohen S., Krantz, D.S., Evans G.W. and Stokols D., "Physiological, motivational, and cognitive effects of aircraft noise on children: Moving from the laboratory to the field." *American Psychologist*, 35: 231-243. 1980, Exhibit 19.)

The SEIS/EIR does not suggest that conditions resulting from implementation of Alternative D will result in different circumstances than those discussed in the above-referenced studies. Nevertheless, the SEIS/EIR fails to provide for any remediation for the known impacts of Alternative D on Lennox School District students.

c. Significant impacts of increased pollution on students, teachers, staff and administration.

As noted by the United States Environmental Protection Agency ("USEPA"), exposure to ambient criteria and toxic pollutants resulting from anthropogenic emissions can result in a wide variety of health impacts. (USEPA, *The Benefits and Costs of the Clean Air Act, 1970 to 1990*. Prepared for U.S. Congress, October 1997, Original EIS/EIR Response Exhibit 7.) Short-term health impacts can include eye, nose, and throat irritation; losses in hand-eye coordination (compensatory tracking); vigilance (detection of infrequent events); visual system sensitivity; and increased asthma attacks. (Seinfeld, John H., *Atmospheric Chemistry and Physics of Air Pollution*. New York, John Wiley & Sons, 1986.) Long-term exposures can result in increased mortality, susceptibility to pulmonary bacterial infection, irritation of the alveoli, emphysema, chronic bronchitis, reduced pulmonary function, losses in IQ, and cancer. (*Id.* and USEPA, *Benefits, supra*.)

Furthermore, there is good reason to believe that children could be more vulnerable to these effects. Because of growing concerns regarding children's increased susceptibility to environmental contaminants, the California Legislature passed the Children's Environmental Health Protection Act (SB 25), which requires the California Environmental Protection Agency ("Cal/EPA") to specifically consider children in setting Ambient Air Quality Standards and developing criteria for Toxic Air Contaminants ("TACs"). The law will require Cal/EPA to specifically evaluate available information on children's increased susceptibility to each of the TACs, and develop a list of up to five TACs that potentially have disproportionate impacts on infants and children.

As stated by Cal/EPA, children are considered to be at increased risk because of the rapid growth and development of their nervous, immune and reproductive systems, and because their organs and tissues are rapidly maturing. (Cal/EPA, *Air Pollution and Children's Health*. Fact Sheet by Office of Environmental Health Hazard Assessment, March 2001, Original EIS/EIR

Response Exhibit 8.) In addition, children experience greater exposure to ambient pollutants relative to their body weight, and children's specific activity patterns may contribute to an increased exposure to toxicants resulting from increased exercise and sporting activities. (*Id.*) Asthma has also been identified as a major problem in children, and some of the chemical emissions from LAX have

been identified by Cal/EPA as resulting in an exacerbation of asthma (e.g., formaldehyde and acrolein). (*Id.*)

Furthermore, recent studies suggest that particulate matter ("PM") may exacerbate asthma and cause coughs and other respiratory symptoms in children. (*Id.*) Recent studies also suggest that prolonged exposure to PM may also affect the growth and functioning of children's lungs. (*Id.*) Researchers found that as children grow up in smoggier areas, there is a notable lag in lung function growth. (*Id.*)

In April 2000, the South Coast Air Quality Management District ("SCAQMD") determined that Lennox had the highest concentrations of pollution of all communities neighboring LAX. (SCAQMD, *Air Monitoring Study in the Area of Los Angeles International Airport*, April 2000, Original EIS/EIR Response Exhibit 9.) SCAQMD conducted testing for particulate matter ("PM") and volatile organic compounds ("VOCs") at fourteen sites around LAX. (*Id.*) SCAQMD found that the concentrations of these pollutants were highest on the east side of the airport, particularly at Felton School in Lennox. (*Id.*) As stated in the SCAQMD report:

"Samples collected in the initial study both north and south of the airport typically showed lower concentrations of VOCs than did samples collected east of LAX. This trend held for all mobile source related compounds except benzene, for which the areas east and south of the airport showed comparable values." (*Id.* at p. 11.)

The report goes on to state:

"Using benzene and 1,3 butadiene as the indicators of mobile source activity, clear trends in the west-to-east data emerge. Background sites to the north and south of LAX showed lower levels of VOCs than did sampling locations to the east of these sites. The background sites, on average, were also consistent with respect to the levels of contaminants found. VOC levels were elevated at all locations on the east side of Aviation Blvd. Levels were typically 2 to 3 times higher on average than they were at background locations." (*Id.* at p. 12.)

This pollution has a direct correlation to levels of respiratory illness in Lennox School District students. In fact, UCLA doctors conducting the UCLA Health Fair in Lennox have indicated that a higher percentage of children in Lennox have asthma and other respiratory ailments than in any other Los Angeles area community the Health Fair has visited.

SCAQMD found a strong correlation between airport activity and the pollutant levels found in Lennox. (*Id.*) Alternative D will only exacerbate these problems.

Because of the anticipated environmental and related health impact of noise and pollution on the schools, students could potentially fall behind in their schooling, one class grade or more. Several students could have an impaired ability to retain information as a result of the impact. These students may not be able to grasp as much as other students and would not be able to process more advanced concepts taught in high school that build upon what they were supposed to, but did not, learn in elementary school. More children would have asthma and allergies than they would without the implementation of Alternative D. Children may also have an increased risk of heart attacks and death.

Children in Lennox School District schools may have permanent learning disabilities that limit their career choices and quality of life. Furthermore, they may have shorter lifespans and worse general physical health than other children at other non-impact schools. Lennox School District students may have lifelong psychological weaknesses that would affect every aspect of their lives.

These adverse health impacts are real. These are the impacts that will disproportionately and significantly affect the minority, low- income community of Lennox.

3. The SEIS/EIR Violates CEQA by Failing to Consider Alternatives that Equitably Distributes Burden Among Populations.

Because of the significant and unmitigatable impact of all of the proposed alternatives, including Alternative D, on minority and low-income communities, other alternatives must be explored.

California *Public Resources Code* § 21002 states, in pertinent part:

“The Legislature finds and declares that it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.”

California law requires the SEIS/EIR to consider feasible alternatives that would substantially lessen the disproportionate and significant environmental effects of the project on minority and low-income communities. LAWA failed to do so.

4. The SEIS/EIR Violates CEQA By Failing to Provide Mitigation Measures for the Significant Environmental Justice Impacts.

The SEIS/EIR is required to mitigate the environmental justice burden imposed by Alternative D to the extent feasible. (*California Public Resources Code* §§ 21002, 21002.1.) The SEIS/EIR, however, fails to describe any mitigation measures to alleviate its impacts on schools. Instead, it proclaims that it will *only* provide mitigation measures in those schools not deemed to be Title 21 compliant. (See *Environmental Justice*, Section 4.4.3.5.1.2, p. 4-329; *Supplemental Aircraft Noise Technical Report*, Section 6.2.3, p. 154.) This rationale is flawed for two reasons: (1) it over-estimates the effect of the Settlement Agreement (See Part Two *infra*); and (2) it fails to address the independent obligations of CEQA.

Feasible mitigation programs exist that would address the noise issues in minority and low income schools. Sound insulation can alleviate noise impacts inside classrooms. Working examples of this are the Moffet Elementary School and Dolores Huerta Elementary School. These schools, built with noise mitigation as a key component, are able to provide a decent learning environment despite its proximity to LAX. Compare aircraft noise above 75 dBA for the 1996 baseline: Moffett Elementary School at .5 minutes and Felton Elementary School at 46.0 minutes. (SEIS/EIR, *Supplemental Aircraft Noise Technical Report*, Table S17.) Furthermore, to the extent that the significant noise impacts in Lennox School District schools are unmitigatable, the SEIS/EIR should address the option of relocating those schools.

Additionally, the Lennox School District has been investigating the acquisition of a large vacant parcel of land near Imperial and Aviation for the Lennox Math, Science & Technology High School Academy. However, Alternative D proposes another use for that particular parcel of land. This parcel would have been ideal for the charter school because Lennox is a highly developed and densely populated community with little available vacant land. If LAWA proceeds with Alternative D, Lennox School District will be forced to find another location for the charter school and most likely incur increased costs for condemnation proceedings, payment of relocations benefits and demolition of existing buildings. The impact on the charter high school should be considered when considering impacts and addressing mitigation.

The same mitigation analysis must be conducted for air quality and other significant impacts of the proposed project upon minority and low-income populations.

To the extent feasible, LAWA is obligated to mitigate its impacts on the Lennox School District. (14 *California Code of Regulations* § 15126.4.) The SEIS/EIR fails to do so. The failure to include such mitigation measures in the body of the SEIS/EIR violates CEQA. (*Id.*) Accordingly, this SEIS/EIR is fatally inadequate and must, before further action is taken, be revised to comply with CEQA.

PART TWO

THE SEIS/EIR IMPROPERLY RELIES UPON AND OVER ESTIMATES THE EFFECT OF THE SETTLEMENT AGREEMENT

The Original EIS/EIR states in one volume:

“In the mid-1970's, the City of Los Angeles ... [settled] a noise lawsuit. Under the terms of the settlements, each school in the public ... systems that had participated in the lawsuit agreed to allow an aviation easement, deeming the school to be compatible with the airport under Title 21.” (Original EIS/EIR, *Land Use*, Section 4.2, pp. 4-95, 4-96.)

Over a thousand pages later, the Original EIS/EIR states:

“One public school in the Lennox Elementary School District would be exposed to outdoor noise levels that would remain significant after mitigation unless acquisition or relocation of the schools is undertaken.” (Original EIS/EIR, *Schools*, Section 4.27, p. 4-1219.)

In a separate volume, the Original EIS/EIR states:

“As presented in Technical Report 1, *Land Use*, eight public schools would be exposed to significantly high levels of noise by 2015 within the Inglewood Unified School District and Lennox Elementary School District. For those impacted schools not already considered compatible pursuant to California Code of Regulations, Title 21, mitigation in the form of sound insulation or acquisition and relocation would be provided.” (Original EIS/EIR, *Schools Technical Report*, Section 17, p. 15.)

The SEIS/EIR picks up on these points when discussing mitigation of noise impacts on schools. (See, for example, *Environmental Justice*, Section 4.4.3.5.1.2, p. 4-329; *Supplemental Aircraft Noise Technical Report*, Section 6.2.3, p. 154.)

Thus, the SEIS/EIR both addresses and dismisses further consideration of the impacts upon Lennox School District schools solely based upon the existence of the 1970's Settlement Agreement. (*Amended Judgment and Final Order in Condemnation*, Original EIS/EIR Response Exhibit 11; the operative “Judgment and Final Order” is actually entitled *Amended Judgment and Final Order in Condemnation*, and referred to herein as “Settlement Agreement.”)

It is apparent LAWA has no intention of providing mitigation in any form to Lennox School District schools as part of Alternative D. As set forth below, this deficient approach (1)

fails to even consider the entirety of the terms of the Settlement Agreement; (2) fails to consider other surcharges which would be caused by an expansion not provided for by the express grant of the avigation easement in the Settlement Agreement; and (3) inappropriately avoids and dismisses a proper CEQA analysis.

1. The SEIS/EIR Fails to Consider All Possible Surcharges on the Avigation Easements.

As with the Original EIS/EIR (Original EIS/EIR, *Land Use*, Section 4.2, p. 4-95, fn. 72.), when discussing the historically high noise levels affecting the Lennox School District, the SEIS/EIR refers to and relies solely upon the Settlement Agreement which granted LAWA an avigation easement over Lennox School District schools. (SEIS/EIR, *Supplemental Aircraft Noise Technical Report*, Section 6.2.3, p. 154.) The SEIS/EIR concludes:

“LAWA has established agreement with most public and a few private schools in the airport environs related to the amount of cumulative noise that may be generated from airport operations over each. Where those cumulative noise levels are exceeded (measured in decibels of CNEL), addition of the facility to the list of sound insulation eligibility may be warranted.” (*Id.*)

This conclusion is incomplete and misstates the Settlement Agreement (discussed further in Part Two Sections 2 and 3 *infra*). The Settlement Agreement provides that the purpose of the air easements granted to LAWA are for “noise, vibrations and fumes” over the schools. (Settlement Agreement, page 3, lines 18-21.) The Settlement Agreement further provides:

“Vibration and fume levels are not quantitatively described for the purpose of the distribution of the air easements but it is agreed that those levels of vibration and fumes which accompany the agreed-to CNEL values shall not be a burden of the easements.” (Settlement Agreement, page 11, lines 1-5.)

In other words, LAWA may only contend that the avigation easement is not surcharged if “levels” of vibration and noise are the same as in 1970. What the Settlement Agreement does not discuss, does not preclude, and leaves open is whether a surcharge may occur when the *frequency* of vibrations and fumes is increased from the frequency of vibrations and fumes occurring in 1970.

Paragraphs 4.a and 7 of the Settlement Agreement make clear it was the intent of the parties not to further burden the avigation easements by an increase or “deviation” in frequency of flight operations over Lennox School District schools. Rather such deviations were only permitted if “temporary and not permanent.” (Settlement Agreement, page 13, line 14.)

2. The Impacts of the Alternate D Will Constitute a Surcharge on the Avigation Easements.

Under California law, the extent of an easement is determined by the terms of its grant. (California *Civil Code* § 806.) As stated by the California Supreme Court, an owner of an easement may not increase the use of the easement in any manner that imposes a new or greater burden on the servient tenement without the consent of the servient owner. (*Colegrove W. Co. v. City of Hollywood* (1907) 151 Cal. 425, 429.) Further, "...it is well settled that 'both parties have the right to insist that so long as the easement is enjoyed it shall remain substantially the same as it was at the time the right accrued, entirely regardless of the question as to the relative benefit and damage that would ensue to the parties by reason of a change in the mode and manner of its enjoyment. [Citation omitted.]'" (*Whalen v. Ruiz* (1953) 40 Cal.2d 294, 302.)

In fact, "California courts have set their faces firmly against ... increases in the burden upon the servient tenement." (*Wall v. Rudolph* (1961) 198 Cal.App.2d 684, 694.) Accordingly, "[t]he requirement that the easement involve only a *limited* use or enjoyment of the servient land is a corollary of the nonpossessory character of the interest. If a conveyance purported to transfer to A an *unlimited* use or enjoyment of [a parcel of land], it would be in effect a conveyance of ownership to A [of the parcel of land], not of an easement." (*Id.*, at p. 697; emphasis in original.)

The avigation easement granted by the Lennox School District to LAWA was based upon criteria which have been far exceeded. For example, the number of take-offs and landings identified in Exhibit F in 1970 (used as two of the three elements to establish the CNEL contours) has dramatically increased as of 2003. In 1970, the total of take-offs and landing events per day was 1,061. (Settlement Agreement, Exhibit F, Figures 6, 7.) The total number of take-offs and landing events per day in 2003 is over 1,700, an increase in flight frequency of over 62%. (Los Angeles World Airports, *Traffic Comparison*, May 28, 2003.) This will increase even further to 2,148 under Alternative D, that is, over 100% more than anticipated by the avigation easement. (SEIS/EIR, *Executive Summary*, Table ES-1.)

Moreover, the avigation easement anticipated an *increase* in aircraft operations at LAX up to 40,000,000 passengers annually. (Settlement Agreement, Exhibit F, paragraph B.) LAX is currently operating at over 51,000,000 passengers annually. (Los Angeles World Airports, *Traffic Comparison*, May 28, 2003.) Alternative D predicts an increase in aircraft operations to accommodate at least 78,900,000 passengers annually, once again, almost 100% more than anticipated by the Settlement Agreement. (SEIS/EIR, *Executive Summary*, Table ES-1.) In addition, the amount and frequency of airplane traffic will also necessarily increase under Alternative D to accommodate the predicted increase in cargo tons per year by 50% over today's traffic alone. (*Id.*)

Perhaps most significant, however, is the *decrease in altitude* of air traffic over Lennox School District schools proposed by Alternative D due to the eastward extension of runway 24L and its direct impact on "levels" of noise, vibration and fumes. (See, SEIS/EIR, *Noise*, Sections 4.1.6.1.5.3 and 4.1.6.1.5.4.2, pp. 4-64 and 4-66, respectively.)

Thus, the increase in *frequency* of air traffic through the aviation easement proposed by Alternative D will constitute a material surcharge upon the easement. This increased frequency results in an increase in not only the number of noise events, but in the number of *vibration* and *fume* events as well.

This burden on the easement will, at the very least, require the Lennox School District's consent, and realistically also require further mitigation in the form of additional sound attenuation measures at each of the affected school sites.

Therefore, the SEIS/EIR must further consider, and LAWA must mitigate, the impact upon the existing or future incompatible land use resulting from implementation of Alternative D, as the Judgment and Final Order will not, as suggested, conclusively control the question given the anticipated substantial surcharge upon the aviation easement and resulting burden to the servient tenement, Lennox School District schools.

3. The Existence of the Settlement Agreement is Irrelevant to Whether LAWA Must Comply With CEQA.

The existence of an aviation easement alone does not render a school "Compatible" under Title 21. Throughout the SEIS/EIR, LAWA implies that those schools which entered into aviation easements with LAWA are automatically deemed "compatible" uses, and therefore do not require mitigation. The regulatory definitions of "compatible" and "incompatible" uses do not support this contention.

The definition of incompatible land uses includes:

"[P]ublic and private schools of standard construction for which an aviation easement for noise has not been acquired by the airport proprietor *or* that do not have adequate acoustic performance to ensure an interior CNEL of 45 dB or less in all classrooms due to aircraft noise." (Emphasis added.) (21 *California Code of Regulations* 5014(b).)

The definition stated in the disjunctive is not of "compatible" land uses, but of "incompatible" land uses. Thus, public schools with an interior CNEL of 45 dB are plainly "incompatible" land uses, with or without an aviation easement. The accepted rules of statutory construction simply do not allow any other interpretation or extrapolation to be made by LAWA.

Under the basic tenets of statutory construction, courts will,

"ascertain the intent of the drafters so as to effectuate the purpose of the law [by] . . . first examin[ing] the words themselves, giving them their usual and ordinary meaning and construing them in context. When statutory language is clear and unambiguous, 'there is no need for construction and courts should not indulge in it.' [Citations omitted.]" (*Esberg v. Union Oil Co.*(2002) Cal.4th 262, 268.)

In this case, the plain meaning of the regulation does not present any ambiguity. The use of the word "or" in a regulation indicates an intention to use it disjunctively so as to designate alternative or separate categories. (*Piet v. U.S.* (1959) 176 F. Supp. 576, 583.)

Therefore, those schools that do not have adequate sound insulation to ensure an interior CNEL of 45 dB or less, are incompatible uses for purposes of Title 21 and *are entitled* to mitigation irrespective of whether LAWA holds avigation easements for those schools.

Even if LAWA successfully maintains Alternative D is not a surcharge on the avigation easement granted by Lennox School District, and, despite the foregoing, is nonetheless "compliant" with Title 21, LAWA must still identify the need for and then provide for the implementation of mitigation measures. Under California law:

"Any one may waive the advantage of a law intended solely for his benefit. But a law established for a public reason cannot be contravened by private agreement." (*California Civil Code* § 3513.)

The California Environmental Quality Act ("CEQA") is a state environmental law applicable to public agency decisions to authorize projects that could have an adverse impact on the environment. The purpose of the CEQA Environmental Impact Report requirement is to provide the information needed to make informed decisions in the selection and authorization of projects. (*California Public Resources Code* §§ 21001(g), 21002, 21061; 14 *California Code of Regulations* § 15121.) Without question, CEQA and its requirements are "established for a public reason." Therefore, under both sound principles of law as well as fundamental considerations of fairness and justice, the existence of the avigation easement (a private agreement between two public agencies) cannot "waive" the requirement of mitigation of the significant impacts upon students and teachers associated with Alternative D.

Thus, appropriate project alternatives, significant impacts and related mitigation measures must be analyzed in the SEIS/EIR. (*California Public Resources Code* §§ 21002.1, 21100.) In this instance, the SEIS/EIR must identify measures that would mitigate the impacts of Alternative D on Lennox School District in general and impacted school facilities in particular. (*Id.*) Without this analysis, the selection process is flawed and an informed decision cannot be made.

The Settlement Agreement between the City of Los Angeles and various school districts does not affect this state mandated analysis. The SEIS/EIR claims that the Settlement Agreement operates to mitigate significant impacts upon schools and students. (*Environmental Justice*, Section 4.4.3.5.1.2, p. 4-329; *Supplemental Aircraft Noise Technical Report*, Section 6.2.3, p. 154; See also, EIS/EIR, *Land Use*, Section 4.2.) This claim is in direct contradiction to the requirements of CEQA (14 *California Code of Regulations* § 15126.4) and *Civil Code* §3513.

CEQA requires LAWA to conduct and publicly disclose its analysis of impacts upon affected schools and of measures that can mitigate those impacts, if any. (*Id.*) Thus, the

SEIS/EIR must be revised to conduct a thorough analysis of impacts upon schools and of measures that can be taken to mitigate those impacts. (*Id.*)

PART THREE

THE NOISE ANALYSIS OF THE SEIS/EIR IS INADEQUATE²

1. The SEIS/EIR Under-predicts Noise Impacts to Lennox School District Facilities by Omission.

There appears to be no specific mention of the following Lennox School District schools within the SEIS/EIR:

- Dolores Huerta Elementary School.
- Lennox Math, Science & Technology High School Academy, located on the Whelan Elementary School campus.
- Felton Preschool, located on the Felton Elementary School campus.

The lack of reference to these schools may be because they are not impacted, but the Lennox School District would request some acknowledgement of the existence of these schools within the Final EIS/EIR to provide reassurance that these schools have not merely been overlooked in the analysis.

In addition, Jefferson Elementary School is not included on Table S31 of the *Supplemental Aircraft Noise Technical Report*, which presents changes in the cumulative duration of classroom noise levels above 55 dBA under the various alternatives. The possibility that this school is not exposed to classroom noise levels above 55 dBA under any alternative seems unlikely given the school's proximity to the airport, its alignment with the southern runways and the inclusion in Table S31 of schools that would be expected to be exposed to lower noise levels due to their greater distance from the runways.

2. The SEIS/EIR Under-Predicts Noise Impacts on Lennox School District Facilities by Relying on Noise Modeling Results Which Are Acknowledged Within the Report to Under-Predict Actual Aircraft Noise Levels.

As discussed in the *Supplemental Aircraft Noise Technical Report* (page 15) the INM used for all noise predictions in the SEIS/EIR under-predicts aircraft noise in comparison to real measured noise levels. The study's under-prediction of noise levels is likely to lead to an under-prediction of the number of schools at which the 2015 aircraft noise levels exceed certain noise

²For the purpose of these comments, the use of the terms "Decibel", "dB" and "dBA" are all intended to mean A-weighted decibels.

thresholds of significance. The Lennox School District recommends that the Final EIS/EIR include detailed analysis of the likely real noise impact upon Lennox School District schools.

3. The "Single Event" Noise Analysis Presented in the SEIS/EIR is Incomplete.

The Lennox School District's comments on the Original EIS/EIR pointed out potential disruption to speech communication within classrooms associated with "single events," i.e., the noise associated with individual aircraft flyovers. The Lennox School District is pleased to see that single events are now considered within the SEIS/EIR. The District remains concerned, however, that the issue of the applicable threshold(s) of significance has not been resolved within the SEIS/EIR.

Mitigation measure MM-LU-4, which incorporates specific noise mitigation measures for schools, is "subject to modification" based upon the results of further study. Details of the proposed 'further study' are not, however, provided for our comment.

4. The Limited 'Single Event' Noise Analysis Presented in the SEIS/EIR Substantially Under-predicts Impacts to Lennox School District Facilities in a Number of Ways.

a. The indoor classroom L_{max} thresholds are set too high.

The *Supplemental Aircraft Noise Technical Report* proposes a 55 dBA L_{max} threshold of significance for teaching classes. According to Page 149 of this report, this threshold was derived from Table 3.3 of a 1992 FICON publication, using a speaker-to-listener distance of 20 feet and assuming a raised voice level. Reference to the FICON 1992 publication shows that the table in question was reproduced from the 1973 EPA publication, "Public Health and Welfare Criteria for Noise," ("EPA Report") as Figure 6.1 of the EPA Report.

The EPA Report qualifies the data in a number of important ways. The qualifications include the following:

- Figure 6.1 published by EPA in 1973 was for an outdoor noise environment. Page 6-7 of the EPA Report states that the data "is not valid to assess the intrusion of the outdoor levels on the reception of speech indoors because of the reverberant build up of sound by reflections from the walls of the room. . . The data in the pertinent literature suggests that, for most instances, a reasonable value for the design of rooms where oral communication is important is somewhere in the range 40-45 dBA."
- Page 6-7 of the EPA Report goes on to state, "Lower noise levels would be required if the talker has imprecise speech (poor articulation) or if the speaker and listener speak different dialects." Considering the fact that (1) the speaker in the classroom is occasionally the student, and (2) the student's first language is often not the same as that of the teacher, these qualifications are

certainly applicable in Lennox School District schools. (See Part One, Section 2, *supra*.)

- Page 6-7 of the EPA Report also states that the data in its Figure 6.1 represents conditions for young adults and that “adequate speech communication with children requires lower noise levels than are required for adults”. This qualification also applies to the Lennox School District schools.
- Pages 6-7 to 6-8 of the EPA Report also state, “Persons with hearing losses require more favorable speech-to-noise ratios than do those with normal hearing.” Given that all pupils will not all have perfect hearing at all times, due in great part, but not exclusively, to frequent childhood ear infections, this qualification is also pertinent. In addition, Lennox School District students reside within the Lennox community and are afflicted with long-term, likely unmitigated exposure to aircraft noise at home, possibly resulting in permanent hearing loss. This potential for permanent hearing loss should also be considered.

The EPA qualifications of the data were not contemplated in the SEIS/EIR analysis. Appropriate consideration of these qualifications would result in a lower threshold for the application in question.

On the above basis, the Lennox School District believes the 55 dBA L_{max} indoor criterion used in the SEIS/EIR to be incorrectly derived. A lower criteria based upon consideration of all relevant factors, including: talker-to-listener distances greater than 20 feet, noise effects in indoor environments, the need for a higher signal-to-noise ratio for children, children’s propensity to temporary hearing loss, and children with limited English proficiency should be utilized by LAWA.

b. Classroom interior noise levels based upon assumed 29 dBA out-to-in aircraft noise reduction do not adequately protect a large enough proportion of classroom users in the Lennox School District.

According to the *Supplemental Aircraft Noise Technical Report*, the 29 dBA out-to-in noise reduction for aircraft noise intrusion to classrooms is the average result of sample measurements conducted at “several schools” by LAWA. (p. 149.) Insufficient details were provided in the SEIS/EIR to assess whether the sampling was applicable to Lennox School District classrooms. Furthermore, since the 29 dBA is an average result, several classrooms in the study must have lower sound attenuation levels. It is therefore likely that sound insulation for some Lennox School District classrooms would be lower than 29 dBA.

Deriving an indoor noise impact threshold using the 29 dBA average would not adequately protect the occupants of those classrooms with worse than average sound isolation. For example, as is common in Southern California, the Lennox School District utilizes 113 portable classrooms. These would not generally be expected to provide such a high level of out-

to-in noise reduction for aircraft noise. The noise threshold for mitigation should be designed to protect actually impacted classrooms, not just the 'average' case.

- c. **The SEIS/EIR's proposed 84 dBA L_{max} outdoor single event noise threshold is too high to assess single event noise impact upon classrooms, leading to a severe under-reporting of existing and future noise impacts.**

The World Health Organization ("WHO") states that for speech to be intelligible when listening to complicated messages, such as in schools, interfering noise should not exceed 35 dBA. (World Health Organization, *Guidelines, supra.*) Assuming the classrooms in question operate with closed windows and doors (which would assume the existence of air-conditioning in the classrooms) and have been provided with sound attenuation to achieve a minimum noise level reduction of 25 dB (as required under the Land Use Compatibility Guidelines of the Federal Aviation Regulations for schools exposed to aircraft noise in the CNEL 65 to 70 range), this would suggest that occurrence of outdoor noise levels exceeding 60 dBA, which is much lower than the 84 dBA threshold, would result in speech interference within classrooms.

Even using the upper limit of the EPA's suggested range (see item 4 a., above) of 45 dBA as being a threshold above which interference with typical speech becomes noticeable indoors, and again assuming 25 dBA out-to-in sound insulation, such a conservative analysis would suggest speech disturbance would be noticeable when outdoor noise levels exceed 70 dBA. Again this is a much lower threshold than 84 dBA.

Table S17 of the *Supplemental Aircraft Noise Technical Report* presents results for time above 75 dBA outdoors. Reviewing the range of thresholds for speech interference discussed above, it is highly likely that aircraft noise levels exceeding 75 dBA at a school result in speech interference within classrooms. (As discussed above, the appropriate threshold is probably lower than 75 dBA.) Table 1 below, presents "time above" data in minutes, projected for the year 2015 unless otherwise indicated, for Lennox School District schools extracted from Table S17 of the *Supplemental Aircraft Noise Technical Report*.

Table 1 - Aircraft Noise Time above 75 dBA in Minutes, for the year 2015 unless otherwise stated.

School	1996	No Project	Alt. A	Alt. B	Alt. C	Alt. D
Felton Elementary School – PBS035	46.0	45.5	31.6	49.4	47.5	45.3
Lennox Middle School – PBS091	8.2	5.2	7.7	41.8	5.2	4.8
Buford Elementary School – PBS019	41.6	38.2	44.7	25.8	42.9	42.3

Moffet Elementary School – PBS102	.5	.7	1.2	30.1	.7	.7
Jefferson Elementary School – PBS055	26.0	28.3	14.1	45.3	26.5	24.8
Whelan Elementary School - PBS123	52.1	51.7	47.0	33.5	56.1	55.0

The results presented in Table 1 suggest that the cumulative duration of speech interference in classrooms per day for all of the above Lennox School District schools is high under nearly every project alternative scenario. Given the amount of speech disturbance levels indicated by the conservative analysis presented above, any further increase in cumulative duration of speech disturbance is of serious and immediate concern. The *Supplemental Aircraft Noise Technical Report's* reliance on analysis using a time above 84 dBA outdoor noise level clearly understates the existing and future aircraft noise disturbance at Lennox School District facilities.

When speech interference occurs in the classroom, students suffer a loss of learning time. Other possible outcomes include students failing to understand important information from the teacher, loss of concentration during study, or interference with standardized testing. (See Part One, Section 2b., *supra*.) The predicted increase in the duration of speech interference in Lennox School District classrooms gives rise to serious noise impacts that do not receive adequate attention in the SEIS/EIR.

Instructional learning also suffers from speech interference that occurs outside the classroom. Schools are required to provide 200 minutes of Physical Education to children for every two-week period. Physical Education does comprise 'actual learning' which is interrupted at an even greater frequency and intensity than in the classroom. In addition, schools are faced with safety issues when children cannot hear teachers over aircraft noise during Physical Education activities.

d. The main body of the SEIS/EIR should consider significantly increased cumulative duration to excessive noise levels as a significant noise impact.

The *Supplemental Aircraft Noise Technical Report* introduces three thresholds of significance for single event impacts upon classrooms (55 dBA L_{max} , 65 dBA L_{max} and 35 dBA L_{eq} (1 hour)). It states, "Each school listed on the tables may, for CEQA purposes, be considered single event impacted if its noise level exceeds any of the three thresholds of significance . . ." (SEIS/EIR, *Supplemental Aircraft Noise Technical Report*, Section 6.2.2, p. 150.) The main body of the SEIS/EIR, however, appears to only consider *new exposure* to levels above these thresholds (as opposed to all levels in excess of these thresholds) as the threshold of significance. This is in clear contrast to the pronouncements in the *Supplemental Aircraft Noise Technical Report*. No justification has been provided in the SEIS/EIR for its failure to acknowledge these impacts.

This can be illustrated by the example of Felton Elementary School. According to the *Supplemental Aircraft Noise Technical Report*, the classrooms at this school are exposed to instantaneous indoor noise levels exceeding 55 dBA for a cumulative duration of 2.4 minutes per day based upon the 1996 baseline. Under Alternative D, in 2015, this cumulative duration would increase to 6.8 minutes per day. This is a 283% increase in cumulative daily exposure to classroom noise levels above 55 dBA, yet the main body of the SEIS/EIR, which uses *new exposure* to any event louder than 55 dBA levels as the threshold of impact for single events, fails to acknowledge a noise impact at this school.

Out of the six Lennox School District schools considered in the SEIS/EIR, the report only identifies single event noise impact to two schools. These impacted schools are Lennox Middle School (new exposure to an L_{eq} (1 hour) level above 35 dBA under Alternative B) and Moffett Elementary (new exposure to maximum classroom noise levels above 55 dBA under Alternative A and new exposure to an L_{eq} (1 hour) level above 35 dBA under Alternative B).

It should be noted, however, that the remaining four Lennox School District schools considered in the SEIS/EIR - Buford Elementary School, Felton Elementary School, Jefferson Elementary School and Whelan Elementary School - are all already above at least one of the report's three thresholds under the 1996 baseline. Felton Elementary School is above all three thresholds at 1996 baseline levels. Given the existing (1996) high aircraft noise exposure at these schools, any increase in cumulative duration of speech disturbance is considered troubling and use of the *newly exposed* requirement leads to a failure to consider such impact.

Given the substantial amount of existing speech disturbance, any increase in cumulative duration of speech disturbance is considered troubling and again, use of the *newly exposed* requirement leads to an understatement of the noise impact associated with all of the project alternatives considered.

5. The Project Alternatives Included in the EIS/EIR Do Not Appear to Satisfy CEQA or NEPA Requirements.

According to Title 14 *California Code of Regulations*, Chapter 3, Guidelines for Implementation of CEQA:

“An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.”
(15 *California Code of Regulations* § 15126.6(a).)

Significant noise impacts are predicted for Lennox School District schools under each alternative considered, including the “No Action/ No Project” alternative. No alternative has been considered that would avoid or substantially lessen the noise impact upon Lennox schools as required by CEQA.

According to the Council for Environmental Quality, a NEPA analysis:

“ . . . shall inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment. . . [including]. . . reasonable alternatives not within the jurisdiction of the lead agency.”

In this context, a proper NEPA analysis should include at least one alternative whereby a significant noise impact was avoided in Lennox schools by diverting the proposed increased heavy jet traffic to other airports.

6. The Analysis of Temporary Aircraft Noise Impacts Is Inadequate.

The main body of the SEIS/EIR does not appear to provide any analysis of temporary aircraft noise impact on Lennox School District schools, a discussion of how long they might last, or a recommendation for any mitigation measures. As with all significant adverse impacts, these construction impacts must be described and analyzed and mitigation measures presented.

7. Inadequate/Mislabeled Data in Supplemental Aircraft Noise Technical Report.

The *Supplemental Aircraft Noise Technical Report*, which presents the specific noise calculation results relevant to Lennox School District schools, provides data labeled as ‘DNL’ in Table S14. It is unclear whether this data is actually CNEL data that has been mislabeled. Since the project thresholds of significance are set in terms of CNEL rather than DNL, providing DNL data prevents the reader from looking at predicted CNEL impacts on specific Lennox School District schools.

8. Specific Noise Mitigation Measures for Lennox School District Facilities Are Not Identified in the SEIS/EIR.

According to Title 14 *California Code of Regulations*, Chapter 3, Guidelines for Implementation of CEQA:

“An EIR shall describe feasible measures which could minimize significant adverse impacts...the discussion of mitigation measures shall distinguish between the measures which are proposed by project proponents to be included in the project and other measures proposed by the lead, responsible or trustee agency or other persons which are not included but the lead agency determines could reasonably be expected to reduce adverse impacts if required as conditions of approving the project. This discussion shall identify mitigation measures for each significant environmental effect identified in the EIR.” (14 *California Code of Regulations* § 15126.4.)

Mitigation measure MM-LU-4, which incorporates noise mitigation measures for schools, is "subject to modification" based upon the results of further study. Details of the proposed 'further study' are not, however, provided for review. The proposed noise mitigation measures (further study excluded, because study alone will not do anything to mitigate the predicted noise impact) are not therefore clearly stated in the report.

9. The SEIS/EIR's Analysis of the Health Effects of Noise on Students is Flawed.

a. The SEIS/EIR improperly relies on a flawed FICON document.

The SEIS/EIR relies heavily on noise level standards from a document prepared by the Federal Interagency Committee on Noise ("FICON") entitled "Federal Agency Review of Selected Airport Noise Analysis Issues." This document is misrepresented in the report and should not be relied upon. The misrepresentation is to describe this document as a "study detailing the degree of speech understanding at various noise levels..." (SEIS/EIR, *Noise*, Section 4.1.2.1.2, p. 4-12.)

First, FICON is an interagency task force consisting of representatives from various government agencies. It does not consist of experts on noise or noise impacts on children who have appropriate scientific training and experience to critically evaluate and summarize a scientific body of literature.

Second, there are many individuals on FICON with clear conflicts of interest in assessing the scientific literature. The majority of FICON representatives work for federal agencies that are major producers of noise (e.g., Federal Aviation Administration ("FAA"), the U. S. military, National Aeronautics and Space Administration ("NASA").

Third, the entire FICON document devotes five pages to the topic of speech communication. No scientific analysis could "detail the degree of speech understanding" in such a limited manner. The uncritical acceptance of the FICON document reflects a serious lack of understanding and knowledge of the scientific literature on the effects of noise on children's learning and speech perception.

Fourth, some important data the FICON document relies upon are outdated and in some cases inaccurate. For example, Table 3.3 in the FICON document which is reprinted from a 30 year old Environmental Protection Agency ("EPA") document ("EPA Report") is widely rejected in the scientific community in its applicability to children's learning. Data from adults listening to a trained speaker conversing in the outdoors were used to develop this Table. It has long been known that children need a larger signal to noise ratio to comprehend speech than an adult, and noise effects in interior environments must take into account sound intensity and reverberation time (time for sound to decay). (American National Standards Institute, "Acoustical performance criteria design requirements and guidelines for schools.," ANSI S12.60-2002; World Health Organization, *Environmental Health Information, Guidelines for Community Noise*, 2000, Exhibit 20; Nelson, P. & Soli, S., "Acoustical barriers to learning: Children at risk in every classroom." *Language, Speech, and Hearing Services*. 31: 356-361, 2000; Picard, M., & Bradley, J.S., "Revisiting speech interference in classrooms." *Audiology*,

40: 221-244, 2001) The FICON document and the SEIS/EIR which relies primarily on the FICON document is replete with errors of this sort.

Fifth, the FICON document omits abundant research on airport noise and deficits in reading acquisition. More than 20 studies around the world (Evans, G.W. & Lepore, S.J., "Nonauditory effects of noise on children." *Children's Environments*, 10: 31-51, 1993; Kryter, K.D., "The handbook of hearing and the effects of noise." San Diego, Academic Press, 1994, Exhibit 21; World Health Organization, *Environmental Health Information, Guidelines for Community Noise*, 2001) including a dose response relationship (Green, K., Pasternack, B. & Shore, R., "Effects of aircraft noise on reading ability of school age children." *Archives of Environmental Health*, 37: 24-31, 1982, Exhibit 22) interventions to reduce noise (Bronzaft, A., "The effect of a noise abatement program on reading ability." *Journal of Environmental Psychology*, 1: 215-222, 1981) and most convincingly, a prospective, longitudinal study (i.e. the same children are compared before and after the opening of a major new airport) (Hygge, S., Evans, G.W., & Bullinger, M., "A prospective study of some effects of aircraft noise on cognitive performance in school children." *Psychological Science*, 13: 469-474, 2002, Exhibit 23), show significant deficits in reading from transportation related noise exposure.

b. The SEIS/EIR ignores the scientifically confirmed and well-established link between noise exposure and children's learning.

The SEIS/EIR relies heavily on FICON's flawed logic in developing its basic arguments. The SEIS/EIR states that "there is no reliable statistical relationship between the amount of aircraft noise exposure present and the degree of learning difficulty experienced by children at affected schools. . ." (SEIS/EIR, *Noise*, Section 4.1.2.1.2, p. 4-11.) First unless the SEIS/EIR consulting team includes individuals trained in statistics and research design methodology, this claim is suspect prima facie. Second, because there is very little data (consisting of one airport study (Green, K., Pasternack, B. & Shore, R. "Effects of aircraft noise on reading ability of school age children." *supra*) and one road traffic study (Lukas, J.S., DuPree, R.B. and Swing, J.W. *Effects Of Noise On Academic Achievement And Classroom Behavior*, *supra*.) to be exact, not zero as stated by FICON and uncritically repeated in the SEIS/EIR) showing a dose-response relationship between noise levels and learning deficits, the report presumes therefore there is no evidence to support a link between noise exposure and learning difficulties. This is patently false.

There are multiple sources of evidence to demonstrate a relationship between airport noise exposure and significant deficits in children's learning. Many studies show that aircraft noise is significantly related to deficits in reading acquisition (see reviews in Evans, G.W. & Lepore, S.J., "Nonauditory effects of noise on children." *Children's Environments*, 10: 31-51, 1993, Exhibit 24; Kryter, K.D. "The handbook of hearing and the effects of noise." *supra*; World Health Organization, *Guidelines*, 2001, *supra*.) Not one of these studies is cited in the FICON document or the SEIS/EIR. This is a glaring omission in an SEIS/EIR that is mandated by state and federal law to consider potential health and welfare costs and benefits of a proposed project. The focus on speech and communication should be at least matched by an analysis of the noise and reading acquisition literature.

In contrast to the FICON document, the SEIS/EIR briefly notes a more recent American National Standards Institute ("ANSI") classroom standard criterion established in "Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools," *supra*. (hereinafter referred to as "ANSI Report"). This document recommends lower levels of acceptable noise intensity in classrooms than FICON. The SEIS/EIR omits discussion of the World Health Organization ("WHO") noise criterion document, "Adverse Health Effects of Noise," Section 3, April 2001, (hereinafter referred to as the "WHO Report"), which predates the ANSI study by a few years. The WHO and ANSI standards converge on 35 dBA for an interior noise standard for elementary school classrooms. What is particularly important to understand is that unlike the FICON document, the ANSI and WHO reports were developed by scientists knowledgeable about noise and its human impacts. These reports are much more detailed and provide a thorough discussion and analysis of the evidence. In the case of the WHO Report, it represents a consensus statement of leading noise researchers in the world on the current level of knowledge about noise and its impacts and provides recommendations of acceptable noise standards to protect the public. Unlike the FICON document, the WHO and ANSI reports were also widely distributed to scientists in draft form for critical feedback, and then went through multiple iterations of revisions. There was substantially scientific peer review of the WHO and ANSI reports. This did not occur for the FICON document.

c. The SEIS/EIR entirely neglects the substantiated link between noise and other adverse learning and health effects on children.

The SEIS/EIR also does not consider evidence of other adverse learning and health effects on children chronically exposed to aircraft noise. These are widely available in the scientific literature. Children chronically exposed to noise suffer from motivational deficits. They persist less in achievement related contexts. Both laboratory (Glass, D.C. "Behavior patterns, stress, and coronary heart disease." Hillsdale, NJ: Erlbaum, 1977) and field studies of noise (Bullinger, M., Hygge, S., Evans, G.W., Meis, M. and von Mackensen, S., "The Psychological Cost of Aircraft Noise for Children," *supra*; Evans, G.W., Hygge, S. & Bullinger, M., "Chronic noise and psychological stress." *Psychological Science*, 6: 333-338, 1995, Exhibit 25) show that children are less likely to continue efforts in problem solving if they have been exposed to uncontrollable noise. These motivational deficiencies are believed to be caused by the uncontrollable nature of ambient noise exposure.

Constant exposure to a noxious, uncontrollable stressor like noise produces learned helplessness (Peterson, C., Maier, S. & Seligman, M.E.P., "Learned helplessness." NY: Oxford University Press, 1993). Individuals learn that regardless of their efforts to cope with an adverse environmental condition, they cannot do anything about it. The outcomes of their behaviors are noncontingent on their behaviors. It is worth noting that the most common way learned helplessness is produced in human laboratory studies, is to expose individuals to uncontrollable noise. There is very strong evidence from human experiments that exposure to uncontrollable noise can produce significant decrements in task persistence. Field studies with children indicate parallel trends from chronic exposure to aircraft noise (See for reviews Cohen, S., "Aftereffects of stress on human performance and social behavior: A review of research and theory." *Psychological Bulletin*, 88: 82-108, 1980, Exhibit 26; Evans, G.W., "Environmental stress and health." In A. Baum, T. Revenson & J.E. Singer (Eds.), *Handbook of Health Psychology*. Mahwah, NJ: Erlbaum, 2001, Exhibit 27; Glass, D.C., & Singer, J.E., "Urban stress: experiments

on noise and social stressors.” NY: Academic Press, 1972; Peterson, C., Maier, S. & Seligman, M.E.P. “Learned helplessness.”, *supra.*) The effect of learned helplessness is compounded for Lennox School District students because learning does not only occur in the classroom. These children also learn at home (i.e. reading and homework) with chronic exposure to aircraft noise.

Additionally, there are several studies documenting links between chronic noise exposure in children and elevated blood pressure. There are no dose response data, but several studies with different research designs (cross-sectional, intervention, longitudinal) show that airport noise exposure is associated with higher blood pressure in children. (See for reviews Evans, G.W. “Environmental stress and health.” *supra.*; Ising, H. Babisch, W., & Kruppa, B., “Acute and chronic noise stress as cardiovascular risk factors.” *Noise and Health*, 4: 37-48, 1999; World Health Organization, *Environmental Health Information, Guidelines for Community Noise*, 2001, *supra.*) A smaller number of studies also find evidence of elevated stress hormones from exposure to airport noise (Evans, G.W., Bullinger, M. and Hygge, S., “Chronic Noise Exposure and Physiological Response: A Prospective Study of Children Living Under Environmental Stress.” *Psychological Science*, Vol.9, No.1, January 1998, Exhibit 28; Ising, H., et al. “Acute and chronic noise stress as cardiovascular risk factors.”, *supra.*) It is well known that children with higher blood pressure will tend to have higher blood pressure as adults.

10. The SEIS/EIR’s Proposed Noise Study is Inadequate.

a. LAWA may not postpone its proposed noise study absent a commitment by LAWA to mitigate.

The California Environmental Quality Act requires that, whenever feasible, all impacts must be mitigated for any project that is carried out by or approved by a public agency. California *Public Resources Code* §§ 21002, 21002.1(b). Thus, significant effects on the environment must be either eliminated or *substantially* minimized where feasible. (*Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1355.)

According to the SEIS/EIR, LAWA will initiate a study of the relationship between aircraft noise levels and the ability of children to learn. (SEIS/EIR, *Land Use*, Section 4.2, p. 4-210.) Based upon this study, LAWA will set a new threshold of significance for classroom disruption. (*Id.*)

Nonetheless, the SEIS/EIR is vague, inconclusive and inconsistent with respect to actual mitigation. The SEIS/EIR makes no clear statement or commitment to mitigate the impacts even after establishing the new threshold of significance discussed above.

According to California law, LAWA must make a binding “commitment” to achieve a desired level of mitigation. (*Sacramento Old City Association v. City Council of Sacramento* (1991) 229 Cal.App.3d 1011, 1028.) One manner in doing so is to effectuate “specific performance criteria articulated at the time of project approval.” (*Id.* at 1029.) Without either a binding commitment or a performance standard, the CEQA analysis is flawed.

For example, the SEIS/EIR states that “any schools found to exceed a newly established threshold of significance for classroom disruption shall be incorporated into the ANMP administered by LAWA.” (SEIS/EIR, *Land Use*, Section 4.2, p. 4-210.) According to the SEIS/EIR, the ANMP performance standard is as high as 45 CNEL. (SEIS/EIR, *Land Use*, Section 4.2, p. 4-198.) Since the new threshold of significance will in all likelihood be lower than 45 CNEL, reliance on the ANMP performance standard would render the new threshold immaterial for mitigation purposes.

Also, conflicting language in the SEIS/EIR creates ambiguity as to whether LAWA will provide substantial mitigation. The SEIS/EIR states that mitigation measures would “mitigate schools that are impacted by significant single event levels through further study of the relationship between the learning and aircraft noise exposure levels, and the subsequent sound insulation of schools where impacts are shown to be significant.” (SEIS/EIR, *Noise*, Section 4.1, p. 4-80.) The *Supplemental Aircraft Noise Technical Report*, however, hedges by associating eligibility for mitigation with the CNEL levels in the Settlement Agreement. (Section 6.2.3, p. 154.) Additionally, it states that “the potential for additions to the sound insulation program for schools will be revisited as part of LAWA’s continuing environmental management responsibilities.” (*Id.*)

The SEIS/EIR does not state whether LAWA will mitigate to levels below significance (i.e. below the new threshold of significance). Nor does the SEIS/EIR provide a “standard of performance” for noise mitigation. It also does not clarify whether this mitigation will occur in schools it believes are otherwise “compatible” under Title 21. (See, e.g., SEIS/EIR, *Environmental Justice*, Section 4.4.3.5.1.2, p. 4-329.)

Although the SEIS/EIR acknowledges the impact of aircraft noise on children’s learning, it does not commit to mitigation. The SEIS/EIR’s inconclusive approach circumvents the mitigation analysis called for by CEQA.

b. A deferred noise analysis is inappropriate.

Possible impacts must be studied as early as possible to avoid deferment of formulation of mitigation measures. (See, *Sundstrom v. County of Mendocino* (1988) 202 Cal. App. 3d 296, 307.) In general, “an environmental assessment, including a statement of the mitigation measures, may not be deferred until a future study or project.” (*Rio Vista Farm Bureau Center v. County of Solano* (1992) 5 Cal.App.4th 351.)

There is substantial evidence currently before LAWA that significant impacts of aircraft noise on children’s learning will occur. Despite this, LAWA is deferring the assessment of this impact. CEQA requires environmental review at the earliest feasible stage in the planning process. California *Public Resources Code* Section 21003.1; *Sundstrom v. County of Mendocino*, 202 Cal. App. 3d 296, 307.

In this case, there is no justifiable reason for delaying the study or not initiating the study at an earlier date. In September of 2001, in response to the Original EIS/EIR, the Lennox School District analyzed an abundance of studies and academic research regarding the relationship between aircraft noise and children’s learning, ‘learned helplessness’ and high blood pressure.

LAWA does not present a satisfactory reason for its failure to conduct or initiate its proposed study at that time, nearly two years prior to release of the Supplement, or any time since then. Thus, the SEIS/EIR fails in its obligation to conduct the study at the earliest feasible stage in the process.

Also, as a result, the SEIS/EIR fails to meet the requirement of “completeness and a good faith effort at full disclosure.” (*Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1355.)

c. Failure to conduct a study prior to publishing the SEIS/EIR is against public policy.

The oversight in failing to conduct a noise study in and of itself may seem inconsequential, however, in face of overarching public policy considerations, it is significant. Public policy dictates that, “in the absence of overriding circumstances, the CEQA process demands that mitigation measures be timely set forth, that environmental information be complete and relevant, and that environmental decisions be made in an accountable arena.” (*Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359, 1393-1394.) Otherwise, the process diminishes the influence of decisionmaking in CEQA by not allowing the public to review the environmental impacts and provide comments to the lead agency. “Public and agency review” has been called the “strongest assurance of the adequacy of the EIR. [Citations]” (*Sundstrom v. County of Mendocino* (1988) 202 Cal. App. 3d 296, 308.) Absent this public review, LAWA is not accountable to mitigation measures for a significant impact caused by aircraft noise on children’s learning.

Moreover, CEQA’s very purpose “is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the EIR ‘protects not only the environment but also informed self-government.’[Citations.]” (*Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1354.) The lack of early disclosure and public review completely disregards and undermines the CEQA process.

d. The proposed noise study must meet stringent scientific standards to be valid.

LAWA proposes to commission a study to determine a dose-response relationship between aircraft noise exposure and learning deficits in children. (SEIS/EIR, *Land Use*, Section 4.2, p. 4-210.) This is a worthy scientific endeavor that will entail a large, complex, and lengthy process that will cost an enormous sum of money. The proposed study will require considerable expertise, experience, and knowledge in formulating, conducting, analyzing and interpreting complex data. As currently described in the SEIS/EIR, it is impossible to evaluate the potential merits of the proposed study because major elements of the most basic scientific information are not presented about the study.

No scientific research proposal can be evaluated for its potential merit without a careful, even handed and critical review of the existing literature bearing on the topic. The current document provides an incomplete, outdated, and highly biased overview of the literature. It

relies too heavily on one summary review (FICON). Furthermore no conceptual arguments are developed linking the literature overview with the proposed study. In scientific research, investigators must build a conceptual and methodological rationale for any proposed study. The current document does not do this.

The SEIS/EIR needs to include a statistical power analysis to estimate the number of participants to be included in the proposed study. Standard scientific review criteria for empirical research proposals call for statistical estimates of effect sizes from existing literature and their incorporation into research proposals. This power analysis would need to address the overall sample size for establishing a dose response function between noise and each learning outcome of interest. Furthermore, critical subsample power estimates would need to be incorporated such as ESL and non-ESL children, children suffering permanent and temporary hearing loss (a very common occurrence among elementary school children because of ear infections) and grade levels given likely age differences in susceptibility to adverse noise impacts on reading acquisition as well as speech perception. For example, according to ANSI:

“Limitations in vocabulary and in the ability to ‘fill in the blanks’ when partial communication occurs in difficult listening situations have been shown to reduce intelligibility for children with limited English Proficiency, again despite normal intelligibility in quiet environments. These children may require 2 to 5 dB more favorable signal-to-noise ratios in difficult listening situations to achieve the same level of intelligibility as children with normal English proficiency. (Citations omitted.) (ANSI, “Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools.”, *supra*.)

This is of particular significance to Lennox School District due to its having a student body consisting of 71.2% “English Learner” students. (See Part One, Section 2a., *supra*.) In addition, ANSI estimates that hearing impairments caused by ear infections are,

“estimated incidence as high as 25% to 30% among kindergarten and first grade children. . . . Signal to noise ratio improvements of 3 dB to 5 dB together with increases in absolute speech sound levels of 10 dB to 30 dB are necessary for children with these impairments to achieve the same level of speech intelligibility in classrooms with high background noise.” (ANSI, “Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools.”, *supra*.)

The research design of the proposed study would also need to address in detail how duration of exposure (e.g., months in residence) and home noise exposure would be incorporated into a study of schools varying in aircraft noise exposure.

Given a thorough statistical power analysis is needed to ensure that the appropriate number of participants are included overall and in critical subgroups in order to provide the necessary sensitivity to detect potential adverse effects, a thorough sampling plan also needs to

be developed. The following issues must be addressed in the SEIS/EIR with respect to the proposed study: How and where will participants be sampled and what special sampling techniques will be used to ensure adequate representation of critical subgroups (e.g., ESL)? Will children with temporary or permanent hearing loss be included in the study and how will these classifications be determined? Will data be collected in one or multiple school districts and if the latter, how will differences in reading curricula be handled? Will data be collected only once, yielding a cross-sectional study or will a panel design be developed to monitor children's learning trajectories over time? If the latter research design is incorporated, at what ages would children be monitored and how often would data be collected? If a longitudinal design is incorporated, how will attrition be dealt with both in the research design and in data analysis?

No information is provided in the SEIS/EIR about the manner in which the proposed study would be conducted and what measures of learning would be incorporated. Is the primary focus on chronic or acute noise? This has dramatic implications for interpretation of the data and bears significantly on procedural conduct of the study itself. For example, reliance on archival records of standardized tests confounds chronic and acute noise exposure since the tests are taken during airport operational periods.

Outcome measures (e.g., reading acquisition, speech perception) need to be described, including at a minimum their basic psychometric properties (e.g., reliability, validity) and their appropriateness for use in a culturally diverse, multi-language sample.

How exactly will noise exposure be estimated and what metrics will be used? The SEIS/EIR glosses over critical distinctions in noise metrics such as L_{MAX} , L_{LEQ} , CNEL, and time above peaks. The authors of the proposed study need to say what metric(s) they would use and provide a rationale, discussing in depth the strengths and weaknesses of each alternative. How will reverberation time be monitored and incorporated into data analyses and interpretation? In interior settings, reverberation time influences speech intelligibility. The very difficult issue of exposure estimation also requires discussion. Where and when will noise exposure be measured? Children learn in the classroom, on the playground, and at home. A narrow focus on school noise level changes ignores the potential influence of changes in home noise levels caused by expanded airport operation.

There is no data analytic plan included in the study proposal detailing precisely how the results would be analyzed. Such a plan at a minimum would describe what statistical techniques would be used and how controls for factors with known covariation with noise and learning would be dealt with in the analyses. For example, how will the proposed study statistically or methodologically handle the co-mingling of income, ethnicity, noise exposure, and learning?

It is basic scientific practice to address the kinds of issues briefly summarized above in research proposals to obtain funding to conduct research. Scientific review panels for the National Science Foundation or the National Institutes of Health routinely consider and evaluate the scientific merits of proposals using such criteria. This is widely understood and supported by scientists. Major foundations that support scientific research subscribe to similar scientific review criteria as well. Written proposals that address the types of issues and questions raised above are typical, routine practice engaged in by scientists *prior to conducting research*.

Because the SEIS/EIR ties the proposed study to some critical policy decisions, it is critical to provide some additional material to the document under review. In particular, regulatory bodies and the public need to know more about how the results would be used to determine mitigation measures. For example, what indices of deficit would be considered significant and trigger mitigation? If reading acquisition is delayed on average by six months and for even longer for ESL children, would LAWA consider this sufficient to incorporate mitigation? What percentage of loss in speech perception is considered sufficient to warrant mitigation? Parallel questions need to be discussed for all health and welfare outcomes judged pertinent to the study design.

There is precedent in California and federal environmental regulatory procedures to incorporate a margin of safety in standards to protect vulnerable subgroups of the population. For example air pollution standards both in California and at the federal-level mandate protection for asthmatic children. (See Cal/EPA, *Staff Report: Public Hearing to Consider Amendments to the Ambient Air Quality Standards for Particulate Matter and Sulfates*. Air Resources Board and Office of Environmental Health Hazard Assessment, May 2002, <http://www.arb.ca.gov/research/aags/std-rs/pm-final/pm-final.htm>; see also, USEPA, *Review of the National Ambient Air Quality Standards for Particulate Matter: Policy Assessment of Scientific and Technical Information*. Office of Air Quality Planning and Standards, June 2001, <http://www.epa.gov/ttn/oarpg/t1/reports/pmstdrft.pdf>.) How will determinations be made of which groups of children are vulnerable and in need of additional protection from elevated noise levels at school and in their homes? What margin of safety will be incorporated to protect these vulnerable subgroups, once determined?

Decisions about criteria for mitigation and protection of vulnerable subgroups in the population are both scientific and political. Since one of the major reasons for the proposed study in the SEIS/EIR is to determine mitigation procedures, government bodies with regulatory responsibility, as well as the public, must have the opportunity for discussion and review of the criteria that will be used to determine such critical policy decisions. The present document is silent on these issues therefore precluding regulatory and public scrutiny as mandated in CEQA and NEPA.

PART FOUR

THE EMISSIONS, MODELING, MITIGATION MEASURES AND HEALTH IMPACT ANALYSIS OF THE SEIS/EIR IS INADEQUATE

CEQA requires the EIS/EIR to “identify and focus on” significant environmental effects of proposed projects. (14 *California Code of Regulations* § 15126.2.) “Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects.” (*Id.*) The EIS/EIR also must describe “feasible measures which could minimize significant adverse impacts.” (14 *California Code of Regulations* § 15126.4.) The EIS/EIR fails to adequately do so.

1. The Emissions Estimations in the SEIS/EIR Violate CEQA.

The emissions estimates in the SEIS/EIR for jet aircraft and storage and handling of fuels may be underestimated. Correction of this underestimation will result in increased pollutant concentrations that may result in exceedances of the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) as well as increases in off-site cancer risks and noncancer hazard indices for off-site populations.

a. Jet Aircraft Emission Estimates May Be Underestimated As the Methodology Used to Estimate Particulate Emissions from Jet Aircraft Is Unclear and May Be Flawed.

To estimate particulate matter less than 10 microns (PM_{10}) emission rates from aircraft for the EIS/EIR, Los Angeles World Airports (LAWA) used information from three sources: (1) fourth edition of AP-42; (2) Whitefield and Hagen Study; and (3) the 1994 California FIP Docket. (Original EIS/EIR, *Technical Report 4*, Attachment H.) The emission rate data from these studies are combined; the combined data are plotted for each of the four aircraft operating modes. Based on these plots, a relationship between fuel usage and PM_{10} emission rate is interpolated.

A review of the data shows the first and second studies to be in approximate agreement; the FIP Docket provides an alternate data set. As there is approximately an order of magnitude more FIP Docket data, the data from this study dominate the results. If the FIP Docket data were removed from the combined data set, it is clear that the relationship between fuel usage and the PM_{10} emission rates would change and the estimated total PM_{10} emissions from aircraft would also change.

Based on the information presented in the EIS/EIR, it is unclear how the FIP Docket data are used in the PM_{10} emission rate analysis. It appears that a relationship between PM_{10} emissions and fuel usage is derived from a graphical representation of a relationship between particulate mass concentration and smoke number (i.e., from a plot of an equation relating PM concentration and smoke number).

There are two issues with this derivation. First, it is not clear how a relationship between fuel usage and PM_{10} emissions is derived from a plot of particulate mass concentration versus smoke number. Second, because the particulate mass concentration versus smoke number data appear to be simply a plot of some unknown equation, the number of data points taken from this graph seems to be arbitrary. Since the number of points taken from this graph is approximately 10 times greater than the number of data points available from the other two studies, it appears that LAWA may have arbitrarily weighted the combined data set heavily towards the FIP Docket data and away from the AP-42 and Whitefield and Hagen data.

Aircraft emissions of PM_{10} are potentially underestimated. An increase in PM_{10} emissions will result in an increase in off-site concentrations of PM_{10} . As noted below, the potential noncancer health impacts associated with these PM_{10} emissions have not been

quantified in the EIS/EIR. Inclusion of additional PM₁₀ emissions may result in exceedance of the noncancer hazard index for off-site populations.

At a minimum, LAWA needs to clarify the approach used to develop the FIP Docket data; conduct a sensitivity analysis to determine the importance of the FIP Docket data to their results; and, if necessary, remove arbitrary weighing of FIP Docket data over other data sets, correct the PM₁₀ emission rates, and remodel off-site PM₁₀ concentrations.

- b. Potentially significant evaporative emissions of toxic air contaminants resulting from the storage and handling of organic liquids may not have been quantified.**

LAWA does not include volatile organic compound (VOC) emissions from organic liquid storage and transfer in their Industrial Source Complex Short Term 3 (ISCST3) modeling of toxic air pollutant emissions. They assume that: (1) storage emissions are almost exclusively from Jet A fuel; (2) emissions of Jet A vapor do not contain significant quantities of the toxic air pollutants modeled; and (3) limited future operations of gasoline fueling would include vapor recovery and therefore result in minimal emissions of air toxics.

There are three problems with this exclusion of VOC emissions. First, diesel fuel and gasoline are used at the airport. LAWA should provide data to show that storage and resulting emissions of these fuels are insignificant. Second, LAWA should provide justification for the assumption of no toxic air pollutants in Jet A vapor. Third, LAWA should provide some screening calculations to validate their assumption that gasoline fueling would result in insignificant emissions of air toxics (especially benzene).

Toxic air emissions from storage and handling of organic liquids may have been underestimated. An increase in toxic air emissions will result in increases in off-site cancer risks and noncancer hazard indices for off-site populations.

At a minimum LAWA needs to quantitatively demonstrate that emissions of toxics from storage and handling of diesel fuel and gasoline are insignificant; and provide a speciated chemical list for Jet A fuel.

2. The Modeling Approach of the EIS/EIR Violates CEQA.

The modeling approach presented in the EIS/EIR has several significant flaws that result in underestimation of both criteria and toxic pollutants impacts on nearby receptors. The analysis of the emission impacts is inadequate, the methodology used to estimate plume rise is flawed, the assumption of no downwash is not justified, the meteorological data used in the modeling is inadequate, the conversion of sulfur dioxide to sulfate is not addressed, and finally, secondary formation of toxic pollutants and deposition effects are ignored. These flaws result in an underestimate of ambient pollutant concentrations. Correcting these flaws will result in an increase in pollutant concentrations and may result in exceedances of the NAAQS and CAAQS as well as increases in off-site cancer risks and noncancer hazard indices for off-site populations.

- a. **The extent to which emissions from motor vehicles traveling the I-405 and I-105 interstate highways have been included in the air quality analysis is unclear. Emissions of carbon monoxide, toxic air contaminants, particulate matter, and ozone precursors from these sources may be underestimated. Airborne concentrations of these chemicals at locations downwind from the freeways (e.g., community of Lennox) may be underestimated accordingly.**

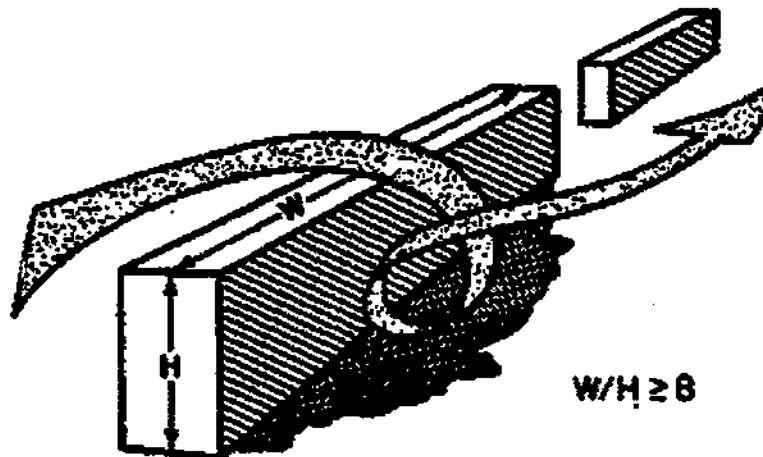
The I-405 and I-105 interstate highways are major sources of air pollution in the immediate project area. Motor vehicle emissions from these roadways negatively impact air quality on local and regional scales. These roadways produce elevated concentrations of directly-emitted chemicals (including carbon monoxide, benzene, 1,3-butadiene, formaldehyde, and diesel exhaust) at locations immediately downwind from the roadways, and contribute to elevated ozone and secondary particulate matter (i.e., particulate matter formed in the atmosphere - a major source of visibility impairment) concentrations over a broader area. However, it appears that the EIS/EIR analysis neglects to include emissions from motor vehicles traveling on the I-405 and I-105 roadways, except for carbon monoxide emissions from short segments (only) of these roadways which are considered in the analysis of carbon monoxide impacts near traffic intersections.

Exclusion of motor vehicle emissions from the I-405 and I-105 interstate highways would result in underestimation of airborne concentrations of carbon monoxide, benzene, 1,3-butadiene, formaldehyde, diesel exhaust, and other toxic air contaminants at locations downwind from the roadways, e.g., within the community of Lennox. Estimated concentrations of carbon monoxide near roadway intersections and areas downwind of the I-405 and I-105 roadways (e.g., intersections 46 and 107 on Figure 4.3.2-1 from the Original EIS/EIR) would be greater if all carbon monoxide emissions from motor vehicles on the freeways were considered, and may comprise significant air quality impacts at these locations. Estimated cancer and noncancer health risks for schoolchildren and residents located downwind from I-405 and I-105 (e.g., as predicted for Alternative D in Section 4.24 of the SEIS/EIR) would be greater if all pollutant emissions from motor vehicles were considered, and may comprise significant impacts for these people.

LAWA should clarify the extent to which emissions from motor vehicles traveling the I-405 and I-105 interstate highways are or are not included in the air quality and health risk analyses. If pollutant emissions from these major sources are not considered, the emissions, air quality modeling, and human health risk analyses should be revised to incorporate these potentially significant sources of pollution or justification should be provided to support their omission from the analysis.

- b. The extent to which "sound walls" and other structures have been considered in the dispersion modeling of carbon monoxide and toxic air contaminants is unclear. Airborne concentrations of carbon monoxide and toxic air contaminants at locations where "downwash" and "cavity" effects occur may be underestimated.

Obstacles to air flow such as walls and buildings create localized flow phenomena known as "downwash," "cavity effects," and "eddies," typically on the downwind side of the obstacle, which results in buildup of pollutant concentrations. For example, pollutant concentrations between tall urban buildings may be 2 to 20 times higher than in the surrounding area (United States Department of Energy, 1984). A sound wall built parallel to and downwind from an interstate highway would result in elevated pollutant concentrations both within the roadway and also along the leeward side of the wall (away from the roadway) due to downwash; this effect is illustrated in the figure below. (United States Department of Energy (1984) *Atmospheric Science and Power Production*, Darryl Randerson, Editor, Technical Information Center, Office of Scientific and Technical Information, DOE/TIC-27601 (DE84005177).)



(b) Wind incident at an angle on a long obstruction creates a spiraling zone in the near wake; the speed ratio Ψ has a maximum value of about 1.4.

It is not clear to what extent that increased pollutant concentrations caused by building- and structure-induced flow effects have been considered in the EIS/EIR analysis. It is noted that building downwash and cavity effects are assumed to be negligible with respect to aircraft emissions because the emissions sources (aircraft) are located within the airport and away from any receptor locations which may be influenced by building effects. (Original EIS/EIR, Technical Report 4, Attachment A, p24.) However, it is unknown if downwash/cavity effects are considered in the dispersion modeling of carbon monoxide and toxic air contaminants, especially those emitted from motor vehicles.

The Original EIS/EIR states that "site geometry and characteristics" are considered in the dispersion modeling of carbon monoxide from roadway intersections. (Original EIS/EIR, Appendix G, p. 28.) It is not stated which, if any, particular roadway geometry features are

incorporated into the analysis of any particular intersections. For example, it is unknown whether sound walls or other structures are included in the analysis of roadway intersections near the I-405 interstate highway. The presence of a sound wall or similar structure east of I-405 would cause elevated concentrations of carbon monoxide and other toxic air contaminants emitted by motor vehicles along the leeward side of the structure. We conclude that airborne concentrations of carbon monoxide and toxic air pollutants may be underestimated at locations where walls and buildings produce downwash effects, including the area downwind (east) from I-405.

c. The methodology used to estimate plume rise from jet aircraft is questionable and requires further justification.

LAWA determines the plume rise of hot exhaust gas from jet aircraft engines based on a heat balance to determine the heat flux and the equivalent exit velocity that would result. (Original EIS/EIR, *Technical Report 4*, p. 19.) To calculate this exit velocity, they make four critical assumptions. First, the jet engine exhaust gas temperature is fixed and unrelated to the heat flux. Second, as the exhaust gas from the jet engine begins to slow (in the horizontal plane) and begins to move vertically upward as a plume, the diameter of the plume (in the vertical plane) may be estimated by the wingspan of the jet.

Third, the temperature of the plume is equal to the jet engine exhaust gas temperature. As there are no ambient heat sources, this implies that the movement of the exhaust gas is adiabatic, isothermal, and there is no rapid expansion of exhaust gas. Finally, the temperature of ambient air is assumed to be 293 Kelvin (K). Calculated exit velocity, plume temperature, and plume diameter were then input into ISCST3 to determine plume rise.

There are three problems with this approach. First, the temperature of the plume is assumed equal to the temperature of the exhaust gas. Given isothermal movement, this is only true if the total mass per second of air leaving the jet engines equals the mass per second of air moving up in the plume. LAWA should check their calculations to be sure that this is true, otherwise the plume rise calculations may be in error.

Second, the implied assumptions of isothermal movement and slow expansion of exhaust gas are physically unrealistic. It is likely that exhaust gas will expand rapidly when exiting the jet engine and cooler, ambient air will be entrained into exhaust gas as it moves away from the jet engine. Both of these effects will tend to lower the temperature in the plume. LAWA should perform a sensitivity analysis to determine the quantitative influence of these phenomena on the resulting plume rise.

Finally, the temperature of the ambient air should be consistent with the average temperature data used in the ISCST3 model runs. LAWA should average the temperatures in the meteorological data set used in the model runs to determine the correct average ambient temperature.

Plume rise may be overestimated. If so, concentrations of NO₂, PM₁₀, and air toxics resulting from aircraft emissions may be underestimated. Increases in concentrations of these

pollutants may result in exceedances of the NAAQS and CAAQS as well as increases in off-site cancer risks and noncancer hazard indices for receptor populations.

At a minimum LAWA needs to check their calculations to ensure conservation of mass; conduct a sensitivity study to determine the quantitative influence of rapid expansion of exhaust gas and entrainment of ambient air on plume temperature; and calculate the plume rise with the correct average ambient temperature.

d. The assumption that building downwash is negligible requires further justification.

LAWA believes that building downwash will not be significant based on their assumption that the nearest receptor is too far off-site. (Original EIS/EIR, *Technical Report 4*, p 24.) LAWA should validate this assumption by modeling the most conservative source-receptor geometry, with building downwash included, to ensure this statement is correct. These results should be presented in *Technical Report 4*.

Off-site impact from airport emissions may be underestimated. If so, concentrations of criteria pollutants and air toxics resulting from airport emissions may be underestimated. Increases in concentrations of these pollutants may result in exceedances of the NAAQS and CAAQS as well as increases in off-site cancer risks and noncancer hazard indices for receptor populations.

LAWA needs to conduct a sensitivity study to show that building downwash effects are negligible.

e. The meteorological data set used may be inadequate relative to EPA and SCAQMD recommendations.

LAWA used the most recent meteorological data collected at LAX. These data consist of hourly surface and upper air data from the LAX meteorological observation station operated by the SCAQMD for the 12-month period beginning March 1, 1996 and ending February 28, 1997.

As recommended by EPA, "five years of representative meteorological data should be used when estimating concentrations with an air quality model. (USEPA, *Guideline on Air Quality Models (Revised)*, Original EIS/EIR Response Exhibit 14. Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711, EPA-450/2-78-027, 1986, August 1995 update.) Consecutive years from the most recent, readily available 5-year period are preferred." SCAQMD recommends the use of the 1981 dataset. Accordingly, LAWA should conduct their air modeling with either the most recent five years of data from the LAX station, selecting the most conservative year results as representative of maximum long-term pollutant concentrations resulting from emissions associated with LAX or use the 1981 dataset. Furthermore, this five-year data set or 1981 dataset should be used to estimate average temperature (plume rise), mixing heights (EDMS), and wind speed (volume source height) used in other calculations and analyses.

Pollutant ambient air concentrations may be underestimated. If so, concentrations of criteria pollutants and air toxics resulting from emissions associated with expansion of LAX may be underestimated. Furthermore, the location of the maximum off-site impacts may also change. Increases in concentrations of these pollutants may result in exceedances of the NAAQS and CAAQS as well as increases in off-site cancer risks and noncancer hazard indices for receptor populations.

At a minimum LAWA needs to (1) conduct a sensitivity study to determine which year of LAX meteorological data is the most conservative or use the SCAQMD designated 1981 year of data; (2) if different from the meteorological data used in their analysis, redo all air modeling with the correct meteorological data; and (3) use the most conservative meteorological data set to estimate meteorological data used in other calculations and analyses.

f. Atmospheric conversion of sulfur dioxide to sulfate may be significant and is not addressed.

LAWA has ignored production of sulfate from sulfur dioxide (SO₂) due to the complexity of sulfate-formation mechanisms. LAWA assumes that all sulfur emitted by sources remains in the atmosphere as SO₂. This assumption is not conservative; the California Ambient Air Quality Standard (CAAQS) for sulfate is more than six times lower than the CAAQS for SO₂ (6.2 parts per billion by volume (ppbv) compared to 40 ppbv).

Formation chemistry for conversion of nitrogen oxides (NO_x) to nitrogen dioxide (NO₂) is equally complex, if not more so. The Tier 2 Ambient Ratio Method (ARM) recommended by USEPA in the Guideline on Air Quality Models for converting total NO_x to NO₂ values may be modified to estimate formation of sulfate from SO₂. (USEPA, *Guideline on Air Quality Models, supra.*) LAWA could gather the most recent years of data on the annual average SO₂-to-sulfate ratio near LAX and use this data to estimate the formation of sulfate.

The concentration of sulfate in ambient air is underestimated. Increases in concentrations of sulfate may result in an exceedance of the CAAQS for sulfate. As exposure to sulfate causes respiratory irritation, underestimating the ambient sulfate concentration may significantly underestimate the numbers and types of respiratory illnesses that may be observed in nearby populations, particularly young children who may be especially sensitive to respiratory irritants.

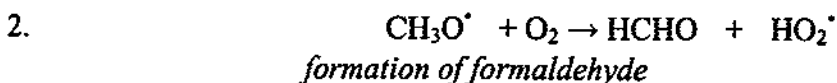
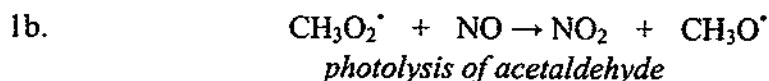
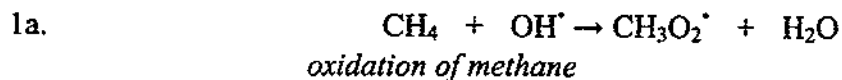
At a minimum LAWA needs to develop an approach to model sulfate chemistry and estimate sulfate concentrations.

g. Secondary formation of toxic air pollutants may be significant and is not addressed.

LAWA has ignored the production of several toxic air pollutants formed in the atmosphere due to reactions among other pollutants (i.e., formed by secondary reactions). As outlined in the EPA's guidance on Air Dispersion Modeling of Toxic Pollutants in Urban Areas, these pollutants should be included in any air toxic analysis. (USEPA, *Draft Air Dispersion Modeling of Toxic Pollutants in Urban Areas - Guidance, Methodology and Example*

Applications. Emissions, Monitoring and Analysis Division (MD-14), Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711, EPA-454/R-99-021, July 1999, Original EIS/EIR Response Exhibit 13.) The pollutants formed by secondary reactions include formaldehyde, acetaldehyde and acrolein.

For example, formaldehyde may be formed in the atmosphere through photolysis or oxidation of other, directly-emitted hydrocarbon species:



An estimate of concentrations based on secondary reactions is needed and should be added to the ISCST3 output. LAWA should use EPA's OZIPR screening model to estimate the secondary formation of these pollutants. (USEPA, *Draft Air Dispersion Modeling, supra.*) Case studies provided in EPA's guidance document show secondary formaldehyde as the major component of total atmospheric formaldehyde (a ratio of 4 to 1 over primary formaldehyde).

If the total ambient formaldehyde concentration attributable to the project were increased by a factor of 5 to account for secondary formation, the contribution from formaldehyde to total absolute cancer and noncancer risks would increase by the roughly the same factor for all years/alternatives. The absolute contributions of formaldehyde to total cancer and noncancer risks in different years/alternatives are not presented in the SEIS/EIR (see comment 4[f]).

The concentrations of formaldehyde, acetaldehyde and acrolein in ambient air are underestimated. Increases in concentrations of these pollutants may result in increases in off-site cancer risks and noncancer hazard indices for receptor populations. At a minimum LAWA needs to model formaldehyde, acetaldehyde and acrolein chemistry.

h. The exclusion of deposition effects from the multipath risk analysis is not justified.

LAWA has neglected to include deposition effects and associated multipathway risk analysis based on conclusions presented in the deposition report, included as Attachment Y to Original EIS/EIR *Technical Report 4*. In this report, LAWA claims that a direct correlation between airport operations and deposition could not be determined.

Nonetheless, LAWA goes on to state, "The limited monitoring duration [less than two weeks] and time of year, while required to meet project schedule requirements, were not optimal for dry deposition monitoring. The *limited nature* [italics added] of this study did not allow for the determination of summertime maximum deposition rates or provide data necessary to perform a mass balance analysis . . ." (Original EIS/EIR, *Technical Report 4*, Attachment Y.)

LAWA is stating that the study was too short to make *any definitive conclusions* and further deposition sampling will be required before the deposition impact of airport emissions on off-site soils can be quantified. In other words, the study is incomplete.

If the study is limited and incomplete, there is no rational reason why LAWA should exclude deposition effects and the associated multipathway risk analysis. Furthermore, the deposition sampling locations selected for this study appear to be outside of the maximum particulate matter plume predicted by LAWA's ISCST3 modeling, further undercutting the already limited nature of this deposition study. Therefore, pending a more complete deposition study, LAWA should include deposition effects and a multipathway risk analysis in the EIS/EIR.

Deposition effects have been improperly excluded from consideration. Soil concentrations of pollutants sorbed to particulate matter have been underestimated. Increases in soil concentrations of these pollutants may result in increases in off-site cancer risks and noncancer hazard indices for receptor populations.

At a minimum LAWA needs to estimate concentrations of pollutants sorbed to particulate matter in soil based on emissions occurring over the duration of the project; and based on these soil concentrations, run a multipathway risk analysis to determine the health impacts of these soil concentrations.

3. The Mitigation Measures Proposed By The SEIS/EIR Violate CEQA.

a. The mitigation measures proposed in the SEIS/EIR have not met all requirements outlined in the SCAQMD CEQA Handbook.

The mitigation measures proposed in the SEIS/EIR have not met all requirements outlined in the SCAQMD CEQA Handbook. Before mitigation measures may be applied to total project emissions they must meet several criteria. The mitigation measures proposed in the SEIS/EIR have not demonstrated compliance with three of these criteria.

Several proposed mitigation measures do not meet the required criteria. Therefore, mitigated emission estimates may be too low. Increases in emissions of mitigated pollutants may result in exceedances of the NAAQS and CAAQS as well as increases in off-site cancer risks and noncancer hazard indices for receptor populations. Furthermore, without mitigation measures, the proposed project under Alternatives A, B, and C will result in exceedances of regulatory thresholds for criteria and/or toxic pollutants. (SEIS/EIR Table 4.24.1-3.)

At a minimum LAWA needs to: (1) develop a matrix showing each mitigation measure and how it meets each of the three missing criteria identified above; and (2) improve documentation of the effectiveness of the selected mitigation measures used to reduce pollutant emissions.

- b. Mitigation measures, except those specific to construction activities, should be applied towards the No Action/No Project alternative in addition to Alternatives A, B, C, and D.**

Mitigation measures are defined in SEIS/EIR Section 4.6.8, including Table S.4.6-18. With the exception of those measures specific to construction activities, the identified measures may be implemented under the No Action/No Project alternative as well as Alternatives A, B, C, and D. For example, the following mitigation measures identified in Table S.4.6-18 are generally applicable to all alternatives including No Action/No Project:

Airside

Convert GSE to electric power

Clean Vehicle Fleets

Promote commercial vehicles/trucks/vans using terminal areas to install SULEV/ZEV engines

Promote "best-engine" technology for rental cars using on-airport RAC facilities. Consolidate nonrental car shuttles using SULEV/ZEV technology

Energy Conservation

Cover any parking structures that receive direct sunlight to reduce volatile emissions from vehicle gasoline tanks and install solar panels on these roofs where feasible to supply electricity or hot water

Highways and Roadways

Link ITS with off-airport parking facilities, with ability to direct/divert trips to these facilities

Expand ITS/ATCS, concentrating on I- and I- corridors, extending into South Bay and Westside surface street corridors

Link LAX traffic management system with airport cargo facilities, with ability to reroute cargo trips to/from these facilities

Develop a program to minimize the use of conventional-fueled fleet vehicles during smog alerts

Landside

Contract with commercial landscapers who operate lowest emitting equipment

Parking

Provide free parking with preferential parking locations for ULEV/SULEV/ZEV in all (including employee) LAX lots; provide free charging stations for ZEV; include public outreach

Pay-on-foot (before getting into car) to minimize idle time at parking check out; include public outreach

Implement on-site circulation plan in parking lots

Promote employee rideshare opportunities

Encourage employee telecommuting

Provide video-conference facilities

Transit and Intermodal

Establish network of strategically placed, off-airport intermodal check-in terminals serviced by LAX-dedicated clean-fuel buses; provide low-priced parking to LAX users of off-airport intermodal terminal facilities; include public outreach

As noted in Part Four, Section (g), *infra*, the logical basis for evaluation of project significance under Alternatives A, B, C, or D in a future year (e.g., 2015) is the No Action/No Project alternative in the same future year. For such a comparison, it is appropriate that non-construction mitigation measures be applied towards both the build and no-build alternatives, as it is possible if not likely that these measures will be implemented regardless of which alternative is pursued. Application of non-construction mitigation measures to only the build alternatives, as is currently done, would incorrectly favor the build alternatives over the no-build alternative.

4. The Health Risk Analysis of the EIS/EIR Violate CEQA.

The flaws in the health risk analysis conducted for the EIS/EIR result in underestimated acute, cancer, and noncancer health impacts. Estimated cumulative cancer risks to school children are underestimated, cumulative cancer risks and noncancer hazards are incorrectly calculated, the significance threshold for noncancer health effects is too high, potential health impacts associated with exposure to lead are improperly calculated, potential health impact from jet engine particulate emissions are ignored, noncancer health risks to school children are underestimated, and acute health impact are not evaluated. These flaws result in an underestimation of the health impacts to receptors of concern.

- a. Alternative D with mitigation may result in a potentially significant increase in cancer risk (over baseline) to schoolchildren and/or residents in and around Lennox.**

Figure S.4.24.1-18 shows that incremental cancer risks in and around Lennox will increase under Alternative D, *even with implementation of mitigation measures*. As shown, the estimated additional (over baseline) cancer risk for residents and/or schoolchildren in the southwestern portion of Lennox is between one and ten per million individuals (dark blue shaded area). We note that the threshold of significance for incremental cancer risk is ten per million individuals. Because incremental cancer risks under Alternative D in this geographic area may be underestimated (see comment 4c), actual incremental cancer risks may exceed the threshold of significance.

- b. Incremental cancer and noncancer risks in the area northeast of the I-105/I-405 Interchange may be underestimated under all project alternatives.**

The EIS/EIR may underestimate cancer and noncancer risks to residents and schoolchildren in the area northwest of the I-105/I-405 interchange. Actual airborne concentrations of carbon monoxide and toxic air contaminants including benzene, 1,3-butadiene, formaldehyde, and diesel exhaust in areas downwind from the I-105 and I-405 highways may be higher than estimated in the EIS/EIR because (1) pollutant emissions from motor vehicles may not be completely accounted for in the analysis (see comment 2b) and (2) the effect of buildings and other structures on air flow and buildup of pollutant concentrations may not have been adequately considered (comment 2c).

- c. Estimated cumulative cancer risks to school children have been underestimated due to underestimates in the total number of years children spend in school.**

The *Human Health Risk Assessment* (HHRA) estimated the potential incremental cancer risks for children attending schools by identifying the school with the highest projected concentrations of toxic air pollutants, and determining the total length of time that children would likely be at school. Approximately 20 schools were identified as being within one mile of LAX. Lennox Middle School was identified as a location where high cancer risks to school children are predicted to occur. (SDEIS/EIR, *Technical Report 9a*, Attachment B, Figures B-1 and B-2.)

Children ages 6 to 12 years old were evaluated in the HHRA, since "this age range includes the youngest school ages and it is sufficiently long for analysis of chronic exposures and risks" (Original EIS/EIR, *Technical Report 14a*, Attachment B, p. 42). Accordingly, children in school were assumed to be exposed to emissions from LAX for six years.

However, given that children will, in fact, be in school from ages 5 to 18 years (kindergarten through 12th grade), and that one charter high school currently exists within Lennox and another is being planned, it is very likely that children could be exposed to emissions from LAX for a 13-year period (corresponding to kindergarten through 12th grade). As estimates of cancer risk are directly proportional to the total time that an individual is exposed over the course of the lifetime, the assumption that school children are only exposed for six years is misleading, and results in an underestimate of the potential incremental cancer risks posed by children attending school.

Cancer risks for school children are underestimated in the EIS/EIR. Cancer risks should be recalculated for the school children to account for the potential that children could be exposed to emissions from LAX during their entire pre-school through high school years.

d. Significant flaws in the methods used to calculate cumulative cancer risks and noncancer hazards undermine the conclusions of the EIS/EIR and obscure actual health risks posed by the various alternatives.

The HHRA repeatedly touts the benefits of all build alternatives, stating that with mitigation, “all of the build alternatives would have lower (more favorable) human health impacts than those associated with the No Action/No Project Alternative . . .” (Original EIS/EIR, p. 4-999.) Many of the tables and text describing the incremental cancer risks and noncancer hazards actually present negative risks, indicating not only a reduction in risks below those associated with baseline conditions, but a “beneficial impact on LAX-associated cancer risks” (or noncancer hazards). (Original EIS/EIR, *Technical Report 14a*, p. 51.) Such statements are not only misleading, they are technically inaccurate.

For example, some of the projected increase in cancer risk for some chemicals for Alternative D 2015 pre-mitigation conditions (e.g., diesel particulates, formaldehyde, benzene) is claimed to be offset by a projected decrease in cancer risk for other chemicals (arsenic, beryllium, and chromium). (SEIS/EIR, *Technical Report 9a*, Table S8.)

The fundamental flaw in this logic is the assumption that a decrease in the concentration of one carcinogenic compound can offset the increase the concentration of another carcinogen. If the implementation of a given alternative results in lower concentrations of diesel exhaust than would occur under the baseline conditions, then the incremental contribution of diesel to the total cancer risk drops to zero. However, a net reduction in diesel is not “credited” against the likelihood that increases in other chemicals may cause cancer in exposed individuals.

To illustrate this point, assume two chemicals exist, say 1,3-butadiene and benzene, and the baseline cancer risks are 10×10^{-6} for each chemical. If the projected cancer risk under Alternative A is 13×10^{-6} for 1,3-butadiene and zero for benzene, the projected incremental cancer risk is $+3 \times 10^{-6}$ for 1,3-butadiene and the projected incremental cancer risk from benzene would be presented as -10×10^{-6} (indicating that the concentrations of benzene under Alternative A drop below the baseline concentrations), the cumulative risk from both compounds is NOT -7×10^{-6} , as would be presented in this HHRA, it is 13×10^{-6} . Independent of any projected improvement in diesel risks, 1,3-butadiene is still projected to cause an increase in cancer risk of $+3 \times 10^{-6}$.

In other words, if the projected incremental cancer risk posed by 1,3-butadiene is $+3 \times 10^{-6}$ and the projected incremental cancer risk from diesel is presented as -14×10^{-6} (indicating that the concentrations of diesel under the alternative drop below the baseline concentrations), the cumulative risk from both compounds is NOT -11×10^{-6} , as presented in this HHRA, it is $+3 \times 10^{-6}$. Independent of any projected improvement in diesel concentrations, 1,3-butadiene is still projected to cause an increase in cancer risk of 3×10^{-6} . (Data values taken from Original EIS/EIR, *Technical Report 14a*, Table 13, Alternative A, Adult Resident.)

Potential health impacts have been improperly summed. This fundamental flaw permeates the HHRA, and results in underestimates of the potential health impacts of all alternatives. As currently presented, it is impossible to evaluate each of the alternatives to determine which alternatives may pose a significant health threat, or to ascertain whether the proposed mitigation measures will be sufficient to reduce the health risks to insignificant levels.

The Lennox School District recommends that LAWA correct these errors and recalculate the risks for all alternatives.

- e. The basis for significance threshold for noncancer health effects is unclear and five times greater than the threshold typically used by regulatory agencies.**

A significant impact relative to human health is defined in the Original EIS/EIR as a build alternative that would result in a total incremental chronic hazard index (HI) greater than 5 for any target organ system at any receptor location. (Original EIS/EIR, p 4-1009.) The basis for this significance threshold is unclear, is inconsistent with statements made in the *Human Health Risk Assessment Technical Report*, and is considerably less protective than acceptable thresholds established by regulatory agencies under various regulatory programs.

As described in the Original EIS/EIR, noncancer risk estimates are calculated by dividing the estimated exposure by the “reference dose,” often referred to as the acceptable exposure level. (Original EIS/EIR, *Technical Report 14a*, p 28.) The ratio of the exposure to the reference dose is termed the hazard quotient (HQ). To assess the overall potential for noncarcinogenic effects posed by more than one chemical, the HQs for each chemical are summed, and the resulting value is referred to as the Hazard Index (HI).

As stated in the Original EIS/EIR, “a HQ greater than one indicates an exposure greater than that considered safe . . .” (Original EIS/EIR, *Technical Report 14a*, p. 28.) This conclusion is consistent with thresholds established by USEPA and Cal/EPA under the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA), and California’s Toxic Hot Spots program (AB2588), respectively. Similarly, an overall HI of no greater than one is the threshold that is used by Cal/EPA in determining whether conditions at a site could potentially result in unacceptable adverse noncancer health effects. Sites for which the multichemical HI is greater than one typically trigger further investigation, and often remediation.

The significance threshold used in this EIS/EIR to evaluate the potential for adverse noncancer health effects is five times higher (i.e., five time less protective) than noncancer thresholds typically used by regulatory agencies under various state and federal regulatory programs. It is unclear how and why a different and less protective standard is being used to evaluate the potential health impacts associated with the various build alternatives. If the more standard noncancer HI threshold of one were used to evaluate the significance of the various alternatives, the conclusions of each of the build alternatives, and the corresponding need for mitigation, would be different than is currently presented.

For example, under Alternative B in 2015, “people living in an area immediately east of the north runways might be exposed to TAPs from LAX sufficiently to produce a hazard index above [5]. People living in a larger area extending east-northeast from the LAX theme building over 6 miles would be exposed to sufficient concentrations of TAPs to produce an incremental hazard index between 1 and 5 . . .” (Original EIS/EIR, p. 4-1014.) Thus, the number of people subjected to unhealthy levels of toxic chemicals may be greatly understated by the EIS/EIR.

The effect that establishing the threshold hazard index at 1 would have on the conclusions of the Alternative D analysis is unclear. The Lennox School District has commented elsewhere that the manner in which incremental risks under the project build alternatives are calculated and expressed in the EIS/EIR is inappropriate (i.e., use of negative risks, selection of 1996 as baseline, methodology for calculating baseline risks). If Alternative D risks were redefined and recalculated as suggested, and if the threshold index were established at 1 per standard practice, then estimated noncancer risks may exceed the significance threshold.

The discussion of noncancer risks is critical because children are more susceptible to noncancer risks as a result of the rapid growth and development of their nervous, immune and reproductive systems, and rapid maturing organs and tissues. Noncancer risks to children include, but are not limited to, increases in asthma and other respiratory related illness such as pulmonary bacterial infection, emphysema, chronic bronchitis, and reduced pulmonary function. As discussed in Part One, Section 2c, Lennox School District students are the most exposed to LAX-related pollution, and appear to have the highest asthma rate, of any population in the Los Angeles area.

LAWA should rewrite the discussion of noncancer risks, and clearly identify those alternatives that would be considered significant based on the more appropriate noncancer significance threshold of one.

f. The EIS/EIR fails to consider and evaluate the potential health impacts associated with exposure to lead.

As described in the EIS/EIR, lead "may be released in significant quantities from LAX . . ." (Original EIS/EIR, *Technical Report 14a*, Attachment B, p. 19.) The potential impacts associated with exposure to lead are typically evaluated by using models developed by both USEPA and Cal/EPA to predict the blood-lead level that would result from a given exposure.

Because children are especially sensitive to the neurological effects of low levels of lead exposure, these models are used to estimate the blood-lead levels in children. The results from the model are then compared to the low blood-lead levels that have been demonstrated to result in subtle neurological damage in children, as established by the Center for Disease Control (CDC). The models are easy to use, have been used for more than eight years, and are considered the industry standard for evaluating lead exposures and determining whether such exposures could result in unacceptable health impacts.

Although the EIS/EIR notes that LAX may release significant quantities of lead, the EIS/EIR does not evaluate the impacts of such releases in accordance with the standard industry practice. Instead, the EIS/EIR compares the predicted concentrations of lead to the Ambient Air Quality Standard, and concludes that, because the concentrations are below the Ambient Air Quality Standard, lead is not a toxic air pollutant (TAP) of concern for the LAX Master Plan. (Original EIS/EIR, *Technical Report 14a*, Attachment B, p. 12.)

Such treatment of lead significantly diminishes the public health significance of this TAP, and does not allow for a fair determination as to the public health impacts that may result from the various build alternatives. Any risk assessment submitted to either Cal/EPA or the USEPA would be instantly rejected if conclusions about the public health significance of lead were based solely on a comparison to the Ambient Air Quality Standard.

Further, the EIS/EIR states that a cancer slope factor is not available for lead. (Original EIS/EIR, *Technical Report 14a*, Attachment B, pp. 18-19.) The Lennox School District notes that the Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) has released a cancer slope factor for lead. The cancer slope factor, although not yet a promulgated standard, is available, and is being used by OEHHA to establish the No Significant Risk Level (NSRL) for lead under California's Proposition 65.

Health impacts resulting from lead in all years/scenarios, including Alternative D, may be underestimated. Because of the heightened public awareness to the risks associated with lead exposure and the plethora of information that exists describing the adverse health effects that can result from lead exposure, lead should be evaluated in this EIS/EIR in the most comprehensive manner that is reasonably practicable. Failure to do so is scientifically unjustifiable and is inconsistent with the more rigorous evaluations conducted for other chemicals included in the HHRA.

LAWA should rerun all health risk calculations to determine the human health implications of the increases in lead emissions that will result from all build alternatives.

- g. Excluding particulate emissions from jet aircraft from the quantitative risk evaluation could significantly underestimate the potential for noncancer health impacts.**

Particulate emissions from aircraft were not quantified in the HHRA because "there is insufficient information regarding the nature and toxicity of total petroleum hydrocarbon (TPH) emissions associated with aircraft and toxicity criteria for these emissions are not available . . ." (Original EIS/EIR, *Technical Report 14a*, p. 81.) Particulate matter, in the form of diesel exhaust, is emitted from several ground sources (predominantly trucks and buses). Emissions of diesel exhaust from these ground sources have been included in the HHRA. However, the EIR states that because aircraft use a different fuel and a substantially different combustion process than diesel engines, the particulate emissions in jet exhaust are "not considered chemically, physically, or toxicologically similar to diesel exhaust . . ." (Original EIS/EIR, *Technical Report 14a*, p. 12.) Accordingly, the impact of such emissions have not been quantified in the HHRA.

This is the logic set forth in the EIS/EIR for excluding jet particulate emissions from the HHRA. The argument, however, for not being able to evaluate the toxicological effects of particulate exhaust from jets is flawed. Functionally, the methods used to evaluate the noncarcinogenic toxicity of "diesel" are based entirely on the particulate matter present in diesel exhaust.

According to USEPA, the systemic (non-cancer) toxicity of diesel emissions is due to the insoluble carbon core of diesel particles; when the exhaust is filtered to remove the particulate matter, the remaining exhaust mixture does not produce long-term toxicological effects in laboratory animals. The mechanism of toxicity of the carbon core relates to the deposition of the particles deep in the lung, and the accumulation and aggregation of these particles that result from the inability of the lung's normal clearance mechanisms to effectively remove the particles from the deep regions of the lung. The accumulation of particles sets off a pathogenic sequence that may result in the presence of pulmonary inflammatory, fibrotic, or emphysematous lesions. (United States Environmental Protection Agency (USEPA), *Integrated Risk Information System*, On-line database maintained by USEPA, 2001.)

Because the noncancer toxicity associated with diesel exhaust is believed to be attributable entirely to the insoluble carbon core of the particulate matter, the noncancer toxicity factor would be equally applicable to other sources of particulate matter, such as jet fuel exhaust. If one can estimate the quantity of particulate matter that could be released from the exhaust of a jet engine, then use of the noncarcinogenic toxicity criteria for diesel is a scientifically defensible and appropriate method for evaluating the public health significance of the particulate emissions. Given the significant increase in the air traffic at LAX, failure to quantify potential impact associated with particulate emissions from jet aircraft could represent a significant omission from the estimated noncancer impacts.

The fact that particulate emissions from aircraft engines may be different than those from diesel engines is not adequate justification for ignoring the cancer health risks of aircraft particulate emissions entirely. It is reasonable to assume, given the lack of information to the contrary, that aircraft particulate emissions *are* similar to diesel emissions with respect to cancer effects. If this assumption were false, and aircraft particulates were in fact less carcinogenic than diesel exhaust, then the result would represent a conservative upper bound of the cancer risk posed by aircraft particulate matter. The existing estimate of risk posed by aircraft particulates, i.e. zero, could be considered a lower bound.

Data presented in Attachment W to *Technical Report 4* of the Original EIS/EIR indicate that aircraft contribute approximately 45 percent of total LAX operational PM₁₀ emissions within the LAX local area. If one makes the assumption that the cancer and noncancer toxicity of aircraft PM₁₀ emissions are similar to that of diesel particulates, they would conclude that the cancer and noncancer risks posed by operational PM₁₀ emissions may be underestimated by roughly a factor of 2 in all years/alternatives. The relative contributions of particulate matter to total cancer and noncancer risks in different years/alternatives are not presented in the SEIS/EIR. (See Part Four, Section 4g., *infra*.)

Health impacts from particulate matter may be underestimated. The Lennox School District recommends that LAWA recalculate all estimates of noncancer risk, and include in the evaluation the potential adverse health effects that can result from exposure to particulate emissions from jet aircraft.

h. Absolute cancer and noncancer risks are not presented in the EIS/EIR.

Cancer and noncancer risks are quantified solely on an incremental basis relative to 1996 risks, which themselves are not presented. The impression received is that presentation of absolute risk numbers is being avoided, presumably because they are large and may cause alarm.

- i. The EIS/EIR does not consider child-specific noncancer toxicity criteria which have been proposed by the State of California and are intended for use in the risk assessment of California school sites. Noncancer health risks to schoolchildren may be underestimated accordingly.**

Cal/EPA has issued proposed child-specific chronic reference doses (chRfDs) for six chemicals of particular concern to the health of schoolchildren: cadmium, chlordane, heptachlor, heptachlor epoxide, methoxychlor, and nickel (Cal/EPA, *Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(g): Proposed Child-Specific Reference Doses (chRfDs) for School Site Risk Assessment - Cadmium, Chlordane, Heptachlor/Heptachlor Epoxide, and Nickel*. Draft Report. Integrated Risk Assessment Section, Office of Environmental Health Hazard Assessment, June 2003, Exhibit 29). The proposed child-specific RfDs are generally more conservative than the US EPA RfDs used in the EIS/EIR health risk assessment, as shown in the following table.

Chemical	Proposed chRfD (mg/kg-d)	USEPA RfD (mg/kg-d)	Ratio
Cadmium	1 x 10 ⁻⁵	5 x 10 ⁻⁴	50
Chlordane	3.3 x 10 ⁻⁵	5 x 10 ⁻⁴	15
Heptachlor	3 x 10 ⁻⁵	5 x 10 ⁻⁴	17
Heptachlor epoxide	1.3 x 10 ⁻⁵	1.3 x 10 ⁻⁵	1
Methoxychlor	2 x 10 ⁻⁵	5 x 10 ⁻³	250
Nickel	3.7 x 10 ⁻³	2 x 10 ⁻²	5

The proposed chRfDs were developed by Cal/EPA specifically for the protection of schoolchildren and are intended for use in the risk assessment of California school sites. Thus, these toxicity criteria are appropriate for use in the EIS/EIR health risk analysis of noncancer impacts to offsite school children.

As the relationship between reference dose and noncancer health risk (hazard quotient) is linear, use of these chRfD values would result in an increase in the estimated noncancer health risk to school children from each of the listed chemicals, by the amount (ratio) given in the table. For example, the estimated noncancer health risk to school children posed by cadmium would be 50 times greater if the chRfD value were used.

Only one of the six listed chemicals is identified as a chemical of potential concern (COPC) in the EIS/EIR health risk assessment: cadmium. However, use of these RfD values may cause additional chemicals to be added to the group of COPCs. For example, an increase in the estimated health risk from methoxychlor by a factor of 250 may elevate this chemical to the status of potential concern.

At a minimum, the EIS/EIR health risk analysis should consider these toxicity criteria in an uncertainties section, and assess to what extent adoption of these criteria would affect the conclusions of the health risk assessment.

j. Use of 1996 as basis for determining project significance is not explained and seems illogical.

Significance of project impacts under build scenarios in future years is evaluated by comparison to 1996 "baseline" conditions and, in the SEIS/EIR, to 2000 conditions. The rationale for this is not clear. To evaluate project impacts for, e.g., Alternative D in 2015, it seems more logical to compare Alternative D 2015 conditions to No Action/No Project 2015 conditions. In this manner, the effects of the project may be directly quantified.

k. Methodology for establishment of baseline (1996) impacts is poorly defined and highly suspect. All determinations of significance of Alternative D through comparison to 1996 baseline impacts are therefore questionable.

According to the Original EIS/EIR, 1996/baseline impacts were not estimated directly but rather were derived by adjusting model predictions under the 2005 no-build alternative:

"Baseline conditions were not separately modeled. Instead, air quality for the baseline year (1996) was estimated from results of air dispersion modeling for the No Action/No Project Alternative for horizon year 2005...Thus, emissions estimates for 1996 were derived by subtracting out emissions associated with the No Action/No Project Alternative in 2005. . ." (Original EIS/EIR, p. 4-1007).

The Lennox School District notes that the 1996 emissions inventory is the basis for all other inventories, including the 2005 No Action/No Project Alternative inventory, and therefore assumes that the final sentence in the above citation is a misstatement. It infers that 1996/baseline chemical concentrations were derived by scaling the chemical concentrations predicted by the air dispersion model for the 2005 No Action/No Project Alternative. The EIS/EIR does not document or support this scaling operation. The Lennox School District is unaware of any way in which a modeled concentration field may be scaled other than by uniform application of a constant factor (all values in a given chemical concentration field multiplied by the same factor). Therefore, it appears that any source-specific (i.e., spatial) differences between the 1996 and 2005 inventories were lost in the scaling process.

The EIS/EIR does not explain or support the rationale for not simply estimating baseline impacts directly, by using the 1996 inventory as input to the dispersion model. The indirect method apparently employed is inferior to direct modeling of 1996 impacts, because it results in a loss of spatial resolution of chemical emissions and resulting airborne concentrations. As the 1996/baseline impacts are the basis for determination of significance of the project, the process by which these baseline impacts were estimated should be thoroughly described. From the sparse and confusing discussion provided, it appears that the 1996 impacts were roughly fudged. Therefore, the Lennox School District holds significance determinations based on these 1996 impacts to be generally questionable.

l. Alternative D post-mitigation incremental cancer risk to adult residents may be greater than 10 per million individuals.

Table S4.24.1-5 of the SEIS/EIR indicates that the post-mitigation incremental cancer risk to adult residents is 2 per million individuals, below the significance threshold of 10 per million individuals. However, given that (see other comments) (1) cancer risk posed by secondary pollution is ignored, (2) cancer risk posed by aircraft particulate matter is ignored, (3) cancer risk posed by lead is ignored, and (4) the 1996 baseline cancer risk is highly suspect, the actual Alternative D post-mitigation incremental cancer risk may exceed the significance threshold of 10 per million individuals.

m. Statement that acrolein noncancer risks are substantially overestimated in the EIS/EIR analysis is not supported by the arguments presented.

"Emissions estimates for acrolein are based on available data that were generated from old aircraft engines not generally in use today and using military fuel that differs from fuel used at LAX . . ." (SEIS/EIR, *Human Health Risk Assessment*, p. 4-615.) This statement implies that newer aircraft using civilian fuel emit less acrolein than estimated. However, the implication is not supported by any other information.

"Acrolein is not generally recognized as a significant TAP in the South Coast Air Basin . . ." (p. 4-615.) Prior recognition is not relevant or required. Further, this statement is contradicted by results of the USEPA study, which suggest that "hazard indices might fall in the range of 3 to 10 for chronic exposure to acrolein . . ." (SEIS/EIR, *Human Health Risk Assessment*, p. 4-619.)

"A recent study near Chicago's O'Hare Airport failed to detect acrolein in essentially all samples taken in communities near the facility . . ." (SEIS/EIR, *Human Health Risk Assessment*, p. 4-615.) Without discussion of sampling and analysis methods, especially of comparison of method detection limits to levels of concern, this statement is meaningless.

"The analysis presented for acrolein in the HHRA may substantially overestimate releases, and thus may overestimate possible chronic and acute impacts to human health . . ." (SEIS/EIR, *Human Health Risk Assessment*, p. 4-615.) For the reasons noted above, the Lennox

School District does not believe that sufficient evidence is presented in the EIS/EIR to justify this statement that acrolein impacts are overestimated in the HHRA.

n. Use of different receptor/grid spacing when calculating pre- and post-mitigation impacts prevents assessment of mitigation effectiveness.

“A greater number of endpoints were assessed for post-mitigation conditions than for pre-mitigation conditions to ensure that the highest post-mitigation impacts were identified. As such, post-mitigation risks and hazard estimates represent conservative estimates which are in some cases greater than pre-mitigation risks . . .” (SEIS/EIR, *Human Health Risk Assessment*, p. 4-617.)

Increasing the receptor density does not *ensure* that the highest post-mitigation impacts are identified, it only increases the likelihood that they are identified. The additional data points likely include both lesser and greater values than would be predicted if only the smaller number of endpoints were considered. With both endpoint sets, it is possible, if not likely, that the greatest impacts (highest risk values) are not identified; however, this possibility is lower for the larger, post-mitigation endpoint set.

As noted, estimated post-mitigation risks in some cases are higher than pre-mitigation risks. This apparent increase in risk is likely an artifact caused by the larger number of endpoints used in the post-mitigation modeling. Comparison of pre- and post-mitigation impacts should be made with the same endpoint set (i.e., same group of receptors), to measure mitigation effectiveness.

PART FIVE

THE TRAFFIC IMPACT ANALYSIS IS INADEQUATE

To address traffic impacts of Alternative D on the Lennox School District, the SEIS/EIR must identify those locations where project traffic could cause significant impacts. (14 *California Code of Regulations* 151064.) In this regard it is typical for a traffic study to have clearly defined performance criteria with respect to how the study area is defined and the definition of “significant impact” within that study area. While the study area has been expanded since the Original EIS/EIR, it is not clear whether the expanded area of impact within the Lennox School District has been selected in this manner. Even if the impacts are less than significant, the SEIS/EIR should contain an evaluation showing how the study area was selected and indicating findings of significance or no significance on roadways within the Lennox School District.

Additionally, significant impacts to Lennox School District of the Lennox Interchange are not identified or addressed. CEQA requires evaluation in the SEIS/EIR of the significant impacts of the *mitigation measures of projects* as well as the project itself. (14 *California Code of Regulations* 15126.4.) The SEIS/EIR fails to do so.

1. The Analysis of the Impacts of the Lennox Interchange is Inadequate.

The addition of an interchange with I-405 at Lennox Boulevard is being proposed as a mitigation measure for Alternative D. The secondary impacts of this interchange on the Lennox street system needs to be studied since the addition of this interchange will have a number of direct and indirect effects on the Lennox area. (*Id.*) The most important of these are as follows:

- a. Street closures may affect children's walk-to-school routes and create safety concerns for children walking to and from school.**

The closure of Lennox Boulevard just east of the I-405 will divert traffic to parallel streets such as Century Boulevard and Imperial Highway, both of which serve the Lennox area. The resulting changes in traffic patterns relative to walk-to-school routes need to be assessed. For example, children may face more traffic and therefore may be exposed to increased safety risks in their walk-to-school routes. The SEIS/EIR should examine these issues and also possible mitigation measures to ensure safe walk-to-school routes (ex. crossing-guards, visibility improvements for intersections, etc.)

- b. Configuration of entrance and exit freeway ramps will necessitate relocation of a Lennox School District preschool.**

The SEIS/EIR fails to mention an existing preschool located on Lennox School District property. The Lennox interchange contemplates two alternatives for the erection of a freeway entrance and freeway exit loop ramp. Although the selection between these two alternatives will not be made until the Caltrans Project Study Report (PSR) process is completed, the preschool will be affected by one of these alternatives. In short, one of the alternatives will necessitate the relocation of the preschool. This impact and relocation concerns must be addressed in the SEIS/EIR.

- c. The construction impacts of the Lennox Interchange must be examined.**

The construction impacts of this interchange could be significant, especially for Buford Elementary School and Lennox Middle School, just west of Buford Avenue, and Felton Elementary School west of Felton Avenue. Construction phasing, and traffic management plans for construction traffic need to be studied to ascertain the type and magnitude of such impacts.

2. Traffic Impacts of Alternative D on the Lennox School District Are Not Properly Addressed.

There are numerous other issues related to the impact of Alternative D on the Lennox area and hence on the Lennox School District. Alternative D expands the airport complex to the east, and although the I-405 Freeway acts somewhat as a barrier with respect to direct impacts in Lennox, there is the potential for indirect impacts that are either not addressed or only briefly addressed in the SEIS/EIR. Some examples are as follows:

- a. **Impacts of freeway avoidance traffic on Lennox School District are inadequately addressed.**

Most of the freeway and freeway access mitigation measures will need to be the subject of further analysis as Caltrans Project Study Reports are prepared and more detailed designs are formulated. There is no assurance that desired freeway levels of service will be achieved when both project and cumulative impacts are considered. Under such conditions, "freeway avoidance" traffic could impact local streets and some of that freeway avoidance traffic will include airport trips (primarily employee and service related trips rather than air passenger trips). Actual conditions on the Lennox street system could therefore be worse than portrayed in the SEIS/EIR. Ideally, some provision should be made for monitoring traffic conditions to determine the magnitude of such trips, and to establish some form of "second tier" list of improvements for locations that may be impacted in this manner with trigger points for implementing improvements.

- b. **Construction impacts on traffic in Lennox are inadequately addressed.**

The SEIS/EIR discusses construction traffic routing as a mitigation measure for project construction. The Lennox School District should be involved in this process in reviewing construction traffic routing to ensure that minimum impacts occur to schools, particularly the three schools located in the western part of the District.

- c. **Impacts to Lennox associated with phasing of transportation improvements are inadequately addressed.**

The phasing of transportation improvements is an important issue. Traffic impacts in the AM peak hour are of particular importance. Congested locations during this time will both impede students traveling to school, and cause secondary impacts such as traffic diverting to neighborhood streets to avoid congestion. Some discussion is given in the SEIS/EIR based on a conceptual phasing plan for the Master Plan. That phasing will be a complex undertaking, and should be accompanied by a detailed disclosure of impacts and mitigation measures for each phase as the details of the phasing plan emerge. Lennox's close proximity to the airport makes it vulnerable to any situation in which unanticipated traffic impacts of a particular phase causes problems on the local street system. Such impacts could well exceed those identified for the 2008 and 2015 time frames in the SEIS/EIR.

PART SIX

THE ENROLLMENT IMPACT ANALYSIS IS INADEQUATE

The SEIS/EIR discusses the impact of Alternative D on enrollment as follows:

"Due to productivity increases (i.e., the production of more economic output per worker), Alternative D would result in a decrease of approximately 2,657 on-airport employees within the schools study area by 2015. As each on-airport employee is

assumed to represent one household, the number of on-airport employee households within the schools study area would, therefore, decline by approximately 2,657." (SEIS/EIR, *Schools*, Section 4.27, p. 4-764.)

As to student enrollment for the Lennox School District, the SEIS/EIR states that in addition to Los Angeles Unified School District (LAUSD), "31 other school districts throughout Los Angeles County would also experience indirect project-related enrollment declines." However, the SEIS/EIR does not provide an estimate of the Lennox School District's expected share in decreased enrollment.

Without an analysis of Lennox School District enrollment in the SEIS/EIR, the impact to Lennox School District is unknown, but may very well be significant. The SEIS/EIR should assess the enrollment impact to Lennox School District and mitigate accordingly.

Whether the decrease in students is only relatively small to other school districts, the impact on the Lennox School District will be substantial. The Lennox School District relies almost exclusively on Average Daily Attendance for its revenue. A loss of students means the loss in student generated revenue. These impacts would translate into significant impacts upon budgeting, employment, maintenance and operations within the Lennox School District, and *must* be studied further, so that mitigation measures can be developed to address these impacts.

PART SEVEN

THE SUBSTANTIAL SHIFT IN PROJECT OBJECTIVES REQUIRES LAW TO EXAMINE AN ADEQUATE RANGE OF PROJECT ALTERNATIVES

Following the events of September 11th terrorist attacks, the basic objectives of the project have significantly shifted to an emphasis on security and safety over expansion. Several statements have been attributed to Mayor Hahn to this effect. However, Mayor Hahn's new objectives are only addressed in one alternative, Alternative D, the only alternative admittedly focused on enhanced safety and security measures.

The 1998 amendments to the CEQA Guidelines emphasized the importance of a clearly written statement of objectives. The following language was added for the requirements of the "project description,"

"A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project."
(14 *California Code of Regulations* 15124(b).)

A discussion of this section by the Governor's Office of Planning and Research provides further insight into this amendment - "Clear project objectives simplify the selection process by providing a standard against which to measure possible alternatives."

The standard by which to judge the range of alternatives required in an EIR is governed by the "rule of reason." 14 *California Code of Regulations* 15126.6(a); *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 565. In this case, LAWA completely changed its focus and objectives for the LAX project, yet only set forth one alternative in the SEIS/EIR to address these objectives. By only addressing one alternative, LAWA has effectively limited the public from meaningful public participation and informed decision making. It precludes the option of selecting a project that addresses the safety and security concerns of LAWA with less of an accompanying environmental justice impact. The notable lack of alternatives does not permit a reasoned choice and does not withstand the CEQA's "rule of reason."

When LAWA presented a 180 degree shift in its basic and central objectives, LAWA was required to comply with CEQA by discussing a reasonable range of alternatives. LAWA's failure to do so is fatal to the SEIS/EIR.

PART EIGHT

THE EIS/EIR VIOLATES CEQA READABILITY REQUIREMENTS

California Public Resources Code § 21003 states, in pertinent part:

"The Legislature further finds and declares that it is the policy of the state that:

"(b) Documents prepared pursuant to this division be organized and written in a manner that will be meaningful and useful to decision makers and to the public. . .

"(f) All persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment."

Both the Original EIS/EIR and the SEIS/EIR violate this Code section.

a. Original EIS/EIR.

The Original EIS/EIR is inaccessible. It is 12,000 pages long and costs thousands of dollars to purchase. The CD version, although less expensive, is only accessible to people with computers. Many poorer residents of the most highly impacted areas do not have that

technology. Additionally, the CD version contains many glitches, so entire sections are impossible to read or print. (See, e.g., EIS/EIR, CD Version *Technical Report 4*.)

Second, the Original EIS/EIR is so poorly organized that it is nearly impossible to find all of the pertinent information regarding a topic. Analysis regarding a particular topic is often spread among numerous sections of the "main document." Several of the so-called "technical reports" contain substantive narrative that is not reflected in the report itself. The "appendices" often contain other important information. The document itself provides no logical explanation as to why its contents are distributed in this manner.

For instance, as expected, the *Noise* section of the Original EIS/EIR contains information regarding the noise impacts of LAX expansion upon Lennox School District schools. However, the *Noise Technical Report*, thousands of pages later, contains crucial noise impact information that is entirely absent from the *Noise* section of the main document. In addition, the *Noise Technical Report* is not contained on the CD entitled "Technical Reports". Instead, it is on the "Appendices" CD, and is actually Appendix "D". The reason for this is entirely unclear.

The *Land Use* section, a thousand pages from the *Noise* section and several thousand pages from the *Noise Technical Report*, essentially states that LAWA will not mitigate noise impacts identified in the *Noise* section. (EIS/EIR, *Land Use*, Section 4.2, pp. 4-95, 4-96.) These few, critical sentences are not contained in the *Noise* section of the main document, nor the *Noise Technical Report*. This illogical placement of this crucial language suggests an intentional decision to obscure information that would raise "red flags" in respondents.

b. Addition of Supplement to the EIS/EIR.

The SEIS/EIR contains many of the same problems of the Original EIS/EIR. It is thousands of pages long and costs over a thousand dollars to purchase. Consistent with the Original EIS/EIR, the various *Supplemental Noise Technical Reports* and the *Environmental Justice Technical Report* are contained in the "Appendices" rather than with the "Technical Reports," as would make sense. Although the CD version of the document is less expensive, it is not accessible to those impacted citizens of Lennox who do not have access to a computer and are not trained to utilize the complex programs required to read from the CDs.

In total, the EIS/EIR violate CEQA readability requirements, and are inaccessible to a significant portion of the population impacted by the project that is the subject of the EIS/EIR.

CONCLUSION

The individual and cumulative impacts of the EIS/EIR, including Alternative D, upon the education, health and safety of its students are of substantial concern to the Lennox School District. By law, LAWA must adequately consider and mitigate these impacts in its EIS/EIR. It fails to do so.

The EIS/EIR fails to adequately analyze the environmental justice, noise, health, pollution, traffic and enrollment impacts of the proposed project upon the Lennox School District. The EIS/EIR fails to propose adequate mitigation measures for these impacts. Furthermore, the EIS/EIR analysis of the cumulative impacts of the LAX expansion upon the Lennox School District is inadequate, both due to its own insufficiency and due to the inadequacy of its analyses of the underlying impacts.

For the foregoing reasons, the Lennox School District respectfully requests that LAWA revise the EIS/EIR to include alternative projects, further impact analysis and site specific mitigation information and proposals regarding the impacts on the Lennox School District.

TABLE OF EXHIBITS

- Exhibit 15 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," *Executive Order* 12898, February 11, 1994.
- Exhibit 16 Education Data Partnership ("Ed-Data"), "Fiscal, Demographic, and Performance Data on California's K-12 Schools," <http://www.ed-data.k12.ca.us>.
- Exhibit 17 Lukas, J.S., DuPree, R.B. and Swing, J.W. *Effects Of Noise On Academic Achievement And Classroom Behavior*. FHWA/CA/DOHS-81/01 Office of Noise Control, California Dept. Of Health Services, Sacramento. 1981.
- Exhibit 18 Cohen S., Krantz, D.S., Evans G.W., Stokols D., and Kelly S., "Aircraft noise and children: Longitudinal and cross-sectional evidence on adaptation to noise and the effectiveness of noise abatement." *Journal of Personality and Social Psychology*. 40: 331-345, 1981 [learning deficits].
- Exhibit 19 Cohen S., Krantz, D.S., Evans G.W. and Stokols D., "Physiological, motivational, and cognitive effects of aircraft noise on children: Moving from the laboratory to the field." *American Psychologist*, 35: 231-243, 1980.
- Exhibit 20 American National Standards Institute, "Acoustical performance criteria design requirements and guidelines for schools." ANSI S12.60-2002.
- Exhibit 21 Evans, G.W. and Lepore, S.J., "Nonauditory effects of noise on children." *Children's Environments*, 10: 31-51, 1993.
- Exhibit 22 Green, K., Pasternack, B. & Shore, R., "Effects of aircraft noise on reading ability of school age children." *Archives of Environmental Health*, 37: 24-31, 1982.
- Exhibit 23 Hygge, S., Evans, G.W., and Bullinger, M., "A prospective study of some effects of aircraft noise on cognitive performance in school children." *Psychological Science*, 13: 469-474, 2002.
- Exhibit 24 Evans, G.W. and Lepore, S.J., "Nonauditory effects of noise on children." *Children's Environments*, 10: 31-51, 1993.
- Exhibit 25 Evans, G.W., Hygge, S. and Bullinger, M., "Chronic noise and psychological stress." *Psychological Science*, 6: 333-338, 1995.
- Exhibit 26 Cohen, S., "Aftereffects of stress on human performance and social behavior: A review of research and theory." *Psychological Bulletin*, 88: 82-108, 1980.
- Exhibit 27 Evans, G.W., "Environmental stress and health." In A. Baum, T. Revenson & J.E. Singer (Eds.), *Handbook of Health Psychology*. Mahwah, NJ: Erlbaum, 2001.
- Exhibit 28 Evans, G.W., Bullinger, M. and Hygge, S., "Chronic Noise Exposure and Physiological Response: A Prospective Study of Children Living Under Environmental Stress." *Psychological Science*, Vol.9, No.1, January 1998.
- Exhibit 29 Office of Environmental Health Hazard Assessment of California Environmental Protection Agency, "Draft Report: Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(g)." June 2003.



Presidential Documents

Title 3—

Executive Order 12898 of February 11, 1994

The President

Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1—1. Implementation.

1-101. Agency Responsibilities. To the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.

1-102. Creation of an Interagency Working Group on Environmental Justice.
(a) Within 3 months of the date of this order, the Administrator of the Environmental Protection Agency ("Administrator") or the Administrator's designee shall convene an interagency Federal Working Group on Environmental Justice ("Working Group"). The Working Group shall comprise the heads of the following executive agencies and offices, or their designees: (a) Department of Defense; (b) Department of Health and Human Services; (c) Department of Housing and Urban Development; (d) Department of Labor; (e) Department of Agriculture; (f) Department of Transportation; (g) Department of Justice; (h) Department of the Interior; (i) Department of Commerce; (j) Department of Energy; (k) Environmental Protection Agency; (l) Office of Management and Budget; (m) Office of Science and Technology Policy; (n) Office of the Deputy Assistant to the President for Environmental Policy; (o) Office of the Assistant to the President for Domestic Policy; (p) National Economic Council; (q) Council of Economic Advisers; and (r) such other Government officials as the President may designate. The Working Group shall report to the President through the Deputy Assistant to the President for Environmental Policy and the Assistant to the President for Domestic Policy.

(b) The Working Group shall: (1) provide guidance to Federal agencies on criteria for identifying disproportionately high and adverse human health or environmental effects on minority populations and low-income populations;

(2) coordinate with, provide guidance to, and serve as a clearinghouse for, each Federal agency as it develops an environmental justice strategy as required by section 1-103 of this order, in order to ensure that the administration, interpretation and enforcement of programs, activities and policies are undertaken in a consistent manner;

(3) assist in coordinating research by, and stimulating cooperation among, the Environmental Protection Agency, the Department of Health and Human Services, the Department of Housing and Urban Development, and other agencies conducting research or other activities in accordance with section 3-3 of this order;

(4) assist in coordinating data collection, required by this order;

(5) examine existing data and studies on environmental justice;

(6) hold public meetings as required in section 5-502(d) of this order; and

(7) develop interagency model projects on environmental justice that evidence cooperation among Federal agencies.

1-103. Development of Agency Strategies. (a) Except as provided in section 6-605 of this order, each Federal agency shall develop an agency-wide environmental justice strategy, as set forth in subsections (b)-(e) of this section that identifies and addresses disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The environmental justice strategy shall list programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to, at a minimum: (1) promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations; (2) ensure greater public participation; (3) improve research and data collection relating to the health of and environment of minority populations and low-income populations; and (4) identify differential patterns of consumption of natural resources among minority populations and low-income populations. In addition, the environmental justice strategy shall include, where appropriate, a timetable for undertaking identified revisions and consideration of economic and social implications of the revisions.

(b) Within 4 months of the date of this order, each Federal agency shall identify an internal administrative process for developing its environmental justice strategy, and shall inform the Working Group of the process.

(c) Within 6 months of the date of this order, each Federal agency shall provide the Working Group with an outline of its proposed environmental justice strategy.

(d) Within 10 months of the date of this order, each Federal agency shall provide the Working Group with its proposed environmental justice strategy.

(e) Within 12 months of the date of this order, each Federal agency shall finalize its environmental justice strategy and provide a copy and written description of its strategy to the Working Group. During the 12 month period from the date of this order, each Federal agency, as part of its environmental justice strategy, shall identify several specific projects that can be promptly undertaken to address particular concerns identified during the development of the proposed environmental justice strategy, and a schedule for implementing those projects.

(f) Within 24 months of the date of this order, each Federal agency shall report to the Working Group on its progress in implementing its agency-wide environmental justice strategy.

(g) Federal agencies shall provide additional periodic reports to the Working Group as requested by the Working Group.

1-104. Reports to the President. Within 14 months of the date of this order, the Working Group shall submit to the President, through the Office of the Deputy Assistant to the President for Environmental Policy and the Office of the Assistant to the President for Domestic Policy, a report that describes the implementation of this order, and includes the final environmental justice strategies described in section 1-103(e) of this order.

Sec. 2-2. Federal Agency Responsibilities for Federal Programs. Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin.

Sec. 3-3. Research, Data Collection, and Analysis.

3-301. Human Health and Environmental Research and Analysis. (a) Environmental human health research, whenever practicable and appropriate, shall include diverse segments of the population in epidemiological and clinical studies, including segments at high risk from environmental hazards, such as minority populations, low-income populations and workers who may be exposed to substantial environmental hazards.

(b) Environmental human health analyses, whenever practicable and appropriate, shall identify multiple and cumulative exposures.

(c) Federal agencies shall provide minority populations and low-income populations the opportunity to comment on the development and design of research strategies undertaken pursuant to this order.

3-302. Human Health and Environmental Data Collection and Analysis. To the extent permitted by existing law, including the Privacy Act, as amended (5 U.S.C. section 552a): (a) each Federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information assessing and comparing environmental and human health risks borne by populations identified by race, national origin, or income. To the extent practical and appropriate, Federal agencies shall use this information to determine whether their programs, policies, and activities have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations;

(b) In connection with the development and implementation of agency strategies in section 1-103 of this order, each Federal agency, whenever practicable and appropriate, shall collect, maintain and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding facilities or sites expected to have a substantial environmental, human health, or economic effect on the surrounding populations, when such facilities or sites become the subject of a substantial Federal environmental administrative or judicial action. Such information shall be made available to the public, unless prohibited by law; and

(c) Each Federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding Federal facilities that are: (1) subject to the reporting requirements under the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. section 11001-11050 as mandated in Executive Order No. 12856; and (2) expected to have a substantial environmental, human health, or economic effect on surrounding populations. Such information shall be made available to the public, unless prohibited by law.

(d) In carrying out the responsibilities in this section, each Federal agency, whenever practicable and appropriate, shall share information and eliminate unnecessary duplication of efforts through the use of existing data systems and cooperative agreements among Federal agencies and with State, local, and tribal governments.

Sec. 4-4. Subsistence Consumption of Fish and Wildlife.

4-401. Consumption Patterns. In order to assist in identifying the need for ensuring protection of populations with differential patterns of subsistence consumption of fish and wildlife, Federal agencies, whenever practicable and appropriate, shall collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. Federal agencies shall communicate to the public the risks of those consumption patterns.

4-402. Guidance. Federal agencies, whenever practicable and appropriate, shall work in a coordinated manner to publish guidance reflecting the latest scientific information available concerning methods for evaluating the human health risks associated with the consumption of pollutant-bearing fish or

wildlife. Agencies shall consider such guidance in developing their policies and rules.

Sec. 5-5. Public Participation and Access to Information. (a) The public may submit recommendations to Federal agencies relating to the incorporation of environmental justice principles into Federal agency programs or policies. Each Federal agency shall convey such recommendations to the Working Group.

(b) Each Federal agency may, whenever practicable and appropriate, translate crucial public documents, notices, and hearings relating to human health or the environment for limited English speaking populations.

(c) Each Federal agency shall work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public.

(d) The Working Group shall hold public meetings, as appropriate, for the purpose of fact-finding, receiving public comments, and conducting inquiries concerning environmental justice. The Working Group shall prepare for public review a summary of the comments and recommendations discussed at the public meetings.

Sec. 6-6. General Provisions.

6-601. Responsibility for Agency Implementation. The head of each Federal agency shall be responsible for ensuring compliance with this order. Each Federal agency shall conduct internal reviews and take such other steps as may be necessary to monitor compliance with this order.

6-602. Executive Order No. 12250. This Executive order is intended to supplement but not supersede Executive Order No. 12250, which requires consistent and effective implementation of various laws prohibiting discriminatory practices in programs receiving Federal financial assistance. Nothing herein shall limit the effect or mandate of Executive Order No. 12250.

6-603. Executive Order No. 12875. This Executive order is not intended to limit the effect or mandate of Executive Order No. 12875.

6-604. Scope. For purposes of this order, Federal agency means any agency on the Working Group, and such other agencies as may be designated by the President, that conducts any Federal program or activity that substantially affects human health or the environment. Independent agencies are requested to comply with the provisions of this order.

6-605. Petitions for Exemptions. The head of a Federal agency may petition the President for an exemption from the requirements of this order on the grounds that all or some of the petitioning agency's programs or activities should not be subject to the requirements of this order.

6-606. Native American Programs. Each Federal agency responsibility set forth under this order shall apply equally to Native American programs. In addition, the Department of the Interior, in coordination with the Working Group, and, after consultation with tribal leaders, shall coordinate steps to be taken pursuant to this order that address Federally-recognized Indian Tribes.

6-607. Costs. Unless otherwise provided by law, Federal agencies shall assume the financial costs of complying with this order.

6-608. General. Federal agencies shall implement this order consistent with, and to the extent permitted by, existing law.

6-609. Judicial Review. This order is intended only to improve the internal management of the executive branch and is not intended to, nor does it create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any person. This order shall not be construed to create any right to judicial review involving the compliance or noncompliance

of the United States, its agencies, its officers, or any other person with this order.

William Clinton

THE WHITE HOUSE,
February 11, 1994.

[FR Citation 59 FR 7629]

SAL00018



District Reports			
Use the pull-down menus to find a wealth of financial, demographic and performance data.			
Select Report	Profile of District	County	Los Angeles
Year	2002-03	District	Lennox Elementary

General Information Students Staffing

District Profile • FISCAL YEAR: 2002-03

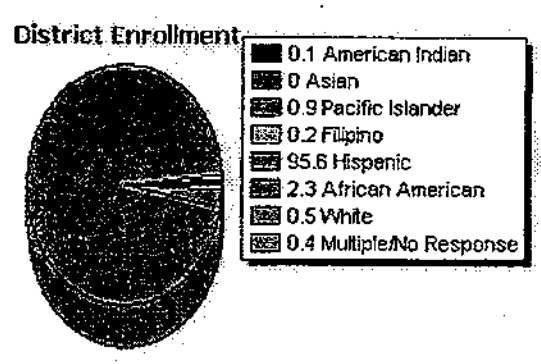
<p>Lennox Elementary School District 10319 S. Firmona Ave. Lennox, CA 90304-1419 Phone (310) 330-4950 CDS: 19 - 64709 District Web Site</p> <p>Questions about the data?</p>	<p>This page includes:</p> <ul style="list-style-type: none"> • Students by Ethnicity • Alternative Education • Special Programs • Languages of English Learner Students • Profile Definitions <p>This site reports data for California's K-12 public school system only.</p>
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Enrollments in California schools have been steadily increasing for more than 15 years, though the pace has slowed lately and is expected to level off in the middle of this decade. The percentage of Hispanic students has steadily grown (they are expected to form the majority by 2009-10) while African-American and white students have declined. Remaining fairly constant is the percentage of students from Asia, the Pacific Islands, and the Philippines. A continuing trend is the increase in special student populations, especially those who need to learn English.



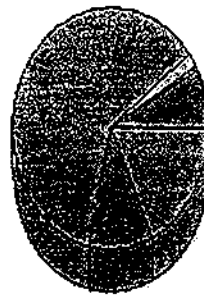
**Students by Ethnicity
Lennox Elementary School District, 2002-03**

	District		County
	Enrollment	Percent of Total	Percent of Total
American Indian	5	0.1%	0.3%
Asian	1	0.0%	7.7%
Pacific Islander	67	0.9%	0.5%
Filipino	15	0.2%	2.1%
Hispanic	7,188	95.6%	60.7%
African American	173	2.3%	10.8%



White	41	0.5%	17.6%
Multiple/No Response	31	0.4%	0.3%
Total	7,521	100%	100%
ALSO SEE ► Students by Ethnicity definitions			
Source: Educational Demographics Office, CBEDS (sifae02 5/7/03)			

County Enrollment



0.3 American Indian
7.7 Asian
0.5 Pacific Islander
2.1 Filipino
60.7 Hispanic
10.8 African American
17.6 White
0.3 Multiple/No Response

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<p>Special Programs Lennox Elementary School District, 2002-03</p> <p>Special Programs information will be posted when it becomes available.</p>

Numerous special programs serve students who meet certain criteria. Assistance is provided in different ways, such as a hot meal during the school day or extra instructional time. Participation may vary from year to year depending on student enrollment.

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<p>Alternative Education Lennox Elementary School District, 2002-03</p> <p>Alternative Education information is not available for this district.</p>

Numerous alternative programs meet specific student needs in addition to the regular educational program. These alternative courses of study may be mandated (as with a continuation high school) or optional (as with a magnet school). With the exception of independent study and magnets, these programs largely serve high school students.

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<p>Languages of English Learner Students Lennox Elementary School District, 2002-03</p>		
	Number of Students	Percent of Enrollment
Spanish	5,323	70.8%
Tongan	22	0.3%
Farsi (Persian)	5	0.1%
Hindi	4	0.1%
Arabic	1	0.0%
All Other	2	0.0%
Total	5,357	71.2%
ALSO SEE ► EL Student definitions		

About a quarter of California's public school students need to learn English in order to succeed in school. The percentages are highest in the early grades -- about 36% of K-3 children in 2002-03. Of the many dozens of languages in classrooms, by far the greatest number of English learners speak Spanish.

A grade-by-grade list of the languages reported in California schools is at [DataQuest](#).

Source: Educational Demographics Office, Language Census
(elsch03 7/30/03)

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High School Performance

You can see data on dropouts by ethnicity, graduates by ethnicity, graduates eligible for UC-CSU admission, average SAT scores, and results of the High School Exit Exam on the California Department of Education's [DataQuest](#) and [High School Exit Exam](#) web sites.

Ed-Data

[Education Data Partnership](#)

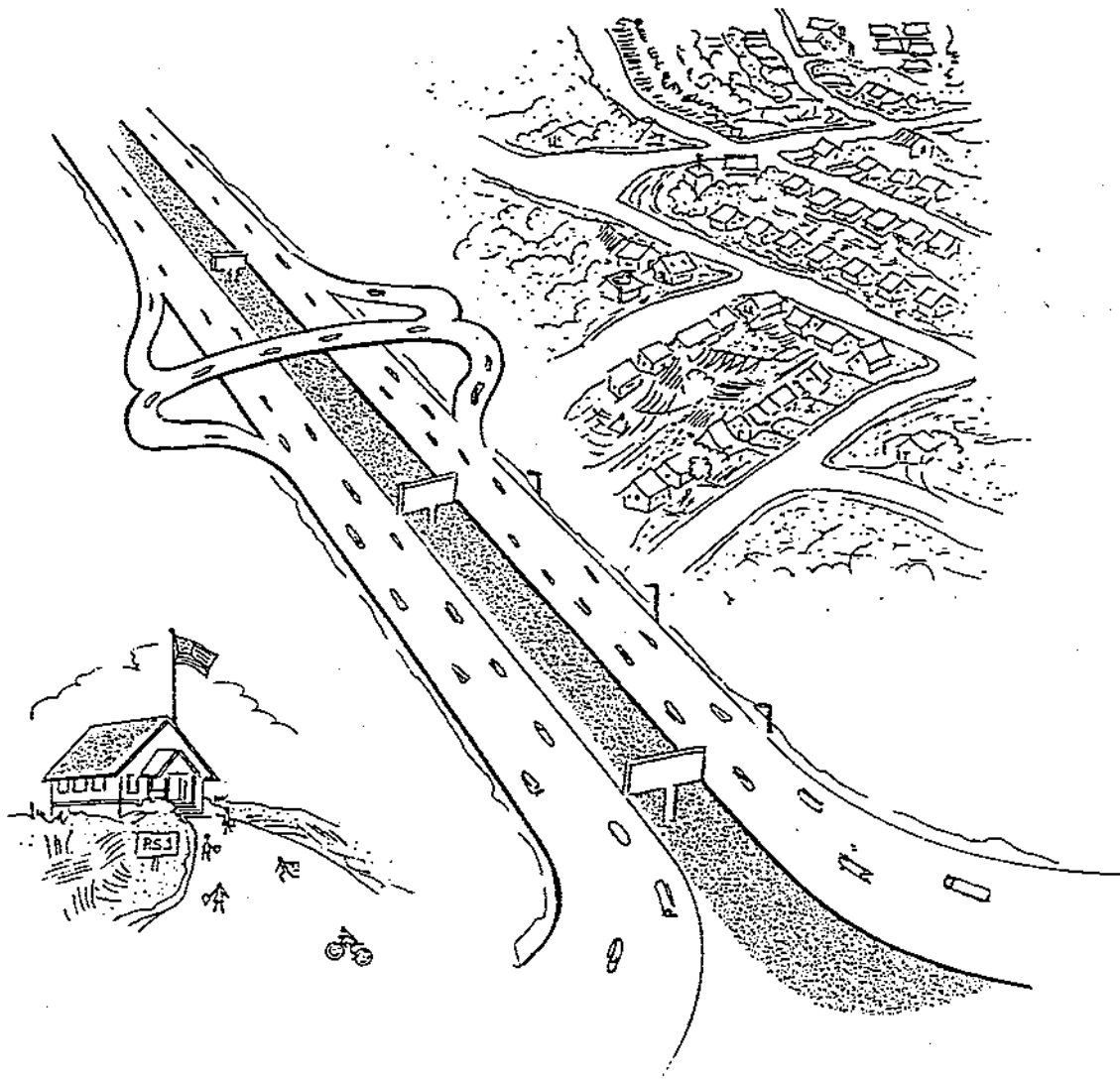
[Comments to ed-data@cde.ca.gov.](mailto:ed-data@cde.ca.gov)

[Questions about the data files?](#)

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URL: <http://www.ed-data.k12.ca.us>



Effects of Noise on Academic Achievement and Classroom Behavior



TECHNICAL REPORT STANDARD TITLE PAGE

1. REPORT NO. FHWA/CA/DOHS-81/01		2. GOVERNMENT ACCESSION NO.		3. RECIPIENT'S CATALOG NO.	
4. TITLE AND SUBTITLE Effects of noise on Academic Achievement and Classroom Behavior				5. REPORT DATE September 1981	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) J.S. Lukas, R.B. DuPree, J.W. Swing				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Office of Noise Control California Department of Health Services 2151 Berkeley Way, Berkeley, California 94704				10. WORK UNIT NO.	
				11. CONTRACT OR GRANT NO. I.A.A. 19-7165	
12. SPONSORING AGENCY NAME AND ADDRESS California Department of Transportation Sacramento, California 95807				13. TYPE OF REPORT & PERIOD COVERED Final. 1977-1981	
				14. SPONSORING AGENCY CODE	
15. SUPPLEMENTARY NOTES This study was performed in cooperation with the U.S. Department of Transportation, Federal Highway Administration.					
16. ABSTRACT <p>There is a significant acoustical difference between State and Federal rules governing implementation of noise abatement programs in schools impacted by freeway noise. The magnitude of that difference suggests the rules may have been based upon empirically weak grounds. This study of third and sixth grades of 15 elementary schools in the Los Angeles Unified School District indicates that California's rule is more accurate than is the Federal rule in predicting the effects of noise on reading achievement.</p> <p>Based upon this study and another independent study, a revision of the existing rule is recommended. The design criterion for traffic noise levels inside classrooms should be $L_{eq} = 58$ dB C-weighted. This criterion level is approximately 7 dB less than the current Federal standard and about 6 dB higher than the California standard.</p> <p>Because of the apparent synergistic effects of community and classroom noise levels on academic achievement, in order for the above classroom noise limit to be effective in preventing degradation of achievement from noise, efforts will be required to contain community noise levels so as not to exceed $L_1 = 65$ dBA.</p>					
17. KEY WORDS Schools, community noise, freeway, academic achievement			18. DISTRIBUTION STATEMENT No restrictions. This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161		
19. SECURITY CLASSIF. OF THIS REPORT Unclassified		20. SECURITY CLASSIF. OF THIS PAGE Unclassified		21. NO. OF PAGES	22. PRICE

STATE OF CALIFORNIA
HEALTH AND WELFARE AGENCY
Mario Obledo, Secretary

DEPARTMENT OF HEALTH SERVICES
Beverlee A. Myers, Director

September 1981

**Effects of Noise on
Academic Achievement and Classroom Behavior**

Study Conducted by.....Office of Noise Control
Epidemiological Studies Section
Preventive Medical Services Branch


Under the Supervision ofA.E. Lowe

Principal InvestigatorJerome S. Lukas, Ph.D.

Co-Investigators.....Russell B. DuPree and
Jack W. Swing, P.E.

Report Prepared by.....Jerome S. Lukas, Ph.D.

APPROVED BY


BEVERLEE A. MYERS, Director
Department of Health Services

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NOTICES

Funding for this study was provided by the Federal Highway Administration through the California Department of Transportation (I.A.A. 19-7165) and by the California Department of Health Services. Assistance of Juanita Oñate and Robert Heald in collection and analysis of the classroom data, of the Environmental Investigation Section, District 7, of Caltrans in collecting the community noise and air quality data, and of Dee Nichols for typing is acknowledged with gratitude.

The contents of this report reflect the views of the Office of Noise Control of the California Department of Health Services which is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. While this report contains useful information and advances the state of knowledge concerning the relationship between classroom noise and academic achievement, the report may not constitute an adequate basis for changing either the California or Federal regulations regarding acceptable noise levels in classrooms at this time. This report does not constitute a standard, specification, or regulation.

Neither the State of California nor the United States Government endorse products or manufacturers. Trade or manufacturers' names appear herein only because they are considered essential to the objective of this document.

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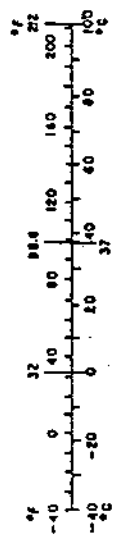
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METRIC CONVERSION FACTORS

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
acres	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
fl	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
F	Fahrenheit temperature	5/9 after subtracting 32	Celsius temperature	°C

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
km	kilometers	1.1	yards	yd
		0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	acres
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	short tons
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	1.1	pints	pt
l	liters	1.06	quarts	qt
m ³	cubic meters	0.26	gallons	gal
m ³	cubic meters	38	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



* 1 in. = 2.54 (exact). For other exact conversions and more detailed tables, see NBS Misc. Publ. 246, Units of Weights and Measures, Price 12.25. SO Catalog No. C13.10-288.

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Final Report

Effects of Noise on Academic Achievement and Classroom Behavior

Jerome S. Lukas, Russell B. DuPree, and Jack W. Swing

Introduction

Some studies have suggested that noise from external sources affects teachers' and childrens' behavior and childrens' achievement in school. For example, Crook and Langdon,¹ in a study of schools exposed to aircraft noise, found that teachers typically paused in their discourses when peak noise levels reached 80 dBA, even though voice levels were raised to compensate for the increased noise levels. With respect to academics, Bronzaft and McCarthy² found that children exposed to elevated train noise at peak levels of about 90 dBA were three to four months behind their schoolmates in quieter classrooms in reading. Cohen, et al³ reported a similar result in children exposed to aircraft noise. An unpublished preliminary study by the California Department of Health Services obtained results similar to those of Bronzaft and McCarthy and Cohen, et al. Our study suggested that reading achievement of third and sixth graders in "noisy" schools* was poorer than that of socioeconomically comparable students in "quiet" schools.

The above study raised more questions than it answered. For example, because school noise levels were unknown, we assumed that all classrooms in "noisy" schools were equally noisy, while in "quiet" schools they were equally quiet. In addition, we assumed that community noise levels were comparable. Perhaps proximity to freeways was correlated with high levels of other pollutants—lead, carbon monoxide, nitrous oxide, etc., and these may explain the difference in reading ability. Or, more simply, our results may have been due to an unique combination of schools.

In contrast to the characteristics of noise that might be expected in schools adjacent to freeways, in the other studies different levels, durations, periodicities, and sources of noise were observed. Hence, the results may not be applicable to the freeway and traffic situations found in cities.

This lack of scientific data is in part responsible for the existence of two different rules governing implementation of a noise abatement program for schools adjacent to freeways. California law states that noise abatement must occur when the noise level inside the classroom exceeds 50 dBA. In contrast, the federal program becomes operational when the noise level reaches an $L_{10} = 55$ dBA. This is equivalent to about 63 dBA⁴ under California's rule. Thus, there is a clear need to determine which of these rules is more appropriate.

The study described below was designed to examine the extent to which exposure to freeway noise affects children in school and to determine a criterion noise level for a school noise abatement program. The effects investigated were both behavioral and academic. We tentatively hypothesized that there would be correlations between external noise levels, behavioral effects,

1. A list of references and technical notes in numerical order is appended.

*"Noisy" schools were defined as schools adjacent to freeways that qualified for noise abatement work by State criteria (see below), while "quiet" schools were those nearest each "noisy" school (usually within one-half mile) but further from the freeway.

and academic achievement and that degradation of classroom behavior may explain, at least in part, reductions in academic achievement.

In addition, measures of air quality were obtained for eight of the schools under study and were selected according to (a) their proximity to the freeway, (b) their location with respect to the freeway and prevailing winds, and (c) the topography of the greater Los Angeles area. These data were used to determine roughly whether the schools studied were comparable with respect to air quality.

Method

A. Selection of Schools

The so-called "noisy" schools were selected because they were located adjacent to freeways, and because measurements by the California Department of Transportation indicated that peak noise levels in the worst classrooms exceeded 60 dBA. In addition, corrective noise abatement work was scheduled after completion of our study. It should be noted that CalTrans' noise abatement program began long before the study. Thus, we were unable to study the noisiest schools (peak levels above 80 dBA) and if we had, perhaps the effects would have spanned a greater range than those to be shown subsequently.

Two criteria were used to select the quiet schools. In general, we selected the school closest to each noisy school, but the quiet school was further from the freeway. It was assumed on the basis of the preliminary study mentioned above, that this technique would result in socioeconomically comparable "noisy" and "quiet" schools. The second criterion involved use of the teachers' estimates of parental employment to assure greater comparability. These estimates of parental employment were obtained as follows. Each year the State Department of Education requires that third and sixth grade students be administered standard tests in reading and mathematics. This test is the California Assessment Program, referred to hereafter as the CAP. The teacher fills out an information form for each child which includes a categorized question about parental occupation. The categories are: 0—Unskilled or Welfare; 1—Skilled and Semi-skilled; 2—Semi-professionals, Clerks, Sales and Technicians; 3—Executives, Professionals, and Managers. The Socioeconomic Index (S.E.I.) for a school is the average of the students tested.

This index was a rough estimate at best. Nevertheless, it was all that was available and was used for the initial selection of schools. Subsequently, more precise data were made available from several sources. These were used to develop other indicators of socioeconomic status that are shown in Table I. These indicators were calculated from the "block data" of the U.S. Census, some data provided by the Los Angeles City Planning Department, and by a private survey company. Details of the procedure for estimating the socioeconomic variables can be found in Appendix A.

Three matching quiet schools are missing in Table I. Several reasons accounted for this. One school principal refused to participate in the study because his school was not noisy. Another school was dropped when after driving through the area we found relatively few homes in an area devoted to heavy commerce which is serviced frequently by large trucks and trailers. Unpredictable delays in our schedule were caused by school holidays, and non-academic preparations for festive events such as Mothers' and Fathers' Days, Halloween, Valentine's Day, or teacher training and parent-teacher conference days. Finally, contractual and financial constraints required completion of our classroom observations in the 1978-79 school year.

Table I

SOME SOCIOECONOMIC INDICATORS FOR NOISY AND MATCHED QUIET SCHOOLS

NOISY SCHOOLS											QUIET SCHOOLS										
School Code No.	S.E.I.	Median Family Income	% Poverty	% Unemp.	% Black	% Hispanic	% White	% N.E.S.		No. of Students	School Code No.	S.E.I.	Median Family Income	% Poverty	% Unemp.	% Black	% Hispanic	% White	% N.E.S.		No. of Students
								1	2										1	2	
6002	2.01 1.96	10,337	20.05	8.36	0.7	63.9	7.9	15.5	0.9	570/116	6893	2.01 2.12	11,050	22.92	12.01	1.6	64.6	15.3	21.3	1.1	426/91
7214	2.01 2.00	12,862	17.77	—	26.5	41.7	12.6			593/185	8501	— 2.05	10,526	11.52	—	8.6	36.9	26.7	4.6	1.7	547/109
7651	1.54 1.57	7,207	18.16	—	1.6	96.5	1.9	31.1	5.2	1,141/135	9004	1.44 1.44	6,292	18.45	—	84.4	15.6	0.0	1.8	0.0	800/215
7941	1.41 1.52	9,119	27.61	10.19	0.2	98.3	0.7	53.9	9.1	1,104/241											
8071	1.69 1.56	9,808	26.0	14.31	84.5	14.2	0.8	2.4	1.1	716/85	5747	1.53 1.44	9,987	25.13	12.65	79.3	18.2	0.1	2.3	1.5	637/21
9095	1.41 1.33	7,457	33.11	12.65	3.5	92.0	0.9	67.9	1.9	691/162											
9251	1.45 1.45	7,334	23.48	16.69	85.0	14.8	0.1	1.0	0.0	728/197	6174	1.51 1.50	8,473	31.35	16.54	75.5	22.3	0.2	6.2	3.3	1,367/274
9825	— 1.21	8,469	26.14	11.01	0.0	99.7	0.3	27.3	3.9	351/77											
9889	1.52 1.51	7,489	33.38	16.08	41.7	58.0	0.2			905/194	9558	1.32 1.56	6,338	41.92	20.13	37.9	61.9	0.2	20.9	0.7	1,183/293

S.E.I.: Socioeconomic Index. An average of teachers' rankings of parental occupation, where 0 is welfare or unskilled laborer, 1 is skilled or semi-skilled, 2 is semi-professionals, clerks, sales and technicians, and 3 is executives, professionals, and managers. To indicate variability in the Index, the top number is for 3rd grades in 1974/75, and the bottom number is for the same grades in 1975/76. A dash indicates data were not available.

Median Family Income: Estimated as described in Appendix A.

% Poverty: Percentage of families in poverty, based on average household size of 3.67 individuals - the U.S. Average. This corresponds to an income level of \$6,180, according to the U.S. Bureau of the Census for the year 1978. See Appendix A.

% Unemp.: Percentage of employable persons who are unemployed. See Appendix A.

% Black, Hispanic, and White Students: Another category, "Asian/Pacific Islander", was excluded. The percentages should add to 100%, and the difference between 100% and the sum will account for Asians/Pacific Islanders because the number of American Indians or Alaskan natives was, at most, 6 or 1.4% at school 6893. Typically, there were no or only a fraction of a percent of American Indians or Alaskan natives at these schools. Data provided by the Los Angeles Unified School District.

% N.E.S.: Non-English Speaking. The percentage of children in the 3rd and 6th grades who did not speak English with native-born fluency. In most schools these children were recent immigrants of Hispanic origin. No. 1 refers to children of "limited" ability in English, and No. 2 are non-English speaking.

No. of Students: No. in school/no. tested in 3rd 6th grades.

Comparison of the indicators in Table I suggests that our matching of schools produced roughly comparable sets of noisy and quiet schools. This assessment of comparability is correct if one accepts differences in racial composition of up to 10 percentage points or differences of more than \$1,000 in Median Family Income as not being significant. For example, in schools 9251 and 6174, the noisy school had about 10 percent more Blacks and fewer Hispanics (about 8 percentage points), and the latter school's families had \$1,000 more income yearly than did the parents of school 9251, although the unemployment rates were almost equal. Note also that despite the higher Median Family Income for school 6174, this school had a larger percentage of families in poverty than did school 9251.

Schools 7651 and 9004 were very dissimilar with respect to racial composition. These schools were initially matched on the basis of S.E.I. alone, without regard to location. In subsequent analyses, these schools were not paired.

In the aggregate, the various socioeconomic indicators suggest that the schools studied might be called minority schools because of the disproportionately large numbers of Black or Hispanic students. For purposes of comparison, the distribution of racial and ethnic groups in all of the Los Angeles Unified School District's elementary schools in the Fall of 1978 follows: American Indian or Alaskan Native, 0.5%; Black, 22.7%; Asian or Pacific Islander, 6.4%; of Hispanic origin, 46.3%; White, 24.9%. Because of the relatively high percentages of unemployed and families in poverty, as shown in Table I, our group of schools might also be called poor.

It may be concluded that the results of the study are applicable to schools of racial, ethnic, and economic comparison similar to those shown. The results may not be applicable to schools with much larger percentages of White or Asian students.

A final caution about interpretation of the Non-English-Speaking (N.E.S.) category is warranted. The decision to test or not to test a student with limited skills in English is left to the school staff. In some cases, teachers or principals may be interested in how well some or all the children are doing academically and may require tests of all, regardless of language limitations. Others may think that because some children are so poor in English, testing would be of little value, and only "Category 1" children are tested. The test score rosters contain information only about children who are tested. Thus, they reflect teacher selection of students who should be tested. The numbers should not be interpreted as reflecting relative fluency in English in the various schools. For purposes of analysis of the academic data, we have treated the children who spoke English fluently separately from those of less fluency as defined by N.E.S. Categories 1 and 2.

1. Schools and Classrooms Excluded

As a rule, we excluded schools that were part of a newly-established bussing program and classrooms that did not have full-time teachers. The behavioral data (but not achievement or noise data) from school 7214 were excluded from analysis because it was the first school studied (it was studied in the 1977 school year) and was used to test and refine our procedures. It is unfortunate that this particular school was chosen for this purpose, because it is the nearest match for school 8501.

Almost all of the principals and teachers were most cooperative, although some were suspicious initially or had reservations about the purposes of the study. Because participation was voluntary, we did not coerce teachers; rather, we used persuasion. Generally we met first with the principals, explained the program, obtained information regarding the number and locations of the third and sixth grades, teachers' names, and the number of children in the school. At this meeting we also set up a tentative schedule for our work in the school and for meeting with the teachers involved. Prior to meeting with the teachers, they were sent a brief description of the study (see Appendix B). At the meeting, this description was elaborated,

discussed, and all questions were answered. Despite these efforts, a few teachers refused to participate in the study. Some refused at the meeting, a few upon our entry into the classrooms to begin work, and some became ill on their scheduled days. If we could reschedule to accommodate the illness, we did; if not and a substitute teacher was used, the data were excluded. We also excluded data from classrooms that were almost completely out-of-control, or if most of the day(s) was spent at rehearsals, preparation for dances, preparing Valentines, Christmas decorations, etc. Occasionally the equipment malfunctioned.

Table II lists the number of classrooms and the number of days during which we obtained usable data. In some cases, usable data were obtained for a portion of the day—such as during a period devoted to mathematics. Such instances are not discriminated in the table.

It will be noted that in some classrooms we obtained data during more than three days. Typically, this occurred when a teacher of another classroom decided not to participate or became ill. Rather than wasting a day, we extended the observation period for a given classroom, if that teacher permitted. It was thought this technique would result in more accurate estimates of classroom behavior, particularly as they relate to noise levels.

2. Classrooms Combined

As will be shown subsequently, children who were not fluent in English consistently performed less well on the achievement tests than did children fluent in English. Thus, the achievement data of the two groups of children had to be analyzed separately.

In the classrooms studied, the numbers of English fluent and non-fluent children varied with the language skills of the teacher, particularly in schools with large Hispanic populations. This student distribution problem became apparent after we had observed most of the classrooms in the second school and became very clear after we had obtained the achievement test results that identified the non-English speaking students in each classroom. The reason is that the number and location of Spanish-speaking teachers does not correspond to the number of Spanish-speaking students. Thus, English-speaking students typically are taught by English-speaking teachers, whereas bilingual teachers have predominantly English-weak and non-English-speaking students.

For obvious reasons, it is invalid to perform statistical comparisons based upon samples of one or two students. Thus, we were forced to combine some data. Data from two classrooms were combined if their exposures to external noise sources were either found to be or were expected to be comparable or within 2 dB; in most cases these were adjacent classrooms. All of the classrooms, either in combination or singly, had an N of 5 or more (mean=17.2, σ =7.2). Although an N of 5 is admittedly small, the acoustics of a particular school's location or construction would not permit combination of more classrooms as being representative of a particular noise exposure. In the few cases where student numbers were less than 2 and where classroom noise levels were not comparable, the data were deleted.

B. Noise in the Communities

The fact that children are exposed to noise in their non-school environments as well as in their schools is indisputable. The problem for the study described herein is to discern the extent to which noise levels in the schools affect childrens' academic achievement independently of their non-school exposures. That achievement might be related to noise exposures in the non-school environment was suggested by Cohen, Glass and Singer⁵. They examined the reading abilities of socioeconomically comparable children attending

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Table II

NUMBER OF OBSERVATION DAYS DURING WHICH
USABLE DATA WERE OBTAINED

NOISY SCHOOLS					QUIET SCHOOLS				
School Code No.	Grade	No. of Class-rooms	Total Obs. Days	Added*	School Code No.	Grade	No. of Class-rooms	Total Obs. Days	Added
<u>6802</u>	3	2	5	0	<u>6893</u>	3	1	3	2
	6	2	6	0		6	2	6	0
<u>7214</u>	3	3		3	<u>8501</u>	3	2	6	1
	6	3		3		6	2	6	0
<u>7651</u>	3	2	6	1	<u>9004</u>	3	3	9	2
	6	2	6	2		6	3	8	0
<u>7941</u>	3	6	18	0					
	6	3	13	0					
<u>8071</u>	3	1	3	0	<u>5747</u>	3	3	9	1
	6	0	0	4		6	3	9	0
<u>9095</u>	3	3	9	2					
	6	3	9	0					
<u>9251</u>	3	3	9	2	<u>6174</u>	3	2	6	4
	6	4	12	0		6	4	10	1
<u>9825</u>	3	1	3	2					
	6	1	3	0					
<u>9889</u>	3	3	9	2	<u>9558</u>	3	6	18	0
	6	3	9	0		6	5	12	0

*Added: Number of classrooms that were not observed, but for which academic achievement data were used in some analyses.

the same schools and residing in the same New York apartment building. They found that children living on the noisier lower floors with closer proximity to a freeway had reading levels lower than those children residing on the higher floors.

1. Method

The Noise Monitoring Survey, Class II, as developed and described by Wyle Research,⁶ was used. It is described briefly below and Appendix C describes the survey techniques in greater detail.

Students were assigned to a particular school if they lived within a distance of 1/4 to 1/2 mile of the school. Using maps of these "feeder areas" for each school, the area was subdivided into five or six locations that would estimate community noise levels considering local traffic patterns, noise sources, and the pattern of residences. These are called "spatial sampling units". Once the spatial sampling units for a given school were localized, the principal or a representative of the community was asked to provide the names, addresses, and telephone numbers of volunteers in each unit who would permit us to set up the equipment at their homes. The research group subsequently met with the volunteers, explained the study and what was expected of them, described the equipment, and arranged for an equipment set-up date. Volunteers were paid \$5.00 for each day the equipment was at their homes. Because volunteers were used, the sites were not always where we would have wished. They may have been, for example, at most a block from the ideal location. Nevertheless, the sites are believed to be representative of the sampling units.

Microphone masts were attached to the plumbing vent pipes atop the homes, and the microphones were located at the top of the mast about 6 feet above the roof. Every effort was made to prevent shielding of microphones by roof peaks and chimneys. Roofs were used to prevent shielding by adjacent buildings and to preclude vandalism.

At each sampling site, a Type 1945 Gen Rad Community Noise Level Monitor provided samples during most of the 24-hour day. A copy of a completed Community Noise Survey Data Sheet is provided as Figure 10 in Appendix C. It shows the sampling periods used throughout the day and night and the noise level indices that were recorded.

In addition to the sampling procedure with the Gen Rad 1945 at fixed sites, a Bolt Beranek and Newman Model 614 Portable Noise Monitor or a Gen Rad 1945 were used at selected "roving sites". Roving sites—two or three at each school—were used to provide better coverage of the sampling units, to corroborate data obtained at the fixed sites or, in lieu of fixed sites, if volunteers were unavailable in a particular sampling unit. Sampling durations (typically 1/2 hour) at the roving sites were necessarily shorter than those shown on the Community Noise Survey Data Sheet, but did occur within the time periods shown.

2. Community Noise Levels⁷

The community noise levels are described and discussed here rather than in the Results section because they are relevant to the comparability of the schools and are similar to socioeconomic factors.

Shown in Table III are several measures of noise levels in communities providing children to the schools. School 9251 may be compared with 6174 and 9004 as was discussed on page 3, while the four largely Hispanic schools are shown at the bottom of the table.

Table III

A-WEIGHTED NOISE LEVELS IN COMMUNITIES PROVIDING CHILDREN TO "NOISY" AND "QUIET" SCHOOLS

NOISY SCHOOLS						QUIET SCHOOLS					
School Code No.	L ₁ *	L ₁₀	L ₉₉	L _{NP}	L _{eq 24}	School Code No.	L ₁	L ₁₀	L ₉₉	L _{NP}	L _{eq 24}
6802 \bar{x}	69.0	62.4	54.1	66.0	60.7	6893 \bar{x}	66.6	56.6	41.7	64.1	56.9
s	3.7	4.3	4.8	4.4	3.6	s	6.4	7.4	4.7	10.5	5.6
7214 \bar{x}	66.8	59.9	49.7	64.2	59.0	8501 \bar{x}	65.9	58.4	47.3	63.6	57.3
s	6.3	7.0	6.9	7.7	5.2	s	4.5	5.5	4.4	7.5	3.7
8071 \bar{x}	69.9	62.8	54.6	66.0	62.3	5747 \bar{x}	65.9	58.0	45.9	63.4	56.3
s	5.5	4.5	6.0	4.4	3.4	s	4.1	5.9	6.0	6.9	3.8
9251 \bar{x}	68.4	61.7	51.7	66.1	59.5	6174 \bar{x}	72.4	65.3	51.1	72.9	63.9
s	3.0	4.0	4.8	4.1	3.1	s	6.3	7.4	8.7	9.0	6.9
						9004 \bar{x}	72.1	64.3	48.8	72.0	62.3
						s	3.3	4.2	5.8	5.5	2.7
9889 \bar{x}	70.7	63.6	51.7	69.0	62.7	9558 \bar{x}	70.8	63.4	50.3	70.2	59.9
s	4.3	5.1	6.9	5.4	3.8	s	3.4	2.3	3.4	5.6	2.6
7651 \bar{x}	70.5	63.4	52.0	68.4	60.8	Schools, primarily Hispanic, for which we have no matched Quiet schools.					
s	5.5	5.9	5.8	6.7	1.5						
7941 \bar{x}	63.5	58.1	51.5	60.6	56.7						
s	3.2	2.6	2.3	2.8	2.6						
9095 \bar{x}	72.2	67.7	58.2	71.9	64.7						
s	4.4	4.5	5.6	4.9	4.1						
9285 \bar{x}	74.0	68.0	57.1	72.9	67.5						
s	6.0	6.4	6.7	6.8	4.2						

*L₁, L₁₀, L₉₉ and L_{NP} are averages over all sites, both fixed and roving (see Appendix C), throughout each community. The measurements occurred during Morning Rush Hours, Midday, Evening and Night.

L_{NP} for each measurement period = L_{eq} + (L₁₀ - L₉₀), and

L_{eq 24} = Logarithmic averages of levels measured during the four periods.

By and large, the differences between the "noisy" and "quiet" neighborhoods are neither consistent nor remarkably large. Indeed, some so-called quiet neighborhoods are noisier than their adjacent noisy neighborhoods (e.g., schools 9251 and 6174). Maps and observation of the areas indicate that local traffic patterns and the types of traffic are the cause. For example, although school 9251 is adjacent to a freeway, there is almost no truck traffic through its feeder area. In contrast, feeder areas for schools 6174 and 9004 are intersected by one or two major thoroughfares carrying frequent automobile and truck traffic to and from the freeway. Occasionally this traffic may bypass major intersections through residential streets. In addition, the areas are economically poor, so that many old cars in poor condition and with inadequate mufflers travel the streets. It is reasonable to expect that higher unemployment and/or poverty levels are correlated with relatively higher frequencies of decrepit automobiles; hence, there may be some correlation between the economic indices and community noise levels even in poor areas that are not adjacent to freeways.

On the average, the L_{99} appears to be the best discriminator between noisy and quiet neighborhoods; noisy areas having an average $L_{99} = 53.4$ dBA, while quiet ones average 47.5 dBA. The L_{99} may be thought of as the background, or residual, noise level obtained when the sources of noise are absent or remote from the monitoring sites.

In general, both the "noisy" and "quiet" feeder areas are shown to be relatively noisy. Only in the middle of the night at some monitoring sites in certain quiet areas did the minimum levels go down to 35 dBA or so. Compilations of noise levels at the different measurement times are shown in Appendix D; see also Figure 16, Appendix C. Because studies relating academic achievement and environmental levels are few and inconclusive, the levels shown here may be spurious. Statistical analyses described subsequently suggest the relationship between the various community noise levels and achievement.

3. Other Pollutants in School Areas^{*}

The results presented in Figure 12 of Appendix C suggest that the concentrations of lead and carbon monoxide^{*} are not related to the proximity of the school to the freeway; rather, the concentrations appear to be relatively uniform among the schools we studied in the Los Angeles Basin. It may be concluded that the children in the schools studied were exposed to similar concentrations of these air pollutants.

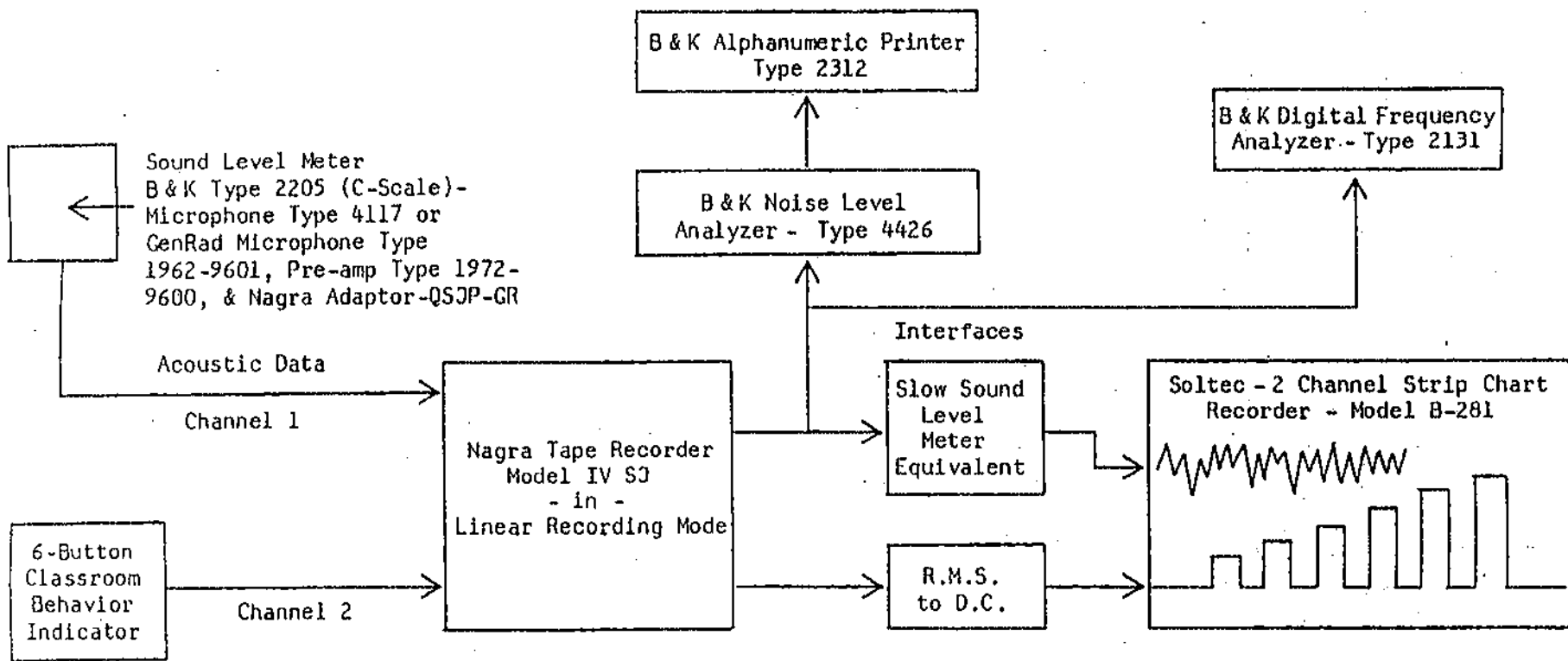
4. Classroom Measurement and Observation

While in the classrooms, two observers selectively tape-recorded two types of information: (1) the acoustic environment, and (2) certain indications of classroom behavior when the teachers were lecturing or otherwise interacting with the entire group of children. Figure 1 is a schematic diagram of the equipment used for recording and analysis.

a. Acoustical

The acoustical measurements are to be regarded as being Type 2 (ANSI S1.4-1971) for two reasons: (1) we were unable to commit, without interruption, two sound level meters as first-stage inputs (see Figure 1), which resulted in differences in the acoustical characteristics of our recordings; and (2) some initial recordings were obtained inadvertently at a tape speed (1.5 ips) that

^{*}Lead and carbon monoxide are used illustratively here. The discussion is pertinent also to other pollutants.



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Figure 1

SCHEMATIC DIAGRAM OF RECORDING AND PLAYBACK EQUIPMENT

resulted in the signal to "roll-off" beyond 3,000 Hz.* The acoustical recording system was calibrated daily, and generally before beginning observation.

Noise levels were recorded under three conditions. These were:

- (1) Classroom and school areas without any children. These were obtained during the summer vacation. Ventilation (windows, doors, air conditioners, and forced air) was similar to that observed during the normal classroom periods.
- (2) Classroom noise levels with the children in position but quiet; that is, working at their seats with a minimum of talking and movement.
- (3) The observer's estimate of normal noise levels with the children present and active.

In order to calculate the Articulation Index,⁹ a sample of the teacher's voice level while reading a standard phrase (see Appendix E) at a distance of about 6 feet from the microphone was obtained. We attempted to obtain samples before and after the normal classroom hours without children present, but were hampered by faculty meetings, tardiness, and parent-teacher discussions. We were able, typically, to obtain at least one sample daily from each teacher.

b. Behavioral

In addition to the handwritten observations about the various phases of the school day and behavior therein (see Appendix B), a technique was used to record electronically pulses of varying amplitude on the magnetic tape. These pulses had a carrier frequency of 1,000 Hz, but varied in amplitude depending upon which of six buttons was pushed. Each button corresponded to a specific facet of classroom behavior, and was used to facilitate analysis of the acoustical channel of the tape. The criteria governing use of each button may be found in Appendix F. It is sufficient here to describe the six buttons only briefly:

- (1) Disregard: Used when the noise source that affected some classroom behavior was other than a motor vehicle. This button was used infrequently; discrimination of noise source was based on listening to tape recording or by annotation of the written record.
- (2) Can't Hear: Used when the observer was unable to hear what the teacher or a student was saying.
- (3) Rebuke: Used when the teacher called the class or a student to order.
- (4) Interrupt/Pause: Used when the teacher paused while instructing the students.
- (5) Distract: Used if several students looked around in the direction of a noise source.
- (6) Raise: Used if the teacher's voice was raised to compensate for an increase in noise level. (This event invariably occurred in conjunction with a "Rebuke" rather than as a response to an increase in noise level.)

Table IV shows the frequencies of the various events observed and annotated in the classrooms. It can be noted that Rebukes were the most common event, followed by Can't Hears. Because Rebukes typically were associated with an increase of the teachers' voice levels (Raise), it may be concluded that about 9 percent of Rebukes were concomitant with perceptible increases in the teachers' voice levels.

*Subsequent recordings were at a speed off 3.75 ips, which resulted in the roll-off beginning at 10 KHz.

Table IV

Frequencies of Different Types of Classroom Disruptions

Disregard	Can't Hear		Rebuke	Interrupt/ Pause	Distract	Raise Voice
	Student	Teacher				
545	2380	258	6955	288	144	655

c. Comparability of Observers

After several days of practice in different classrooms, the observers worked simultaneously in a single classroom for two days* in order to determine their relative comparability. Table V shows the frequency of use of the different buttons by the two observers. McNemar's Chi-square test for correlated samples¹⁰ revealed no statistically significant differences in response frequencies between observers. However, observer H appears to have had more difficulty hearing both the students and the teacher than did observer O; and this difficulty is more apparent with respect to hearing the teacher than the students. A reason for H's apparent difficulty is that he has a significant bilateral high frequency hearing loss, as is shown in Table VI.

Detailed analysis of the strip charts (see Figure 1) indicated that the observers were more consistent than the aggregated data (Table V) initially suggested. This analysis compared only those segments of the classroom periods when observations were simultaneous.¹¹ These strip charts were synchronized, divided into 5-second periods, and a count made of the number of coincidental observations as well as the number of 5-second periods during which coincidental observations were possible. The results are shown in Table VI. Section A of the Table refers to the frequency of use of all six behavioral categories, while Sections B and C refer only to "Can't Hear" responses during periods when either the students or the teachers were doing most of the talking. For example, Section B is the sum of two periods when the children were giving answers to arithmetic problems or spelling words, and Section C is the sum of two periods when the teacher was reading a story aloud. Table VI indicates that overall the observers agreed with each other about 93% of the time. Of greater interest, however, is the indication that the observers couldn't hear the students about twice as frequently (12.6% in contrast to 6.7%) as they couldn't hear the teacher. This difference in frequencies of not hearing and hearing the teachers versus the students was statistically significant ($X^2=5.45$, $p < .025$) and is mainly due to the frequencies of not hearing rather than the frequencies of possibly hearing (the Hear-Hear cell).

*Cooperation of Ms. Nancy Ferguson is acknowledged with gratitude.

Table V

COMPARABILITY OF OBSERVERS: CONCURRENT OBSERVATION OF EVENTS
FROM ADJACENT POSITIONS IN A CLASSROOM
(H & O: Observers)

Activity*	Can't Hear				Rebuke		Interrupt/ Pause		Distract		Raise Voice	
	Student		Teacher									
	H	O	H	O	H	O	H	O	H	O	H	O
<u>DAY ONE</u>												
Administration					2	1						
Mathematics	12	9	1		10	6	3	3	1	1	1	1
Reading and Spelling	4	5	2		1							1
Students Read Aloud	22	26	9	7	15	13		2	2		1	
Teacher Reads Aloud		1	9	6	1	4	3	2	1			
Science	7	6	2		5	4						
<u>DAY TWO</u>												
Administration					2	1						
Mathematics	24	17			10	10	3	3				
Reading and Spelling	38	36	6	6	16	25						
Story Time by Teacher			17	16	3	5	4	1	3			
TOTAL	107	100	46	35	65	69	13	11	7	1	2	2

*"Disregard" was not used during these periods.

Table VI
HEARING LEVELS IN dB RE ANSI 1969

Frequency in KHZ:	Right Ear								Left Ear							
	.25	.5	1	2	3	4	6	8	.25	.5	1	2	3	4	6	8
Observer																
H	10	15	10	5	20	60	85	80	10	15	0	5	15	70	85	55
O	20	20	5	10	10	15	25	15	15	10	5	5	10	10	15	15

On the basis of the aggregate results shown in Table V it is suggested that observer H had somewhat more difficulty hearing both the teacher and students than did observer O. As shown in Table VII, that initial impression was confirmed;* however, the differences are not pronounced. It may be concluded, therefore, that the observers were responding similarly to each other and their reliability is at least 91% across all response categories.

Table VIII shows the average increases in noise level when the observers were unable to hear what the students or teacher were saying and the background noise levels (see footnote, Table VIII) prior to the Can't Hear responses. It can be seen that for both observers the changes in noise levels were usually greater when the observers were unable to hear the teacher than when they were unable to hear the students, although the background noise levels before the events were very similar. This difference, roughly 2 dB, reflects the fact that the teacher's voice level at the rear of the classroom typically was more intense than was the background noise level; hence, higher noise levels could occur before the observers were unable to hear what the teacher was saying. In contrast, the children's voices (sixth graders) probably were less intense,¹² so smaller increases in noise level caused interruption of comprehension of their speech.

The classroom in which these observations occurred overlooked a thoroughfare that handled automobile and truck traffic to and from two freeways. Thus, the background noise levels were high (see the dBC levels in Table VIII). These background noise levels were obtained when children were not present and during a brief period when, apparently, traffic was heavier than usual, as determined by listening to the tapes. Hence, the C-weighted levels without the children present were higher* than with the children, whereas the A-weighted levels were more similar but in the opposite direction; that is, A-weighted levels with children are higher than without children. The increased A-weighted levels were probably due to the voices of students and teacher (compare L_{eq} -A before with L_{eq} without children, for example).

*Observer H heard the students 84.8% of the time (81.8 + 3.0), whereas observer O heard the students 84.3% (81.8 + 2.5) of the time; and for hearing the teacher the percentages are 89.4 and 88.4, respectively.

*Traffic, particularly that containing trucks, has a spectrum showing maximum acoustical energy at frequencies below about 150 Hz. These frequencies contribute much to C-weighted noise levels but are de-emphasized in A-weighted measurements. See K.D. Kryter,¹³ pages 14, 352 and 353.

Table VII
COMPARABILITY OF OBSERVERS
DURING SIMULTANEOUS PERIODS OF OBSERVATION

A. All Responses

Observer	H		Agreement = 93.2% N* = 1025
	Response	No Response	
O	Response	9.9%	2.7%
	No Response	4.1%	83.3%

B. Can't Hear Student

Observer	H		Agreement = 94.4% N* = 396
	Can't Hear	Hear	
O	Can't Hear	12.6%	3.0%
	Hear	2.5%	81.8%

C. Can't Hear Teacher

Observer	H		Agreement = 91.3% N* = 312
	Can't Hear	Hear	
O	Can't Hear	6.7%	4.8%
	Hear	3.8%	84.6%

*Number of 5-second intervals

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Table VIII

AVERAGE CHANGES IN NOISE LEVEL IN dB
COINCIDENTAL WITH AN INABILITY TO HEAR THE TEACHER AND STUDENTS
(DURING - BEFORE A CAN'T HEAR EVENT OR RESPONSE)

Observer	L _{eq}		L ₁		L ₅		L ₁₀		L ₅₀		L ₉₀		Number of Samples
	A	C	A	C	A	C	A	C	A	C	A	C	
	<u>Can't Hear Teacher</u>												
H	2.6	3.0	2.4	3.5	2.2	3.5	2.5	3.4	2.9	2.9	2.0	1.8	44*
O	3.0	3.4	1.4	2.5	2.3	3.2	2.7	3.5	3.8	3.7	3.2	3.2	30*
	<u>Noise Levels Before Can't Hear</u>												
H	60.8	67.4	66.7	71.9	64.9	70.5	63.7	69.7	59.7	67.0	56.8	64.8	44
O	61.2	67.3	67.2	72.5	65.3	70.8	64.1	69.8	60.1	66.7	57.0	64.1	30
	<u>Can't Hear Students</u>												
H	0.9	1.1	0.3	1.9	1.0	1.8	1.1	1.7	1.1	0.8	0.4	0.2	38
O	-0.1	0.4	-0.1	-0.3	-0.6	0.3	-0.4	0.4	0.2	0.4	0.7	0.5	52
	<u>Noise Levels Before Can't Hear</u>												
H	60.8	67.5	67.7	72.4	65.0	70.8	63.8	69.9	59.4	67.1	56.2	64.9	38
O	60.6	67.6	66.9	72.7	64.9	70.9	63.7	70.0	59.4	66.9	56.1	64.6	52
	<u>Noise Levels With No Children In Classroom</u>												
	59.0	70.9	63.8	75.0	62.5	74.0	61.5	73.5	58.5	70.5	54.5	68.0	1

A & C are the frequency weightings used.

*

In general we attempted to measure noise levels before an event simultaneously, but were not always successful for the reason explained below, and because of differences between observers as to when to begin or stop analysis of noise levels before an event.

Sample sizes are different for the two observers because they used the button at different frequencies. For example, suppose observer H pushed the Can't Hear button twice during two contiguous 5-second periods, while observer O used it once during the second period; thus, the latter Can't Hear responses were coincidental. In this circumstance the noise levels before the Can't Hear of observer H were measured about 10 seconds before the event, while for observer O they were measured about 5 seconds before the event. In other words, although the button pushes were roughly coincidental, the noise level measurements before any event were not necessarily coincidental.

C. Academic Achievement

In April and May of the school year, third and sixth grade students in the Los Angeles Unified School District are routinely administered two standardized achievement tests. The Comprehensive Test of Basic Skills (CTBS)¹⁴ is administered by the School District, while the California Assessment Program (CAP)¹⁵ is administered by the California Department of Education. Details about these tests can be found in the manuals referenced but the tests are described briefly below.

1. Comprehensive Test of Basic Skills (CTBS)

The test battery is comprised of tests in six basic skills areas: Reading, Language, Mathematics, Reference Skills, Science, and Social Studies. The tests are designed to assess individual achievement. Only Reading and Mathematics were tested typically in our group of schools.

Reading Vocabulary and Comprehension are subtests of the Reading test and contain 40 and 45 items, respectively. Each item of the Vocabulary subtest consists of a stem phrase and four discrete words for alternatives. The student is required to choose a synonym for the key word in the stem phrase. Although the key word is part of a phrase, sentence or paragraph, the vocabulary test is a measure of the student's knowledge of the dictionary definition of the word as the context must be used to determine the key word's meaning. The items of reading comprehension assess specific skills in literal and critical comprehension; about half of the items are of each type. Forty-five items of this subtest are based upon seven selected reading passages. Some passages portray situations, feelings and emotions experienced by young people, while others provide informative material.

The Mathematics section includes sections on Computation (48 items), Concepts (25 items), and Applications (25 items). Items in addition, subtraction, multiplication and division comprise the computation section. The content of the Concepts section includes items on number systems, measurement, set theory, and geometry, and test the student's ability to convert numerical, graphic, or verbal concepts to another form. Mathematical application measures ability to select and complete problem-solving operation and include items on reasoning, algebra, measurement and set theory.

2. California Assessment Program (CAP)

The purposes of the Program are to determine the effectiveness of education in California and to provide information needed to assess the strengths and weaknesses of various educational programs in individual schools and their districts. In contrast to the CTBS, the CAP is not designed to test achievement of individual students. The CAP uses a "Matrix Sampling" technique in which each child is tested on only a small number of the questions comprising the entire test. Test scores are then aggregated over a classroom or over a grade level within a school.

The total test is comprised of 250 items; however, the test form used by any pupil contains only 25 items. Third graders took only the Reading test. Subtests of reading include Word Identification Skills, Vocabulary, Comprehension and Study-Locational Skills. The Vocabulary and Comprehension items are similar in content to those described for the CTBS. Word Identification includes items designed to measure a student's ability to identify specific words, to decode letters to their corresponding sounds, and to identify specific elements within words (e.g., root words and suffixes). Study-locational skills are those that deal with the student's ability to alphabetize and use a table of contents.

Sixth grade children were tested in Reading and Mathematics. The subtests of the sixth grade reading test are identical to those of the third grade test. The mathematics subtests are arithmetic, geometry, measurement, and probability and statistics. Each subtest includes items to assess skills in computation or knowledge, comprehension, and application of mathematical concepts.

D. Data Analysis

Because of the variability in socioeconomic composition and in noise levels in the classrooms and communities of both noisy and quiet schools, a multiple regression analysis was conducted.¹⁶

While planning the study, we hoped to conduct our analysis between classrooms; that is, in a given school a comparison of noisy and quiet classrooms was planned. However, this plan became infeasible after we observed the daily operations of the schools.

Our observations and discussions with teachers and principals indicated that achievement scores of the various classrooms at each grade level within a school should be averaged for the following reasons:

- (1) Many children moved from their homerooms to another room for reading, mathematics, or another subject depending upon skills and interests of the students and teachers, or if a teacher was absent and a substitute was not available. Thus, in many cases noise exposures may have varied with subject matter.
- (2) In some schools students of varying academic skills were not randomly distributed between classrooms. As an example, see the discussion in Section A.2. (Classrooms Combined) regarding the classroom assignments of non-English-speaking children. Thus, some variability in achievement was associated with classroom assignment.
- (3) Achievement scores between classrooms within a school were not consistently statistically different (see below).
- (4) Socioeconomic and community noise variables were available only on a community-wide basis; that is, they were not specific to a classroom or to a student within a classroom, whereas the CTBS scores were specific to each child. Noise levels within the schools were appropriate for each classroom. It appeared preferable, therefore, to use data based upon relatively uniform units of observation: at grade level within a school.

Results

A. Academic Achievement

At the outset, it should be noted that the achievement data of the English-speaking (E.S.) and non-English-speaking (N.E.S.) children are treated separately. This was necessary because, as expected, N.E.S. children do less well academically than do children who are fluent in English, particularly in reading. Differences between English and non-English-speaking children are less apparent for mathematics. Table IX shows the range of Grade Equivalents in Reading and Mathematics for all of the classrooms and schools studied. Grade Equivalents are used because they are more meaningful to the reader than are Expanded Standard Scores.¹⁷

Also shown in Table IX are the F ratios between mean achievement scores for the classrooms in each school and the corresponding degrees of freedom (df). In the df column the number to the left of the comma is pertinent to the number of classrooms, while the number to the right refers to the number of students in the different classrooms. In some schools the number of N.E.S. students was so small as to preclude calculation of meaningful F ratios; nevertheless, the mean achievement for those students is shown. In other schools (e.g., school, 6802, Grade 3), the number of N.E.S. students in each classroom

AVERAGE CLASSROOM ACHIEVEMENT WITHIN SCHOOLS FOR
ENGLISH-SPEAKING (E.S.) AND ENGLISH-WEAK (N.E.S.) STUDENTS

NOISY SCHOOLS										QUIET SCHOOLS									
School Code No.	Language	Grade	No. Class-rooms	Reading			Math			School Code No.	Language	Grade	No. Class-rooms	Reading			Math		
				G.E. Range	F	d.f.	G.E. Range	F	d.f.					G.E. Range	F	d.f.	G.E. Range	F	d.f.
6802	E.S.	3	2	2.7-3.0	1.41	1,38	3.4-3.5	.097	1,38	6893	E.S.	3	3	4.0-4.1	.006	2,41	4.4-4.5	.012	2,41
	N.E.S.	3	2	2.3-2.8	.34	1,9	3.2-3.6	.61	1,9		N.E.S.	3	2	2.8-2.9	.0007	1,9	3.8-3.9	.002	1,9
	E.S.	6	2	6.9-7.0	.03	1,52	8.7-9.5	2.83	1,52		E.S.	6	1	8.4			7.1		
	N.E.S.	6	1	2.6			6.4				N.E.S.	6	1	5.2			6.6		
7214	E.S.	3	3	3.1-3.5	.497	2,53	3.1-3.6	.73	2,53	8501	E.S.	3	3	2.6-3.9	3.21*	2,64	3.2-4.3	2.92	2,64
	N.E.S.	3	3	2.2-2.7	.64	2,28	2.7-3.1	2.14	2,28		N.E.S.	3							
	E.S.	6	3	5.5-7.0	1.49	2,85					E.S.	6	2	3.6-8.6	35.9*	1,28			
	N.E.S.	6		2.9 (N=9)			4.8				N.E.S.	6	2	3.6(N=5)					
7651	E.S.	3	2	2.4-3.0	1.08	1,23	3.2-4.0	5.72*	1,23	9004	E.S.	3	6	2.0-3.6	8.51*	5,115	2.3-3.6	7.67*	5,115
	N.E.S.	3	3	1.6-2.1	1.44	2,32	2.8-3.5	1.42	2,32		N.E.S.	3							
	E.S.	6	4	5.9-8.8	5.2*	3,71	6.6-8.5	2.79*	3,71		E.S.	6	4	4.5-6.4	3.45*	3,78	4.6-6.1	4.3*	3,78
	N.E.S.	6	3	3.2-4.5	1.2	2,22	5.6-7.1	2.34	2,22		N.E.S.	6		3.6(N=4)			5.3		
7941	E.S.	3	4	2.5-3.8	1.48	3,41	3.2-4.8	4.16*	3,41	5747	E.S.	3	4	2.4-3.1	1.11	3,89	2.8-2.9	0.19	3,89
	N.E.S.	3	6	1.7-2.0	1.75	5,98	2.8-3.9	2.78*	5,98		N.E.S.	3							
	E.S.	6	3	4.1-5.6	1.33	2,39	5.5-7.0	1.24	2,39		E.S.	6	2	6.4-7.4	1.88	1,51	7.1-7.6	0.25	1,51
	N.E.S.	6	2	4.2-5.6	5.997*	1,24	6.1-6.3	.066	1,24		N.E.S.	6							
8071	E.S.	3	4	1.9-3.5	10.07*	3,77	2.2-3.4	6.82*	3,77	6174	E.S.	3	6	2.2-4.0	10.58*	5,131	2.6-3.9	6.03*	5,131
	N.E.S.	3	3	2.0-2.8	.428	2,10	2.0-2.8	.497	2,10		N.E.S.	3	1	2.4			3.2		
	E.S.	6	4	4.3-5.0	.506	3,74	4.9-5.5	.317	3,74		E.S.	6	5	4.4-5.8	1.24	4,108	4.9-5.5	.46	4,108
	N.E.S.	6									N.E.S.	6	1	3.5			4.7		
9095	E.S.	3	4	1.9-3.2	5.24*	3,85	2.0-3.6	6.33*	3,85	9558	E.S.	3	6	2.1-3.2	1.86	5,88	2.5-3.2	.678	5,88
	N.E.S.	3							N.E.S.		3	3	1.7-1.9	.889	2,46	2.1-2.8	2.12	2,46	
	E.S.	6	3	5.1-7.5	1.86	2,26	5.0-9.5	7.00*	2,36		E.S.	6	5	3.6-5.0	2.46	4,109	4.1-5.3	1.12	4,109
	N.E.S.	6	3	4.3-5.3	1.12	2,30	5.1-5.7	.143	2,30		N.E.S.	6	2	3.9 (N=8)			5.1		
9251	E.S.	3	4	2.4-2.9	.825	3,79	2.6-3.3	2.85*	3,79	9285	E.S.	3	3	2.8-3.5	.872	2,32	3.5-4.3	1.49	2,32
	N.E.S.	3							N.E.S.		3	1	2.2			3.0			
	E.S.	6	4	4.1-5.8	4.14*	3,67	4.7-5.8	2.70*	3,67		E.S.	6	1	5.1			6.6		
	N.E.S.	6									N.E.S.	6	1	3.2(N=3)			5.0		
9889	E.S.	3	5	1.9-3.0	3.5*	4,67	2.6-3.3	1.48	4,67	9889	E.S.	3	5	1.9-3.0	3.5*	4,67	2.6-3.3	1.48	4,67
	N.E.S.	3	5	1.5-2.1	2.39	4,46	2.6-3.5	2.38	4,46		N.E.S.	3	5	1.5-2.1	2.39	4,46	2.6-3.5	2.38	4,46
	E.S.	6	3	3.9-6.1	5.31*	2,45	4.7-6.8	6.68*	2,45		E.S.	6	3	3.9-6.1	5.31*	2,45	4.7-6.8	6.68*	2,45
	N.E.S.	6	3	3.4-4.5	.59	2,20	4.7-5.4	.405	2,20		N.E.S.	6	3	3.4-4.5	.59	2,20	4.7-5.4	.405	2,20

*Significant F, P < .05

Table X

FREQUENCY OF STATISTICALLY SIGNIFICANT DIFFERENCES
BETWEEN CLASSROOMS WITHIN SCHOOLS FOR
ENGLISH-SPEAKING AND ENGLISH-WEAK STUDENTS

<u>3rd Grade</u>				<u>6th Grade</u>			
<u>Reading</u>		<u>Math</u>		<u>Reading</u>		<u>Math</u>	
E.S.	N.E.S.	E.S.	N.E.S.	E.S.	N.E.S.	E.S.	N.E.S.
6	0	7	1	5	1	5	0
9	8	8	7	8	3	6	4
P = 0.049		P = 0.013		P = 0.555		P = 0.153	

Significant

Not Significant

Probability (P) calculated by Fisher's Exact Test.

See A. E. Maxwell, *Analysing Qualitative Data*, London: Methuen & Company, Ltd., 1961, pp. 23-24.

Significant: Statistically significant at least at the 0.05 level as calculated by analysis of variance within each school.

Table XI

MEAN GRADE EQUIVALENT ACHIEVEMENT SCORES OF ALL CHILDREN IN SOCIOECONOMICALLY MATCHED NOISY AND QUIET SCHOOLS
F Ratios Calculated from Expanded Scale Scores are Provided

Grade Level	READING - C.T.B.S.				MATHEMATICS - C.T.B.S.			
	Grade Equivalent		F Ratio	No. of Students	Grade Equivalent		F Ratio	No. of Students
	Noisy	Quiet			Noisy	Quiet		
<u>3rd Grade</u>								
E.S.	2.7	3.1	7.23*	888	3.1	3.2	5.24*	888
N.E.S. ⁺	2.0	2.3	0.02	120	2.8	2.4	7.88*	120
<u>6th Grade</u>								
E.S.	5.4	6.0	19.19*	758	5.8	5.9	41.94*	640
N.E.S. ⁺⁺	3.2	4.5	5.28*	60	4.5	4.5	2.98	60

* Significant @ $p < 0.05$.

⁺2 Schools

⁺⁺3 Schools

Table XII

MEAN GRADE EQUIVALENT ACHIEVEMENT OF ENGLISH-FLUENT CHILDREN
IN SOCIOECONOMICALLY MATCHED NOISY AND QUIET SCHOOLS

Grade Level	READING - CTBS				MATHEMATICS - CTBS			
	Noisy School	G.E.	G.E.	Quiet School	Noisy School	G.E.	G.E.	Quiet School
Third	6802	2.9	4.1	6893	6802	3.4	4.5	6893
	7214	3.2	3.5	8501	7214	3.5	3.8	8501
	8071	2.5	2.8	5747	8071	2.8	2.8	5747
	9251	2.7	3.0	6174	9251	2.8	3.1	6174
	9889	2.3	2.6	9558	9889	3.0	2.8	9558
		*	2.7	9004		*	2.8	9004
	Mean	2.7	3.1	Mean	Mean	3.1	3.3	Mean
Sixth	6802	7.0	8.4	6893	6802	9.1	7.1	6893
	7214	6.2	7.3	8501	7214	none	none	8501
	8071	4.7	7.0	5747	8071	5.1	7.4	5747
	9251	5.1	5.1	6174	9251	5.1	5.2	6174
	9889	5.0	4.3	9558	9889	5.5	4.8	9558
		*	5.4	9004		*	5.3	9004
	Mean	5.6	6.3	Mean	Mean	6.2	6.0	Mean

* The socioeconomic mix in School 9004 was similar to that of 9251. Thus, they may be compared.

Table XIII

PERCENTAGE OF QUESTIONS ANSWERED CORRECTLY BY
ENGLISH-FLUENT CHILDREN IN NOISY AND QUIET SCHOOLS

Achievement Tests are Those of the California Assessment Program

Grade Level	READING - C.A.P.				MATHEMATICS - C.A.P.			
	Noisy School	Percent Correct	Percent Correct	Quiet School	Noisy School	Percent Correct	Percent Correct	Quiet School
Third	6802	75.3	82.6	6893	Test Not Administered			
	7214	68.9	80.6	8501				
	8071	60.6	66.5	5747				
	9251	63.6	67.9	6174				
	9889	59.8	65.3	9558				
		***	56.4	9004				
	Mean	65.6	69.9	Mean				
	Percentile	5*(24)**	8(34)	Percentile				
Sixth	6802	67.7	71.4	6893	6802	67.2	51.4	6893
	7214	62.4	76.3	8501	7214	54.6	80.0	8501
	8071	49.7	52.2	5747	8071	39.9	46.6	5747
	9251	49.7	51.1	6174	9251	44.5	43.2	6174
	9889	45.0	45.3	9558	9889	43.8	41.0	9558
		***	49.7	9004		***	43.1	9004
	Mean	54.9	57.7	Mean	Mean	50.5	50.9	Mean
	Percentile	10*(33)**	16(42)	Percentile	Percentile	12(38)	16(39)	Percentile

* Percentiles relative to all other 3rd or 6th grades in schools throughout the State of California. They are based upon the mean percent correct.

** () For comparison these are the percentiles for the CTBS Test (Table XII) relative to samples of students completing 3rd and 6th grades throughout the United States.

*** The socioeconomic mix in School 9004 was similar to that of 9251. Thus, they may be compared.

was admittedly small, but the analysis of variance was completed simply to show the trend.

Comparison of the grade equivalents for E.S. and N.E.S. will show that the N.E.S. students were almost uniformly behind their English-speaking schoolmates. The exception was among the 6th graders in school 7941, where their reading achievement scores were equivalent. But note that among the N.E.S. students within each school, achievement in Mathematics, which is somewhat less language dependent, is greater than that in reading. A similar trend is found among the English-fluent students, but is less consistent and less pronounced than in the case of N.E.S. children.

Table IX shows also the schools in which statistically significant differences in achievement scores between classrooms were attained. As shown in Table X, the distribution of these significant differences suggests that the E.S. students are more likely to show differences in achievement between classrooms than are the N.E.S. students. Although the distributions for the sixth grade students are not significant statistically, they exhibit the trend shown by third grades. However, these distributions may simply reflect the lack of power of the Analysis of Variance test when samples are small. Hence, it is reasonable to be cautious when interpreting the achievement data for the English-weak students.

1. An Overview of Measures of Achievement

Table XI shows the average achievement in Reading and Mathematics in the noisy and quiet schools that are similar with respect to the socioeconomic variables. Four noisy schools which had Hispanic populations of 92 percent or more are not included because comparable quiet schools were not available. Data from these four schools are included subsequently in the multiple regression equations.

With respect to Table XII, it is apparent that both third and sixth grade children in noisy schools generally did less well academically in both Reading and Mathematics than did their counterparts in quieter schools. On average, third graders in noisy schools were about 0.4 year behind in Reading, while the sixth graders were about 0.7 year behind. In Mathematics, third graders in noisy schools were about 0.2 year behind, while the sixth graders in noisy schools were about 0.2 year ahead. This reversal was due to the superior performance in Mathematics by both sixth grade classrooms in a single school, no. 6802. Why these children did so well is unknown, because of the small number of classrooms in this school and in this subset of the Mathematics data, the results should not be interpreted too broadly.

On the average, this group of schools is not "up to par". After approximately three years in school the third graders should have grade equivalents of nearly 4.0, while the sixth graders should be at or near 7.0.

It is of interest to note that the children in most of the schools had slightly better scores in Mathematics than in Reading. This result may be partially due to the test and normative group used as is suggested by the scores obtained on the CAP test shown in Table XIII. These data are in the form of percent correct, and in this form are difficult to interpret because of a lack of normative data. Therefore, shown at the bottom of Table XIII are percentile ranks corresponding to the mean percent correct. It is expected that an average number of correct responses for a particular grade level would correspond to the 50th percentile. With respect to better performance in Mathematics than in Reading, it will be seen that when only California schools are compared sixth grade children in noisy schools were 2 percentile points higher in Mathematics, while in quiet schools equivalent percentiles in Reading and Mathematics were obtained. If comparison is based upon a sample of the students throughout the U.S. (in parenthesis), it will be seen that in the quiet sixth grades performance in Mathematics was poorer than it was in Reading.

SOURCES AND LEVELS OF NOISE IN THIRD GRADE CLASSROOMS

School Code No.	Class-room No.	NOISY SCHOOLS										QUIET SCHOOLS											
		C-Weighted				A-Weighted				A.I.	Source	C-Weighted				A-Weighted				A.I.	Source		
		L _{eq}	L ₁	L ₁₀	L ₉₀	L _{eq}	L ₁	L ₁₀	L ₉₀			L _{eq}	L ₁	L ₁₀	L ₉₀	L _{eq}	L ₁	L ₁₀	L ₉₀				
6802	17,18	61	66	63	59	38	44	39	36	.93, .92	A/C	6893	14,15,19	54	57	56	52	37	44	39	36	.98	L
7214	14	64	72	67	60	49	57	51	44	.75 ^e	F	8501	10	54	60	56	52	40	49	42	36	.90 ^e	L
	15	65	69	67	62	50	57	52	47	.80 ^e	F		17	54	57	56	53	36	40	38	35	.95	L
	20	64	69	66	62	47	50	48	45	.90 ^e	A/C												
7651	34	61	67	64	58	45	50	48	42	.79	F	9004	17	56	64	59	53	44	55	46	37	.95 ^e	T
	47	61	63	62	60	46	47	47	46	.82 ^e	A/C		38,27,28	55	64	57	50	41	51	43	34	1.0	T
													32	53	58	55	51	36	40	38	34	.95	L
													37	54	64	57	51	38	45	41	34	.95 ^e	L
7941	11,12	68	72	70	66	52	56	53	49	.71	F												
	13,14	73	79	76	70	64	71	66	61	.6, .45	F												
	26,27	74	80	77	70	63	69	66	59	.54 ^e	F												
8071	38,41	65	68	67	62	44	47	43	42	.70 ^e	A/C	5747	5,6	50	58	53	47	41	50	44	34	.98, .94	L
	39,40	65	68	67	62	42	44	42	41	.93, .70	A/C		9	51	58	53	47	40	51	44	32	.99	L
													26	60	63	62	58	39	44	40	38	.96	A/C
9095	15	61	67	63	57	44	49	46	41	.98	F												
	24	66	70	68	63	58	62	60	56	.37	F												
	28,29	59	63	61	57	46	51	48	44	.92	F												
9251	24,22	63	68	64	58	49	60	50	43	.39, .56 ^e	F	6174	50	55	58	57	54	47	51	48	46	.96	L
	25	69	76	72	65	57	63	59	50	.56	F		51 to 55	53	59	55	52	44	47	46	41	.97 ^e	L
	27	70	77	73	65	57	63	59	52	.86	F												
9825	6	64	72	66	60	53	59	55	48	.70 ^e	F												
	15	68	76	71	62	57	64	60	52	.63	T												
9889	22	59	63	61	58	38	43	40	37	1.0	L	9558	22,23	56	65	59	50	39	47	42	33	.97, .94	L
	35	62	67	63	60	41	45	43	40	.95	A/C		43,44	58	68	61	52	45	53	47	38	.98, 1.0	A/C
	36	62	65	64	61	40	42	41	40	.96	A/C		50,51	56	65	64	53	37	45	36	34	.99	A/C
	38,39	62	64	63	60	45	49	47	43	.91 ^e	A/C												
Mean		64.9	69.7	67.0	61.9	49.0	54.2	50.0	46.1	.75				54.4	61.2	57.2	51.4	40.7	47.6	42.6	36.5	.97	
Standard Deviation		4.4	5.3	4.8	3.8	7.9	9.0	8.9	7.0	.19				2.3	3.6	3.1	2.3	3.2	3.0	3.5	3.4	.02	

A.I.: Articulation Index, calculated according to American National Standard No. 3.5-1969. American National Standards Institute, New York, New York, 1969. In some cases teachers' voices or noise levels were not measured. A.I.s were estimated (e) from average levels of teachers in that school or noise levels in similar classrooms. Two or more classrooms in a column indicate similar noise levels are assumed (see Method Section).

Sources Predominating: A/C - air conditioned; F - freeway; L - light traffic on local streets; T - trucks and heavy traffic on adjacent streets. If no source is indicated, the major source is shown first.

SOURCES AND LEVELS OF NOISE IN SIXTH GRADE CLASSROOMS

NOISY SCHOOLS												QUIET SCHOOLS												
School Code No.	Class-room No.	C-Weighted				A-Weighted				A.I.	Source	School Code No.	Class-room No.	C-Weighted				A-Weighted				A.I.	Source	
		L _{eq}	L ₁	L ₁₀	L ₉₀	L _{eq}	L ₁	L ₁₀	L ₉₀					L _{eq}	L ₁	L ₁₀	L ₉₀	L _{eq}	L ₁	L ₁₀	L ₉₀			
6802	5	60	67	63	57	41	45	43	39	.58	F	6893	6,8	52	62	56	45	40	49	45	32	.99, .97	L	
	10	61	66	63	59	45	49	46	44	.71	F													
7214	28	66	72	69	63	51	59	54	47	.71 ^e	F	8501	1,6	54	59	56	52	40	46	42	37	.99	L	
	29	66	74	69	61	51	59	54	46	.82 ^e	F													
	31	64	71	67	60	51	57	54	47	.86 ^e	F													
7651	6,9	59	67	62	55	46	50	46	40	.72 ^e	A/C,F	9004	4	69	78	74	59	54	65	58	41	.74	T	
	16	60	63	61	59	54	59	55	51	.69	A/C,F		5	64	75	69	55	47	56	50	41	.87	T	
	27	59	64	62	56	50	57	52	47	.72	F		6	58	67	61	51	43	52	46	36	.87 ^e	T	
													7	58	63	60	55	42	49	45	39	.87	T	
7941	15	69	78	72	62	53	65	56	44	.64	T,F	5747	29	59	61	60	58	42	49	44	40	.97	A/C	
	16	71	75	74	68	53	65	56	44	.82	T,F			30	58	64	59	55	45	54	48	38	.97	A/C
	19	62	69	64	60	51	56	53	49	.62	F													
8071	27,28	65	70	66	62	55	58	57	54	.76, .76 ^e	F	5747	29	59	61	60	58	42	49	44	40	.97	A/C	
	29,30	64	71	67	60	54	58	56	51	.76 ^e	F			30	58	64	59	55	45	54	48	38	.97	A/C
9095	8	63	69	67	60	51	59	54	48	.86	F	6174	20,21	57	66	60	53	47	56	50	40	.88, .98	L	
	10	67	75	71	62	51	59	54	47	.87	F			22	57	67	60	50	46	57	48	36	.98	L
	13	63	66	65	63	45	50	47	43	.87	F			25,26	55	61	58	52	44	51	46	41	.87 ^e , .64	L
9251	43	57	62	58	54	43	44	41	39	.96	A/C	6174	20,21	57	66	60	53	47	56	50	40	.88, .98	L	
	46	59	64	62	57	41	45	43	41	.87	A/C,F			22	57	67	60	50	46	57	48	36	.98	L
	48,49	59	65	62	56	44	47	45	43	.93, .97	A/C	25,26	55	61	58	52	44	51	46	41	.87 ^e , .64	L		
9825	14	65	70	68	63	55	63	59	50	.60	F,T													
9889	8	67	74	70	64	59	62	60	57	.61	F	9558	7,15	62	74	62	52	47	57	47	36	.96, .94	L	
	16,17	62	66	62	58	48	55	50	44	.84, .95	T,F		11	63	67	65	61	47	54	50	45	.75 ^e	T,L	
													13,14	64	71	67	60	47	52	49	44	.75, .75 ^e	T,L	
Mean		62.9	68.8	65.3	59.6	49.6	55.2	51.4	46.2	.78			58.8	66.4	61.4	53.8	44.7	52.7	47.3	39.0	.88			
Standard Deviation		3.5	4.1	3.9	3.3	4.8	6.2	5.4	4.8	.11			4.7	5.9	5.0	4.5	3.6	4.6	3.6	3.6	.11			

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A.I.: Articulation Index, calculated according to American National Standard No. 3.5-1969, American National Standards Institute, New York, New York, 1969. In some cases teachers' voices or noise levels were not measured. A.I.s were estimated (e) from average levels of teachers in that school or noise levels in similar classrooms. Two or more classrooms in a column indicate similar noise levels are assumed (see Method Section).

Source: 'predominating' A/C - air conditioned; F - freeway; L - light traffic on local streets; T - trucks and heavy traffic on adjacent street. Where two sources are indicated, the major source is shown first.

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Table XVI

COEFFICIENTS OF CORRELATION BETWEEN
AVERAGE NOISE LEVELS AND AVERAGE GRADE EQUIVALENTS
FOR ENGLISH-FLUENT CHILDREN IN CLASSROOMS OF 15 SCHOOLS

Grade Level	READING					MATHEMATICS			
	Weighting	L _{eq}	L ₁	L ₅	L ₁₀	L _{eq}	L ₁	L ₅	L ₁₀
3	A	-.135	-.074	-.129	-.129	.077	.042	.050	.068
	C	-.248	-.277	-.286	-.221	.061	-.058	-.018	-.054
6	A	-.638	-.549	-.536	-.514	-.330	-.313	-.304	-.254
	C	-.651	-.642	-.613	-.607	-.225	-.338	-.263	-.212

Table XVII

COEFFICIENTS OF CORRELATION BETWEEN
AVERAGE NOISE LEVELS* IN NEIGHBORHOODS AND AVERAGE GRADE EQUIVALENTS
FOR ENGLISH-FLUENT CHILDREN OF 15 SCHOOLS

Grade Level	READING				MATHEMATICS			
	L _{eq}	L ₁	L ₁₀	L ₉₉	L _{eq}	L ₁	L ₁₀	L ₉₉
3	-.363	-.379	-.534	-.615	-.295	-.390	-.476	-.395
6	-.478	-.420	-.337	-.544	-.239	-.327	-.142	-.051

* Limitations of the equipment and time precluded C-weighted measurements. Thus, the neighborhood noise levels are A-weighted.

Aside from certain small discrepancies, the trend of the data for quiet versus noisy schools is consistent for both tests; children in quiet schools attained higher achievement scores than did children in noisy schools. It should be noted, however, that some of our so-called quiet schools were, unexpectedly, not quiet, and their noise exposures may account for the poor achievement shown. For example, school 9004 was located on a thoroughfare that fed traffic, including many trucks, to and from a nearby freeway. This school was also under a segment of the approach pattern to Los Angeles International Airport. The average noise level outdoors at this school was 60 dBA (L_{eq} , measured outdoors for 8 hours). In comparison, at three of the so-called noisy schools the noise levels were about 62 dBA, and at the next quieter school (6893) noise levels outdoors were 58 dBA. Individual classroom noise levels depended upon the orientation of the classroom to the predominant noise source in the area. Thus, the distinction between "noisy" and "quiet" schools was found to be based upon small differences in noise levels; A multiple correlation paradigm was selected for statistical analysis because it takes these small differences into account.

B. Noise Levels in Classrooms

The noise levels, their predominant sources, and the articulation indices observed, or estimated, in the classrooms are shown in Tables XIV and XV. It is apparent that there was a broad range of noise levels in the various classrooms of both noisy and quiet schools. On the average the designated noisy schools were noisier than were the quiet schools, but in comparing individual classrooms some notable exceptions may be found. For example, in the third grade classroom 47 of school 7651 (Table XIV) the C-weighted L_1 level due to an air-conditioner was 63 dB, while in 5 classrooms exposed to local traffic in school 9004, L_1 's were 64 dB. In classroom 17 of school 9004 which was exposed to truck traffic on an adjacent street, the A-weighted L_1 was 5 dB higher than was a comparable classroom in 7651 which was near a freeway. The effect of local truck traffic on classroom noise levels in these two schools is even more pronounced in the case of certain sixth grade classrooms (Table XV). In school 9004, the 4 sixth grade classrooms are arranged in an L shape, in which classrooms 4 and 5 are the base of the L and parallel to the street; the narrow, windowless side of classroom 4 is facing oncoming traffic on the near-side of the street. Classrooms 6 and 7 make up the side of the L and are partially shielded from outgoing traffic by an adjacent building. The center of the window side of classroom 7 is about 100 feet from the centerline of the nearest traffic lane. The observed noise levels in the four classrooms were consistent with the configuration of the rooms but, more importantly, in two classrooms noise levels were found to be much higher than those observed in its matching noisy school.

Other, similar comparisons of schools and classrooms can be drawn. The point is that the so-called quiet schools were in many instances noisier than were the so-called noisy schools. Our analysis required that the noise levels in classrooms be accounted for regardless of whether the source of the noise was a freeway, local traffic, or air-conditioning.

C. Correlations Between Noise Levels and Achievement

Table XVI shows the correlation coefficients between noise levels as measured by the several descriptors in question averaged over the classrooms in each school and the achievement scores averaged over the same classrooms using the CTBS test results. The CTBS, rather than the CAP, is emphasized because performance on the CTBS can be evaluated with respect to some expected criterion. For example, children completing the third grade should attain a grade equivalent of about 4.0. Thus, grade equivalents provide a norm against which the effects of noise can be evaluated.

The magnitudes* of the coefficients shown in Table XVI suggest that noise had a more systematic effect upon sixth graders than upon third graders and that noise appears to have more predictable effects upon the skills involved in Reading than those in Mathematics.

A likely reason for the difference between Reading and Mathematics is that acquiring skills in reading depends more upon verbal interactions between teacher and student and the need for the teacher to correct student errors, for example in pronunciation. Such interactions are known to be affected by noise. Performance in Mathematics, in contrast, is more dependent upon solitary student practice and the student learning to perceive and understand abstract relationships; such tasks are less likely to be affected by noise. This hypothesis is supported by the relationships between scores on the Reading and Mathematics tests and the Articulation Index (AI), which is a measure of how well one is likely to understand speech spoken at a certain intensity given some intensity and spectrum of noise in the background. In general, the correlations between Reading scores and the AI are small but positive (see Appendix G for details), whereas they are smaller (nearly zero) but negative with respect to Mathematics. In other words, as the AI improves Reading performance also tends to improve, but for Mathematics there is only a slight or negative relationship.

The reasons for the generally smaller coefficients for third graders than for sixth graders are unclear. In part, they may be due to a statistical artifact. The range of achievement scores for third graders was much smaller (for Reading, from 2.2 to 4.1) as compared to a range from 4.3 to 8.4 for sixth graders. It is also possible that the data reflect to some degree the cumulative interaction of noise and achievement.* Deficits in achievement due to noise in the first several years of school may become progressively greater as a child continues through school, so that in grade six noise may be more disruptive because it is acting upon a weaker scholastic base.

Similarly, Bronzaft reported (during the Acoustical Society of America's meeting in Los Angeles Ca, on 20 November 1980) that the effects of elevated train noise were less pronounced on the reading scores of third graders than on those of sixth graders. She attributed the difference to sixth graders obtaining less individual attention from the teachers than did third graders. We observed little difference in the amount of individual instruction given third and sixth graders.

1. Preferred Classroom Noise Descriptor and Predicted Achievement

One question posed in the Introduction is which of several descriptors of noise is the best predictor of the relationship between noise and academic achievement. The subsequent statistical question is which noise descriptor is correlated most highly with academic achievement. Implicitly, State law says L_1 * is, whereas the FHWA's Guidelines say an L_{10} is correlated more highly with achievement.

Furthermore, the State suggests that a significant detrimental effect on the educational process begins when a noise level of 50 dBA is obtained, while the Federal Guidelines suggest such an effect begins at 63 dBA.

If we confine attention to Reading achievement in Table XVI, it is quite clear that for both third and sixth graders the C-weighted descriptors of noise level are more highly correlated with Reading achievement than are the A-weighted levels. Furthermore, the coefficients associated with the L_1 descriptors are higher than with the

*We are considering here only the absolute magnitude of the coefficients, regardless of whether they are statistically significant.

*In this regard it is important to observe that on the average approximately 65 percent of the students attend these schools since Kindergarten.

*California State Law specifies the noise level in terms of a single event maximum or peak level. In usage, however, the law is less restrictive. For our purposes, the L_1 level appears appropriate.

L_{10} descriptor; the L_{eq} descriptor is nearly equivalent to or higher than that of the L_1 . These results suggest that L_1 or L_{eq} C-weighted should be used in the multiple regression equation to predict achievement. Several noise descriptors could be used in the calculations, but because of the high intercorrelations between the descriptors (Appendix G), and the need to obtain a single descriptor and level to be used as a criterion level for purposes of noise abatement, only a single descriptor is used in the equation. It is the L_{eq} C-weighted.

2. Preferred Community Noise Descriptor and Predicted Achievement

As shown in Table XVII, noise levels in the neighborhoods appear to be related to childrens' achievement. Noise levels in the communities appear to have a greater effect upon achievement in reading than in mathematics, but the trend is somewhat less consistent than was the case for classroom noise levels. For example, with respect to the reading achievement of third graders, the L_{10} coefficient is greater than is that of the L_1 or L_{eq} . However, in both grades the L_{99} levels are most highly correlated with reading achievement, while for mathematics the L_{99} levels are less highly correlated than are some of the other descriptors. These variations may be statistical artifacts due to the small number of schools.

For purposes of the multiple regression equation, the L_1 descriptor was used because it had the smallest range of coefficients (from -.327 to -.420), and is perhaps the better estimate of the actual correlation between community noise levels and achievement in both reading and mathematics. Furthermore, the noise events associated with L_1 are more likely than are L_{99} events to intrude into the home.

3. Socioeconomic Variables

Table XVIII shows the correlations between certain socioeconomic variables, achievement, and selected noise measures. These data indicate that as the percentage of families in poverty increases, achievement in reading and mathematics decreases. A similar relationship exists with respect to the percentage of Blacks in the community. In contrast, as the Hispanic population increases there appears to be a trend for higher achievement in mathematics, but no such trend is apparent with respect to reading achievement. This may be due to the fact that, on the average, as the Hispanic population increases there is a corresponding decrease in the percentage of that population which is fluent in English.

As the White population increases, there is higher achievement in both reading and mathematics. The percentages of Blacks and Whites were included in the multiple regression equation because achievement appears to be related to these ratios and because the intercorrelation of these percentages is relatively small (≈ -0.4) as compared to the intercorrelation of the percentages of Blacks and Hispanics ($= -0.9$) (see Appendix G).

Several trends in the data shown on the right side of Table XVIII are of interest. It is apparent that as noise levels in the community increase, median family incomes decrease; or poor people live in noisier neighborhoods. Whites live in quieter communities and attend quieter schools than do Hispanics. Blacks appear to go to quieter schools than do Hispanics, but the Blacks live in somewhat noisier neighborhoods.

D. Predicting Achievement from the Selected Noise and Socioeconomic Variables

Figure 2 illustrates the predicted¹⁸ relationship between Reading grade equivalent in third graders as a function of noise level (in units of L_{eq} C-weighted) averaged over the classrooms in each school, with different average noise levels (in units of L_1 A-weighted) in the 15 communities. Different proportions of Black and White students may be assumed;

Table XVIII

COEFFICIENTS OF CORRELATION BETWEEN SOCIOECONOMIC VARIABLES, ACHIEVEMENT IN READING AND MATHEMATICS, AND INTERCORRELATIONS BETWEEN SELECTED VARIABLES

	Grade Level	Median Family Income	% Families In Poverty	% Black	% Hispanic	% White	Variable	Median Family Income	% Black	% Hispanic	% White
READING	3	.217	-.325	-.342	.021	.697	Classroom* Leq C	.103	-.243	.385	-.257
MATHEMATICS	3	.212	-.311	-.699	.446	.645	Community L ₁ A	-.438	.211	-.041	-.428
							% Poverty	-.343	-.028	.267	-.524
READING	6	.360	-.545	-.439	.104	.676	Classroom* Leq C	.035	-.201	.291	-.218
MATHEMATICS	6	.328	-.437	-.667	.408	.493	Community L ₁ A	-.573	.178	-.033	-.408
							% Poverty	-.416	.038	.153	-.493

*These coefficients were calculated from noise levels measured in each classroom, but the other variables were community-wide aggregates.

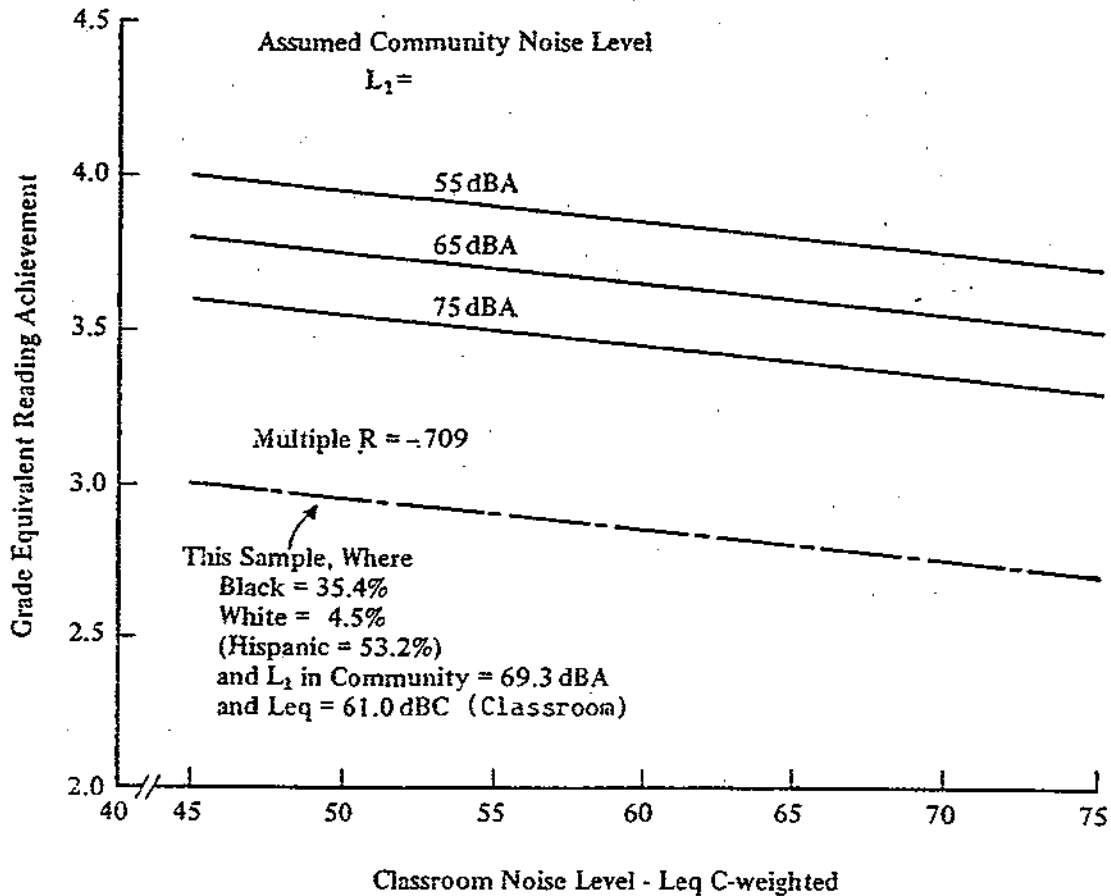


Figure 2

RELATIONSHIP BETWEEN READING ACHIEVEMENT OF THIRD GRADERS AND CLASSROOM NOISE LEVELS GIVEN DIFFERENT NOISE LEVELS IN COMMUNITIES
The Population is Assumed to be 23 Percent Black and 24 Percent White

The upper curves illustrate the estimated relationship between reading achievement and noise levels in the classroom and the community assuming that the racial composition of the schools is 23% Black and 24% White, 46% Hispanic and 7% other. It shows that at any given classroom noise level as the noise level in the community increases, reading achievement decreases. Conversely, at a constant noise level in the community, achievement in reading decreases directly with increasing noise level in the classroom. The lowest curve shows the results for this sample of schools in which the racial and noise level parameters differ from those assumed for the upper curves. Because the curves are parallel, decreased noise levels in the communities should result in a shift upward of the lowermost curve.

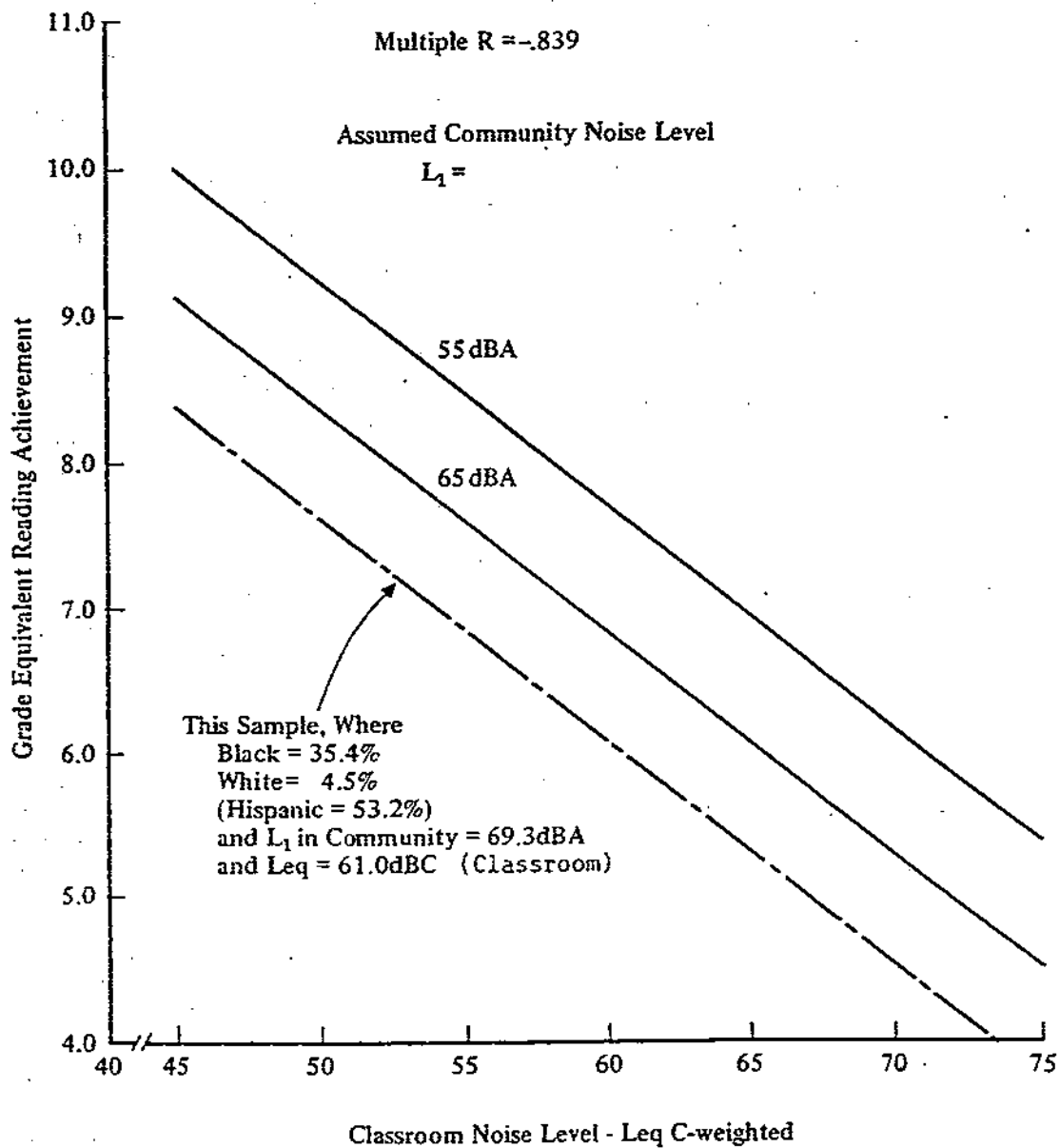


Figure 3

RELATIONSHIP BETWEEN READING ACHIEVEMENT OF SIXTH GRADERS AND CLASSROOM NOISE LEVELS GIVEN DIFFERENT NOISE LEVELS IN COMMUNITIES
The Population is Assumed to be 23 Percent Black and 24 Percent White

School District: 23 percent Black and 24 percent White.

Most remarkable about these data is the apparent trade-off between noise levels in the community and those in the classroom. In other words, if the community is quiet, more noise in the classroom can be tolerated without appreciable effect upon reading. For these third graders it appears that a 10 dB increase in community noise level is equivalent to about a 20 dB increase in classroom noise level. The magnitude of this trade-off is due to the low correlations between reading achievement and noise levels in the classrooms and communities, which in turn may be due to the limited range (1.9 G.E. units) of achievement. Indeed, the multiple correlation does not attain statistical significance.

In Figure 2, the bottom, dashed line represents the results for this sample of schools given its average racial composition and the average community noise level. Clearly, on average this group of students was not achieving at grade level; that is, near or at 4.0. Rather, average achievement was 2.9 units in reading. The highest achievement was attained at a single school with a grade equivalent of 4.1, the lowest was 2.2.

Because the multiple correlation was not statistically significant, and because of suggested possible cumulative effects of an early educational deficit, it appears unwise to belabor further the third graders' data.

As is illustrated in Figure 3, the effects of noise level in classrooms were more pronounced with sixth graders than was the case with third graders. Here a 10 dB increase in classroom noise level resulted in a decrease of about 1.5 grade equivalent units, or about .15 units per dB. Community noise levels have less effect; a 0.9 grade unit decrease for a 10 dB increase in noise level, or about 0.1 grade unit per dB. It is worthwhile to note that the degradation in reading with increases in community noise level is consistent with the findings of Cohen, Glass and Singer.⁵

E. Results with Non-English-Fluent Children

The Correlations between achievement in reading and mathematics and classroom noise levels for the non-English-speaking and English-weak students are invariably low; details may be found in Tables G-3 and G-4. It is likely that this is a result of the students' general inability to read and understand the English language, as is reflected in their generally low and narrow range of achievement scores (see Table IX). It is reasonable, therefore, not to discuss these data further.

F. Implications Regarding Classroom Noise Levels

Because of the trade-off between classroom and community noise levels, it is clear that the proscribed level for classrooms depends upon the noise level obtained or that which may be proscribed for the communities. Our sample of communities had average L_1 levels of 69.3 dBA or an $L_{eq} = 60$ dBA. The effects of those levels on the childrens' achievement are shown in the lowermost curve of Figure 3. Again, as in Figure 2, the socioeconomic variables are those found in our sample. Use of the lowermost curve to establish a criterion classroom noise level appears unwarranted because the percentage of White children is low while the percentage of Black (and Hispanic, as well) children is high as compared to their distribution throughout the school district. Consequently, at this time it seems advisable to use one of the upper three curves to establish the criterion level. We have selected an $L_1 = 65$ dBA as a criterion community noise level for several reasons: 1. It is equivalent approximately to an $L_{dn} = 60$ dBA, which is the estimated exposure of about 54 percent of the urban population of the U.S.;¹⁹ 2. An L_{dn} of 60 dBA is near the upper limit for single family residential areas recommended in California;²⁰ 3. It encompasses the FHWA criterion for highway noise impacting upon a sensitive outdoor space of $L_{dn} = 60$ dBA;²¹ and 4. The reduction of noise levels in urban communities to more satisfactory levels is likely to be a slow process.

Assuming that the average achievement of children completing the sixth grade should be about 7.0 grade equivalent units, Figure 3 indicates that the L_{eq} C-weighted in the classroom should not exceed 59 dB. This level in units of L_{eq} A-weighted is about 46 dB, and equivalent to an L_{10} = 48 dBA. It is interesting to note that this latter level is only about 2 dB higher than that recommended (L_{10} = 46 dBA) in the National Cooperative Highway Research Program Report No. 117, which was based primarily upon degradation of the Articulation Index by noise. This document apparently was used to establish the federal noise abatement criterion level.

G. Classroom Behavior

Tables XIX and XX present average noise levels in units of L_{eq} C-weighted under three classroom conditions: without children, with quiet children, and with typical activities ongoing. Children were considered to be quiet when they were working individually in their workbooks, for example, and there was no verbal interaction between students and teacher, although some students may have been talking together. Typical activities were those in which the children and teachers were interacting, some children may have been moving around, and some were perhaps shuffling papers, pencils, feet, etc. The tables also include the changes in noise levels relative to the typical level that precluded hearing what the teachers and students were saying, the Articulation Index given the teachers' voice levels, and an estimate of the relative incidence per unit of time that the observers were unable to hear the teachers and students. This latter number is a rough estimate because of the problem of determining, on the basis of the daily classroom log, the exact number of minutes or number of opportunities during some activity when the teacher and students were attempting to communicate verbally. For example, during a session devoted to spelling, the teacher may call out a word to be spelled, she or he then looks around the room for hands or otherwise selects a student to respond, calls a name, repeats the word, at which time and after some delay the student attempts to spell it. Although the time used by the teacher to speak the word, the student's name, and the student's response may be brief, the intervals between these events are of variable and of unspecified duration. Furthermore, preparation times for activities such as putting word lists away before a spelling test or finding a reading book were of highly variable durations and appeared to depend upon the demeanor of the students. Despite the limited value of these results, they are presented herein to provide an approximation of the inability to hear speech in the classrooms studied. When this normalized Can't Hear rate was used as the dependent variable and the other variables (excluding can't hear teacher because of the limited sample) were used as independent variables in a multiple regression equation, the multiple correlation coefficients were low (≈ 0.20 for both third and sixth grade classrooms) and statistically insignificant. The intercorrelation matrix for both grade levels are provided in Appendix H.

The data presented in the two tables discussed above are combined in Table XXI in order to show the average values of the variables aggregated on the basis of whether or not the classroom noise levels without children present exceeded 58 dBC (see Section F. above). Also included are the average voice levels (in L_{eq} -C) of the teachers. In Table XXI it may be seen that in the classrooms with high background noise levels (greater than 58 dBC) the contribution of the children to the noise level is small compared to classrooms in which background levels are at or less than 58 dBC. Specifically, in the noisy classrooms background noise levels prevailed so that when the children were present but quiet noise increased only 1.5 dB (an average over the third and sixth grades), but if typical activities were ongoing noise levels increased by about 3.5 dB. In contrast, in the quieter classrooms the presence of children (due to paper shuffling, some whispering, etc.) added about 8.5 dB to the levels, and typical activity added about 12.5 dB to the background levels. But the fact that similar typical levels were found in both groups of schools suggests that children generate limited amounts of noise. Thus, in schools in noisy areas outside sources of noise prevail, whereas in quiet schools noise generated by the children is

NOISE LEVELS (L_{eq} ADJUSTED) UNDER SELECTED CONDITIONS
AND THE INCREASED NOISE LEVELS CORRESPONDING WITH AN
INABILITY TO HEAR TEACHERS AND STUDENTS
- THIRD GRADE CLASSROOMS -

NOISY SCHOOLS										QUIET SCHOOLS										
School Code No.	Classroom No.	L_{eq-C} Weighted			Change Can't Hear Teacher	A.I.	Change Can't Hear Student	Normal Can't Hear	Total Can't Hear		School Code No.	Classroom No.	L_{eq-C} Weighted			Change Can't Hear Teacher	A.I.	Change Can't Hear Student	Normal Can't Hear	Total Can't Hear
		No Children	Quiet Children	Typical									No Children	Quiet Children	Typical					
6802	17	61	62.5	63.7	N.D.	.93	-.7	.053	5*	6893	14	54		H.D.	-.98	H.D.	.011	1		
	18	61	N.S.	65.1	N.D.	.92	-.2	.165	14		15	54	61.6	65.9	H.D.	-.98	-1.2	.146	30	
7214			Not Obtained							8501	10	54	60.2	64.7	3.1	.90E	-1.4	.737	14	
											17	54	65.5	65.3	H.D.	.95	.8	.493	72,1	
7651	34	61	64.6	70.4	1.5	.79	-.1	.192	8,12	9004	32	53	67.7	67.5	8.6	.95	-.1	.099	20,1	
	35	62	65.8	68.2	N.D.	.73	-0.1	.139	23		37	54	59.2	69.8	N.D.	1.0	2.7	.220	11	
											38	55	69.9	71.1	N.D.	1.0	1.1	.039	7	
7941	11	68	N.S.	67.5	5.1	.71	7.4	.132	5	5747	5	50	61.8	67.4	N.D.	.98	1.9	.467	33,2*	
	12	66	67.4	69.3	-1.6	.71	-.4	.442	76		6	50	60.4	65.9	H.D.	.94	1.0	.360	9	
	13	73	67	70.2	3.8	.60E	-1.4	.211	41		9	51	64.0	66.4	-1.5	.99	-1.5	.382	12,1	
	14	73	67.1	68.2	N.D.	.45E	N.D.	.048	3		26	60	63.4	64.6	-1.9	.96	-1.9	1.040	21,5	
	26	74	76.4	74.3	1.8	.54	.4	.013	2											
	27	74E	72.3	77.6	2.5	.54E	.4	.708	80											
8071	39	65		Disorganized		.93		.038	5											
	40	65	61.0	62.4	N.D.	.70	-.3	.013	2											
9095	15	61	67.4	70.6	-.3	.98	-3.8	2.296	113, 11*											
	24	66	66.0	66.2	N.D.	.97	-.6	-	41,27*											
	28	59	65.0	68.3	N.D.	.32	-2.4	.843	57,2											
9251	24	63	62.2	62.8	5.8	.39	-1.1	.978	68,12	6174	50	55	62.9	67.7	N.D.	.96	2.7	.040	4	
	25	69	66.8	70.6	N.D.	.56	0.6	.419	35		54	53	66.1	65.8	N.D.	.96	-1.6	.251	45*	
	27	70	68.4	69.9	3.8	.86	1.1	.066	5,1*		55	53		N.D.	-One Day	.97	N.D.	.333	12,12*	
9825	15	68	65.2	70.5	.8	.63	2.2	3.467	48,4											
9889	22	59	69.5	66.9	N.D.	1.0	-1.2	1.886	65,1	9558	22	56	66.6	70.9	N.D.	.97	-3.2	.081	11*	
	35	62	59.5	63.9	N.D.	.95	1.7	.508	18,30*		23	56	65.8	69.1	N.D.	.94	-3.8	-	46	
	36	62	63.1	65.1	N.D.	.96	N.D.	.104	3,2		43	58	62.1	68.9	.9	.98	-1.2	.078	8,2	
											44	58	62.3	66.7	N.D.	1.0	.9	.311	26,2	
									50	56	Only	Substitute Teachers	.99	-	-	12*				
										51	56	61.4	66.0	N.D.	.99	-.4	.267	16		

1. Change relative to Typical L_{eq} (During Can't Hear in L_{eq-C} - Typical in L_{eq-C}).

2. Normalized Can't Hear rate for teachers plus students = Total No. of Can't Hear/Number of minutes of observation (estimated from Daily classroom log - Appendix B) X 100.

3. Observers were more often unable to hear the students. A single number refers to the number of times an observer was unable to hear the student. The second number refers to an inability to hear the teacher. If the classroom was observed more or less than 3 days, the average incidence per day was calculated and extrapolated to 3 days.*

N.D. No Data. Although there were occasions when the observer was unable to hear students and teachers, they may have occurred when the tape recorder was off.

N.S. No Sample.

E. Articulation Index estimated from noise levels in a comparable classroom.

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Table XX

NOISE LEVELS (L_{eq-C} WEIGHTED) UNDER SELECTED CONDITIONS
AND THE INCREASE IN LEVELS CORRESPONDING WITH AN
INABILITY TO HEAR TEACHERS AND STUDENTS
- SIXTH GRADE CLASSROOMS -

NOISY SCHOOLS										QUIET SCHOOLS										
School Code No.	Class-room No.	L_{eq-C} Weighted			Change Can't Hear Teacher ¹	A.I.	Change Can't Hear Student ¹	Normal Can't Hear ²	Total Can't Hear ³		School Code No.	Class-room No.	L_{eq-C} Weighted			Change Can't Hear Teacher ¹	A.I.	Change Can't Hear Student ¹	Normal Can't Hear ²	Total Can't Hear ³
		No Children	Quiet Children	Typical									No Children	Quiet Children	Typical					
6802	5	60	61.1	64.0	N.D.	.58	.9	.043	5	6893	6	52	63.8	71.4	4.2	.99	-4.4	.017	3	
	10	61	66.4	68.4	N.D.	.71	-2.2	.618	68		8	52	60.5	66.3	2.3	.97	.1	.411	38,1	
7214		Not Obtained								8501	1	54	57.3	64.2	N.D.	.99	-2.7	.155	30	
7651	16	60	63.5	67.1	4.0	.69	-2.1	.044	5,1	9004	6	54	64.4	68.8	N.D.	.99	-.8	.072	11	
	27	59	65.0	67.7	N.D.	.72	-.4	.248	36		4	69	71.5	70.9	N.D.	.74	6.4	.079	5	
7941	15	69	68.1	70.6	-.5	.64	-.6	1.069	156,60		5	64	67.1	69.7	2.7	.87	3.8	.206	28,4	
	16	71	71.0	71.1	4.5	.82	4.5	.361	61		6	58	68.5	69.7	Poor Quality	.87E	Data	0	0	
19	62	64.2	64.7	1.0	.62	-1.0	.256	93,45	7	58	68.5	69.7	N.D.	.67	1.3	.308	30*			
8071	27	65		Rehearsals	.76	-	Inc.			5747	29	59	63.0	68.4	N.D.	.97	N.D.	0	0	
	30	64		Rehearsals	.76E	-	Inc.		30		58	62.2	63.3	N.D.	.97	-3.0	.087	9		
9095	8	63	73.0	74.1	.9	.86	-2.3	-	T=10	6174	20	57	59.2	66.9	3.1	.88	-1.2	.432	70,10	
	10	67	67.7	71.1	.3	.87	-1.1	.605	20,3		21	57	11.5	69.0	5.1	.98	-5.2	.248	38,3*	
	13	63	N.S.	67.6	.6	.87	.9	1.138	72,2		22	57	70.1	68.1	N.D.	.98	-6.5	.104	27*	
9251	43	57	63.1	64.0	N.D.	.96	-2.2	.175	22	6174	26	55	61.4	62.0	N.D.	.64	-.3	1,419	49,12	
	46	59	64.2	63.6	N.D.	.87	-.3	.134	37*		21	57	69.0	68.6	-.6	.75	.9	.75	12,3	
	48	59	65.9	64.0	N.D.	.92	-3.7	.590	81,1		22	57	70.1	68.1	N.D.	.98	-6.5	.104	27*	
	49	59	68.7	67.2	6.4	.98	1.2	.045	5		26	55	61.4	62.0	N.D.	.64	-.3	1,419	49,12	
9825	14	65	67.7	66.7	N.D.	.60	2.9	.132	5	9558	7	62	62.7	69.1	N.D.	.96	N.D.	0	0	
9889	8	67	62.2	68.3	4.6	.61	-3.6	.232	40,4		13	64	N.S.	68.6	-.6	.75	.9	.75	12,3	
	16	62	64.9	66.1	N.D.	.84	-.2	.145	21,1		15	62	63.6	68.7	2.2	.94	.8	.425	30,1	
	17	62	74.2	71.4	.5	.95	-1.9	.221	23,8											

1. Change relative to Typical L_{eq} (During Can't Hear in L_{eq-C} - Typical in L_{eq-C}).
2. Normalized Can't Hear rate for teachers plus students = Total no. of Can't Hear/Number of minutes of observation (estimated from daily classroom log - Appendix B) X 100.
3. Observers were more often unable to hear the students. A single number refers to the number of times an observer was unable to hear the student. The second number refers to an inability to hear the teacher. If the classroom was observed more or less than 3 days, the average incidence per day was calculated and extrapolated to 3 days.*

N.D. No Data. Although there were occasions when the observer was unable to hear students and teachers, they may have occurred when the tape recorder was off.

N.S. No Sample.

E. Articulation Index estimated from noise levels in a comparable classroom.

Inc. Incomplete records.

Table XXI

MEAN NOISE LEVELS, CAN'T HEAR LEVEL CHANGES, A.I.,
AND TEACHER VOICE LEVELS IN CLASSROOMS
CATEGORIZED BY NOISE LEVELS WITHOUT CHILDREN

Leq Without Children > 58 dBC											Leq Without Children ≤ 58 dBC									
No Children	Quiet Children	Typical	Change Can't Hear Teacher	A.I.	Change Can't Hear Student	Teacher's Voice Level		(1) Normal Can't Hear	Reading G.E.	No Children	Quiet Children	Typical	Change Can't Hear Teacher	A.I.	Change Can't Hear Student	Teacher's Voice Level		(1) Normal Can't Hear	Reading G.E.	
						Male	Female									Male	Female			
<u>Third Grades</u>																				
Mean	65.3	66.1	68.0	1.9	.74	-.02	68.6	66.3	.65	2.7	54.2	63.6	67.4	2.8	.97	-.26	65.1	66.5	.25	3.0
s	5.0	4.0	3.7	2.6	.21	2.2	2.3	3.7	.89	0.5	2.3	3.0	2.0	4.3	.03	1.9	(Only)	2.4	.20	0.7
<u>Sixth Grades</u>																				
Mean	63.9	66.3	68.1	1.9	.80	.2	67.3	67.5	.36	5.4	55.6	63.0	67.2	3.7	.92	-2.3	69.0	65.3	.33	6.0
s	3.0	3.6	2.8	2.2	.13	2.6	3.0	3.6	.32	1.3	2.3	4.2	2.8	1.2	.11	2.5	3.1	2.8	.41	1.3

(1) Normalized. See Footnote 2, Table XX.

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predominant. Because our typical noise levels include the voices of teachers and children and because at times the child speaking was very close to the microphone, the noise levels when the children were quiet is the better basis for estimating how noise affects classroom communication. Classroom observations indicated that when noise levels due to the children's activities became too high (i.e., at or near the typical levels) the teacher called the class to order and paused until the disrupting activities stopped.

Table XXI indicates that in this group of noisy schools the teachers' voice levels were on the average about 1 dB over the Quiet Children condition; hence, the change in level necessary to obscure the teachers' voices was less than was the case in quiet schools where the teachers' voices were about 3 dB above the Quiet Children condition. It must be remembered that the teachers' voice levels were measured at a distance of six feet, but in the classroom the recordings were obtained when the teacher was at a greater distance. Thus, teachers' voice levels as recorded during the classroom observations probably were about 4 dB less intense (as estimated from Ref. 12) than those shown in the table. In these noisy schools the teachers' voice levels at the back of the room were very near the background noise levels without children present. In these quiet schools, in contrast, at the rear of the class the teachers' voice levels were about 7 dB above the levels without children present, and near the levels observed when the children were quiet.

Because estimates of childrens' voice levels are unavailable* a similar analysis of their probable intensities at the teacher's ear cannot be made. However, the intensity changes associated with an inability to hear the children are small and typically negative, indicating that the levels during the Can't Hear event were indistinguishable from or less than the typical level. Furthermore, it is reasonable to hypothesize that in these noisy schools the childrens' voice levels were frequently at or below the levels observed when the children were absent, and that the teacher may have had difficulty hearing ~~was~~ ^{what} was being said. We observed instances, particularly in noisy classrooms, in which children mispronounced or misspelled a word without correction by the teacher. Presumably, the teacher did not hear the error, and upon subsequent questioning the teacher admitted that she had not heard.

As is to be expected, the articulation indices in this group of noisy classrooms is lower than in the quiet classrooms. In addition, the earlier finding that children in quiet classrooms do better academically than children in noisy classrooms is seen again.

Teachers have observed that as a result of noise children are less well behaved and require more direct control than do children in quieter classrooms. It was thought that a simple test of this observation might be to count the number of rebukes of the children and the number of times a class is called to order to discern if such numbers are related to the classroom noise levels. Hence, Table XXII presents the number of rebukes as an average over classrooms and the average noise levels extant shortly before those rebukes occurred. Noise levels before the event were recorded because of the possibility that a noise threshold must be reached before the teacher calls the class or individual children to order.

It will be seen that there appears to be no relationship between the number of rebukes and the noise levels occurring just before a rebuke. Furthermore, there are no differences in the number of rebukes observed in these groups of noisy and quiet classrooms. These limited data suggest that calls for order were precipitated by levels of about 69 dBC.

In order to assure ourselves that this result was not due to the way the classrooms were divided, we calculated the intercorrelation matrix of the three variables shown in Table XXII and the relative frequency of rebukes based upon total observation time in each

*Pearsons et al.¹² measured voice levels of children under age 13 in an anechoic chamber. Whether childrens' voices in school have comparable intensities is unclear. Our observations indicate they are less intense. In fact, some children appeared to be whispering at times.

Table XXII

AVERAGE NUMBER OF REBUKES AND NOISE LEVELS
BEFORE THE REBUKE IN CLASSROOMS
CATEGORIZED BY NOISE LEVELS WITHOUT CHILDREN

	Leq Without Children > 58 dBC			Leq Without Children ≤ 58 dBC		
	No Children	Number of Rebukes	Leq C Before a Rebuke	No Children	Number of Rebukes	Leq C Before a Rebuke
			<u>Third Grades</u>			
Mean	65.3	114.0	69.1	54.2	88.6	69.2
s	5.0	73.6	4.4	2.3	57.3	2.7
			<u>Sixth Grades</u>			
Mean	63.9	51.2	67.7	55.6	82.2	68.9
s	3.0	34.9	5.1	2.3	47.4	2.7

classroom. Correlation coefficients between the noise levels and both rebuke frequency measures were on the order of 0.05.

Discussion

That a negative relationship exists between classroom noise levels and reading achievement has been demonstrated by this study, Bronzaft and McCarthy,² and Cohen, et al.^{3,5} A similar relationship between community noise levels and reading achievement has been shown herein as well as by Cohen, et al.⁵ and Green, et al.²² In these studies the sources of noise were aircraft, freeways and local thoroughfares, and elevated trains. Retrospectively, it is perhaps not surprising that both community and classroom noise levels are correlated with achievement levels if we consider how noise from such sources is propagated throughout the community. Indeed, as was shown in Appendix G, there was a high correlation ($r=0.65$) between classroom noise levels in units of L_{eq}^C and background noise levels (L_{99}). Furthermore, the classroom C-weighted levels were more highly correlated with community levels than were the classroom A-weighted levels, which probably reflects the fact that low frequencies propagate more widely and with less attenuation than do the higher frequencies.

What this study and most of the others fail to demonstrate (although some investigators did not try) is the immediate effect of noise on classroom behavior or operations. The exceptional study was that of Crook and Langdon,¹ which showed that as noise from aircraft flyovers intensified there was an increasing incidence of (1) an inability to hear what teachers were saying, (2) pauses by teachers to permit the noise to cease, and (3) increases in the teachers' voice levels in compensation for the noise. In the noisy classrooms of this study, noise events such as passbys of trucks, motorcycles, or noisy automobiles were difficult to measure from the tape recordings because of the generally high background noise levels due to heavy traffic and the ongoing discussions between students and teachers. Thus, an event, although audible, was acoustically indistinguishable. Despite this inability to demonstrate certain behavioral effects of noise, the fact that independent studies with a variety of noise sources show less achievement in noisy schools and communities indicates that noise hampers the educational process in some way. Cohen and Weinstein²³ have suggested several possibilities. Moreover, it appears that early academic deficits due to noise become progressively worse. Because of this progressive deficit and because children are exposed to community noise well before their exposures in classrooms, it appears that abatement of community noise should be emphasized more than abatement of classroom noise. Of course, if community noise is abated classroom noise will be also.

Abatement of classroom noise is a relatively simple problem technically* and has been shown to be of some benefit to the students academically.^{3,24} The question of importance for this study was, "What should the criterion noise level be?"

In terms of behavioral effects the results are equivocal, but in terms of academic achievement the results are more clear, notwithstanding the fact that children do contribute to background noise levels. As was pointed out with respect to Table XXI, when the children in noisy schools were relatively quiet the predominant source of noise was traffic. Here the children when quiet added only 1.5 dB to the background traffic level, which might be accounted for by the variance of traffic noise rather than the presence of the children. On the other hand, in the quiet schools the noise level with children quiet was about 3.0 dB quieter than were the noisy schools without children present. If we assume that when children are quiet they produce an L_{eq} of 63 dB C-weighted,* then logarithmic addition of the noise levels observed in the noisy classrooms from traffic alone (64.5 dB as an average over the third and sixth grades) to another random

*Reducing community noise levels is technically and politically difficult because it appears that a major requirement will be to reduce noise levels at their sources, and organized opposition to such attempts has been amply demonstrated during recent history.

*This level is consistent with that reported by Pearsons, et al.¹² Comparison of A- and C-weighted L_{eq} s when only trucks and local traffic were the noise sources indicates that $L_{eq}^C - 13 = L_{eq}^A$ -weighted.

noise of 63 dB (children quiet) will result in a total noise level of about 66.5 dB. As may be seen in Table XXI, this is very close to the noise levels observed in the noisy classrooms with children present but quiet. In other words, noise levels from outside sources appear to have a major influence on classroom noise levels when the children are present and quiet. This analysis suggests that noise levels resulting from the presence of quiet children should not be taken into account in developing a criterion noise level for an abatement program.

Furthermore, teachers have the responsibility for controlling noise levels in their classrooms in order to assure that adequate communication is possible, but they have no control over external sources of noise. These external sources may influence their vocal efforts.¹² But, despite these efforts the Articulation Indices calculated in this group of schools show that in noisy classrooms the average (over third and sixth grades) Articulation Index was .77, whereas it was .95 in the quiet classrooms. Although the first number is some 19% less than is the second, according to the usual interpretation of these numbers speech communication should be adequate if the teacher is talking. Our observations indicated that children do not speak as loudly as do the teachers. If we consider that education depends upon interactions between students and teacher, then given the apparently lower voice levels of the students and, at times, their less than ideal distance from the teacher, it can be hypothesized safely that high background noise levels from external sources are a greater detriment to the ability of the teacher to hear the student than is the converse. Indeed, the observers recorded an inability to hear the students about 9 times as frequently as their inability to hear the teacher when all of the data were combined (Table IV), and about twice as frequently when the observation periods of teacher versus students were controlled (Table V). Finally, the changes in level recorded when the observers were unable to hear the children were near or below typical noise levels (see Table XXI), which suggests that discrimination of a single voice from a noise milieu is a difficult task for the teacher and should be accounted for in establishing a criterion level for noise abatement. It is thought that using the reading achievement results, which appear most sensitive to noise, provides conservative but indirect assurance of accounting for the teachers' difficulty.

Conclusion

A recommended design criterion for traffic noise levels inside classrooms ($L_{eq} = 58$ dB C-weighted)* is advanced on the basis of two independent studies: The one reported herein and the National Cooperative Highway Research Program Report No. 117.^{25, 26} This recommendation should be accepted as the basis for revision of current standards pending the availability of additional information.

Because of the apparent synergistic effects of community and classroom noise levels on academic achievement, in order for the above classroom noise limit to be effective in preventing degradation of academic achievement from noise, efforts will be required to contain community noise levels so as not to exceed $L_1 = 65$ dBA.

*This level is equivalent, approximately, to an $L_{10} = 48$ dBA, which is 7 dB less than the current Federal standard ($L_{10} = 55$ dBA), but about 6 dBA higher than the California standard ($L_1 = 50$ dBA = $L_{10} = 42$ dBA). Use of the C-weighting is recommended because C-weighted sound level measurements are more sensitive to the lower sound frequencies found in traffic noise and are generally more highly correlated with achievement in reading.

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Appendix A

Technique for Estimating Several Socioeconomic Indicators Applicable to the 1978/79 School Year for Selected Schools

Study of census data showed that neighborhoods providing children to a certain school are encompassed by several different census tracts and incorporate only small parts, or "blocks", of the much larger census tracts and in most cases the socioeconomic data (% poverty, median family income, etc.) for each tract were different. Thus, the problem arose of developing a technique for using existing census data - that are applicable to or described in terms of large areas (tracts) - to the specific, smaller neighborhoods feeding children to the specific schools studied.

Technique:

The Los Angeles City Planning Department indicated that the neighborhoods of interest had not had significant changes in the number of dwelling units during the preceding ten years or so. Thus, using the 1970 U.S. Census as a data base, the procedure described below was followed:

1. From maps showing the areas feeding children to our schools and from Census Tract maps - that show Census Block numbers within each tract, we determined the specific Census Blocks that provided children to each of our schools.
2. From the "Census Block Within Tract" data we obtained the number of housing units in each block that contributed children to each school's population.
3. Then we calculated the fractional contribution of a particular block (or blocks) of a tract to a school's population by using the total number of housing units in a tract as the denominator and the number of housing units obtained in Step 2 as the numerator. This fraction was calculated to 3 decimal places.
4. Fractional contributions (Step 3) were calculated for each census tract contributing children to a particular school.
5. The fractional contributions of each tract contributing children to a particular school were multiplied by the median family income, percent in poverty, and percent unemployed for each corresponding tract, and the products summed to arrive at the socioeconomic indicators shown in Table I.

Mr. Fred Ige of the Los Angeles City Planning Department concurred with the technique, and Mr. Thomas Smuczynski of the Los Angeles City Planning Department provided 1977 estimates of median family income, percent in poverty, and percent unemployed. These 1977 estimates, by census tracts, were obtained from a study conducted by the Planning Department and were based on a two percent sample of households in the City of Los Angeles.

In nine cases the tracts were not in the City of Los Angeles. The 1977 estimates for these tracts were obtained from Urban Decision Systems, Inc., at the suggestion of the Los Angeles County Planning Department.

Jane Rachel Kaplan, Ph.D. was, in large part, responsible for and conducted the described socioeconomic analyses.

Appendix B

Synopsis of a Study Entitled "Effects of Freeway Noise on School Children"

Purpose:

To develop a criterion level for controlling noise from freeways (or other sources) in classrooms.

Method:

In the Los Angeles Unified School District, 20 schools have been selected for study. Half the schools are adjacent to freeways, while the "quiet" ten are not. Quiet schools are used for comparison.

In each school we are concerned only with the third and sixth grades because these grades, by law, are tested relatively extensively for academic achievement. In addition, State law also requires that the children now in grades three and six had their hearing checked the preceding year. Those children with hearing problems have been identified, and can be checked further if necessary.

Typically, we try to study all the third and sixth grades in each school. If this is not possible, the classes studied are selected so they are likely to be the noisiest (nearest the freeway) or quietest (furthest from a playground or noisy street, for example).

We spend three consecutive days in each classroom; hopefully the teacher involved is permanent and experienced at that grade level. In the classroom, we try to set up an observation point that approximates the location of those students who are furthest from the teacher at her/his usual operating position. Typically, the "usual operating position" is at the head of the class in front of the blackboard, from which point the teacher usually lectures the entire class.

Our observations consist of tape recording whatever happens in the classroom, including noise from freeways, airplanes, local streets, playgrounds, children in the classroom and the teacher. These tapes are subsequently analyzed to determine the noise level when certain classroom "events" occur, then the tapes are wiped clean for re-use in another classroom. The "events" are the times that (1) the observer cannot hear what is being said by the teacher or student, (2) the students are distracted by some noise, (3) the teacher rebukes students for not doing their work, or (4) classroom progress is interrupted or delayed while awaiting the cessation of some noisy event. The observer will be making notes on a form during the class. These notes describe what happened in the period and are used to facilitate analysis of the tape. A copy of the form is attached. You can see the forms associated with your class at any time.

A Final Note:

We are in no way evaluating teachers, teaching styles, or content. Please conduct your class as you usually do, ignoring the observer as much as possible. The observer will answer any questions you or the students may have.

Personnel:

Juanita Oñate

Robert Heald

Jerome Lukas

We are members of the Office of Noise Control of the California Department of Health Services.

PROTOCOL AND LOG SHEET FOR CLASSROOM OBSERVERS

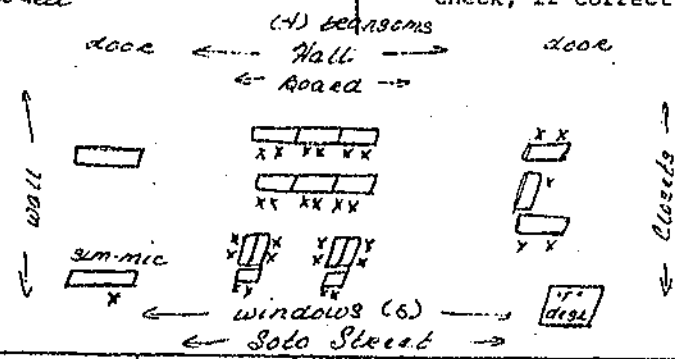
School: Street School Room #: 15 Teacher: Mrs. (Subst. 3/4) Date: Jan 22, 1979

Calibration { Nagra Setting 150
SLM Setting 110 C. } Nagra Meter 12.5 Peak
(Linear, fast - only) SLM 115.5 Recording { Nagra Setting 150
SLM Setting 70C. }

1. Noise level (using 2nd SLM) near beginning of 1st recording, when children are fairly quiet: _____ dbA slow.
* Checks up to 8' above windows closed
2. Microphone (on Channel 1) near center of room, about 7 feet from teacher's normal working position: 15 ft check, if correct.

3. Sketch of classroom and location of students, teacher, microphone, and observer's position. Locate observer's position as near as possible to rear center of room.

(1) calibration
(2) Performance



(9:30) all windows closed both doors open
(10:30) one window opened 2' 6 inches (4 1/2\"/>

Regular "1" cut-out seen w/class Dec 2 / week beginning 2nd week

Time Begin	Time End	Classroom Activity	Recorded?		No. of "Raises" at Start of Record	Approximate Number of Button Pushes						
			Yes	No		Disregard	Can't Hear	Rebuke	Interrupt	Pauses	Distract	
9:00	9:05	Administrative		✓								
9:05	9:20	Handwriting noise sample w/ children class reading poem	✓		1 long	too much movement			not all students disengaged from task.			
9:20	10:00	Spelling "17" @ front of rm - 1st group divided into separate spelling groups... 2nd group "1" @ 2nd row of desks... frequent on/off of desks... 2nd w/ group @ side of room... children giving pointers for spelling words (PAGE OF 940) (PAGE OF 950) (PAGE OF 950) (PAGE OF 950)	✓		2							
10:00	10:25	RECESS		✓								
10:25	12:00	Reading aid w/ group nearest SLM - group 2-4 ft from SLM - children reading out loud... "1" w/ other group @ far side of rm - "1" desk being reading games... 1 group playing "reading" games note 3rd & 4th "back head" about reading (page on 5 off)	✓		3							
		Reading - quiet		✓								

SAL00018

Appendix C

Results of Monitoring of Noise and Air Quality in Feeder Areas of Schools at Various Proximities to Freeways

Jack W. Swing
California Office of Noise Control
Berkeley, California

Presented at the 98th Meeting of the
Acoustical Society of America
Salt Lake City, Utah

November 28, 1979

I would first like to present an overview of the project which is currently being conducted by Jerome Lukas and myself, and which is concerned with the effects of freeway noise on hearing levels and academic achievement of children. A preview of this study was presented at INTER-NOISE '78 in San Francisco, California.¹ The objectives of this larger study are outlined in Figure 1. The report which I am presenting today is concerned with the first objective, that of determining correlations between environmental noise levels, childrens' exposure levels, hearing loss and academic achievement. The other two items will be discussed in the final report on the entire project. (It is of interest that the State of California presently specifies a maximum intrusion level inside classrooms of 50 dB A-weighted. It is assumed that this maximum level is created by the noisiest vehicles on the road; i.e., heavy trucks.)

Figure 2 illustrates the various data elements which comprise the work efforts in the entire program. Four of these data elements are pertinent to today's discussion. These are: school site noise exposure, feeder area environmental noise, and air quality at both school sites and their surrounding feeder areas. This paper, then, is concerned with the environmental monitoring efforts in both noise and air quality which support the study on the effects of freeway noise on the academic performance of school children.

Figure 3 presents a map of the matched noisy and quiet school feeder areas which were incorporated in this study. Those areas shown in red are the high noise impacted schools and their feeder areas, while those in green are the socioeconomically matched quiet schools and their feeder areas. In total, there were 15 schools and their surrounding feeder areas involved in this study. Originally, 32 schools had been selected for preliminary analysis; this number was then reduced to a more manageable number. Of the 15 schools illustrated on the map, 8 of these were selected for air quality analysis. These schools are indicated by an asterisk adjacent to their feeder areas.

Figure 4 presents additional detail on two of the socioeconomically matched feeder areas that were utilized in this study, and serves to illustrate the general nature of the feeder areas providing children to our study schools. As may be observed, the two areas are in close proximity to each other, with the primary difference being that one area has considerably heavier freeway exposure than the other. The matching of areas has been carefully controlled for such

socioeconomic factors as ethnic population, mean housing values, mean income, percent employed, and other pertinent socioeconomic variables. An interesting item to observe in these two feeder areas is that in one case, school 8501,* there is clearly no freeway impact, while in the case of School 7412, a large portion of the feeder area has the Harbor Freeway running straight down the middle. However, off to the east is a segment of residential development well away from the freeway, whose individual noise environment is very close to that of the 8501 School feeder area. The analysis has been confined to those children which live in the immediate proximity of the schools they attend.

Figure 5 illustrates the scope of the monitoring efforts involved in this study. In the community noise monitoring aspects of the program, 15 school sites and their surrounding feeder areas were studied. This resulted in a total of 141 community noise monitoring sites which, at four to five days per site, yielded a monitoring effort of approximately 500 site days. Approximately 1,600 man-hours were expended on the community noise monitoring efforts. The air quality monitoring, which involved eight school sites, was conducted on a rotational basis during December 1978 and January and February of 1979. The monitoring involved measurements at each of eight schools on ten separate days. At each school site, outdoor lead and carbon monoxide were monitored for 24-hour periods. Indoor carbon monoxide was also monitored for two days at each of the schools during school hours.

In addition to fixed monitors at each school site, a fully-equipped air pollution monitoring van was rotated through the system and spent one entire 24-hour period at each of the school sites, thereby effectively replicating the air quality data taken on any given day at any given school site. Approximately 3,000 man-hours were expended in collecting the air quality data.

The personnel utilized for the noise monitoring efforts in this program were technicians from the California Division of Highways (CalTrans) who had little or no prior experience in noise monitoring. These technicians were, however, quite familiar with the air quality monitoring procedures and equipment. Each technician received approximately two hours training in community noise monitoring techniques prior to beginning the actual field monitoring work.

Given that the program would utilize personnel generally unfamiliar with community noise work, the equipment to be used had to be extremely simple, easy to use, reliable, and essentially foolproof. The Gen Rad Model 1945 Community Noise Analyzer was selected as generally fulfilling these requirements. Ten of these units were incorporated in the noise monitoring efforts, along with security boxes and Gen Rad weatherproof microphone systems. These consisted of installation of "pause" buttons on the devices, as well as reducing the run times by a factor of 3, such that we were able to conduct 10-minute samples rather than the normal sampling run time of 30 minutes. Throughout the duration of the noise monitoring, the Gen Rad units functioned reliably and maintained an operability rate on the order of 90% (i.e., 9 of the 10 were generally running and usable). Overall, less than 5% of all the data collected was either lost or invalidated. Most of these failures were due to operator error - such things as forgetting to set the unit to the proper run schedule, or the most common failure, allowing the unit to operate with insufficient battery voltage.

In addition to the Gen Rad units, two BBN Model 614 instruments were used for spot checks on the other data. These units were used exclusively by State Office of Noise Control personnel, because of their somewhat more sophisticated functional characteristics and higher value. The two BBN units functioned satisfactorily throughout the duration of the study.

I will next discuss the temporal sampling aspects of the study effort. Figure 6 illustrates the essential elements incorporated in selection of the community noise monitoring sites. The basic concept involved in site selection was taken from work done by Sutherland at Wyle Laboratories^{2,3} with modifications per R.K. Miller's techniques.^{4,5} Essentially, each school feeder area was identified (using Wyle's terminology) as the spatial sampling unit (SSU). Within each spatial sampling unit, a combination of systematic techniques (after Wyle) and

*In order to preserve confidentiality, schools are identified by code number only.

deterministic site selection processes (after Miller) were utilized. Only residential areas were monitored. These areas were selected in each feeder area by observing maps of each feeder area and, in most cases, driving through these areas to further subdivide the land uses. Each feeder area encompassed a physical area on the order of 1/4 to 1 square mile (.6 - 2.6 km²). Once the residential land use areas in each spatial sampling unit were identified, they were then subdivided into sub-areas of similar noise exposure, based on comparable proximities to freeways, major arterials, commercial strips, and industrial areas (deterministic subdivision). Typically 4-6 sites per spatial sampling unit were utilized. One may infer from Sutherland's analysis that this would yield a 95% confidence interval on the order of $\pm 4-5$ dB.

The next step was to secure specific measurement locations in each SSU. This involved locating a contact person in each feeder area. Generally, this contact person was the PTA president, the community representative, or the school principal. In some cases we found it useful, when time allowed, to address the PTA or parents' meeting, etc., in order to apprise them of our study efforts and the merit of our program towards improving the quality of education their children would receive. The contact person was responsible for providing names and addresses of interested parents residing in each of the identified sub-areas. The contact person would additionally make the initial personal contact with each prospective candidate and apprise them of the nature of the study. This approach yielded a more-or-less random site selection within each sub-area, which was, however, favorably biased in that each site utilized actually represented one of the school children's residences. Each candidate site was then visited and evaluated for suitability. The criteria for site suitability included the following: No dogs; safe, accessible microphone location; no construction in the immediate proximity of the site. Also, the particular site should not be dominated by any "unusual" noise sources (i.e., gas stations, car washes, dry cleaners, refrigeration compressors, should not be adjacent to delivery truck alleys behind markets, should not be near fire stations or hospitals, etc.). For those sites finally accepted for study, a contract was signed between the homeowner and CalTrans, in which the homeowner would receive \$5.00/day for the use of his premises. This amounted to an expenditure of approximately \$1,320 over the course of the study effort. We found, however, that these payments seemed to insure the cooperation and continued interest of the homeowner, who was also a parent of one of the children involved in the study. These individuals took sufficient interest in the program and in the security of the monitoring equipment, that losses due to theft were limited entirely to a single microphone.

When suitable candidate sites within a given SSU could not be located, it was necessary to substitute roving sites which were sampled on a rotational basis. In all cases we attempted to place the microphone as near the center lot as possible, with the provision that it also be located 20 feet (6.1m) or more from the nearest roadway and away from "high activity" areas around the home (swimming pools, air conditioning units, garages, patios, driveways, etc.). At the fixed sites, the microphone was typically mounted on a mast, 5 feet (1.5m) above the roof, either attached to a plumbing vent, chimney, TV antenna mast, or other means of support, at a typical elevation of 12-14 feet (3.7 - 4.3m). For the roving sites, the microphone height was typically 4-5 feet (1.2 - 1.5m), with its placement in the center of vacant lots in the study area. The generalized nature of the spatial sampling patterns is illustrated in Figure 7. In many cases, however, the ratio of fixed to roving or portable survey sites was other than as illustrated in this figure, due to the variables associated with selection of candidate sites and the general agreeability of the community to participate in the noise monitoring program.

In developing the temporal sampling strategies, again the work of Sutherland was incorporated.² The categories of sampling strategies considered in the program are illustrated in Figure 8. The temporal sampling schedules used in the noise survey are shown in Figure 9, and fall between Wyle's Class 2 and Class 3 measurements, in that nine sample periods per day were utilized at the fixed sites, which amounted to 19 hours of sampling for each 24-hour period. The roving site schedule typically followed Type Class 2 procedures, with monitoring at each site occurring for five to six 30-minute measurement sequences per 24-hour period. These sampling schedules were selected to allow the monitoring efforts to be conducted by two CalTrans technicians working on 8-hour overlapping schedules. In some instances it was necessary to modify

the roving site sampling schedule in order to achieve improved security for measurement personnel.

A sample data sheet for one of the fixed monitoring sites is illustrated in Figure 10. These data sheets have been keyed to the fixed location monitoring schedule of Figure 9 and are designed for use with the Gen Rad 1945 monitoring units. A sample preliminary data analysis control sheet, which illustrates the nature of temporal variations typically found at the fixed site noise monitoring locations, is shown in Figure 11. Equivalent energy levels were plotted as a function of time period and duration of sample for each of the community monitoring sites for each of the days which a particular site was sampled. Thus, after four to five days of monitoring a given site, a "typical" trend could be identified. Data lying clearly outside these "normal" trends were then further evaluated and spot checks were conducted at those sites having questionable data.

The preceding discussion dealt with a description of the spatial and temporal sampling considerations incorporated in the conduct of the noise monitoring efforts. I would next like to present some of the preliminary findings of both the air quality analysis and the community noise monitoring. First, let us consider the air quality data and the variations in air pollutant levels as a function of sampling date and freeway proximity of the measurement sites.

Figure 12 illustrates 24-hour outdoor airborne lead levels by school for each of the 10 sample dates. Three pairs of socioeconomically matched noisy and quiet schools are shown in this figure. As may be observed, all six schools illustrate almost identical trends in terms of lead concentrations as a function of their sample date. Proximity to freeways seems to have little or no effect on the values of the measured lead concentrations. Similar trends are also observed in the 24-hour average carbon monoxide levels at these same six schools for the same sampling dates, as shown in Figure 13. For these schools, again note that freeway proximity has little relevance on the levels of pollutants measured. In fact, almost identical trends as a function of sample dates are seen to exist between 24-hour lead levels and 24-hour carbon monoxide levels. Thus, based on these limited samples, we may conclude that air quality, certainly in the Los Angeles area, is primarily a basin phenomena and does not appear to be dependent upon proximity to a freeway.

Monitoring of interior carbon monoxide levels was also conducted at each of the eight school sites; however, interior levels appeared to show little or no correlation to exterior levels for the same measurement periods. Hence, no conclusions can be drawn at this time based on this study's data as to the effectiveness of the classroom building in lowering or at least otherwise affecting indoor carbon monoxide levels.

Finally, Figure 14 illustrates the temporal characteristics of the measured outdoor carbon monoxide levels for a particular school site. This figure, which is a combination of the data from all 10 sampling days, is quite typical in appearance to the other school sites, and illustrates an interesting phenomena; that during the hours of the day that school is in session, carbon monoxide levels tend to be at their lowest values.

Let me now present some preliminary results of the community noise monitoring. Figure 15 illustrates the average daytime noise exposure expressed in terms of L_{eq} for 8 hours for each of the school sites analyzed. As may be observed, the school sites are generally lumped into two distinct groupings; those in the immediate proximities to freeways, and those in the matched feeder areas away from freeways. The noise impacted school sites in general range from 5-6 dB louder than their quiet counterparts. However, it should be noted that the values represented in this figure are the logarithmic average of exposures at a particular school site, weighted by the number of rooms exposed to a particular level. For this analysis, a minimum of three measurements per school site were taken. These measurements were of the maximum exposed classrooms, minimum exposed classrooms, and the estimated average exposed classrooms. Thus, we could expect the overall range of exposures between noisy and matched quiet school sites to be considerably greater than are shown in this figure.

The day-night sound levels for the school feeder areas are summarized in Figure 16. For this initial analysis, the data has been stratified into freeway impacted and non-freeway exposed community sites. For a sample size of 22 freeway impacted sites, the mean value of observed day-night sound levels was 68.4 dB, with a standard deviation of 4.2. For the non-freeway sites (sample size of 82) the mean day-night sound level was 62 dB, with a sigma of 4.1. For all sites combined, the mean value was found to be 63.3, with an expected higher standard deviation of 4.9 dB. In subsequent analysis, the non-freeway sites will be further stratified in terms of their proximity to low volume local streets, high volume arterials, commercial strips, proximity to industrial areas, and single or multi-family housing units. It is anticipated that this further stratification of the non-freeway sites will yield standard deviations on the order of 2-1/2 - 3 dB.

Finally, the cumulative percentages of the populations in each of the feeder areas studied and their relative exposure to environmental noise (expressed in terms of day-night sound level) are summarized in Figure 17. For each school feeder area, the population exposure is expressed in terms of 10%, 50% and 90% levels, indicating that cumulative percentage of a feeder area's population exposed to a particular noise level. In addition to the measured data, we have shown the predicted ambient environmental noise levels based on population density, taken from BBN's 100 point study for the U.S. Environmental Protection Agency.⁶ Computation of this predicted exposure level in L_{dn} uses the following formulation:

$$L_{dn} = 10 (\log_{10} \rho) + 22, \text{ dB}$$

Where ρ is the population density in thousands of people per square mile.

For this analysis, population density was computed based upon the adjusted area within each school feeder area which reflected only residential land use. As may be observed, these predicted environmental noise levels, based solely on population density, covered a rather narrow range, that being from approximately 60 dB to 66 dB L_{dn} . (The population densities based on this adjusted area concept range from 7,100 people per square mile up to 21,000 persons per square mile.) It should be noted, however, that the BBN analysis was based on the assumption that the areas represented by it were not exposed to freeways or aircraft overflight activity. Therefore, applying such an analysis to the freeway noise impacted feeder areas may not be fully appropriate.

An interesting observation can be made looking at the range of populations exposed to the various environmental levels for matched pairs of school feeder areas. The mean, or 50% population exposed levels, do not vary significantly in any of the matched pairs of feeder areas. The range, however, for the freeway-exposed and non-freeway-exposed areas do show considerable spread, where in all cases, the freeway-exposed areas indicate a much higher range of environmental noise exposures. Ongoing analysis will include additional detail on the percentage of each feeder area's population exposed to environmental noise levels.

In conclusion, the purpose of this environmental monitoring has been to provide the supporting documentation needed to readily assess not only the school childrens' classroom noise environment, but the noise environment in which these children reside. This noise exposure information has been supplemented by air quality monitoring data in order that any adverse effects thought to be noise related can also be correlated with the air quality of the area in which the school is located and in which the children reside. We have been concerned, since the beginning of this project, that there may indeed be synergistic effects of combined high noise exposure and high levels of air pollutants experienced by those children residing near freeways. It would appear, at least from our initial analysis, that adverse effects found in these studies may be related solely to the noise exposure climate of the children, in that the air quality appears to be more or less constant throughout the portion of the Los Angeles Basin in which the study was conducted, and independent of freeway proximity.

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FIGURE 1

EFFECTS OF FREEWAY NOISE ON SCHOOL CHILDREN

STUDY OBJECTIVES

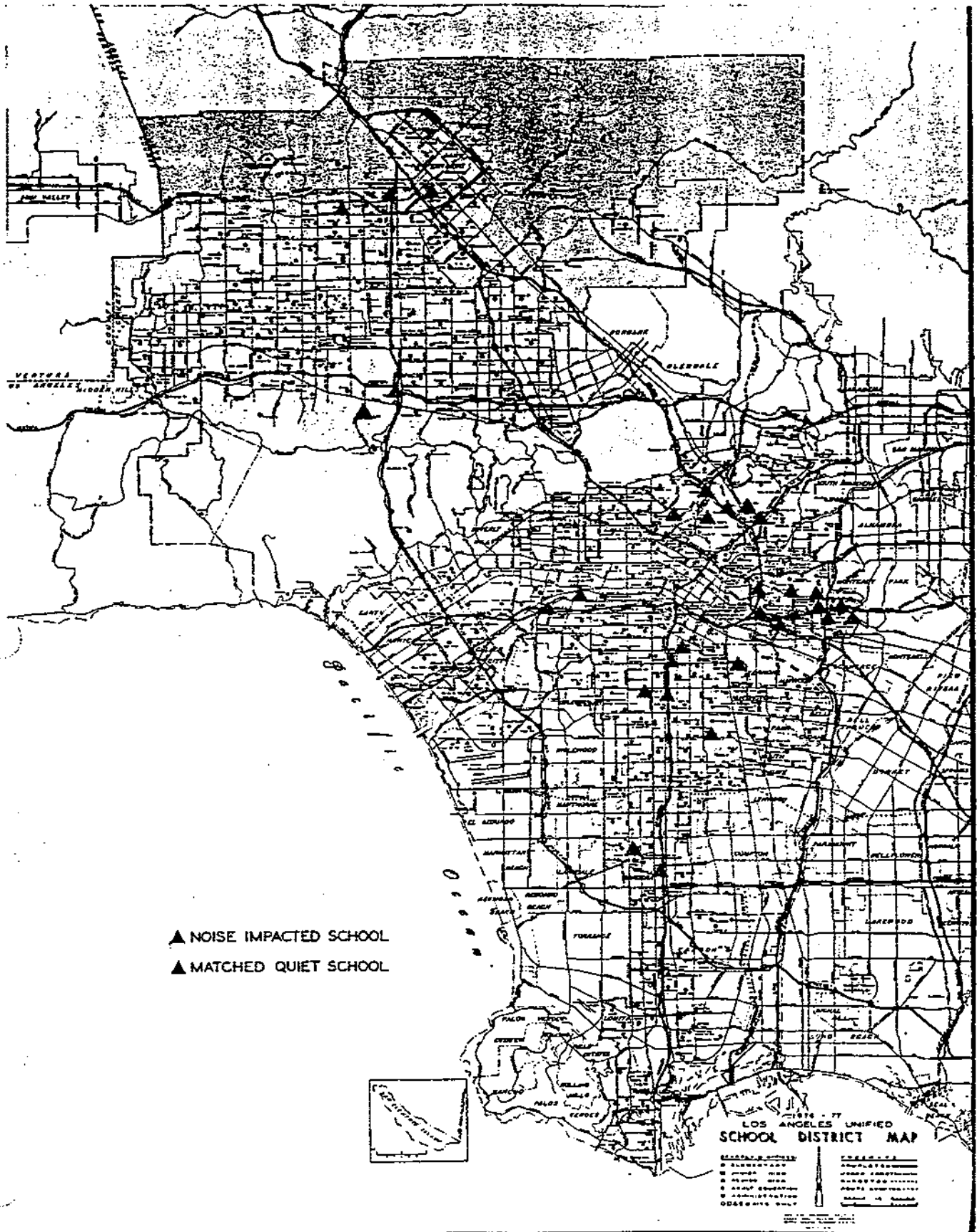
- DETERMINE CORRELATIONS BETWEEN ENVIRONMENTAL NOISE LEVELS, CHILDRENS' EXPOSURE LEVELS, HEARING LOSS AND ACADEMIC ACHIEVEMENT.
- DETERMINE THE DEGREE TO WHICH ENVIRONMENTAL NOISE MAY IMPEDE THE CLASSROOM PERFORMANCE OF TEACHERS AND STUDENTS.
- DEVELOP AN EMPIRICALLY BASED INTERIOR NOISE INTRUSION STANDARD FOR SCHOOL CLASSROOMS.

FIGURE 2

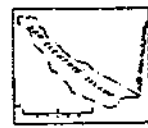
EFFECTS OF FREEWAY NOISE ON SCHOOL CHILDREN

DATA ELEMENTS

- ACADEMIC ACHIEVEMENT TEST SCORES
- AUDIOMETRIC PERFORMANCE
- SOCIOECONOMETRICS
- SCHOOL SITE NOISE EXPOSURE
- CLASSROOM NOISE EXPOSURE
- CLASSROOM NOISE INTRUSION CHARACTERISTICS
- FEEDER AREA ENVIRONMENTAL NOISE
- DWELLING SOUND ISOLATION
- INDIVIDUAL NOISE DOSE (DOSIMETER)
- AIR QUALITY - SCHOOL SITES
- AIR QUALITY - FEEDER AREAS



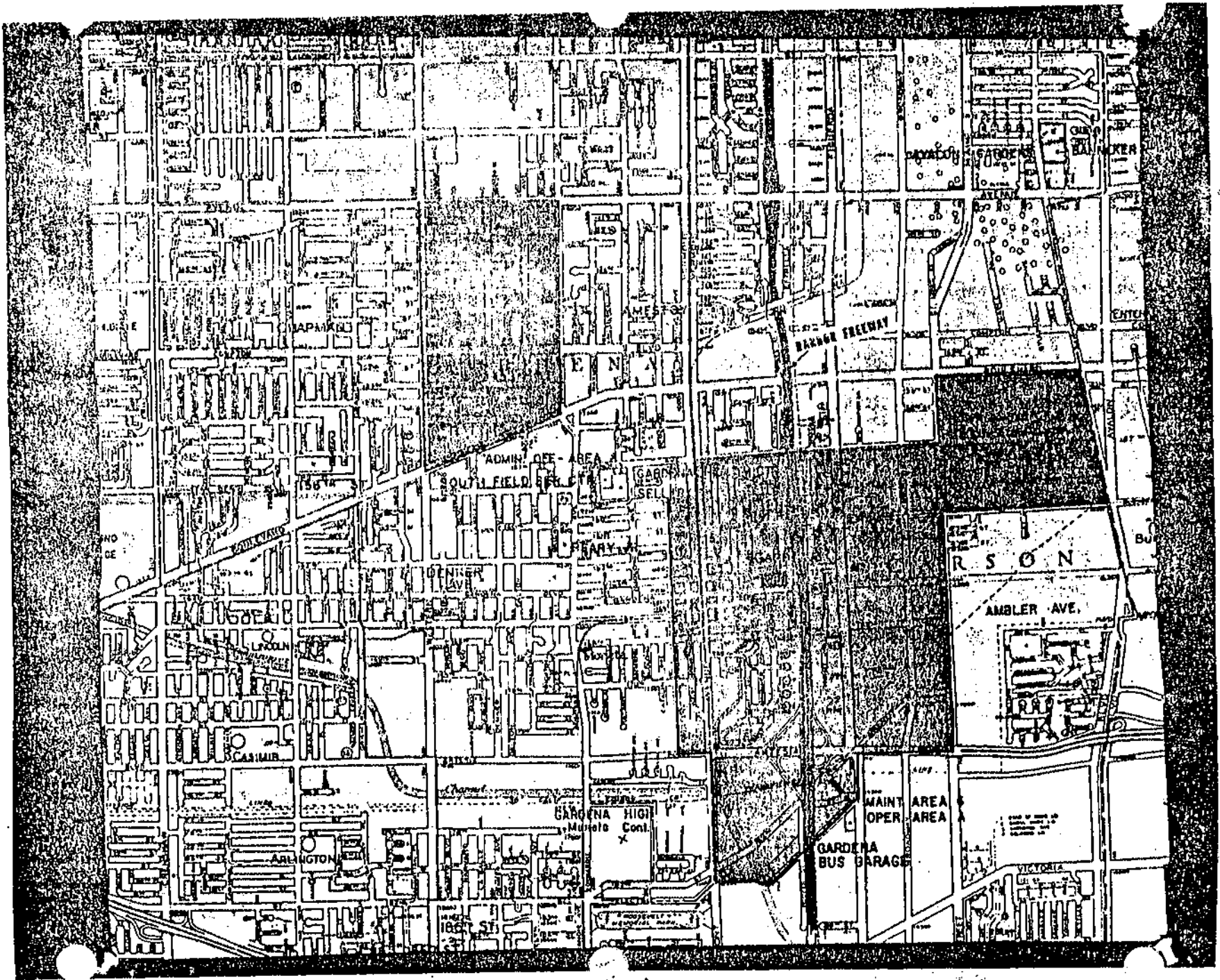
▲ NOISE IMPACTED SCHOOL
 ▲ MATCHED QUIET SCHOOL



1976 - 77
**LOS ANGELES UNIFIED
 SCHOOL DISTRICT MAP**

<ul style="list-style-type: none"> ○ ALL-PURPOSE ○ EXPRESS ○ SUPER HIGH ○ GROUP EXPOSITION ○ COMMUNITY CENTER ○ GAS & WATER ONLY 	<ul style="list-style-type: none"> ○ PARKWAY ○ LOCAL STREET ○ LOCAL STREET ○ LOCAL STREET ○ LOCAL STREET ○ LOCAL STREET
--	---

Scale: 1" = 1/4 Mile



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FIGURE 5

EFFECTS OF FREEWAY NOISE ON SCHOOL CHILDREN

SCOPE OF ENVIRONMENTAL MONITORING EFFORTS

ENVIRONMENTAL MONITORING	FIXED SITES	SITE DAYS	ROVING SITES	SITE DAYS
I. Community Noise				
• 15 School Sites	45	98		
• 15 Feeder Areas	66	290	30	107
II. Air Quality				
• 8 Schools				
24 Hour Pb	8	72	8	8
Outdoor CO	8	94	8	8
Indoor CO	8	19	8	8
III. Soil Lead				
• 31 Schools	124			

FIGURE 6

- COMMUNITY NOISE MONITORING -
SITE SELECTION

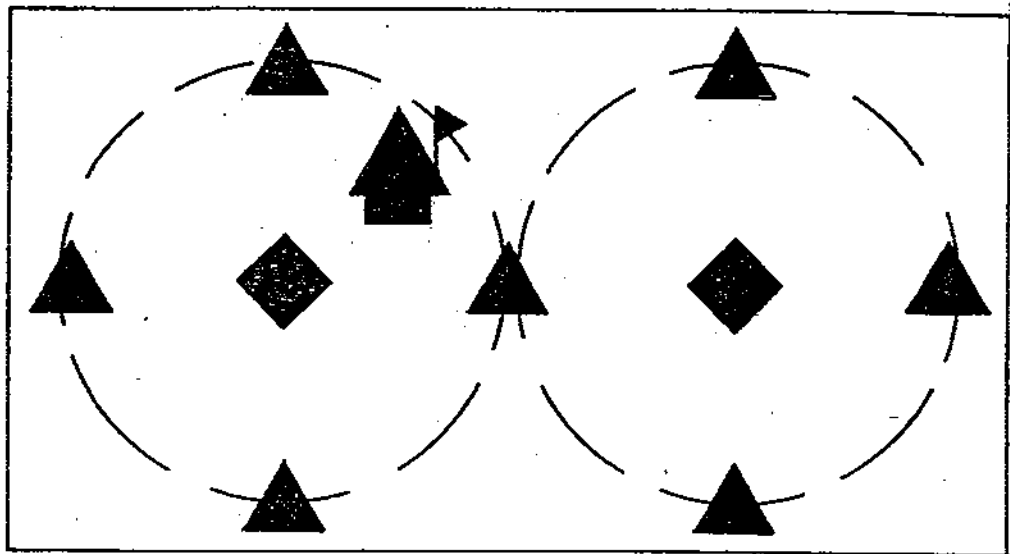
[SCHOOL FEEDER AREA \equiv SPATIAL SAMPLING UNIT (S.S.U.)]

- IDENTIFY RESIDENTIAL LAND USE
- DEFINE SAMPLING SUB-AREAS
- LOCATE CONTACT PERSON
- IDENTIFY CANDIDATES FOR "FIXED" MONITORING SITES
- CHOOSE FIXED AND ROVING SITES
- MICROPHONE PLACEMENT

FIGURE 7

SCHOOL FEEDER AREA SURVEY PLAN

(1.3 - 2.6 km²)



FIXED (CONTROL) SITE



PORTABLE SURVEY STATION

FIGURE 8

COMMUNITY NOISE SURVEY CATEGORIES
(WYLE LABORATORIES)

CLASS I

- ONE 20 + MINUTE MEASUREMENT PER SITE (WEEKDAYS).
- MEASURE DURING MID-DAY PERIOD: 9 AM - 4 PM
- ONE CLASS II CONTROL SITE.

CLASS II

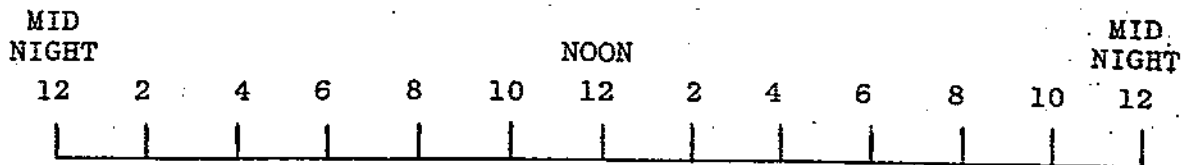
- ONE 20 + MINUTE MEASUREMENT PER SITE PER TIME PERIOD (WEEKDAYS)
 - MID-DAY: 9 AM - 4 PM
 - AM/PM TRAFFIC RUSH HOURS: 7 AM - 9 AM
4 PM - 6 PM
 - EVENING: 6 PM - 12 AM
 - NIGHT/EARLY MORNING: 12 AM - 6 AM
- ONE CLASS III CONTROL SITE.

CLASS III






- ONE 20 + MINUTE MEASUREMENT EACH HOUR PER SITE.
- CONTROL SITE - MONITOR BOTH WEEKDAYS AND WEEKENDS.

FIGURE 9

COMMUNITY NOISE SURVEY SCHEDULE
(GEN RAD MODEL 1945)



PORTABLE STATION SCHEDULE

TIME BLOCK					
NUMBER READINGS PER BLOCK	1	1*	2	1*	1

* MAY ALTERNATE DAY TO DAY

FIXED LOCATION SCHEDULE

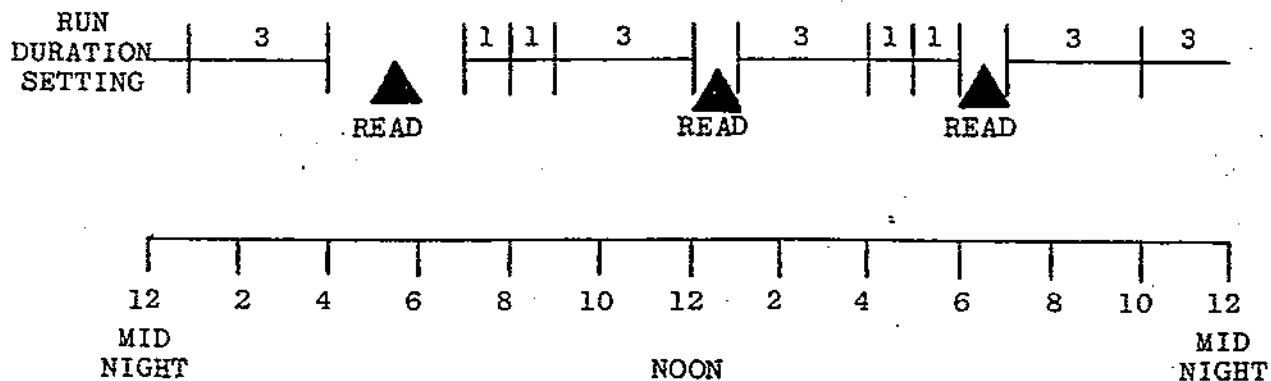


FIGURE 10

COMMUNITY NOISE SURVEY DATA SHEET

School: 6174 School

Sheet _____ of _____
 Date: 4/17/79
 Day: S M T W Th F S

EQUIPMENT: GR 1945

Serial No: _____

Weighting: (A) C Flat

(Fast) / Slow / _____ per sec.

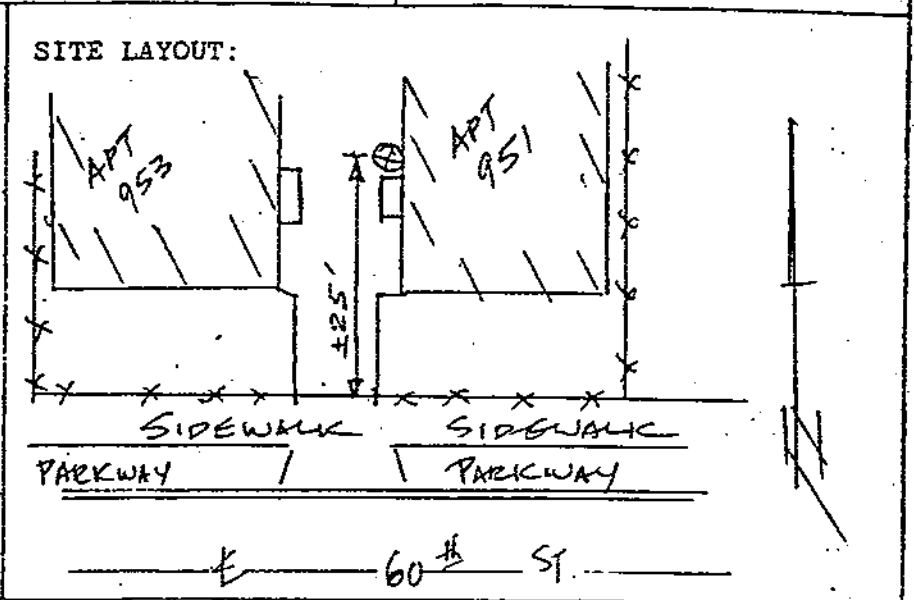
Microphone Height: 16'
 ABOVE GROUND LEVEL

WEATHER:

Wind Sp. _____ Direction _____

Temp. _____ Rel. Hum. _____

Other _____



Run	Duration	From	To	Run	Duration	From	To
1	One Hr	0700	To 0800	4	Two Hrs	1400	To 1600
2	One Hr	0800	To 0900	5	One Hr	1600	To 1700
3	Three Hrs	0900	To 1200	6	One Hr	1700	To 1800

Run	L _{max}	L _{0.1}	L ₁	L ₁₀	L ₅₀	L ₉₀	L ₉₉	L _{min}	L _{eq}
1	76	74	69	63	57	52	48	46	60
2	79	73	68	62	57	51	49	47	59
3	83	75	69	61	56	52	49	46	59
4	79	75	70	62	58	54	52	49	60
5	74	72	69	63	58	54	52	48	60
6	85	75	70	64	59	54	51	49	61

Approximate distance to major roadway/freeway: _____

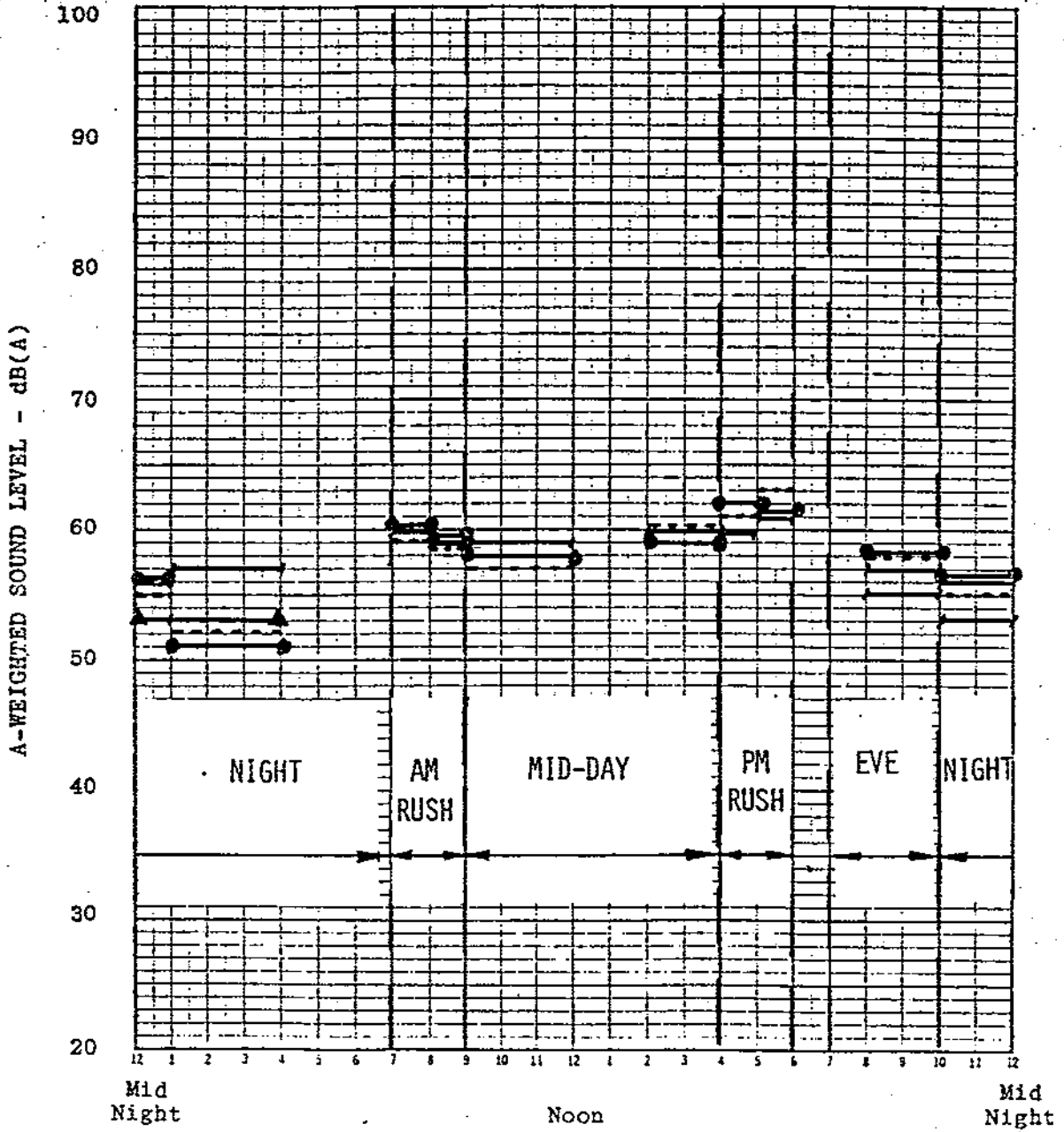
Comments: Site #3

By: J. Ito

FIGURE 11
 SAMPLE PRELIMINARY DATA REDUCTION SHEET

Location: 6174 SCHOOL
 SITE #3

Date(s): \blacktriangle — \blacktriangle 4/16/79 \bullet — \bullet 4/18/79
 \longleftarrow — \longrightarrow 4/17/79 - - - - 4/19/79



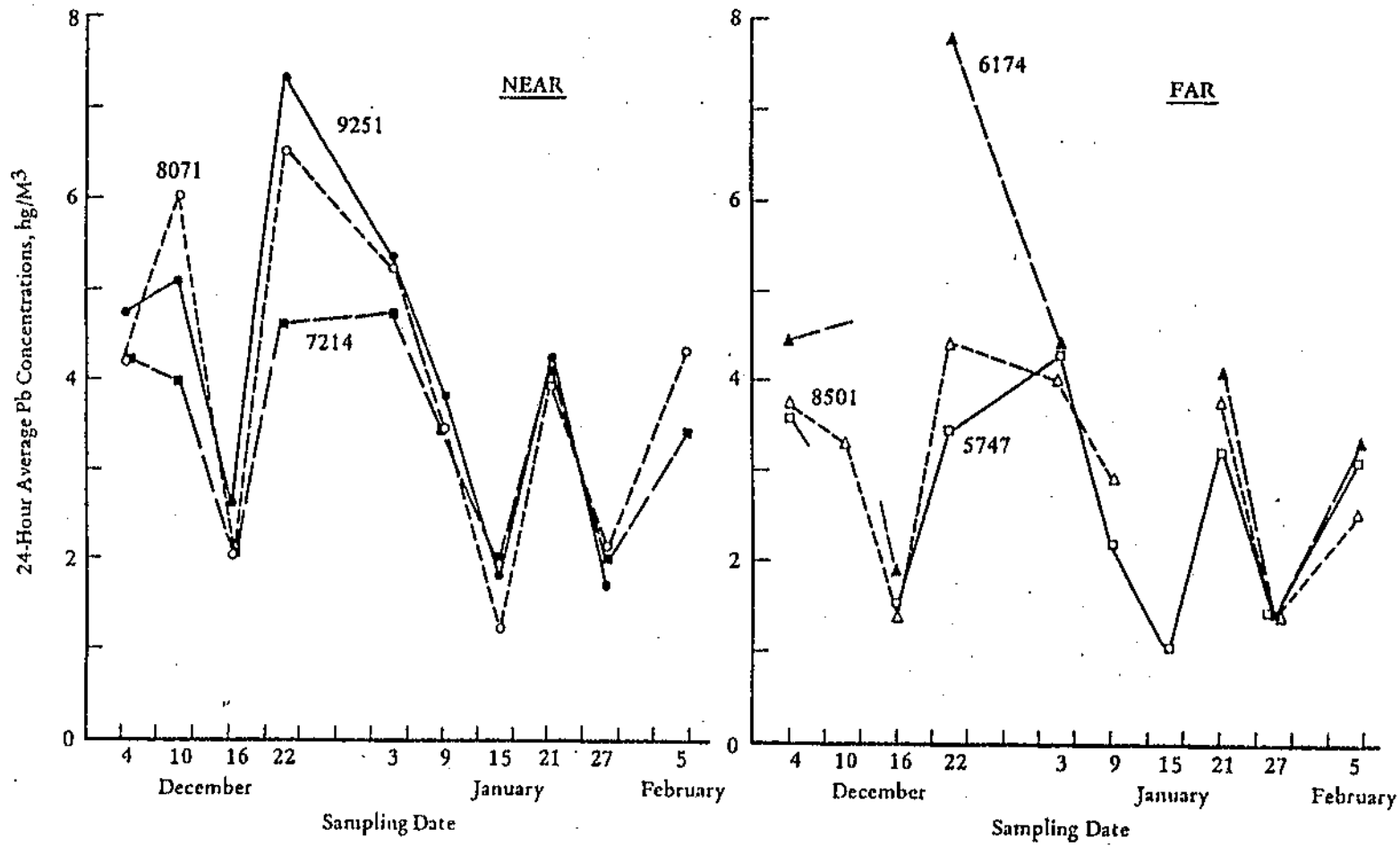


Figure 12. 24-Hour Airborne Lead Concentrations at Six Schools Varying in Proximity to Los Angeles Freeways.

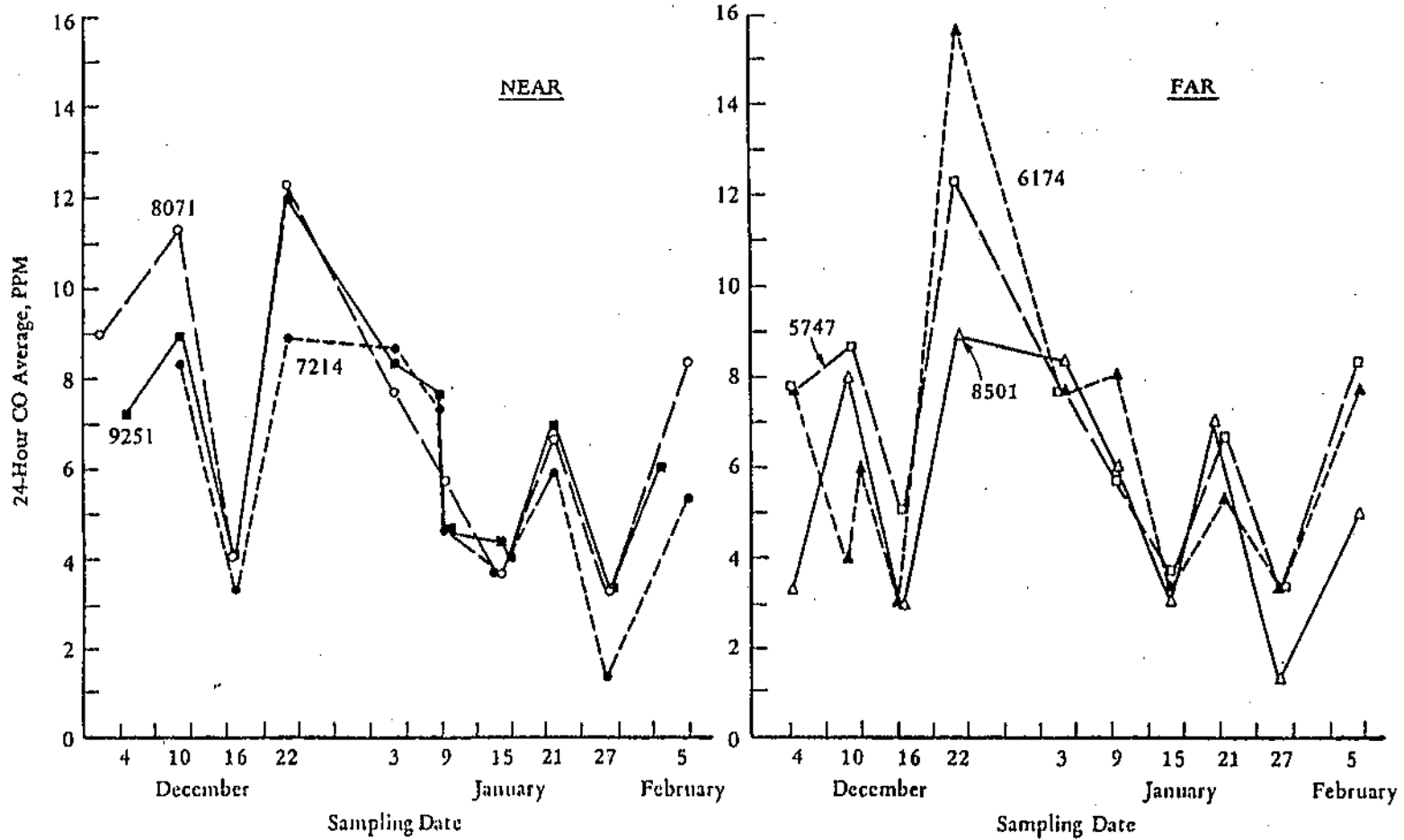


Figure 13. 24-Hour Outdoor Carbon Monoxide Concentrations at Six Schools Varying in Proximity to Los Angeles Freeways.

FIGURE 14

OUTDOOR CO LEVELS BY TIME OF DAY

9251

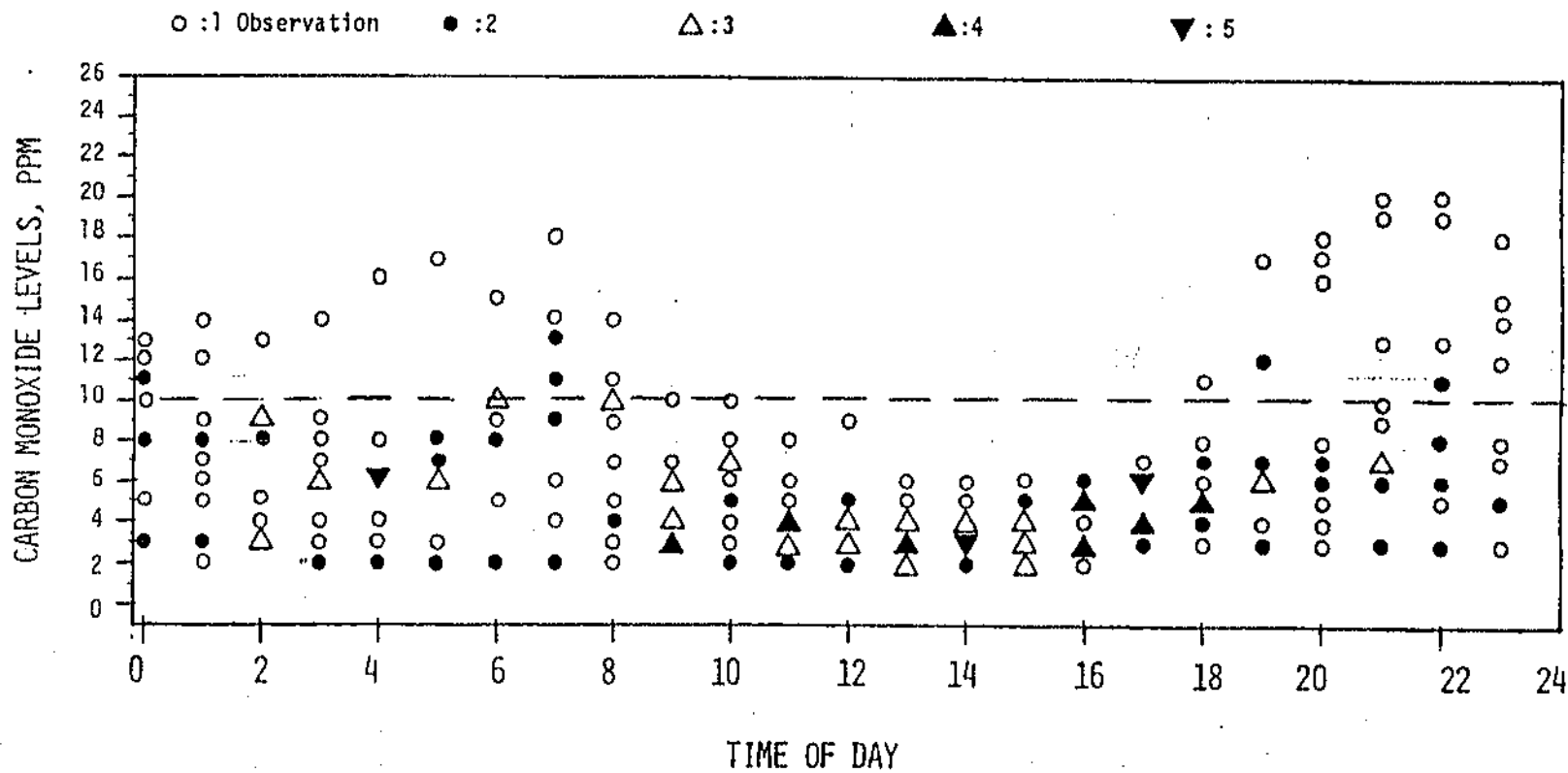
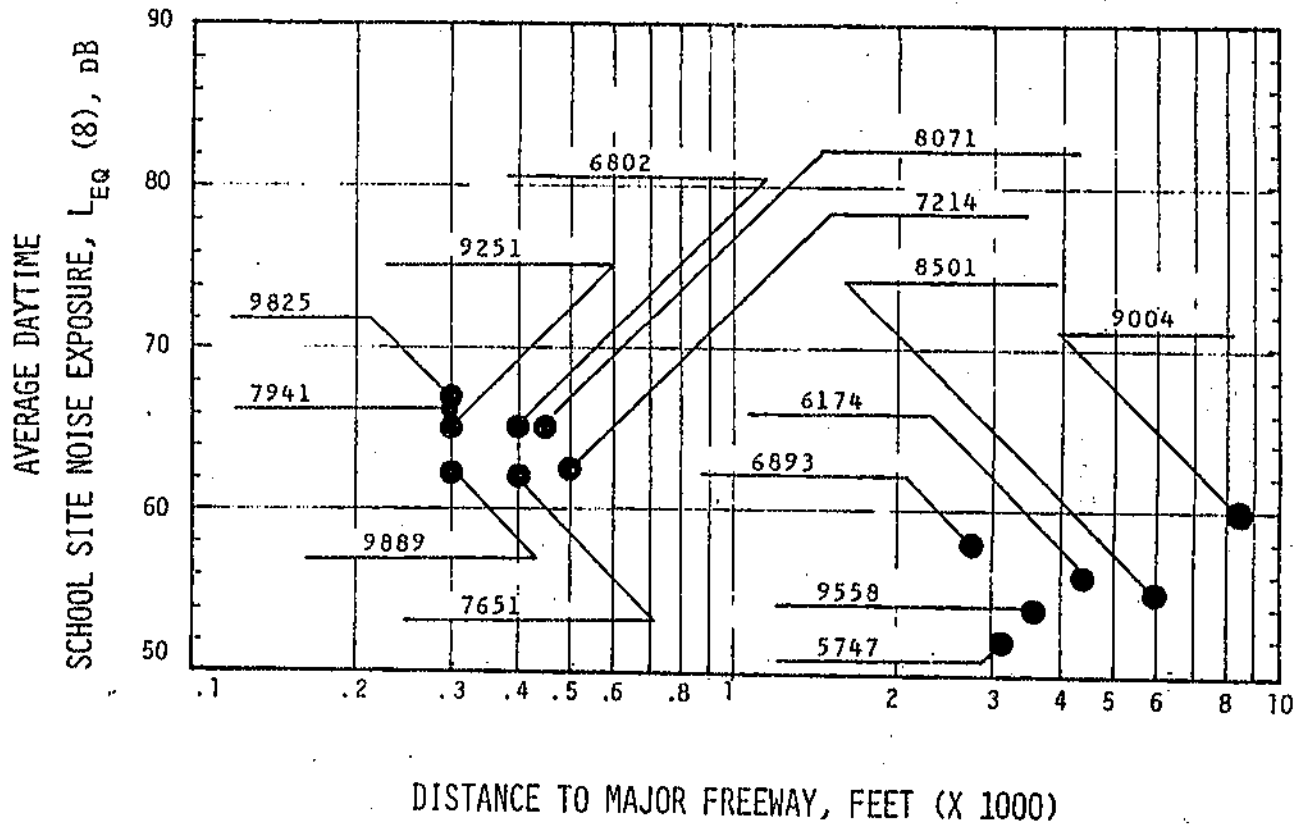


FIGURE 15

SCHOOL SITE NOISE EXPOSURE
RELATIVE TO FREEWAY PROXIMITY



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FIGURE 16

SCHOOL FEEDER AREA NOISE MONITORING

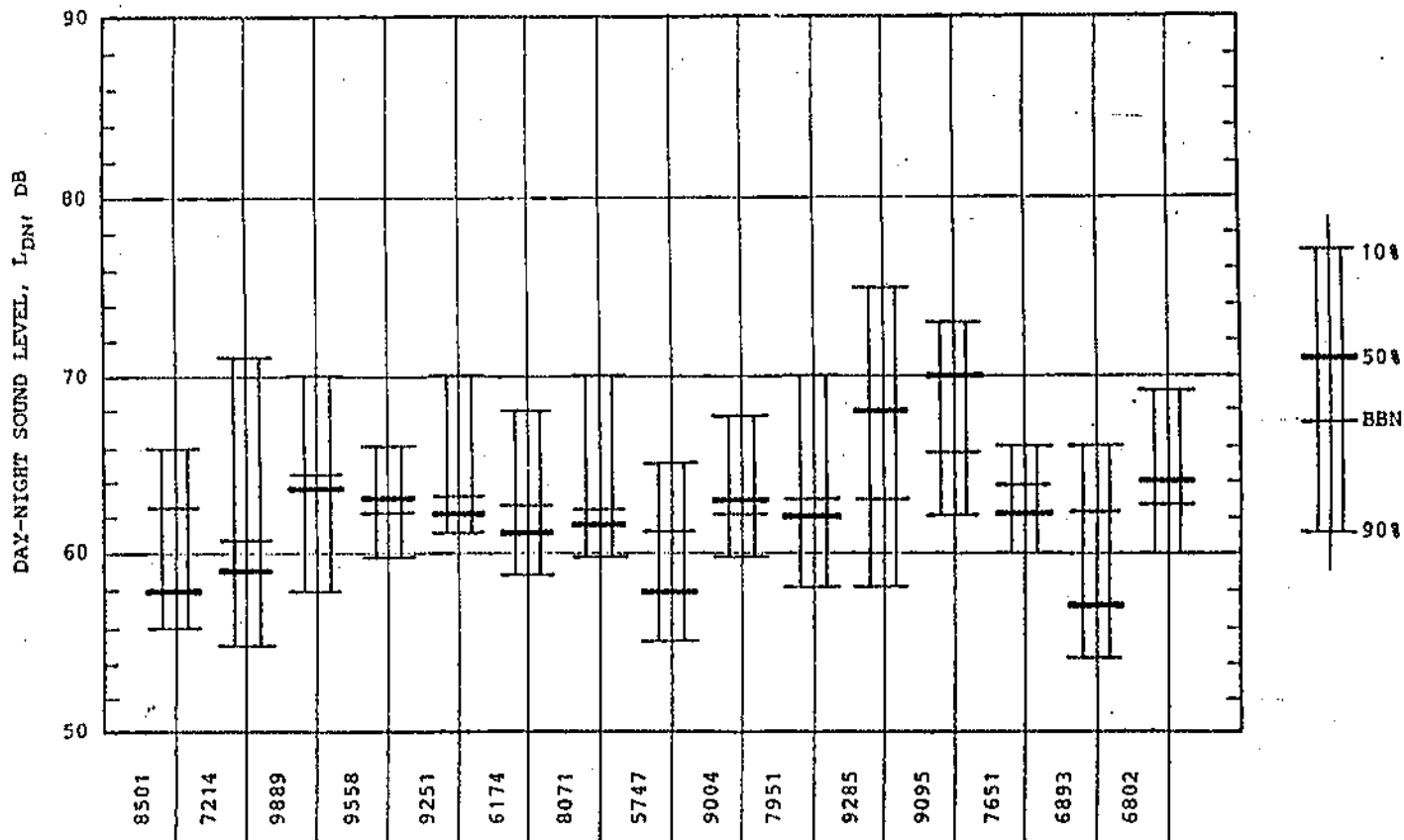
DAY-NIGHT SOUND LEVELS

L_{DN} , dB

FREEWAY	NON-FREEWAY	ALL SITES
(N = 22)	(N = 82)	(N = 104)
$\bar{x} = 68.4$	$\bar{x} = 62$	$\bar{x} = 63.3$
$\sigma = 4.2$	$\sigma = 4.1$	$\sigma = 4.9$

Figure 17

CUMULATIVE PERCENTAGES OF FEEDER AREA POPULATIONS
EXPOSED TO LEVELS OF ENVIRONMENTAL NOISE



NOISE LEVELS IN COMMUNITIES

SCHOOL	TIME	LMAX	L ₁	L1	L10	L50	L90	L99	LMIN	NPL	TNI	LEQ
5747	RUSH HOUR	94	75	68	61	56	53	51	38	65.5	61.4	58.7
	MIDDAY	97	76	70	64	59	54	51	38	72.6	70.8	61.4
	EVENING	83	73	65	58	54	50	49	34	63.4	63.4	56.6
	NIGHT	76	67	62	54	51	48	46	31	57.6	45.1	52.6
6174	RUSH HOUR	100	84	70	73	60	65	64	40	79.2	80.2	69.9
	MIDDAY	105	86	80	74	68	64	63	39	81.1	84.1	71.0
	EVENING	100	80	73	66	63	61	60	36	77.0	83.7	65.0
	NIGHT	95	76	69	63	59	57	56	33	72.2	83.6	61.5
6802	RUSH HOUR	102	79	71	64	60	58	57	46	66.4	53.2	62.2
	MIDDAY	94	79	72	67	64	61	59	45	70.6	56.6	65.0
	EVENING	91	74	69	62	59	56	54	45	65.8	52.6	60.6
	NIGHT	88	72	66	62	58	54	51	41	67.0	56.6	59.2
6893	RUSH HOUR	99	78	72	63	56	49	46	32	73.5	76.4	61.6
	MIDDAY	96	78	72	65	57	50	47	35	75.9	81.5	61.8
	EVENING	95	79	69	60	50	44	42	33	73.7	85.0	58.4
	NIGHT	96	74	63	55	42	38	36	28	68.6	90.1	53.2
7214	RUSH HOUR	101	78	72	67	63	60	58	26	71.7	64.2	64.7
	MIDDAY	104	78	72	67	63	60	57	31	72.9	67.2	64.9
	EVENING	92	76	69	63	58	54	51	39	70.4	69.1	60.9
	NIGHT	97	71	65	58	51	48	44	30	64.6	65.1	55.3
7651	RUSH HOUR	95	81	76	70	65	61	58	44	75.6	69.2	67.3
	MIDDAY	96	83	77	71	65	60	57	45	78.8	77.7	68.1
	EVENING	98	79	69	61	56	53	51	45	66.4	63.2	60.2
	NIGHT	87	71	64	57	52	48	45	36	63.1	60.8	54.3
7941	RUSH HOUR	88	72	66	60	56	54	53	47	62.1	46.1	58.8
	MIDDAY	89	71	66	59	56	54	52	43	62.3	48.9	58.4
	EVENING	87	70	64	58	55	53	52	45	60.9	43.9	57.3
	NIGHT	84	68	62	57	53	51	50	43	59.1	42.2	54.8
8071	RUSH HOUR	102	84	74	65	62	60	59	45	68.4	60.0	65.1
	MIDDAY	97	81	77	66	62	60	59	40	69.1	62.3	63.6
	EVENING	97	75	68	64	62	60	59	39	66.4	49.3	62.8
	NIGHT	97	72	66	62	59	56	53	34	65.8	51.9	59.1
8501	RUSH HOUR	90	76	69	63	58	52	50	35	74.3	77.2	60.2
	MIDDAY	96	75	68	62	56	52	50	42	69.0	67.2	59.6
	EVENING	101	79	69	62	56	51	49	42	72.1	76.4	60.1
	NIGHT	89	77	65	53	47	43	42	30	58.6	65.0	54.4
9004	RUSH HOUR	94	80	74	68	6	58	56	44	76.4	89.6	64
	MIDDAY	101	81	74	66	6	56	53	42	75.3	78.3	64
	EVENING	87	70	73	65	57	52	50	41	74.9	82.5	62.2

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Appendix D (Continued)

SCHOOL	TIME	LMAX	L_1	L1	L10	L50	L90	L99	LMIN	NPL	TNI	LEQ
9095	RUSH HOUR	92	80	74	70	67	64	62	51	72.7	57.0	67.7
	MIDDAY	94	81	76	71	68	65	63	52	74.4	60.2	68.6
	EVENING	97	80	73	68	64	61	59	48	72.8	62.4	65.8
	NIGHT	89	75	71	66	61	55	51	37	74.0	70.3	63.0
9251	RUSH HOUR	90	76	70	64	60	57	55	42	68.1	58.0	61.9
	MIDDAY	93	77	71	65	61	57	54	40	71.6	65.7	63.0
	EVENING	89	73	68	61	57	55	53	34	63.9	51.3	59.0
	NIGHT	92	72	65	59	55	52	50	32	63.5	54.5	57.4
9285	RUSH HOUR	101	84	79	73	68	65	64	42	76.9	68.8	70.3
	MIDDAY	108	84	78	73	69	66	64	43	77.1	69.7	70.2
	EVENING	101	82	76	70	65	62	59	42	75.6	70.2	67.9
	NIGHT	102	80	75	68	64	58	56	36	76.1	76.0	65.5
9558	RUSH HOUR	101	81	73	65	58	52	51	44	74.3	80.2	63.6
	MIDDAY	99	80	73	64	55	50	48	42	74.0	84.0	62.0
	EVENING	94	81	68	62	59	57	56	54	64.1	47.1	61.8
	NIGHT	89	76	66	60	57	56	54	49	61.9	42.7	59.1
9889	RUSH HOUR	93	77	72	66	62	59	57	33	70.2	65.0	63.4
	MIDDAY	120	82	75	70	64	62	59	39	75.2	82.2	66.7
	EVENING	106	79	73	65	60	57	53	39	71.7	72.8	63.7
	NIGHT	93	75	66	60	53	49	47	33	66.4	68.5	57.3

Appendix E

**Statement by Teacher for
Recording Normal Voice Level**

My name is *(state in full - e.g., Mrs. Harriet von Hobson)*. This is Room *(No.)* and the *(Number)* grade. This recording is to obtain a sample of the loudness of my voice. I normally speak to my entire class at this intensity.

Appendix F

Criteria for Use of Buttons During Classroom Observations

Note: All buttons must be held down for 1 second or more to insure an adequate electronic response.

Button Number

1. **Disregard:** Is for any event that is caused by "normal" sounds in the classroom. For example, school bell, paging a child or teacher over the school's intercom, visitors, library carts, etc.

Note: Children calling outside the classroom should not be a Disregard, particularly if such noise is distractive. Rather, it should be a Distract or Interrupt button.

Note: When any of the other buttons are pressed as a result of some internal (classroom) noise event, Disregard should be pushed immediately after releasing the other button in order to discriminate between external and internal noise events. On occasion this sequence was not followed; determination of the cause of "Can't Hear" or other event was discerned by listening to the tape.

Note: Fire and earthquake drills should be noted on written record.

2. **Can't Hear:** Is to be used when the observer is not able to hear and understand the teacher or student. The observer should use ears, not eyes, for this button - that is, do not attempt to lipread (the study is trying to estimate the percentage of time information cannot be heard or understood).

If the observer is unable to hear about 5 words or less, do not use Can't Hear button. If the observer is unable to hear or understand 6 or more consecutive words, push Can't Hear and hold until able to hear and understand. If unable to hear and press Can't Hear and the voice level increases, release Can't Hear and push Raise. Short answers (5 words or less) to questions that are not heard, for example, should be marked "Can't Hear".

3. **Rebuke:** Is to be used when the teacher calls the class or several individual students to order with or without a raised voice level. If noise was the cause, it should be possible to discern that from listening to the tape. Rebuke can be pushed as frequently as necessary, and should be held down until the class returns to order. Rebuke will vary with the teacher's particular style and will generally be of short duration. It may be: "Johnny!", "I'm waiting for quiet!", "I need attention!", etc. It may be silent - taking the child by the arm and walking to the hallway or outside the room.

4. **Interrupt/Pause:**

Interrupt: A 1-second press is to be used if the teacher or student stops an activity (talking, writing or reading) due to noise, and resumes the activity after the noise stops. The noise may be either internal or external in origin. The source of noise may be the freeway, airplane, helicopter, bus, fire truck, siren, etc.

Pause: Is 2 1-second presses to indicate a non-noise event, such as a student with a note from the office, a child being put in the hallway for discipline, students leaving to go to work in the cafeteria, etc. Use only if there is an obvious cessation of classroom activity.

5. **Distract:** Should be used in response to some external or internal event. When the children look around, fidget, or in some way lose their concentration, the **Distract** button should be pressed down and held for as long as necessary. **Distract** may be the result of a visitor - parent, teacher, principal, nurse, etc., entering the room. It may also be a loud or unusual noise from any source such as screech of brakes, freeway accident, car or truck "backfire", chair tipping over, microphone tipping over, breaking glass, etc. (N.B.: This event was observed very infrequently.) **Distract** may be followed by **Rebuke**.
6. **Raise** Is used if the teacher or student increases voice intensity. The increase may be in response to an increase in noise level from an internal or external source. It may be because one person is trying to get attention, children out for recess, or an increase in other external noise sources. **Raise** may be used after the fact and it is likely to be used that way. For example, voice level increases slowly, and consequently it may require some time before the voice level increases to the point the observer notices. When the teacher calls a single name at an increased level, push **Rebuke** rather than **Raise**. (N.B.: This event was almost never due to noise, rather it was associated with a "Rebuke".)
7. **Start/Stop:** To start an activity (recording period), push a variable number of times.

APPENDIX G

TABLE G-1

INTERCORRELATION MATRIX OF ALL VARIABLES
THIRD GRADERS - ENGLISH FLUENT

	Reading G.E.	Math. G.E.	Classroom Noise Levels							Articulation Index			Community				% White	% Black		
			Leq-C	L ₁ -C	L ₅ -C	L ₁₀ -C	Leq-A	L ₁ A	L ₅ A	L ₁₀ A				Leq-A	L ₁ A	L ₅ A	L ₁₀ A			
Math. G.E.	.855																			
Leq-C	-.248	.061																		
L ₁ -C	-.277	-.058	.952																	
L ₅ -C	-.286	-.018	.984	.987																
L ₁₀ -C	-.221	.054	.987	.973	.992															
Leq-A	-.135	.077	.833	.848	.833	.815														
L ₁ -A	-.074	.042	.746	.820	.772	.746	.956													
L ₅ -A	-.129	.050	.770	.816	.783	.760	.989	.977												
L ₁₀ -A	-.129	.068	.782	.810	.785	.761	.992	.966	.991											
A.I.	.128	-.059	-.896	-.874	-.885	-.876	-.893	-.861	-.850	-.875										
Leq-A	-.363	-.295	.174	.242	.208	.143	.185	.124	.161	.231	-.153									
L ₁ A	-.379	-.390	-.128	-.019	-.063	-.127	-.110	-.134	-.114	-.054	.144	.910								
L ₅ A	-.534	-.476	.130	.225	.187	.101	.161	.121	.151	.211	-.122	.965	.926							
L ₁₀ A	-.615	-.395	.608	.631	.634	.565	.482	.381	.437	.480	-.533	.764	.547	.786						
% White	.697	.645	-.303	-.404	-.363	-.315	-.374	-.365	-.395	-.393	.260	-.474	-.478	-.560	-.502					
% Black	-.342	-.699	-.247	-.160	-.208	-.214	-.180	-.114	-.156	-.182	.132	-.009	.105	.059	-.121	-.422				
% Hispanic	.021	.446	.424	.379	.411	.396	.421	.343	.409	.439	-.305	.253	.141	.225	.367	-.054	-.872			

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TABLE G-2

INTERCORRELATION MATRIX OF ALL VARIABLES
SIXTH GRADERS - ENGLISH FLUENT

	Reading G.E.	Math. G.E.	Classroom Noise Levels							Articulation Index			Community				% White	% Black		
			Leq-C	L1-C	L5-C	L10-C	Leq-A	L1-A	L5-A	L10-A				Leq-A	L1-A	L10-A	L99-A			
Math. G.E.	.782																			
Leq-C	-.651	-.225																		
L1-C	-.642	-.338	.931																	
L5-C	-.613	-.263	.960	.984																
L10-C	-.607	-.212	.980	.957	.990															
Leq-A	-.638	-.330	.861	.793	.839	.841														
L1-A	-.549	-.313	.793	.800	.831	.807	.917													
L5-A	-.536	-.304	.785	.777	.821	.800	.948	.985												
L10-A	-.514	-.254	.834	.796	.852	.841	.968	.947	.980											
A.I.	.383	-.114	-.679	-.630	-.678	-.678	-.709	-.603	-.620	-.668										
Leq-A	-.478	-.239	.381	.343	.401	.423	.545	.456	.497	.494	-.512									
L1-A	-.420	-.327	.212	.239	.248	.240	.377	.313	.333	.321	-.359	.910								
L10-A	-.337	-.142	.298	.247	.284	.306	.467	.337	.348	.363	-.491	.815	.854							
L99-A	-.544	-.051	.682	.535	.615	.680	.676	.470	.521	.574	-.684	.764	.547	.686						
% White	.676	.493	-.551	-.523	-.524	-.519	-.540	-.495	-.458	-.447	.393	-.474	-.478	-.513	-.502					
% Black	-.439	-.667	-.048	-.052	-.090	-.092	-.043	-.106	-.103	-.131	.357	-.009	.105	-.078	-.121	-.422				
% Hispanic	.104	.408	.323	.314	.356	.355	.352	.409	.395	.463	-.552	.253	.141	.371	.367	-.054	-.872			

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TABLE G-3

INTERCORRELATION MATRIX OF ALL VARIABLES
THIRD GRADERS - NON-FLUENT ENGLISH
TWELVE SCHOOLS

	Reading C.E.	Math C.E.	Classroom Noise Levels										Articulation Index			Community		% White	% Black
			Leq-C	L1-C	L5-C	L10-C	Leq-A	L1-A	L5-A	L10-A	Leq-A	L1-A	L10-A	L99-A					
Math. C.E.	.688																		
Leq-C	-.082	.050																	
L1-C	-.173	-.032	.762																
L5-C	-.158	-.049	.984	.800															
L10-C	-.127	-.017	.992	.792	.996														
Leq-A	-.245	-.031	.777	.617	.805	.788													
L1-A	-.290	-.095	.665	.593	.723	.697	.957												
L5-A	-.322	-.102	.691	.581	.738	.713	.986	.986											
L10-A	.142	-.071	.331	.294	.405	.376	.625	.665	.644										
A.I.	.107	-.007	-.905	-.679	-.905	-.903	-.921	-.847	-.871	-.625									
Leq-A	-.008	-.014	.193	-.040	.179	.159	.162	.022	.115	-.061	-.171								
L1-A	.021	.030	.041	-.123	.039	.026	-.067	-.215	-.125	-.176	.037	.913							
L10-A	-.157	-.175	.129	-.147	.139	.111	.124	-.003	.093	-.052	-.113	.963	.909						
L99-A	-.176	-.225	.584	.218	.584	.563	.427	.286	.371	.171	-.521	.775	.611	.807					
% White	.782	.632	-.124	-.103	-.170	-.147	-.297	-.273	-.348	-.017	.209	-.405	-.298	-.514	-.529				
% Black	-.276	-.590	-.430	-.202	-.435	-.428	-.340	-.360	-.311	-.269	.406	-.087	-.110	-.052	-.165	-.373			
% Hispanic	-.072	.358	.511	.259	.533	.520	.517	.524	.505	.300	-.545	.252	.250	.258	.350	-.033	-.904		

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TABLE G-4

INTERCORRELATION MATRIX OF ALL VARIABLES
SIXTH GRADERS - NON-FLUENT ENGLISH
TWELVE SCHOOLS

	Reading G.E.	Math. G.E.	Classroom Noise Levels								Articulation Index			Community			% White	% Black
			Leq-C	L1-C	L5-C	L10-C	Leq-A	L1-A	L5-A	L10-A	Leq-A	L1-A	L10-A	L99-A				
Math G.E.	.482																	
Leq-C	-.163	-.247																
L1-C	-.052	-.198	.940															
L5-C	-.075	-.187	.966	.982														
L10-C	-.127	-.217	.983	.956	.990													
Leq-A	-.080	-.341	.863	.772	.827	.841												
L1-A	.075	-.346	.802	.793	.835	.819	.944											
L5-A	.050	-.339	.784	.756	.815	.806	.949	.992										
L10-A	.010	-.261	.834	.775	.845	.845	.963	.957	.977									
A.I.	.365	-.109	-.660	-.548	-.618	-.634	-.682	-.540	-.554	-.621								
Leq-A	-.323	-.484	.337	.228	.310	.350	.519	.440	.481	.465	-.424							
L1-A	-.272	-.464	.148	.116	.141	.149	.315	.243	.260	.245	-.246	.900						
L10-A	-.127	-.246	.266	.156	.209	.245	.468	.319	.332	.345	-.431	.793	.839					
L99-A	-.289	-.240	.679	.486	.581	.659	.665	.505	.527	.566	-.683	.744	.513	.678				
% White	-.060	.172	-.622	-.675	-.652	-.620	-.675	-.670	-.627	-.586	.554	-.617	-.611	-.633	-.587			
% Black	-.258	-.584	-.023	.119	.024	-.016	-.033	.073	.008	-.108	.261	.198	.377	.086	-.182	-.334		
% Hispanic	.406	.448	.385	.272	.357	.372	.481	.393	.428	.507	-.543	.173	.005	.327	.503	-.280	-.793	

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Aircraft Noise and Children: Longitudinal and Cross-Sectional Evidence on Adaptation to Noise and the Effectiveness of Noise Abatement

Sheldon Cohen
University of Oregon

David S. Krantz
Uniformed Services University of
the Health Sciences

Gary W. Evans
University of California at Irvine

Daniel Stokols and Sheryl Kelly
University of California at Irvine

Longitudinal and cross-sectional data on effects of aircraft noise on elementary school children are presented as evidence for the effects of community noise on behavior. To examine the generality of previous laboratory findings in a naturalistic setting, the study assesses the impact of noise on attentional strategies, learned helplessness, performance on cognitive tasks, and blood pressure. Children were tested on the same measures twice, with a 1-year interval between sessions. A previous article reported cross-sectional findings from the first testing session. In the present article, longitudinal data are used to determine whether children *adapt* to the aircraft noise over the 1-year period and to assess the effectiveness of noise abatement interventions introduced in a number of noise-impacted classrooms. Additional cross-sectional data from the original testing session are also presented to provide further information on the utility of noise abatement. In general, there was little evidence for adaption to noise over the 1-year period. Noise abatement had small ameliorative effects on cognitive performance, children's ability to hear their teachers, and school achievement. The implications of the study for understanding the relationship between noise and behavior and resulting policy implications are discussed.

Although prolonged exposure to high-intensity noise can cause temporary and permanent losses of hearing (cf. Kryter, 1970), other general statements about the debilitating effects of routine noise exposure have to be made with considerably less confi-

dence. It is, of course, difficult to isolate the effects of a particular characteristic of a natural environment on the health and behavior of its occupants. Invariably the possibility exists that the people who choose (or are forced) to work or live in a noise-impacted environment are somehow different than those who work or live elsewhere. Moreover, environments that suffer from high levels of noise often have other characteristics (e.g., pollution, poor housing, high levels of population density) that may also deleteriously affect behavior and health.

In a recent article, Cohen, Evans, Krantz, and Stokols (1980) argue that the impact of noise (and other environmental factors) on health and behavior can best be assessed by a methodological strategy that combines the use of laboratory (experimental) and naturalistic studies. Laboratory studies direct our attention to categories of behavior and health that may be affected by noise and establish a causal link between noise and

The research reported in this article was supported by grants from the National Science Foundation (BNS 77-08576 and SOC 75-09224), the National Institute of Environmental Health Sciences (1 RO1 ESO176401 DBR), the Society for the Psychological Study of Social Issues, the University of Oregon Biomedical Fund, and the Uniformed Services School of Medicine (Clinical Investigation Grant 7208).

The authors are indebted to Laura Martin, Laurie Poore, Robyn Dawes, Jerry Lukas, Rich Haller, Ray Hyman, Nick Garshnek, the administrative staff, teachers, children, and parents of participating schools; the California Assessment Program; and the California Department of Health. We also wish to thank Michael Posner and Myron Rothbart for comments on an earlier draft.

Requests for reprints should be sent to Sheldon Cohen, Department of Psychology, University of Oregon, Eugene, Oregon 97403.

these behaviors. Naturalistic research helps to establish whether particular effects found in the laboratory also occur in real-life settings. Cohen et al. (1980) argue that an interplay between these two approaches provides a more complete understanding of the relationship between environmental stressors and behavior and generates the type of data necessary to influence public policy.

Recent laboratory research on the impact of high-intensity noise has directed attention to the possible effects of community and industrial noise on a number of nonauditory systems. For example, noise is associated with alterations in task performance (cf. Broadbent, 1978; Loeb, 1979), decreased sensitivity to others (e.g., Cohen & Lezak, 1977; Mathews & Canon, 1975), and elevation of a number of nonspecific physiological responses (cf. Glass & Singer, 1972; Kryter, 1970). Exposure to noise that is unpredictable and uncontrollable can also result in *aftereffects*—deficits in performance and social sensitivity that occur after the noise is terminated (e.g., Glass & Singer, 1972; also see review by Cohen, 1980). The difficulty with this research is that it emphasizes acute rather than long-term noise effects. Thus, its implications for those suffering prolonged exposure in their homes or at work are unknown.

Although investigators have also begun to take a closer look at the nonauditory effects of noise in naturalistic settings (see reviews by Cohen, Glass, & Phillips, 1979; Kryter, 1970; Miller, 1974), methodologically tight studies are rare. This research also tends to be atheoretical and thus difficult to compare with existing laboratory work. Moreover, there are few *longitudinal* studies of people living and/or working under noise. Thus, it is unknown whether prolonged noise exposure results in increasingly deleterious effects or whether those exposed for prolonged periods adapt to noise, with effects disappearing after awhile. Studies comparing measures of health and behavior of the same person before exposure, immediately after exposure begins, and at set intervals for 1 or several years would allow us to determine the long-term course of stress and adaptation. In addition, longitudinal studies in situations in which the environmental stressor

is removed or attenuated would make it possible to determine whether there are long-term aftereffects of prolonged noise exposure.

Accordingly, this article reports data from the Los Angeles Noise Project—a longitudinal study of the impact of aircraft noise on elementary school children. The study was designed to examine the course of adaptation and the impact of a noise-abatement intervention on a variety of physiological, cognitive, and motivational measures. It is particularly concerned with exploring the generality of laboratory work on noise-induced shifts in attentional strategies, feelings of personal control, and nonauditory physiological responses related to health. (Findings from noise-induced laboratory exposure are discussed more fully in Cohen et al., 1980).

In this study elementary school children living and attending school under the air corridor of a busy metropolitan airport were compared with a matched group of children living in relatively quiet neighborhoods. In an earlier article, Cohen et al. (1980) reported cross-sectional data indicating that children from noisy schools had higher systolic and diastolic blood pressures than those from matched control schools and that this difference was greatest in children with the fewest years of exposure. Noisy-school children were also more likely to fail on a cognitive task and more likely to "give up" before the time to complete the task had elapsed. Finally, children from noisy schools who had lived in the neighborhood less than 2 years were less distractible than their quiet-school counterparts, whereas those children living under noise for more than 4 years were more distractible than those from quiet schools.

As part of a settlement of a law suit brought by the school systems against the airport, money was made available to lower the interior sound levels of many of the schools in the landing corridor. During the summer following the collection of data for the Cohen et al. article, architectural interventions were instituted in 43% of the noisy-school classrooms. These interventions resulted in a substantial decrease in noise levels in treated rooms (data presented later).

Thus, a large number of noisy-school children spent the following school year in noise-abated classrooms. At the end of the school year (1 year after original testing), children who were still enrolled in their schools (noisy and quiet) were retested on the original measures.

This article uses these longitudinal data and some previously unreported cross-sectional data from the first testing session to answer two questions about the long-term impact of aircraft noise on elementary school children. First, do children retested 1 year later continue to show effects found during the first testing session or do they *adapt* to the noise over the 1-year period? Cross-sectional data reported in the earlier article found some evidence for decreasing effects suggestive of physiological (blood pressure) habituation as duration of exposure increased, but failed to indicate adaptation of annoyance, cognitive performance, or helplessness. Second, what are the effects of noise abatement interventions in the classrooms on the various measures of health and behavior? That is, does assignment to a quieter classroom ameliorate the effects of noise?

Method

Overview of the Study

The subjects were children attending the four noisiest elementary schools in the air corridor of Los Angeles International Airport and three control (quiet) schools with similar (matched on social class and race) student bodies. Peak sound level readings in the noise schools are as high as 95 dB (A), and the schools are located in an air corridor that has over 300 overflights a day—approximately one flight every 2½ min. during school hours (Lane & Meecham, 1974). The study focuses on effects occurring *outside* of noise exposure. Thus, all tasks and questionnaires (except the achievement test records gathered from school files) were administered in a quiet setting—a noise-insulated trailer parked directly outside the school. Students were tested first in the spring of 1977 (T1) and again in the spring of 1978 (T2).

Tasks administered during the test periods were designed to assess feelings of personal control and to determine whether the children employed some common attentional coping strategies. Children were also asked a number of questions about their response to home and classroom noise and had their blood pressures measured. At the time of the first (but not the second) testing session, a parent questionnaire dealing with parent response to noise, mother's, and father's level of education, and the number of children in the family was sent home

with each child. Scores on standardized reading and math tests and data on absenteeism were also collected from school files at the time of the first (but not the second) session.

Data from subjects who were tested at both testing sessions (longitudinal data) were analyzed to determine if noise effects adapted—decreased or disappeared—over the 1-year interval between sessions. Separate analyses (both cross-sectional and longitudinal) were conducted to evaluate the effectiveness of the noise-abatement interventions. The cross-sectional data were collected during the first testing session and compared children who were in noise-abated classrooms with those in noisy (nonabated) rooms as well as those who were from quiet schools. The longitudinal analyses looked at the changes in the response of children who moved from a noisy to a noise-abated classroom in contrast to those children who spent both years in noise-impacted rooms.

This section will provide short descriptions of the experimental tasks and procedures. The reader is referred to Cohen et al. (1980) for additional detail.

Matching

Three control schools (quiet schools) were matched with the experimental schools for grade level, ethnic and racial distribution of children, the percentage of children whose families are receiving assistance under the Aid to Families With Dependent Children program, and the occupations and educational levels of parents. (Detailed data on matching are reported in Cohen et al., 1980). Thus, we were able to compare samples of children attending noisy and quiet schools who were relatively similar in terms of age, social class, and race. A regression analysis procedure (described later) allowed additional control over these factors.

Subjects

The study included children from all noise-impacted third- and fourth- grade classrooms in each noisy school as well as children from an equivalent number of classrooms in quiet schools. To assure that performance differences between children from noisy and quiet schools could not be attributed to noise-induced losses in hearing sensitivity, children failing (either ear) an audiometric pure tone threshold screening (500, 1000, 2000, 4000 Hz at 25 dB) were not included in the study. Six percent of the noisy-school and 7% of the quiet-school children failed the screening.

Noise Measures

Testing session 1: Interior sound levels (without children) were measured inside each classroom with Traoustics Sound Level Meters (SLM S2A). Peak decibel level (A scale) was recorded during 1-hour sessions in both the morning and afternoon. It is important to note that due to limitations in the equipment and duration of the measurement, these measures are presented only to establish *relative* differences between the sound levels of various types of classrooms, not as evidence for sound-level criterion or threshold levels of effects.

Testing session 2: Sound levels (again without chil-

dren) were measured inside each classroom for 1 hour during the morning and 1 hour during the afternoon with Digital Acoustics (DA605), B and K (4426), and General Radio (1945) noise-level analyzers.¹ The machines were calibrated to a pure tone source every other day and were periodically calibrated against one another to ensure intermachine reliability. Microphones were placed approximately 3 feet (.9 m) from the ground in the center of the room. Data available from all machines included peak decibel level (A scale), the decibel level exceeded 33% of the time (L_{33}), and the noise level averaged on an energy basis over each hour period (L_{EQ}).

Parent and Child Questionnaires

The questionnaire administered to each child assessed his/her perception of classroom and home noise levels. The parent questionnaire (T1 only) also included questions on perception of home noise level as well as queries as to how long the child had been enrolled in his/her school and how long she/he had lived at the present address. Data on school enrollment were also available from school files.

Blood Pressure and Health

Each child's resting blood pressure (systolic and diastolic) was taken each testing day on an SR-2 Physiometrics automated blood pressure recorder.² Blood pressure data are based on the mean systolic and diastolic pressures for these two measurements. The graphic output of the machine was coded after the study was completed, with coders blind to experimental condition. Each child's height and weight were also measured. Absenteeism was used as an indirect measure of health, since absence from school is often attributable to illness. These data were available from school files.

Helplessness

Performance on a cognitive task preceded by a success or failure experience was employed to examine the effect of noise on response to failure and on persistence on a difficult task. Response to failure is a standard measure of susceptibility to helplessness (cf. Seligman, 1975). Thus, if noisy-school children are more susceptible to helplessness, they will show greater effects of a failure experience than their quiet-school counterparts. A lack of persistence ("giving up" syndrome) is considered a direct manifestation of helplessness.

First testing session. Each child was given a treatment puzzle to assemble after the tester demonstrated the task with another puzzle. One half of the children received an insoluble (failure) puzzle and one half a soluble (success) puzzle. The soluble puzzle was a circle, and the insoluble puzzle was a triangle. After time (2½ min.) was up on the first puzzle, the child was given a second, moderately difficult puzzle to solve. The second (test) puzzle was the same—a square—for all (success and failure) children. The child was allowed 4 min. to solve the second puzzle. Whether the puzzle was solved, how long the solution took, and whether the child "gave up" before the 4 min. had elapsed were used as measures of helplessness.

Second testing session. Treatment puzzles were not readministered during the second session. Each child was given only the test (square) puzzle to solve. As previously, the child was allowed 4 min. to solve the test puzzle, with the same measures of helplessness assessed as in the earlier testing session.

During T1, a large proportion (34%) of the children assigned to the success condition who received a soluble treatment puzzle failed to solve the treatment puzzle within the 2½ min. allowed. Although the fact that a number of children self-selected themselves into a failure condition makes it difficult to interpret main effects for success-failure and interactions between success-failure and noise, comparisons between the children from noisy and quiet schools, irrespective of (controlling for) their pretreatment, are of primary interest.

Distractibility

It was proposed in our earlier article (Cohen et al., 1980) that children reared in noisy environments become inattentive to acoustic cues (cf. Cohen, Glass, & Singer, 1973; Deutsch, 1964). Since children who are relatively inattentive to acoustic cues should be less affected by an auditory distractor, distractibility was used as a measure of this selective inattention. Subjects performed a crossing out *Es* task under both ambient and distracting conditions. The subject's task was to cross out the *Es* in a 2-page passage from a sixth-grade reader. Each subject worked on a short practice paragraph and then on the task for 2 min. Two versions (different samples of prose) were used.

In a distraction condition, the child worked on one of the versions of the task while a tape recording of a male voice reading a story was presented at a moderate volume over headphones. In the no-distraction condition, the alternative form of the task was completed with headphones on but under ambient sound conditions. The distraction and no-distraction tasks were administered on different testing days. Both the order of alternative versions of the task and the experimental conditions were counterbalanced. The criterion measure was performance (percentage of *Es* found) on the distraction task after these scores were adjusted for no-distraction performance. It was expected that children from noisy schools would be less affected by distraction.

¹ The noise-level analyzers, which were not available to us during the first testing session, were used during the second session because of their increased sensitivity and accuracy and their ability to provide various measures of noise over time, for example, L_{EQ} and L_{33} . It is, however, appropriate to again caution the reader that the rather short interval of measurement limits the use of these data to the establishment of relative sound levels of classrooms in the various conditions.

² This instrument is an electronic infrasonic device that records on a rotating paper disc. Measurements were taken with a rubber cuff entirely encircling the upper arm. The reliability of this device for blood pressure measurement in children has been established in previous work (e.g., Voors, Foster, Frerichs, Weber, & Berenson, 1976).

Table 1
Overview of the Analyses

Title of analysis	Sample	Classroom noise condition		Additional independent variable/conditions
		1977 (T1)	1978 (T2)	
I. Attrition bias	T1	Noise vs. quiet		Retested at T2? Yes No None
II. Adaptation to noise	Attrition (T1 & T2)	Noise* ——— Noise vs. Quiet ——— Quiet		
III. Blood pressure: Habituation or attrition?	T1	Noise vs. quiet		Migration Not enrolled in school 1 year after T1 vs. Enrolled in school 1 year after T1 but not 2 years later vs. Still enrolled 2 years after T1 None
IV. Noise abatement: Cross-sectional analyses	T1	Noise vs. abated vs. quiet		None
V. Noise abatement: Longitudinal analyses	Attrition (T1 & T2)	Noise ——— Noise vs. Noise ——— Abated		None

* The few classrooms that had had noise-abatement work completed prior to T1 are included as noisy classrooms in these analyses. This was done in order to make these analyses comparable to those reported in Cohen et al. (1980) and is justified by the findings reported in this article suggesting little if any effect of abatement.

School Achievement

The scores on the California Test of Basic Skills (California Assessment Program, 1976) reading and math tests (administered during the second and third grades by the school system) were gathered from school files, and the Wepman (1958) auditory discrimination test was administered individually to children in the soundproof van. The Wepman test measures the child's ability to discriminate between pairs of words that differ from each other in either initial or final sound, for example, "sick-thick" or "map-nap."

To roughly equate the effect of the noise and quiet conditions on the aptitude of the children at the time they entered school, analyses of school achievement and auditory discrimination scores included an additional control for the mean cognitive abilities (standardized test administered by school) of the child's class on entering the first grade.

Analyzing and Interpreting Data

The answers to our questions about adaptation to noise and abatement effectiveness each require different blockings (or groupings) of the noise variable and analyses of different subsets of the sample. Table 1 provides an overview of these analyses. It may be useful for readers to refer to this table while reading the results sections of the article.

To avoid confusion about exactly which analysis and/or data set is being employed at any point, we will present two consecutive sets of results and discussions. The first will examine the question of adaptation and the second the question of the effectiveness of the noise-abatement interventions. These sets will be followed by a short section on the overall implications of the study.

The general statistical model (described below) was used in all data analyses reported in this article. Biases in subject attrition (also described below) are important in aiding interpretation of all longitudinal analyses. Attrition bias is not an issue in the interpretation of cross-sectional analyses, which involve only T1 data and thus include the entire T1 sample.

Statistical analyses. A regression technique was used in all the analyses reported in this article to allow additional control over the effects of socioeconomic and demographic factors (cf. J. Cohen & Cohen, 1975). All data analyses include controls for the number of children in the child's family, grade in school, months enrolled in school, and race. These control factors, forced into the regression first, are then followed by noise, and then the interaction between noise and months enrolled in school.³ Additional controls are used in the analyses of

³ To avoid confusion, the reader should note that two distinct terms are used to refer to different time frames. T1 and T2 refer, respectively, to the first and second testing sessions, separated by 1 year. The term "months

blood pressure (height and ponderosity), school achievement (cognitive aptitude test), and distractibility (performance under ambient conditions). The primary helplessness analyses include factors for success-failure and the interaction between success-failure and noise. (Those who solved and those who did not solve the success treatment puzzle are treated as separate groups.) Analyses of longitudinal data also include a repeated measure factor (Testing Session 1, Testing Session 2).⁴ School achievement analyses were performed with classrooms (nested in noise) rather than with individual children, as the unit of analysis. A more detailed description of the form of each analysis is provided in Cohen et al. (1980).

The various measures were analyzed in predetermined multivariate clusters created on the basis of theoretical consideration.⁵ This form of analysis helps to decrease the probability of chance findings that occur when a large number of analyses are necessary (cf. Bock, 1975).

Interpreting longitudinal analyses: Sample attrition bias. An effort was made to retest all students who were attending school during the longitudinal follow-up. Sixty-two percent (163: 83 noise and 80 quiet) of the original sample (262: 142 noise and 120 quiet) were retested. Although a slightly higher proportion of quiet-(67%) than noisy-(58%) school children were retested, this difference was not statistically significant, $\chi^2(1) = 1.99, p < .16$.

All data analyses that include data from the second testing session (these are all repeated measures designs) were based on the 163 retested students—the *attrition sample*. Sample attrition (not being retested) may be attributable to either migration or absenteeism. It is our purpose at this point in the article to describe the nature of any self-selection bias in the retest sample; thus, these causes of attrition are not separated.

The purpose of the attrition bias analyses was to determine whether remaining in the study (being retested) was correlated with one or more of the criterion variables in one of the study's conditions (noise or quiet) but not in the other. For example, noisy-school children who were *not* retested had higher blood pressures than those who were retested; whereas being retested was unrelated to blood pressure for quiet-school children. This particular attrition bias resulted in a deflated mean blood pressure for noisy-school children in analyses of the attrition sample. As a result, there is a lessening of the difference between mean blood pressures of noisy- and quiet-school children. It is important to note cases in which the lack of a main effect for noise in the attrition sample is due to selective attrition as opposed to adaptation to noise or problems with measure reliability. To determine whether any such biases occurred, data from the first testing session (all of the original 262 subjects) were analyzed with whether a student was retested (yes/no), and a Retest \times Noise interaction added to the standard analysis (see Table 1, I). Note that these analyses are not presented in an attempt to make any conclusions about those who were retested versus those who were not but only to provide information about the nature of the attrition bias that may be useful in interpreting anal-

enrolled in school" refers independently to the length of time the child was enrolled in school at T1.

yses presented later in this article. For this reason, a rather liberal alpha level (.10) was employed, and multivariate analysis is not reported.

A retest bias occurred on a number of the dependent variables. On all of these variables, those in the noise condition who showed the greatest stress during T1 were not present at T2. No such relationship (or in some cases a slight reversal) existed in the quiet group. The variables with Noise \times Retest interactions suggesting this pattern were the child's perception that noise made it difficult to hear their teacher, $F(1, 241) = 3.46, p < .06$, and systolic, $F(1, 233) = 8.65, p < .004$, and diastolic, $F(1, 233) = 3.39, p < .07$, blood pressure.

Adaptation to Noise

Results

To determine whether or not the children adapted to the noise over the 1-year period, data from the attrition sample (those who were tested at both T1 and T2) were analyzed in a repeated measures design, with Testing Sessions 1 and 2 constituting the repeated measure (see Table 1, II). The occurrence of the same difference between noise and quiet schools at both T1 and T2 (main effect for noise) provides evidence for test-retest stability. A diminution of the T1 difference between noise and quiet at T2 (Noise \times Testing Session interaction) suggests the possibility of progressive adaptation to the noise stressor. Finally, an increased difference between noise and quiet at T2 (Noise \times Testing Session interaction) suggests that increased exposure results in an increased effect of noise.

It is important to note that these analyses include only the attrition sample (163), that is, those who were enrolled and present during the second testing session. Thus, vari-

⁴ Two new variables, sum (T1 + T2) and difference or change score (T1 - T2), were created for each dependent variable. Then separate regression analyses were conducted on each of the new variables. Analyses of the sum score reflect differences between groups, irrespective of the testing session, whereas analyses of change scores reflect differences between testing sessions over groups. The results of these analyses are mathematically equivalent to a standard repeated measures analysis with two levels of the repeated measure (cf. Overall & Klett, 1972).

⁵ There are separate clusters for general health, blood pressure, helplessness, and the child questionnaire. The distraction analyses were run as univariates, since each analysis required a unique control factor.

ables that were related to attrition for noisy-school (but not quiet-school) children, including the child's perception of classroom noise and the blood pressure measures, are unlikely to show noise effects in this analysis.

Children's perceptions of noise. Main effects of noise for children's reports of how much airplane noise bothered them at home, $F(1, 145) = 3.62, p < .05$, and in the classroom, $F(1, 145) = 15.74, p < .001$, suggest that those attending noisy schools report high levels at both testing sessions. There was no effect on the remaining child questions. The multivariate noise effect was significant, $F(7, 139) = 3.13, p < .004$.

These results are generally consistent with those reported in the original study (analyses including the entire sample of children tested at T1) in which noisy-school children reported noisier classrooms (a variable affected by attrition bias in the present analysis) and said that airplane noise bothered them more in both home and classroom.

Health measures. Although neither height nor weight were significantly related to noise in the entire T1 sample, noisy-school children did attend school more often than their quiet-school counterparts. In the present analysis, there was a Noise \times Testing Session effect for the percentage of days attending school, $F(1, 120) = 8.00, p < .005$. Although noisy-school children had better attendance during the year of the first testing session (98% attendance for noise group versus 96% for quiet), the attendance of noisy- and quiet-school children was equivalent (94% for both groups) during the following year. The multivariate for the interaction effect of Noise \times Testing Session was significant, $F(3, 118) = 3.71, p < .01$.

Blood pressure. Although the analysis of the complete T1 sample indicated inflated systolic and diastolic blood pressure for noisy-school children, there were no effects of noise, testing session, or any of the interactions on either systolic or diastolic blood pressure in the present analysis. Longitudinal blood pressure effects were not expected, however, since a relatively high proportion of noisy-school children with high blood pressure were lost to attrition and thus were not included in the present analyses.

Distractibility. In the earlier report of

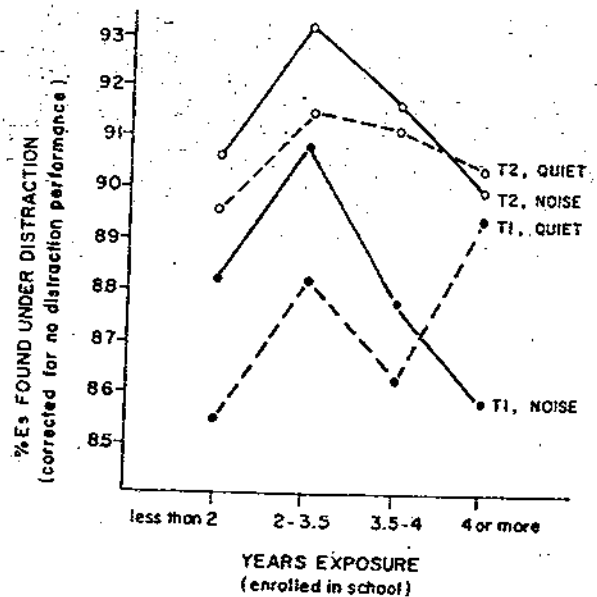


Figure 1. Distractibility at T1 and at T2 as a function of school noise level and duration of exposure. (Each period on the number of year's of exposure coordinate represents one quarter (based on quartiles) of the sample. For example, 25% of the sample were enrolled in school for less than 2 years.)

the entire T1 sample (Cohen et al., 1980), an interaction was found between noise and months enrolled in school for the percentage of Es found on the distraction task. Children in noisy schools did better than the quiet group on the distraction task during the first 2 years of exposure and worse after 4 years. Quiet- and noisy-school children who had been enrolled between 2 and 4 years, demonstrated equivalent performance. As apparent from the lower half of Figure 1, the attrition sample showed a similar T1 pattern, except that noisy-school children, who had been enrolled for 2-4 years also appeared to be less distractible than their quiet-school counterparts. Examination of the upper half of Figure 1 indicates that the T2 sample continues to show the same pattern of better performance by the noise group on the distraction during the earlier years. In this case, however, performances of the noisy-school and quiet-school groups are rather equivalent after 4 years of enrollment—Noise \times Months interaction, $F(1, 141) = 3.66, p < .06$.

Helplessness. As in the analysis of the entire T1 sample, there are effects of noise on test puzzle performance that occur irre-

spective of whether the child received a success (solved or not) or failure treatment. Noisy-school children were more likely to fail the test puzzle than quiet-school children, $F(1, 133) = 5.37, p < .02$, and more likely to take longer solving the puzzle, $F(1, 133) = 2.88, p < .09$, than quiet-school children—multivariate effect for noise, $F(3, 133) = 1.92, p < .12$. Although differences between proportion of children failing and time to solution were stable across the two testing sessions, quiet/noise differences in the percentage of children giving up occurred only at T1—Noise \times Testing Session interaction, $F(1, 133) = 3.90, p < .05$. The multivariate effect for the Noise \times Testing Session interaction was not, however, significant, $F(3, 131) = 1.57, p < .20$.

As pointed out in Cohen et al. (1980), an analysis of the proportion of children giving up that includes only those children who failed the test puzzle provides the most direct measure of helplessness. This analysis looks at the degree to which failure is associated with giving up as opposed to unsuccessful persistence. Although data for the entire T1 sample indicated increased giving up on the part of noisy-school as opposed to quiet-school children, there was neither a noise nor Noise \times Testing Session interaction in the present analysis.

Although not directly relevant to problems posed in this article, it is of general interest to examine whether the soluble or insoluble puzzle given at T1 affected performance on the test puzzle administered 1 year later, irrespective of (i.e., controlling for) noise exposure. This comparison provides a rough measure of the duration of the learned helplessness effect. That is, does a failure as opposed to a success pretreatment affect subsequent task performance as much as a year later? As suggested earlier, because of a selection bias created by subjects who were assigned to a soluble puzzle condition who failed to solve their soluble puzzle, there were three levels of the success-failure factor: success group who solved their pretreatment puzzle, success group who failed their pretreatment puzzle, and failure group. At both T1 and T2, children who received a success treatment puzzle and solved that puzzle were more likely to solve, $F(2,$

133) = 5.39, $p < .006$, and faster at solving the test puzzle, $F(2, 133) = 3.16, p < .05$, than both those who failed to solve the success treatment puzzle and those who received a failure treatment puzzle. There were no differences between these conditions on the proportion of children giving up; multivariate for success-failure, $F(6, 262) = 2.16, p < .05$. These data suggest the possibility of a helplessness effect persisting over a 1-year period, but they are difficult to interpret because of the self-selection problem.

Discussion

In general, the retest data provide strong support for the stability of the effect of noise on annoyance, distractibility, and performance on a moderately difficult task. First, at both testing sessions, noisy-school children were bothered more by aircraft noise than quiet-school children in both the classrooms and homes. Second, the similarity of the T1 and T2 data on the distraction task suggests the relative stability of this unpredicted interaction. Specifically, it suggests that there is some initial increased ability among noise-impacted children for "tuning out" auditory distraction and that this advantage disappears after 4 years of exposure. It was suggested in the earlier article that the children initially attempt to cope with the noise by tuning it out. Later, however, as they find that the strategy is not adequate, they give it up. An alternative explanation is that as duration of exposure increases, the children become more discriminating in terms of the kinds of sounds that they tune out. That is, initially they tune out wide range of acoustic stimuli (including the distractor used in the present study, which is dissimilar to aircraft noise), but later they tune out only sounds that are similar to the aircraft noise.

The present analyses also suggest that noisy-school children were poorer than quiet-school children at solving the test puzzle at both testing sessions. However, the increased "giving up" on the part of the noisy, as opposed to quiet-school children found in the analysis of the entire T1 sample was not found in the present analysis. The lack of

such an effect may have occurred because of subject attrition, because the children had had a previous experience with the same puzzle, or because the effect disappeared, that is, adapted out over time. It should be noted that the cross-sectional analysis of the entire T1 sample *did not* indicate a lessening of giving up with increased months of school enrollment. This suggests that the giving up effect does not adapt out over time.

Although the previously reported differences between the noisy- and quiet-school children on systolic and diastolic blood pressure were not found in the analysis of the attrition sample, this result was expected, given the large proportion of noisy-school children with high levels of blood pressure who were not retested. Because of this, the lack of a relationship between noise and blood pressure (at either T1 or T2) in the attrition sample *does not* constitute information for the acceptance or rejection of the hypothesis that the children adapted to noise.

A piece of data that was rather inconsistent with other findings in the original study of the entire T1 sample was that noisy-school children attended school more often than quiet-school children. The present data suggest that this difference did not exist for the data collected at T2. We are unable to explain the difference that occurred at T1 and feel that it may reflect random fluctuation, with T2 reflecting a regression to the mean.

In sum, the data suggest that effects related to living and attending school in a noisy neighborhood are stable over a 1-year period. That is, there is little evidence for adaptation to the noise.

Blood pressure: Habituation or attrition? The cross-sectional analysis of the entire T1 sample reported in an earlier article (Cohen et al., 1980) similarly found little evidence for adaptation. In fact, the only data supporting an adaptation hypothesis was the finding that systolic blood pressure differences between noisy- and quiet-school children (noisy-school children had higher blood pressure) were greater during the first few years of school enrollment. A similar pattern also occurred for diastolic pressure, although it did not reach statistical significance. (Figure 2 depicts the results of

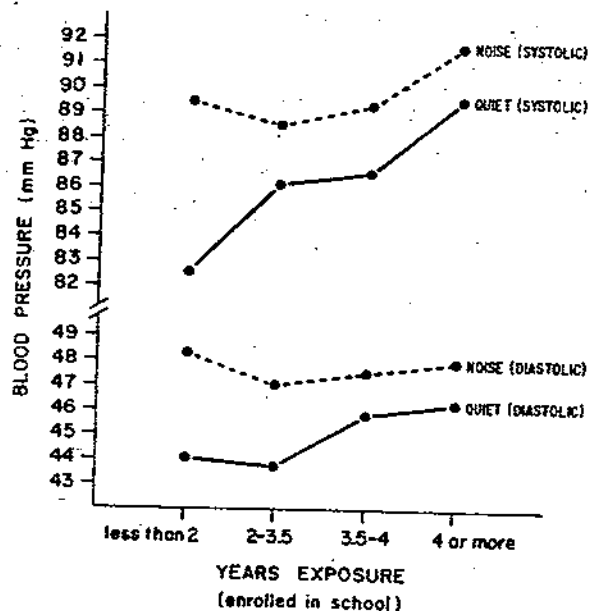


Figure 2. Systolic and diastolic blood pressure as a function of school noise level and duration of exposure. Each period on the number of years of exposure coordinate represents one quarter (based on quartiles) of the sample. For example, 25% of the sample were enrolled in school for less than 2 years. (From "Physiological, Motivational, and Cognitive Effects of Aircraft Noise on Children: Moving from the Laboratory to the Field" by Sheldon Cohen, Gary W. Evans, David S. Krantz, and Daniel Stokols, *American Psychologist*, 1980, 35, 231-243. Copyright 1980 by the American Psychological Association. Reprinted by permission.)

the T1 sample analysis, as reported in Cohen et al., 1980.) As previously suggested, this effect could be due to noisy-school children adapting to the stressor as the duration of exposure increased. On the other hand, the effect could be due to some kind of subject selection bias. That is, children with noise-induced, elevated blood pressure may have quickly moved out of the noise-impacted neighborhood and thus lessened the mean blood pressure for noisy-school children in the 2 or more years of exposure categories.

Some longitudinal data on how long specific noisy- and quiet-school children remain enrolled in their schools can help distinguish between these two explanations. The attrition bias analyses reported earlier suggest the possibility that people who move out of noise-impacted neighborhoods are different than those who move out of similar neighborhoods not suffering from noise pollution. Conclusions of this kind cannot, however, be

made from the attrition analyses, since a subject assigned to the not-present-during-retesting category may have moved or may have merely been absent during the retesting session. Thus, a second analysis of T1 blood pressure data was conducted to determine whether families of noisy-school children who showed elevated blood pressure were more likely to *move* sometime during the 2 years following the original testing session than families of quiet-school children and of noisy-school children not showing elevated pressure. In this case, unlike the attrition analyses, children who were absent at T2 but still enrolled were categorized as attending school. The retest factor used in the attrition analysis was replaced with a three-level measure of *migration* (not enrolled in school after 1 year/enrolled 1 year later but not after 2 years/still enrolled after 2 years, see Table 1, III).

As in the attrition bias section, we are concerned primarily with the Noise \times Migration interaction. This interaction suggests that those children leaving the noise-impacted neighborhood have different scores on blood pressure than those leaving the quiet neighborhood. As depicted in Figure 3, noisy-school students with the highest blood pressures move out of the noise area soon (within 2 years) after the initial testing: $F(2, 229) = 6.80, p < .001$, for systolic, and $F(2, 229) = 3.50, p < .03$, for diastolic. The multivariate interaction effect was significant, $F(4, 456) = 3.84, p < .004$. Thus, it appears that selective attrition, *not* adaptation, is responsible for the decrease of the difference between the blood pressure of noisy-school and quiet-school children.

Apparently the families of those noise-group children who showed elevated blood pressure were more likely to move out of the noise-impacted neighborhood than the families of children who did not show elevated blood pressure. It is important to emphasize that these effects occurred with race and social class partialled out of the analyses and that this bias for those with higher blood pressure to move out of the neighborhood occurred only in the noise-impacted area. Some possible explanations for this effect are that (a) parents of children with elevated blood pressure were sensitive to their chil-

dren's experience of stress and as a consequence moved to a less noisy neighborhood; (b) because of a familial bias (either genetic or environmentally determined), parents of children with noise-induced blood pressure elevations experienced similar stress-related reactions that motivated them to move from the neighborhood; (c) the children's elevated blood pressures were a response not to the noise itself but to their parents' own noise-induced stress, which was motivating the parents to move from the neighborhood; and (d) some unknown third factor is related to mobility, high blood pressure, and living in a noisy neighborhood.⁶

Noise-Abatement and Noise-Stress Reduction

Do noise-abatement interventions (and their resulting reduction in classroom noise level) decrease or ameliorate the effects of noise in impacted classrooms? Both cross-sectional data collected during the first testing session and longitudinal data looking at changes in the responses of children who moved from noisy to quiet classrooms are relevant to this question. As in the previous section, longitudinal data are based on the attrition (163) sample and, thus, are subject to the attrition bias. The cross-sectional data reported in this section are based on the entire T1 sample (262).

⁶ The explanations that suggest that high blood pressure is the *cause* of the migration from the noisy neighborhoods assume that the child and/or parent perceive that the child is under stress. It is probable that only those children with blood pressures substantially higher than the group mean would fit into this category. Thus, if elevated blood pressure is responsible for increased migration in the noisy neighborhoods, large proportions of those children leaving the noisy neighborhood would have relatively high blood pressures. Analyses of the proportion of children moving from their neighborhoods as a function of whether they attend a noisy or quiet school and whether they have high (80th percentile or above) or low (below the 80th percentile) blood pressure indicate that the proportion of children with high blood pressure who move from the noisy neighborhoods is higher than the proportion of high blood pressure children who move from quiet neighborhoods (Noise \times Blood Pressure interactions: for systolic, $F(1, 246) = 5.42, p < .02$; for diastolic, $F(1, 246) = 5.59, p < .02$). Apparently, a relatively large number of noisy-school children who move do have substantially elevated blood pressure.

Results: Cross-Sectional Analyses

Several of the classrooms in noise-impacted schools had been treated with noise-reducing materials several years before the first testing session. Because they were still relatively noisier than quiet comparison classrooms and because of the presumption that the high noise levels in the homes and play areas of noisy-school children were as important as the actual classroom level, these treated classrooms were not separated from other noisy school classrooms in the previous article (Cohen et al., 1980). To evaluate the effectiveness of this treatment and assess the relative impact of a somewhat quieter classroom on the criterion variables, data from the first testing session were reanalyzed, with classrooms categorized as noisy (97 children), abated (45), and quiet (120). The regression analyses on criterion variables are identical to those described previously except that the noise variable had the three levels described above instead of two. (see Table 1, IV).

Noise measures. The mean peak noise level for noisy classrooms was 79.06 dB, for abated classrooms it was 63.17 dB, and for quiet classrooms, 56.60 dB. An analysis of variance indicated a significant difference between these means, $F(2, 34) = 38.45$, $p < .001$. Moreover, preplanned contrast indicated significant differences between noise and quiet, $F(1, 34) = 75.06$, $p < .001$; quiet and abated, $F(1, 34) = 16.93$, $p < .0002$; and noise and abated, $F(1, 34) = 45.89$, $p < .0001$, rooms. In general, it was expected that effects on criterion variables would be directly related to average classroom noise levels and therefore, the mean values would fall in the following order: noise, abated, quiet. Preplanned comparisons reported in this section were employed to directly test this hypothesis.

Child questionnaire. Although noise had a significant impact on children's self-reports of classroom noise, $F(2, 249) = 2.69$, $p < .07$; airplane disturbance in the classroom $F(2, 249) = 7.4$, $p < .0008$; and airplane disturbance at home, $F(2, 249) = 7.78$, $p < .0005$, all reflected a relatively low level of noise annoyance among quiet-classroom children as compared with noisy- and abated-

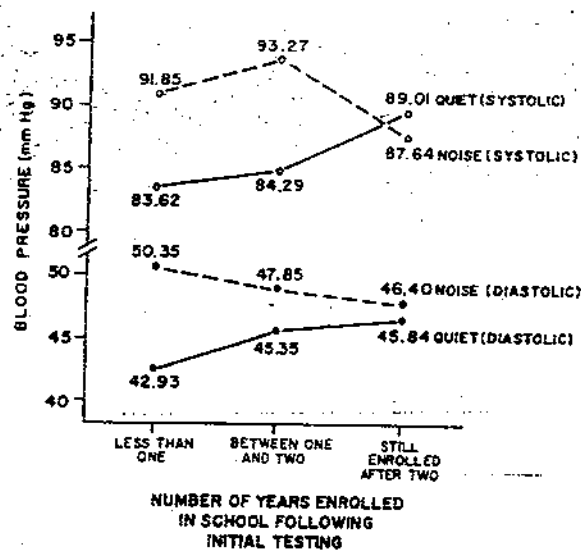


Figure 3. Systolic and diastolic blood pressure as a function of school noise level and the number of years enrolled in school following T1.

classroom children, whose means on these questions were nearly identical. The multivariate analysis for the child questionnaire data did not indicate any significant effects.

Health. The health cluster analyses indicated Noise \times Months Enrolled in School interactions for both height, $F(2, 237) = 2.83$, $p < .06$, and weight, $F(2, 237) = 4.21$, $p < .01$. These interactions were primarily attributable to relatively low mean heights and weights for those in the abated group who had been enrolled in their schools between 2 and 3½ years. There was also a main effect of noise for the percentage of total school days a child was in attendance, with noisy- and abated-group children attending more often (97.5% for noise and 97.2% for abated) than quiet-group children (94.2%), $F(2, 237) = 11.93$, $p < .0001$. Multivariate analyses for both the noise, $F(6, 470) = 1.58$, $p < .15$, and Noise \times Months, $F(6, 470) = 1.85$, $p < .09$, effects were marginal.

Blood pressure. As is apparent from Table 2, both systolic and diastolic blood pressures appear to vary as a function of noise level, with the highest mean pressure reported for the noise group, followed by a lower blood pressure in the abated group and an even lower pressure in the quiet group. Although the analysis of systolic pressure did not indicate a statistically significant impact of noise, there was a main effect of noise for

Table 2
Mean Blood Pressures (mm Hg) by Classroom
Noise Abatement for Cross-Sectional (T1) Data

Blood pressure	Classroom		
	Quiet	Abated	Noisy
Systolic	86.64	88.69	90.09
Diastolic	44.99	46.77	48.46

diastolic pressure, $F(2, 241) = 3.19, p < .04$. The multivariate analysis was not significant.

Preplanned contrasts between the various blood pressure means indicate that for both systolic, $F(1, 235) = 2.61, p < .10$, and diastolic pressure, $F(1, 235) = 5.24, p < .02$, the noise group was different from the quiet group. Comparisons between the quiet group and the abated group indicated marginal differences in both cases—for systolic, $F(1, 235) = 2.21, p < .14$; for diastolic, $F(1, 235) = 3.17, p < .08$. There were no differences between the noise and abated groups for either systolic or diastolic pressure.

Helplessness. The percentage of failure on the second helplessness puzzle was also consistent with the expected order. The noise group was more likely to fail the second helplessness puzzle (57% failed) than either the abated group (47% failed) or the quiet group (35% failed), $F(2, 235) = 4.12, p < .02$. There was no difference between noise groups on the time required to solve the second puzzle. Preplanned contrasts comparing proportions of students solving the second puzzle indicate marginal differences between the quiet and abated groups, $F(1, 235) = 3.10, p < .08$, and the noise and abated groups, $F(1, 235) = 2.70, p < .10$, and a significant difference between noise and quiet, $F(1, 235) = 8.03, p < .005$. These data suggest that noise abatement marginally affected puzzle task performance, with children in abated classrooms performing at a higher level than those in nonabated rooms, but not as well as those in quiet rooms.

Both the noise and the abated group "gave up" on the second puzzle (17% for noise, 16% for abated) more often than the quiet group (3%). The multivariate effect for noise did not, however, reach statistical significance. An analysis including only those children who failed the second puzzle indicated

that the failures of noise- (29%) and abatement-group (35%) children were associated with giving up more often than were the failures of quiet-group children (7% who failed gave up).

School achievement. The achievement tests for reading and math are administered by the school systems during the third but not during the fourth grade. As a result, the scores that were used in the following analyses were recent for third graders (administered at approximately the same time as our own testing) but were 1 year old for fourth graders. Thus, it was expected that noise abatement would affect the achievement scores of third graders who spent a year in their abated classrooms before (and while) taking the test, but not fourth graders, since their classroom assignment at the time that we collected our data was presumably irrelevant to how they performed on a test taken in another classroom 1 year earlier. (Unfortunately, data on the classroom assignment of fourth graders during the year that they were tested were not available.) To test the hypothesis that the achievement scores of third but not fourth graders would be affected by abatement, a Grade \times Noise interaction was added to the noise nested in classrooms analysis of the school achievement cluster. Although there were no effects for the noise or Noise \times Grade interaction on either reading achievement or auditory discrimination, there was a Grade \times Noise interaction for performance on the math achievement test, $F(2, 32) = 3.06, p < .06$; the multivariate for noise was $F(6, 60) = 1.98, p < .08$. As is apparent from Table 3, although grade level did not have a substantial effect on the relative performance of third and fourth graders in quiet schools,

Table 3
Mean (Adjusted) School Achievement
Percentiles for Cross-Sectional (T1) Data as a
Function of Classroom Noise Abatement and
Grade

Classroom	Reading		Math	
	3rd grade	4th grade	3rd grade	4th grade
Noisy	30.30	35.96	34.35	39.35
Abated	47.36	37.90	56.24	37.54
Quiet	37.85	39.09	36.96	42.76

third graders in abated classrooms performed substantially better than those in nonabated classrooms, whereas the reverse was true for fourth graders. It is also apparent from Table 3 that there was a similar pattern for reading test scores, although the Grade \times Noise interaction for reading did not reach statistical significance.

One anomaly of these data is that math (also reading) achievement performance of the third-grade children from abated classrooms in noisy schools is higher than that of third-grade children from quiet schools. It was noted in a previous article (Cohen et al., 1980) that differences between noisy and quiet schools were affected by a number of variables that could not be controlled for in the present study, including school and district teaching policy, teaching quality, level of federal aid to a school, and school administration. It was also suggested that these factors are probably more important than noise in determining school achievement. These problems are reduced substantially when (as in the analysis above) the noise and abated classrooms are in the same district and often in the same school.

Distraction. Analysis of the distraction task data indicated no significant effects.

Results: Longitudinal Analyses

As mentioned earlier, all children from the original sample who were still enrolled in their respective schools were retested 1 year later. The analyses presented below compare those children who were in noisy (non-abated) classrooms during both testings (44 children) with those children who were in noisy rooms during the first testing and abated rooms during the second testing (39 children). Quiet-classroom children were not included in these analyses because of the conceptual problem of evaluating change scores when initial scores are significantly different (see Table 1, V). Only factors for which Noise \times Testing Session and/or Noise \times Months \times Testing Session interactions were significant will be discussed, since at this point we are not concerned with differences between noise/noise and noise/abated groups that occur at both testings (i.e., the main effect for noise) unless an interaction is found.

Noise measures. Before presenting data

Table 4
Mean Classroom Noise Levels for Noisy and Abated-Noise Classrooms at T2

Noise level	Noise measure		
	L_{EQ}	L_{33}	Peak dB (A) ^a
Noisy	70.29	55.82	91.50
Abated	62.82	49.27	71.27

^a Mean peak dB (A) measures at T2 are higher than those recorded at T1. This is because the more sensitive automated equipment used at T2 records peaks that last only a fraction of a second, whereas manual equipment used at T1 required the operator to judge the highest point reached by a fluctuating needle.

on the relationship between the noise-abatement work and the children's performance and health, it is important to determine whether the abatement work was effective. Analyses of the differences in the sound levels in classrooms that were sound attenuated versus those that were not sound attenuated suggests that the abatement work had a significant impact on interior sound levels. As apparent from Table 4, on all three measures— L_{EQ} : $F(1, 20) = 9.39, p < .006$; L_{33} : $F(1, 20) = 4.92, p < .04$; and peak dB: $F(1, 20) = 24.91, p < .0001$ —abated rooms have substantially lower sound levels than non-abated rooms.

Child questionnaire. Children in the noisy group reported more trouble hearing their teacher during the second testing session, whereas those in abated classrooms reported less difficulty—Noise \times Testing Session, $F(1, 48) = 3.98, p < .05$. There were no other Noise \times Testing Session effects on children's questions and no significant multivariate effects.

There were no significant multivariate or univariate interactions of noise and testing session in any of the remaining clusters; thus, no additional data are reported here. It is important to reiterate that school achievement data were available only at T1, and thus, there were no longitudinal school achievement analyses.

Discussion

The cross-sectional comparison of noisy, abated, and quiet classrooms suggests only a minimal impact of the abatement intervention on the criterion variables. Clusters

apparently *unaffected* by abatement (those showing no effects or just noisy-versus quiet-school differences) include children's perceptions of noise and noise interference, health factors, and the auditory distraction measure. On the other hand, two important clusters did provide at least marginal support for an ameliorative effect of abatement. First, abatement did have a marginal effect on whether the child was able to solve the moderately difficult test puzzle in the helplessness task, irrespective of whether the child received a soluble or insoluble first puzzle. It is noteworthy, however, that giving up—the measure designed to provide a direct assessment of feelings of helplessness—was affected only by the noisy-school versus quiet-school distinction. Second, although reading achievement and auditory discrimination ability were unaffected by abatement, there was evidence that math achievement was higher for children in abated than in noisy classrooms. This effect seems especially noteworthy, since it occurs, as predicted, only for those children who took the achievement test at the end of the year that was spent in an abated classroom. It is important to consider, however, that unlike all other measures that were administered in a relatively quiet setting, the achievement tests were actually taken in the classroom. Thus, the relative deficit in math performance of the children from the noisy as opposed to noise-abated classrooms may be attributable to noise interfering with test performance rather than to an aftereffect of noise, which we would expect to occur even outside of the noise-impacted environment.

The *longitudinal* data similarly provide little evidence that children who had been enrolled in a noise-impacted school showed improvement in their performance and/or health following a 1- (school) year experience in a noise-abated classroom. In contrast to the cross-sectional analysis, the longitudinal data did not even indicate improvement in ability to solve the moderately difficult puzzle on the part of children in noise-abated rooms. This failure to mimic the cross-sectional findings may be due to an attrition bias or to the marginality of the effect itself. Unfortunately, school achievement data were not available during the second testing session, and there was no opportunity to reevaluate the ameliorative effects

of noise abatement on school achievement found in the cross-sectional analyses.

It is clear that the ameliorative effects of classroom noise abatement were not substantial, nor did they cover a wide range of measures. There is evidence, however, that abatement affects behavior in the classroom. Children in abated classrooms reported fewer problems hearing their teachers and performed better on school achievement tests than children in nonabated rooms. It is important to reiterate that unlike other measures in the study, school achievement tests were administered in the (noisy or quiet) classroom. It is thus possible that noise-associated deficits on this measure reflect an effect of noise that occurs *during* rather than after exposure.

We can suggest two possible explanations for the general lack of ameliorative effects of classroom noise abatement. First, it is possible that effects of previous noise exposure are relatively long lasting. That is, it takes more than a 1-year reprieve from the noise for a return to more normal levels of behavior and health. Second, since the children are all exposed to the noise outside of the school—in their homes, on the playground, and so forth—a quieter classroom may not have been a sufficient intervention.

In evaluating these results, it is also important to remember that most of the children attending noisy schools spent previous years in nonabated classrooms. Thus, although abatement interventions were not entirely effective for this population, it is possible that children who start to attend school after the entire school has undergone noise abatement (and are thus always in relatively quiet classrooms) would benefit from the interventions.

Conclusions and Implications

The data reported in the analyses of the entire T1 sample (Cohen et al., 1980) indicated effects of aircraft noise on cognitive, motivational, and physiological mechanisms that were consistent with effects found in laboratory settings. The data presented in this article established the stability of these effects over time. Moreover, they reinforce our interpretation of the earlier cross-sectional data that children do *not* adapt to noise over time. The analyses of noise-abate-

ment effectiveness indicate that the abatement is partially effective, with the important school achievement measure showing some improvement for children in noise-abated classrooms.

From a policy point of view, these data support the need for noise-abatement work in these kinds of settings but suggest that noise insulation in the classroom may not be enough. It is likely that more effective noise abatement in classrooms (bringing levels closer to those in quiet schools) and decreased noise exposure *outside of school* would have an increased ameliorative impact. Thus, decreasing overall community noise levels by creating buffer zones between airports and other sources of high-intensity noise and the surrounding communities would be one way of providing more adequate protection for community residents.

The data reported in this and the previous article are part of the Los Angeles Noise Project, an ongoing study that is attempting to provide a sound data base regarding the possible links between community noise exposure and various aspects of behavior and health. The consistency of laboratory and field findings is beginning to increase our confidence in a number of deleterious effects of community noise exposure. This project includes an ongoing attempt to replicate this work, with both a second sample of children living in the air corridor and a sample of children attending schools adjacent to highways. The aim is to increase our understanding of the aftereffects of noise, the possible role of adaptation in mediating such effects, and the impact of noise-abatement intervention on noise-related effects. The strategy of studying effects that are closely linked to laboratory findings together with the use of both cross-sectional and longitudinal approaches in the field helps establish both the scientific validity and practical value of work, with implications for social issues. As these converging approaches eliminate alternative explanations for noise-associated effects, the potential for affecting the formation of public policy increases.

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Received January 31, 1980 ■

Physiological, Motivational, and Cognitive Effects of Aircraft Noise on Children

Moving From the Laboratory to the Field

SHELDON COHEN *University of Oregon*
GARY W. EVANS *University of California, Irvine*
DAVID S. KRANTZ *Uniformed Services University of the Health Sciences*
DANIEL STOKOLS *University of California, Irvine*

ABSTRACT: *A combination of laboratory and field methodologies is suggested as a strategy to increase the influence of psychological research in the formation of public policy. A naturalistic study of the effects of aircraft noise on elementary school children is presented as evidence for the effects of community noise on behavior and as an example of a study that examines the generality of laboratory effects in a naturalistic setting. The study is concerned with the impact of noise on attentional strategies, feelings of personal control, and physiological processes related to health. In general, the results are consistent with laboratory work on physiological response to noise and on uncontrollable noise as a factor in helplessness. Thus children from noisy schools have higher blood pressure than those from matched control (quiet) schools. Noise-school children are also more likely to fail on a cognitive task and are more likely to give up before the time to complete the task has elapsed. The development of attentional strategies predicted from laboratory and previous field research was, on the whole, not found. The implications of the study both for the understanding of the relationship between noise and behavior and for the influencing of public policy are discussed.*

Science's contribution to social policy decisions regarding noise pollution has been primarily limited to the documentation of the impact of high-intensity sound on hearing. Acceptable noise standards used in both national and local statutes are based on research that assesses magnitude of hearing loss at varying intensities and durations of sound. Yet during the last ten years it has become clear that noise can alter nonauditory systems as well as auditory ones. Thus laboratory research has established effects of noise on cognitive, motivational, and general physiological pro-

cesses. For example, noise is associated with alterations in task performance (cf. Broadbent, 1978; Loeb, 1979), decreased sensitivity to others (e.g., S. Cohen & Lezak, 1977; Mathews & Canon, 1975), and elevation of a number of nonspecific physiological responses (cf. Glass & Singer, 1972; Kryter, 1970). Exposure to noise that is unpredictable and uncontrollable (cannot be escaped or avoided) can also reduce one's perception of control over the environment (e.g., Glass & Singer, 1972; Krantz, Glass, & Snyder, 1974). This loss of control is often accompanied by a depression of mood and a decrease in one's motivation to initiate new responses (Seligman, 1975).

One argument against serious consideration of this evidence when making policy decisions is that it is largely derived from laboratory studies. Since laboratory subjects typically experience a single short period of exposure to high-intensity sound and are aware that their exposure is only temporary, the applicability of these findings to experi-

The research reported in this article was supported by grants from the National Science Foundation (BNS 77-08576 and SOC 75-09224), the National Institute of Environmental Health Sciences (1 RO1 ES0176401 DBR), the Society for the Psychological Study of Social Issues, and the University of Oregon Biomedical Fund.

The authors are indebted to Sheryl Kelly, Laurie Poore, Jerry Lukas, Rich Haller, and Nick Garsbnek; to the administrative staffs of the Los Angeles, Lennox, and Inglewood (California) School Districts; to the staff, teachers, children, and parents of the participating schools; to the California Assessment Program; and to the California Department of Health. We also wish to thank Michael Posner and Myron Rothbart for their comments on an earlier draft.

Requests for reprints should be sent to Sheldon Cohen, Department of Psychology, University of Oregon, Eugene, Oregon 97403.

ences of chronic noise exposure is questionable. Because of a lack of well-controlled studies of persons routinely living and working under noise, we are unable to say with any certainty if similar effects occur in individuals exposed to noise for prolonged periods.

Our own lack of confidence in the generality of the effects of noise that occurs in laboratory settings translates into a lack of influence in the policy-making process. Legislation restricting noise levels in industrial and community settings usually imposes a heavy economic burden on those responsible for the noise. To convince policymakers that such burdens are justified, there must be substantive evidence that community and/or industrial noise deleteriously affects health and behavior.

Naturalistic studies of the effects of noise that occurs in home, school, or office seem like the obvious alternative to investigations carried out in laboratory settings. However, such studies are correlational. Subjects are not randomly assigned to noisy or quiet settings, and the settings often vary on dimensions other than noise exposure. These problems can be substantially reduced by carefully matching the noise and quiet samples on important dimensions and by statistically controlling for other possible confounds. It is always possible, however, that some unknown factor covaries with exposure to the noise setting and actually causes the effects that the investigator associates with noise. Thus, in isolation, naturalistic studies also provide insufficient evidence for a link between community noise and measures of health and behavior.

It is clear that neither laboratory nor naturalistic studies can in themselves provide what either scientists or politicians would consider convincing evidence for noise-induced effects. What is necessary is an interplay between laboratory and field methodologies. This interplay can take at least two forms. On the one hand, an effect can first be established as reliable within laboratory settings where causal links can be inferred. Then, the robustness of this relationship can be established in a number of naturalistic settings. On the other hand, by first conducting field research, it is possible to isolate important dimensions of a particular problem. At that point, laboratory studies may be useful to rule out plausible alternate explanations often inherent in naturalistic research. Laboratory and field approaches are often pursued to the exclusion of one another, but only by com-

binning these two strategies can we begin to understand the impact of environmental variables in naturalistic settings. Moreover, only when evidence from the laboratory and field converges can a credible scientific case be presented in order to influence public policy.

This emphasis on the interplay between the laboratory and the field is consistent with Campbell and Stanley's (1966) discussion of the inevitable trade-off between well-controlled experimental settings (internal validity) and our ability to generalize across persons and settings (external validity). The laboratory provides the opportunity for an internally valid investigation, but the generality of laboratory findings is severely restricted. Naturalistic studies provide the opportunity to generalize findings to a greater range of persons and settings but often lack the strict control of the laboratory.

The study presented in this article examines the effects of aircraft noise on children. It is particularly concerned with exploring the generality of laboratory work on noise-induced shifts in attentional strategies, feelings of personal control, and nonauditory physiological responses related to health. Our purpose in reporting this study is twofold. First, it is presented as evidence for relationships (or lack of relationships) between aircraft noise exposure and a number of cognitive, motivational, and physiological measures. The article includes short discussions of laboratory and field research in each of the areas of concern. Second, it is presented as an example of an attempt to examine the generality of laboratory effects in a naturalistic setting. In this regard, the study employs an individual testing procedure in a field setting. It uses a matched-group design and attempts to control statistically for a number of possible alternative explanations for correlations between community noise and the various criterion variables.

Overview of the Study

The subjects were children attending the four noisiest elementary schools in the air corridor of Los Angeles International Airport. Peak sound level readings in these schools are as high as 95 dB (A), and the schools are located in an air corridor that has over 300 overflights a day—approximately one flight every 2.5 minutes during school hours (Lane & Meecham, 1974). Three control

schools (quiet schools) were matched with the experimental schools for grade level, for ethnic and racial distribution of children, for percentage of children whose families were receiving assistance under the Aid to Families with Dependent Children program, and for the occupations and education levels of parents. Thus we were able to compare samples of children attending noise schools and quiet schools who were relatively similar in terms of age, social class, and race. A statistical technique described later allowed additional control over these factors.

The study focused on effects occurring outside of noise exposure (i.e., aftereffects). Thus all tasks and questionnaires (except the achievement test records gathered from school files) were administered in a quiet setting—a noise-insulated trailer parked directly outside the school. These data were collected during two 45-minute sessions on consecutive days. Three cognitive tasks were administered during the test periods. One was designed to assess feelings of personal control and the others to determine whether the children employed some common attentional coping strategies. A questionnaire concerned with responses to noise and two blood pressure measures were also given during the testing sessions. A parent questionnaire dealing with parent response to noise, mother's and father's level of education, and the number of children in the family was sent home with each child. Scores on standardized reading and math tests and data on absenteeism were collected from school files.

The study included children from all noise-impacted third- and fourth-grade classrooms in each noise school as well as children from an equal number of classrooms in quiet schools. To ensure that performance differences between children from noise schools and those from quiet schools could not be attributed to noise-induced losses in hearing sensitivity, an audiometric pure-tone threshold screening was administered to each child. Children were screened at 25 dB for select speech frequencies (500, 1000, 2000, and 4000 Hz). Children failing to detect 25 dB tones at any one of these frequencies in either ear were not included in the study. Six percent of the noise-school children and 7 percent of the quiet-school children failed the screening. A total of 262 subjects (142 from noise schools and 120 from quiet schools) remained in the study. Individual analyses, how-

ever, sometimes contain fewer subjects because of missing data.

Data compiled from the parent questionnaire allowed us to determine the degree of similarity of the prematched noise and quiet samples. Analyses of variance indicated that there were no differences between the samples on the various social class factors. The mean number of children per family was 3.54 in the noise sample and 3.88 in the quiet sample. Levels of parent education were also equivalent, falling between some high school (scaled as 3) and high school graduate (scaled as 4). The mean level of education for fathers was 3.75 for noise-school children and 3.41 for quiet-school children, and for mothers, 3.64 and 3.35, respectively. The racial distributions, however, differed significantly, $\chi^2(3) = 10.5$, $p < .01$, with the noise group containing more blacks (32% vs. 18%) and the quiet group more Chicanos (50% vs. 33%). Noise and quiet samples had nearly equal percentages of whites (32% and 29%, respectively) and of unidentifiable or mixed-race children (3% in each sample).

The two samples also differed on mobility, with children in the quiet sample having lived in their homes longer (a mean of 49.6 months vs. 41.4 months) and attended their schools for longer periods (a mean of 43.2 months vs. 36.0 months) than noise children, $F(1, 270) = 4.8$, $p < .03$, and $F(1, 270) = 12.9$, $p < .001$, respectively. Length of school enrollment was not related to father's education, mother's education, or the number of children in the family. Moreover, the noise and quiet samples were relatively equal on these various social class factors across all durations of exposure. This finding suggests that the decision to continue living in the noise-impacted area was not determined by the parents' socioeconomic status. There were, however, more blacks and whites in the noise group with less than 2 years' exposure than there were in the equivalent quiet group, $\chi^2(4) = 12.04$, $p < .02$. There were no differences in racial distribution for other exposure durations.

Statistical Controls

A regression technique was used to compensate for differences between the noise and quiet samples on racial distribution and mobility (J. Cohen, 1968). In general, the regression analysis allows one to determine the relation between two variables while

ing evidence for noise-induced physical disease (cf. S. Cohen, Glass, & Phillips, 1979; Kryter, 1970). It is well established, however, that short-term exposure to relatively high sound levels in laboratory settings can alter physiological processes. Physiological changes produced by noise consist of non-specific responses typically associated with stress reactions, including increases in electrodermal activity, catecholamine secretions, vasoconstriction of peripheral blood vessels, and diastolic and systolic blood pressure. Because such changes, if extreme, are often considered potentially hazardous to health, many feel that pathogenic effects of prolonged noise exposure are likely. Laboratory evidence that some components of the physiological response to noise do not habituate (Jahsen, 1969) lends fuel to this argument, but is difficult to interpret in light of evidence from other laboratories indicating complete habituation (Glass & Singer, 1972).

A number of studies of workers in noisy industries have indicated health problems for those exposed to intense noise levels. Included are respiratory problems, such as sore throat, and allergenic, musculoskeletal, circulatory, neurological, cardiovascular, and digestive disorders (e.g., Anticaglia & Cohen, 1974; A. Cohen, 1973). However, all of the industrial noise studies are subject to serious criticism because of their failure to control for other adverse workplace or job factors, for example, task demands and risks, that often covary with the noisiness of the job (cf. S. Cohen et al., 1979; Kryter, 1970). It is also important to note that several industrial surveys have failed to find a relation between noise and ill health (e.g., Finkle & Poppen, 1948; Glorig, 1971).

There are no existing controlled studies on the impact of noise on nonauditory health in children (Mills, 1975). Recent theoretical work, however, argues that children (along with the old, individuals in institutions, and persons suffering from other sources of stress) may be particularly susceptible to noise-induced illness because they lack the ability to temporarily escape their noisy environments (S. Cohen et al., 1979). It is suggested that this inability to escape at will can cause both an increase in overall duration of noise exposure and an increase in feelings of helplessness. This effect is important, since feelings of helplessness have been implicated as possible causal factors in illness (Seligman, 1975).

Each child's resting blood pressure (systolic and diastolic) was taken on an SR-2 Physiometrics automated blood pressure recorder.³ To acustom the children to the blood pressure measurement technique, an initial measurement was made at the beginning of the first day of testing. A short explanation of the technique and the concept of blood pressure was given at this time, and questions were solicited and answered. This initial measurement was not recorded. Each child's blood pressure was measured again on the first day and once more on the second day. The blood pressure data are based on the mean systolic and diastolic pressures for these two measurements. The graphic output of the machine was coded after the study was completed, with coders blind to experimental condition. Each child's height and weight were also measured. Absenteeism was used as an indirect measure of health, since absence from school is often attributable to illness. These data were available from school files.

Health measures were separated into two multivariate clusters: general health measures and blood pressure. This procedure was necessary because two of the general health measures—height and ponderosity (weight/height³)—were required as controls for the blood pressure analyses (cf. Voors et al., 1976). (The ponderosity index was chosen as a measure of obesity because of its high correlation with body fat.) The multivariate F for the effects of noise on the general health cluster was significant, $F(3, 235) = 8.04, p < .001$. Although noise-school children were shorter and weighed less than quiet-school children, neither of these differences reached significance, $F(1, 237) = 1.77, p < .18$, and $F(1, 237) = 1.07, p < .30$, respectively. Surprisingly, noise-school children attended school a higher percentage of the time (97.5% vs. 94.2%) than their quiet-school counterparts did, $F(1, 237) = 21.80, p < .001$.

The multivariate F for the effects of noise on systolic and diastolic blood pressure was significant, $F(2, 244) = 2.98, p < .05$. As is apparent from Figure 1, children from noise schools had higher blood pressure than their quiet-school counterparts did, with $F(1, 245) = 4.61, p < .03$, for

³ This instrument is an electronic infrasonic device that records on a rotating paper disc. Measurements were taken with a rubber cuff entirely encircling the upper arm. The reliability of this device for blood pressure measurement in children has been established in previous work (e.g., Voors, Foster, Frerichs, Weber, & Berenson, 1976).

controlling (covarying or partialing out) for one or more other variables. For example, one can look at the relation between noise level and blood pressure after functionally equating the noise and quiet groups on mobility and race. All data analyses reported in this article include controls for the number of children in the child's family, the grade in school, the number of months enrolled in school (years in residence for the parent questionnaire), and race.¹ These control factors were forced into the regression first, followed by noise and then the Noise \times Months Enrolled in School interaction. The interaction indicates whether length of exposure affected the various criterion measures. Additional controls were used in the analyses of blood pressure, school achievement, and selective inattention. The use of these controls is described in appropriate sections. This conservative analysis looks at the effects of noise and the interaction between noise and length of enrollment after functionally equating the noise and quiet groups on grade, race, social class, and mobility, as well as on any additional control factors employed in a particular analysis.

The various measures were analyzed in predetermined multivariate clusters created on the basis of theoretical consideration.² This form of analysis helps to decrease the high probability of chance findings that occur when a large number of analyses are necessary (cf. Bock, 1975).

Noise Measures

Interior sound levels (without children) were measured inside each classroom with Tracoustics (SLM S2A) sound level meters. Sound levels were monitored for a 1-hour period in the morning and a 1-hour period in the afternoon. Peak sound levels in terms of dB (A) were recorded for both morning and afternoon sessions. The overall mean peak for classrooms in noise schools was 74 dB and in quiet schools 56 dB. The highest reading in a noise-school classroom was 95 dB, while the highest reading in a quiet school was 68 dB.

The questionnaire administered to each child assessed his or her perception of classroom and home noise levels. The parent questionnaire also included questions on perception of home noise level as well as queries on how long the child had been enrolled in the present school and how long he or she had lived at their present address. Data on school enrollment were also available from school files. Noise contours (compiled by the Los

Angeles International Airport) provided approximations of the sound levels outside the homes of noise-school children.

The multivariate F for the effects of noise on the children's noise questionnaire was significant, $F(9, 246) = 3.10, p < .002$, thus allowing interpretation of the univariate regressions. Children in noise schools reported that their classrooms were noisier, $F(1, 254) = 5.49, p < .02$, and that airplanes bothered them more in the classroom, $F(1, 254) = 14.74, p < .001$, than children in quiet schools did. They did not, however, report having more trouble hearing their teacher.

In regard to home noise, children from air-corridor schools were more bothered by airplane noise than their quiet-school counterparts were, $F(1, 254) = 15.75, p < .001$. However, noise- and quiet-school children did not differ in ratings of home noise. Neither the multivariate F nor any univariate regression indicated any significant effects for the Noise \times Months in School interaction on the children's questionnaire.

The multivariate F for the effects of noise on the parents' noise questionnaire was also significant, $F(2, 221) = 124.2, p < .001$. Parents of children from the air-corridor schools indicated both that there were higher levels of noise in the home, $F(1, 232) = 37.33, p < .001$, and that they were bothered more by noise, $F(1, 232) = 240.07, p < .001$, than the parents of children attending quiet schools indicated. The home noise level reported by the parents of noise-school children increased with the number of years they had lived in their present residence, $F(1, 220) = 3.11, p < .08$. This effect must be interpreted carefully, however, since both the univariate and multivariate F s were only marginally significant.

Effects of Noise

PHYSIOLOGICAL RESPONSE AND HEALTH

Aside from temporary and permanent effects on hearing, previous research provides little convinc-

¹ Parent education was excluded as a control because data on this factor were not available for a number of children. As mentioned earlier, the noise and quiet samples were closely matched on education. Race was dummy-variable coded (see Overall & Klett, 1972).

² There were separate clusters for general health, blood pressure, helplessness, child questionnaire, and parent questionnaire. The selective inattention analyses were run as univariates, since each analysis required a unique control factor.

systolic pressure and $F(1, 245) = 4.86, p < .03$, for diastolic pressure.⁴ Unadjusted means for systolic pressure were 89.68 mm for the noise group and 86.77 mm for the quiet group. Diastolic means were 47.84 mm for the noise group and 45.16 mm for the quiet group. A marginal interaction, $F(1, 244) = 3.30, p < .07$, between noise and months in school suggests that systolic pressure differences between noise and quiet groups are greatest during the first few years of school enrollment; differences after this point remain constant. Figure 1 reflects a similar pattern for diastolic pressure. This interaction does not, however, reach even marginal statistical significance.⁵

HELPLESSNESS

Both laboratory and community noise research suggests the possibility that high-intensity noise exposure induces feelings of helplessness. According to Seligman (1975), a psychological state of helplessness frequently results when we continually encounter events (especially aversive ones) that we can do nothing about. The state of helplessness includes a perception of lessened control over

one's outcomes, a depression of mood, and a decrease in one's motivation to initiate new responses. Extreme effects of helplessness include fear, anxiety, depression, disease, and even death.

A number of researchers have induced helplessness effects in the laboratory by exposing subjects to uncontrollable bursts of noise (Hiroto, 1974; Krantz et al., 1974). Moreover, survey data reporting high levels of annoyance but low levels of complaints from noise-impacted populations have similarly been interpreted as reflecting a helplessness-like state (Herridge, 1974). This finding, however, is subject to a number of alternative explanations, and thus the helplessness interpretation is only suggestive.

Performance on a cognitive task preceded by a success or failure experience was used in the present study to examine the effect of noise on response to failure and on persistence on a difficult task. Response to failure is a standard measure of susceptibility to helplessness. Thus, if noise-school children were more susceptible to helplessness, they would show greater effects of a failure experience than their quiet-school counterparts would. A lack of persistence (or a "giving-up" syndrome) is considered a direct manifestation of the helpless state.

Each child was given a treatment puzzle to assemble after the tester demonstrated the task with another puzzle. All puzzles were based on the same nine pieces and required the child to fill in a template of a familiar shape. One half of the

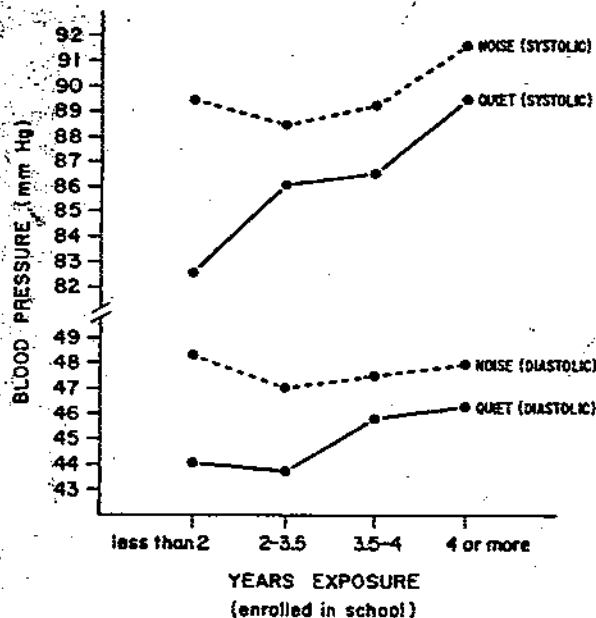


Figure 1. Systolic and diastolic blood pressure as a function of school noise level and duration of exposure. (Each period on the years-exposure coordinate on the figure represents approximately one quarter of the sample. For example, 25% of the sample had been enrolled in the present school less than 2 years.)

⁴ Both the noise-school and quiet-school children have lower mean blood pressures than children of similar ages tested in recent studies (e.g., Voors et al., 1976). It is important to note, however, that it is difficult to compare absolute blood pressure levels across studies, since blood pressure is strongly influenced by environmental and genetic characteristics of the population being studied, the conditions under which measurement occurs, and the measurement device.

⁵ To investigate whether elevations in blood pressure occurred equally across races, separate regressions were calculated for whites, blacks, and Chicanos. Since the number of subjects in each of these regressions is small, only very substantial mean differences will reach statistically significant levels. Blacks and Chicanos attending noise schools had higher systolic ($p < .05$ for blacks, $p < .25$ for Chicanos) and diastolic ($p < .25$ for blacks, $p < .10$ for Chicanos) pressure than their quiet-school counterparts did. For whites, there were no main effects of noise, but an interaction between noise and length of school enrollment indicated that an initial inflation of pressure for noise-school children disappeared as length of enrollment increased ($p < .01$ for both systolic and diastolic). These race differences will be pursued in a later paper.

children received an insoluble (failure) puzzle, and one-half received a soluble (success) puzzle. The soluble puzzle was a circle, and the insoluble puzzle was a triangle. Each child was allowed to work on the treatment puzzle for 2.5 minutes. After time was up on the first puzzle, the child was given a second, moderately difficult puzzle to solve. The second (test) puzzle was the same—a square—for all (success and failure) children. The child was allowed 4 minutes to solve the second puzzle. Whether or not the puzzle was solved, time to solution and the child's persisting or giving up before the 4 minutes had elapsed were used as measures of helplessness. We expected that children from noisy schools would be more susceptible to a failure (helplessness) manipulation than children from quiet schools would be, and thus would be less likely to solve the puzzle, slower to find the solution, and more likely to give up on the second puzzle following an insoluble (failure) treatment. Moreover, children from noisy schools, irrespective of their success-failure condition, were expected to give up more often than quiet-school children.

A large proportion (34%) of the children assigned to the success condition, and thus receiving a soluble treatment puzzle, failed to solve the treatment puzzle within the 2.5 minutes allowed. Since the puzzles were considered quite simple and had been pilot tested on children of the same age group, this result was quite unexpected. Although the fact that a number of children self-selected themselves into a failure condition makes interpretation of success-failure effects impossible, comparisons between the children from noise schools and those from quiet schools, irrespective of (controlling for) their pretreatment, are still valid.

Except for the first analysis, which includes only those children who worked on soluble treatment puzzles (success condition), the following analyses also include factors for success-failure (those who solved and those who did not solve the success treatment puzzle are treated as separate groups) and the interaction between success-failure and noise. The control factors were forced into the regression first, followed by success-failure (dummy coded), noise, and the Noise \times Success and Noise \times Months Enrolled interactions. Because of the difficulty in interpreting success-failure effects, they are not discussed. Moreover, since there were no significant interactions between

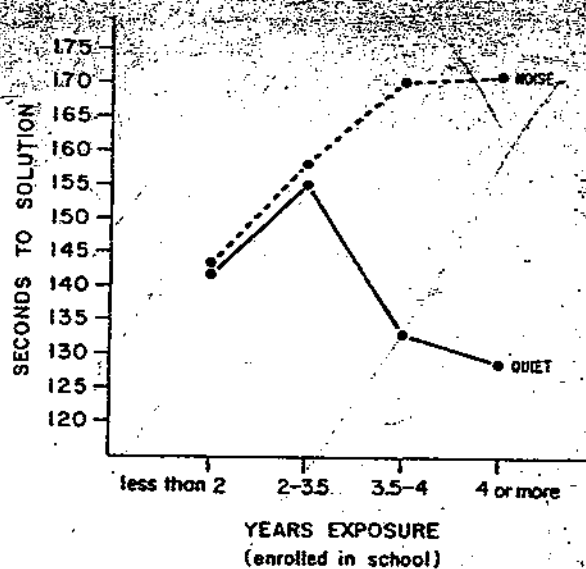


Figure 2. Performance on the second (test) puzzle as a function of school noise level and duration of exposure. (Each period on the years-exposure coordinate on the figure represents approximately one quarter of the sample. For example, 25% of the sample had been enrolled in the present school less than 2 years.)

success-failure and school noise level, the reported results are limited to the overall effects of noise.

First, an examination of only those who were assigned to the success treatment condition indicates that children from noise schools were more likely to fail to solve the treatment puzzle (41% failed) than children from quiet schools were (23% failed). This effect, however, was only marginally significant, $F(1, 131) = 3.62, p < .07$. Second, there were similar effects of noise on the second puzzle, which occurred irrespective of whether the child received a success (solved or not) or failure treatment. As was the case with the first puzzle, noise-school children were more likely to fail the second puzzle (53% failed) than quiet-school children were (36% failed), $F(1, 246) = 5.99, p < .09$, and were more likely to give up, $F(1, 246) = 11.15, p < .001$, than their quiet-school counterparts were, multivariate $F(3, 244) = 4.59, p < .004$. As is apparent from Figure 2, a marginal interaction between noise and months enrolled in school, $F(1, 243) = 3.27, p < .07$, suggests that the longer a child had attended a noise school, the slower he or she was in solving the puzzle. However, the multivariate F for this interaction was not significant.

Although the preceding analyses indicate that children from noise schools are generally less capable of performing a cognitive task (at least puzzle solving) than children from quiet schools are, they provide only suggestive evidence that noise-school children feel or act as if they have less control over their outcomes. The strongest hint that failure on these puzzles on the part of noise-school children is related to helplessness is found in the data indicating that noise-school children were more likely to give up before their allotted time had elapsed than their quiet counterparts were. It is possible, however, that a constant proportion of children who failed on the second puzzle gave up. It would follow that the amount of giving up in the noise condition was inflated by the fact that there was a greater pool of failures. This interpretation suggests that increased giving up under the noise condition cannot necessarily be viewed as a sign of helplessness. A final analysis addresses this point. This analysis, which includes only those children who failed the second puzzle, indicates that the failures of noise-school children were associated with giving up (31% of those who failed gave up) more often than the failures of quiet-school children were (7% of those who failed gave up), $F(1, 103) = 5.85, p < .025$. Thus, even though all of these children failed to solve the puzzle, noise-school children were less likely to persist than their quiet-school counterparts were.

ATTENTIONAL PROCESSES DURING NOISE

Human performance studies report that noise often results in a restriction (or focusing) in one's breadth of attention (Broadbent, 1971; Hockey, 1970). Cues irrelevant to task performance are dropped out first, and then, if attention is further restricted, relevant task cues are eliminated. Performance improves under noise when discarded cues are those that are distracting or competing with primary task cues. Performance is adversely affected, however, when a task requires a wide breadth of attention and when focusing results in the neglect of relevant as well as irrelevant cues. Similarly, focusing can have a negative impact on interpersonal behavior when subtle social cues (e.g., another's look of distress) are dropped out, but can improve the quality of an interaction when the discarded cues are merely distracting (S. Cohen & Lezak, 1977).

There is suggestive evidence that an attentional focusing strategy will persist even after noise is terminated. A number of studies have shown post-noise effects on performance and interpersonal behavior (e.g., Donnerstein & Wilson, 1976; Glass & Singer, 1972). These aftereffects of noise are consistent with what one would expect to occur when one uses a focusing strategy (S. Cohen, 1978). As yet, however, there is no direct evidence that attentional focusing occurs following exposure to noise in either the laboratory or the field.*

Selective inattention. A strategy that is similar (and possibly identical) to attentional focusing has been proposed by Deutsch (1964) to account for the effect of community noise on the verbal abilities of children. Deutsch suggests that children reared in noisy environments become inattentive to acoustic cues. That is, they tune out their acoustic environment. (This could be viewed as their focusing their attention on other aspects of their environment.) Children who tune out their noisy environments are not likely to distinguish between speech-relevant and speech-irrelevant sounds. Thus, they lack experience with appropriate speech cues and generally show an inability to recognize relevant sounds and their referents. The inability to discriminate sound is presumed to account, in part, for subsequent problems in learning to read. Although recent research suggests that children living and attending school in noisy neighborhoods are poorer at making auditory discriminations and in reading (Bronzaft & McCarthy, 1975; S. Cohen, Glass, & Singer, 1973), there is no direct evidence for the selective inattention mechanism. An alternative explanation is that noise masks parent and teacher speech, similarly resulting in a lack of experience with appropriate speech cues and, as a consequence, in reading deficits.

The present study attempts to assess the relation between environmental noise level and the selective inattention strategy in order (a) to determine the generality of noise-induced shifts in attention that occur in laboratory settings and (b) to test Deutsch's (1964) hypothesis. In line with

* The only study on the impact of chronic noise exposure on attentional focusing resulted in rather ambiguous findings, with children from noisy homes (as reported by parents) exhibiting general performance deficits but no focusing strategy (Heft, 1979). A replication of the incidental memory task used in the Heft study was administered in the present study. Errors in administering the task, however, made the data uninterpretable.

the testing of the Deutsch hypothesis, the relation of the above-mentioned variables to auditory discrimination and reading achievement is also assessed.

Because children who are relatively inattentive to acoustic cues should be less affected by an auditory distractor, distractibility was used as a measure of selective inattention. Under both ambient and distracting conditions, the subjects performed a task consisting of crossing out the *e*'s in a two-page passage from a sixth-grade reader. They were instructed to move from left to right and from top to bottom of the page, as if they were reading, and to go as fast as they could without missing any *e*'s. Each subject worked on a short practice paragraph and then on the task for 2 minutes. Two versions (different samples of prose) were used.

In the distraction condition, the child worked on one of the versions of the task while a tape recording of a male voice read a story at a moderate volume. In the no-distraction condition, the alternative form of the task was completed under ambient sound conditions. The distraction and no-distraction tasks were administered on different testing days. Both the order of alternative versions of the task and the experimental conditions were counterbalanced. The criterion measure was performance (percentage of *e*'s found) on the distraction task after the scores were adjusted for no-distraction performance. It was expected that the children from noise schools would be less affected by distraction than the children from quiet schools. Since selective inattention is a strategy that develops over time, it was also predicted that this tuning-out strategy would increase with increased exposure (S. Cohen et al., 1973).

Separate analyses examined the number of lines completed under distraction and the percentage of *e*'s in the completed lines that were found under distraction. No-distraction performance (number of lines in the first analysis and percentage of *e*'s in the second) was added as an additional control variable in order to equate the children on their ability to perform the task under quiet conditions. There were no differences between the noise group and the quiet group (nor was there an interaction) on the number of lines completed under distraction. There was, however, a significant interaction between noise-quiet and months enrolled in school, $F(1, 237) = 5.05, p < .03$, for the percentage-of-*e*'s-found measure. As is apparent from Figure 3,

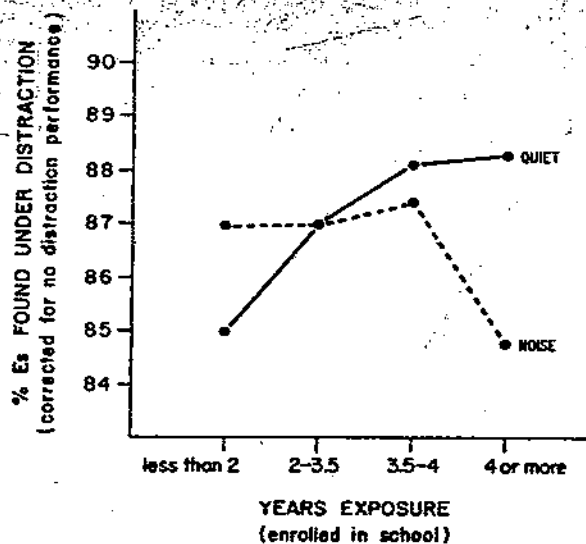


Figure 3. Distractibility as a function of school noise level and duration of exposure. (Each period on the years-exposure coordinate on the figure represents approximately one quarter of the sample. For example, 25% of the sample had been enrolled in the present school less than 2 years.)

the children in noise schools did better than the quiet group on the distraction task during the first 2 years of exposure and did worse after 4 years of exposure. Contrary to earlier evidence, this finding suggests that as the length of noise exposure increases, children are more, rather than less, disturbed by auditory distractors. One possible explanation for this effect is that at first, the children attempt (somewhat successfully) to cope with noise by tuning it out. Later, however, as they find that the strategy is not adequate, they give up. This interpretation is consistent with the helplessness data.

As suggested earlier, reading deficits in children from noisy neighborhoods have been attributed to noise-impacted children's selective filtering out of acoustic cues. Auditory discrimination and reading achievement were assessed in an attempt to replicate previous work and to determine whether there was an association between these measures and the children's attentional strategies. Standardized reading and math tests (administered during the second and third grades by the school system) were gathered from school files, and the Wepman Auditory Discrimination Test (Wepman, Note 1) was administered individually to children in the soundproof van. The Wepman test consists of 40 pairs of words, some of which differ from each other in either initial or final sound, for example,

sick-thick or *map-nap*. The pairs of words are recorded on tape and presented to each child through earphones. The child is instructed to report if the two words in each pair are the same or different. Control word pairs, in which the words are the same, allow for the elimination of children who have problems with same-different judgments or who are not attending to the task.

In order to roughly equate the noise and quiet conditions on the aptitude of the children at the time they entered school, the analyses of school achievement and auditory discrimination scores included an additional control for the mean cognitive abilities of the child's class on entering the first grade. None of the multivariate or univariate analyses were significant for this cluster. Math, reading, and auditory discrimination were all unrelated to both noise and the Noise \times Months Enrolled in School interaction.

Further analyses (Pearson correlations) suggest that the children who were better at auditory discriminations were also better on both the reading test, $r(231) = .19, p < .05$, and the math test, $r(231) = .18, p < .05$. There were, however, no significant relations between these variables and the selective inattention measure. The same analyses, including only noise-school children, and correlations partialing out control variables for both the entire sample and the noise sample yielded similar results. In summary, there is no evidence that aircraft noise affects reading and math skills, or that these skills are related to a selective inattention strategy.

Classroom as the unit of analysis. Since noise would be likely to have an impact on school achievement by affecting behavior in the classroom, a second analysis of the school achievement cluster was performed with classroom, rather than individual child, as the unit of analysis. This covariance analysis treated the control factors as covariates and months enrolled in school, noise, and classrooms (nested in noise) as independent variables. This analysis is considerably more conservative than the previous analysis because the degrees of freedom in the denominator are based on the number of classrooms (37) rather than on the number of children (262). The results for the school achievement cluster were the same.

The classroom analysis was not used for the other clusters, since those measures were not achievement oriented and thus were presumed not to be classroom mediated. The subjects were also

tested individually, not in the classroom. Even using this ultraconservative technique, however, a reanalysis of the other clusters indicates very similar results for the parent-questionnaire, blood pressure, and helplessness clusters. Differences between the noise group and the quiet group on the child-questionnaire and selective inattention clusters, which were significant in the previous analysis, did not reach statistical significance with classroom used as the unit of analysis.

QUIET HOMES AND NOISY SCHOOLS

To determine whether or not living in a relatively quiet home (at least in terms of aircraft noise) would lessen the impact of school noise, we isolated the children living in the 20 quietest homes in the noise sample, that is, in homes with contour levels of less than 68 in terms of the Community Noise Equivalency Level (CNEL).⁷ These children were then compared (using the regression techniques described earlier) with the remainder of the noise sample and with the entire quiet sample.⁸ In no case was there a difference between these quiet-home children and the remaining children of the noise sample. In a number of cases, however, even this small group of 20 showed the effects of noise reported earlier. Thus the noise-sample children from quiet homes were less likely to solve the first helplessness task puzzles than the quiet-sample controls were, $F(1, 132) = 3.04, p < .10$. The longer a child had attended a noisy school, the less likely he or she was to solve either the first puzzle, $F(1, 130) = 4.06, p < .05$, or the second puzzle, $F(1, 240) = 2.07, p < .15$. Moreover, children from quiet homes but noisy schools were more likely to fail, $F(1, 244) = 6.20, p < .01$, and to give up, $F(1, 244) = 11.95, p < .001$, on the second puzzle than children from quiet schools were, multivariate $F(3, 244) = 4.71, p < .003$. Further, their failures on the second puzzle were associated with giving up more often than the failures of quiet-school children were, $F(1, 102) = 6.27$,

⁷ CNEL is a measure of community noise giving more weight to noise occurring between 1900 and 2200 hours and the most weight to noise occurring between 2200 and 0700 hours (cf. Peterson & Gross, 1972).

⁸ Noise was dummy coded. The two contrasts discussed in this section were used to determine the impact of noise. This is a conservative technique of doing the contrasts, since the error term for the entire sample is used in calculating the F .

$p < .025$. Noise-school children from quiet homes also had both higher systolic blood pressure, $F(1, 240) = 3.59, p < .06$, and higher diastolic blood pressure, $F(1, 240) = 5.32, p < .02$, than children from quieter schools did, multivariate $F(2, 239) = 2.84, p < .06$. There were no effects, however, on the selective inattention task (crossing out *e*'s under distraction condition), as reported for the entire sample.

These analyses suggest that living in a relatively quiet neighborhood did not lessen the cumulative impact of exposure to noise at school. The reason may be that the noise experienced during school attendance is sufficient to create noise effects.

Air Pollution

A possible alternative explanation for differences between the noise and quiet samples is air pollution levels. Such an alternative is very unlikely. Sulfur dioxide was minimal at all the school sites, never exceeding the California standard (South Coast Air Quality Management District, Note 2; State of California, Note 3). Ozone and nitrogen dioxide standards were exceeded, but maximum levels were slightly higher at the control schools than at the airport schools. The maximum 1-hour rates in any school area for ozone (.21 parts per million) and NO_2 (.60 ppm) were below levels that generally show any effects on human behavior or health (Morrow, 1975; National Academy of Sciences, Note 4). Maximum carbon monoxide was slightly higher in the airport schools (30 vs. 27, 22 ppm), but average values were identical (6 ppm). The differences in maximum values of 8 ppm are negligible, and human effects from CO concentrations of less than 40 ppm are extremely rare (National Air Pollution Control Administration, 1970). Note that we have used maximum values in arguing against an air pollution alternative, thus presenting a very conservative counterargument. Average values in all cases were considerably below established standards.

Conclusions

In general, the evidence presented in this article is consistent with laboratory work on physiological response to noise and on uncontrollable noise as a factor in helplessness. Thus children from noisy schools have higher blood pressure and are more likely to give up on a task than children from

quiet schools are. The development of attentional strategies predicted from laboratory work and previous field research was, on the whole, not found. Contrary to prediction, increased years of exposure led to children's being more distractible rather than less. However, a general deficit in task performance on the puzzle task and increased distractibility do seem to support the more general hypothesis that prolonged noise exposure affects cognitive processes.

These data are most interesting, however, because of the tentative answers they provide concerning questions of adaptation to noise over time. One interpretation of the data is that they indicate some habituation of physiological stress response but show no signs of adaptation of cognitive and motivational effects. In fact, in a number of cases, increased length of exposure resulted in an increased negative impact of noise. First, the only evidence for an adaptation effect is provided by the systolic blood pressure data. On that measure, the greatest difference between the noise and quiet groups occurred during the first 2 years of exposure. As length of exposure increased, these differences leveled out but still remained substantial. Perceptions of noise and noise annoyance did not adapt. Thus children from noise schools and their parents reported more noise and being more bothered by noise. Parents, in fact, reported higher levels of noise as their length of residence in the noisy area increased. Neither the cognitive deficits on the helplessness puzzles (which actually increased over time) nor the giving-up syndrome of the children from noise schools lessened with increased length of exposure. Finally, although noise-school children were initially less affected by an auditory distractor, increased length of exposure (beyond 4 years) seemed to result in greater distractibility. Thus the preponderance of evidence suggests a lack of successful adaptation over time. The above interpretation, however, is only tentative. Although length-of-exposure differences may be due to increased exposure to noise, they may also be attributable to some unknown factors that differentiate between children who continue to live in the air corridor and those who move, or to some combination of exposure and these factors.

It should be noted that the failure of the present study to replicate the previously reported relation between community noise and reading ability (Bronzaft & McCarthy, 1975; S. Cohen et al.,

1973) may be attributable to an experimental design insensitive to noise-induced differences in school achievement. In both of the earlier studies, all the students attended the same school. Moreover, in the Cohen et al. study, students from both noisy and quiet apartments were taught in the same classrooms by the same teachers. In the present study, noise-sample children and quiet-sample children attended different schools, were in different classrooms, and had different teachers. It is likely that these factors add substantial error variance to the equation, making the detection of a small effect of noise quite difficult.

Can we conclude that community noise has effects that are similar to noise-induced effects reported in the laboratory literature? The similarity of our results to those reported in laboratory settings is striking. However, we still must be cautious. Replications of these results in other settings and with other populations are required before definitive conclusions are possible. To this end, our own research program includes an ongoing replication of this study, with a population exposed to traffic noise, as well as plans to collect longitudinal data on the children attending airport schools.

What conclusions can we make in regard to public policy? From a policy point of view, these data are valuable but not sufficient. At least 8 million people in this country are exposed to aircraft noise (U.S. Environmental Protection Agency, 1974), and the vast majority of noise-impacted communities have racial and social class compositions more similar to the composition of the present sample than to that of the general population (U.S. Environmental Protection Agency, Note 5). In combination with the laboratory noise literature, these data clearly suggest lending additional weight to the possible impact of aircraft noise on psychological adjustment and on nonauditory aspects of health. Replications of these results, however, would substantially increase their potential influence in the realms of both science and social policy.

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**ACOUSTICAL PERFORMANCE
CRITERIA, DESIGN REQUIREMENTS,
AND GUIDELINES FOR SCHOOLS**

ANSI S12.60-2002

Accredited Standards Committee S12, Noise

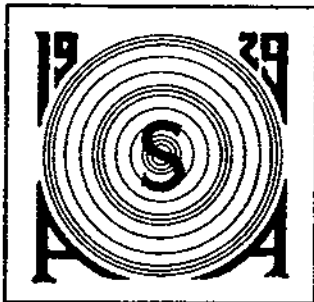
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AMERICAN NATIONAL STANDARD
**Acoustical Performance Criteria,
Design Requirements,
and Guidelines for Schools**

Secretariat
Acoustical Society of America

Approved 26 June 2002
American National Standards Institute, Inc.

Abstract

This Standard provides acoustical performance criteria, design requirements, and design guidelines for new school classrooms and other learning spaces. The standard may be applied when practicable to the major renovation of existing classrooms. These criteria, requirements, and guidelines are keyed to the acoustical qualities needed to achieve a high degree of speech intelligibility in learning spaces. Design guidelines in informative annexes are intended to aid in conforming to the performance and design requirements, but do not guarantee conformance. Test procedures are provided in an annex when conformance to this standard is to be verified.

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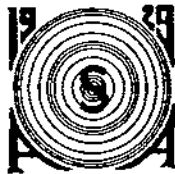
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35 Pinelawn Road, Suite 114 E
Melville, New York 11747-3177
Telephone: + 1 631 390 0215
Telefax: +1 631 390 0217
E-mail: asastds@aip.org

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Foreword

[This foreword is for information only and is not an integral part of American National Standard *Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools*.]

This standard contains 7 annexes.

This standard was developed under the jurisdiction of Accredited Standards Committee S12, Noise, which has the following scope:

Standards, specifications, and terminology in the field of acoustical noise pertaining to methods of measurement, evaluation, and control, including biological safety, tolerance, and comfort, and physical acoustics as related to environmental and occupational noise.

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T.J. DuBois	H.F. Kingsbury	L. Redden	B.D. Tinianov
G. Ehrlich	J.G. Lilly	S.I. Roth	E.A. Wetherill
S.L. Ehrlich	J. Lyons	K.P. Roy	S.J. Woodhead
J. Erdreich	H.L. Merck	M.E. Schaffer	W.A. Yost
D. Fagen	R. Moulder		

Suggestions for the improvement of this standard are welcome. They should be made in writing to Accredited Standards Committee S12, Noise, in care of the Standards Secretariat, Acoustical Society of America, 35 Pinelawn Road, Suite 114E, Melville, New York 11747. Telephone: +1 631 390 0215; FAX: +1 631 390 0217; e-mail: asastds@aip.org

American National Standard

ACOUSTICAL PERFORMANCE CRITERIA, DESIGN REQUIREMENTS, AND GUIDELINES FOR SCHOOLS

0 Introduction

Good acoustical qualities are essential in classrooms and other learning spaces in which speech communication is an important part of the learning process. Excessive background noise or reverberation in such spaces interferes with speech communication and thus presents an acoustical barrier to learning. With good classroom acoustics, learning is easier, deeper, more sustained, and less fatiguing. Teaching should be more effective and less stressful with good acoustical characteristics in a classroom. There can be more verbal interaction and less repetition between teacher and students when spoken words are clearly understood. Although all those in a classroom, including teachers and adult learners, will benefit, special beneficiaries are young children and persons with hearing, language, speech, attention deficit, or learning disabilities. As discussed further in annex A, conformance to this standard will improve the quality of education by eliminating acoustical barriers for all students and teachers, including those with communication disabilities. Good design and attention to detail throughout the construction or renovation process can ensure conformance to the requirements of this standard.

1 Scope, purpose, and applications

1.1 Scope

1.1.1 This standard provides acoustical performance criteria and design requirements for classrooms and other learning spaces. Annexes are included to provide information on good design and construction practices, installation methods, and optional procedures to demonstrate conformance to the acoustical performance and design requirements of this standard. This standard seeks to pro-

vide design flexibility without compromising the goal of obtaining adequate speech intelligibility for all students and teachers in classrooms and learning spaces within the scope of this standard.

1.1.2 Acoustical performance criteria are specified in this standard by limits on maximum one-hour A-weighted and C-weighted background noise levels and limits on maximum reverberation times. An objective of these performance criteria is to achieve a level of speech that is sufficiently high relative to the background noise level for listeners throughout the classroom or learning space. However, a requirement for the relative difference between speech levels and levels of background noise, usually referred to as the signal-to-noise ratio, is not within the scope of this standard.

1.1.3 The control of background noise levels in this standard is achieved, in part, by specifying the minimum noise isolation for school building elements. Noise isolation requirements are applicable to the following two types of intrusive noise.

- Noise that intrudes into the classroom or learning space from sources outside of the school building envelope. These noise sources include vehicular traffic, aircraft, industrial plants, and activity in schoolyards or from grounds maintenance. (Schools usually can control only the schoolyard and grounds-maintenance noise sources. However, when a new school site is under consideration, sound from commercial, industrial and transportation noise sources can be taken into account.)
- Noise that originates within the school building and intrudes into the classroom through classroom walls and partitions, floor-ceiling assemblies and ventilation systems. Interior noise sources can be isolated through the proper design and construction of the school building and by noise control measures applied to the building services and utilities.

1.1.4 This standard does not apply to noise generated within a classroom by its occupants. Occupant-generated noise sources include voices and the sounds of classroom activities such as the moving of chairs. Furthermore, this standard does not apply to the noise from portable or permanent built-in equipment used during the course of instruction, such as audiovisual equipment and computers. However, the background noise generated by occupants and instructional equipment can seriously degrade communication or speech intelligi-

bility in learning spaces. Recommendations are given in B5 in annex B for noise control of instructional equipment. Recommendations for background noise assessment procedures are given in E3.2.1 in annex E for such equipment. The teacher can reduce classroom activity noise directly through appropriate controls. This activity noise can also be reduced indirectly in classrooms with acoustical qualities that conform to this standard since a quiet classroom with low reverberation tends inherently to encourage children to lower the level of their voices and the sounds of their activity.

1.1.5 The following annexes are provided to support this standard.

- Annex A: Rationale for the acoustical performance criteria in this standard. (Informative)
- Annex B: Design guidelines for noise control for building services, utilities, and instructional equipment. (Informative)
- Annex C: Design guidelines for controlling reverberation in classrooms and other learning spaces. (Informative)
- Annex D: Design guidelines for noise isolation between adjacent learning spaces within a school building and noise isolation by the building facade. (Informative)
- Annex E: "Good architectural practices" and procedures to verify conformance to the standard. (Normative but Informative if conformance is not to be verified.)
- Annex F: Potential conflict between the acoustical requirements of this standard and indoor air quality (IAQ) and multiple chemical sensibility (MCS). (Informative)
- Annex G: Cautionary remarks on using supplemental descriptors for evaluating noise in classrooms and other learning spaces. (Informative)

1.2 Purpose

This standard is intended to help school planners and designers provide the acoustical qualities necessary for good speech communication between students and teachers in classrooms and other learning spaces without the use of electronic amplification systems.

1.3 Applications

1.3.1 This standard applies to classrooms and other core learning spaces of small-to-moderate size with volumes not exceeding 566 m³ (20 000 ft³) and to ancillary learning spaces of any volume.

Core learning spaces larger than the above volume limit shall be considered ancillary spaces for purposes of this standard. The standard does not apply to special-purpose classrooms, teleconferencing rooms, special education rooms, such as those for severely acoustically-challenged students or other spaces, such as large auditoria that have unique or more stringent acoustical requirements. Conformance to the requirements of this standard should be considered to be a minimum goal for the acoustical qualities of such spaces, excluding auditoria. The standard does not provide recommendations for electronic amplification or for electronic aids for persons with hearing impairment.

1.3.2 The acoustical performance criteria and design requirements of this standard apply during the design and construction of all new classrooms or learning spaces of small-to-moderate size as specified in 1.3.1. As far as is practicable, these acoustical performance criteria and design requirements also apply during the design and reconstruction of all renovated classrooms and learning spaces. However, the noise reduction and reverberation control principles in this standard also apply to larger classrooms or learning spaces. Thus, while this standard does not necessarily apply to all college and university classrooms or lecture halls, business or professional educational institutions or other adult education centers, acoustical performance criteria and design requirements similar to those in this standard may still pertain to such applications. Appropriate application of this standard to such alternative learning spaces is encouraged.

1.3.3 This standard is intended for use by school building specialists, educators, and parents. The information in annexes B, C, and D is intended for direct application by school design professionals including architects.

2 Normative references

The following standards contain provisions that, through reference in this text, constitute provisions of this American National Standard. At the time of approval of this standard by the American National Standards Institute, Inc. (ANSI), the editions indicated were valid. Because standards are revised from time to time, users should consult the latest revision approved by the American National Standards Institute (ANSI), International Electrotechnical Commission (IEC), and the American Society

for Testing and Materials (now called ASTM International). For the purposes of this standard, the use of the latest revision of a referenced standard is not mandatory. Information on recent editions is available from the ASA Standards Secretariat and ASTM International.

ANSI S1.1-1994 (R1999), American National Standard Acoustical Terminology [Web Site - <http://asa.aip.org>].

ANSI S1.4-1983 (R2001), American National Standard for Sound Level Meters.

ASTM E336-97, Standard Test Method for Measurement of Airborne Sound Insulation in Buildings. [Web site - <http://www.astm.org>].

ASTM E413-87 (1999), Standard Classification for Rating Sound Insulation.

ASTM E989-89 (1999), Standard Classification for Determination of Impact Insulation Class (IIC).

ASTM E1007-97, Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures.

IEC 61672-1, Electroacoustics — Sound level meters — Part 1: Specifications [Web site - <http://www.iec.ch>].

3 Definitions

The following definitions apply for the purposes of this standard.

3.1 General terms

3.1.1 classrooms and other learning spaces. Locations within buildings where students assemble for educational purposes.

3.1.1.1 core learning spaces. Spaces for educational activities where the primary functions are teaching and learning and where good speech communication is critical to a student's academic achievement. These spaces include, but are not limited to, classrooms, (enclosed or open plan), instructional pods or activity areas, group instruction rooms, conference rooms, libraries, offices, speech clinics, offices used for educational purposes and music rooms for instruction, practice and performance.

3.1.1.2 ancillary learning spaces. Spaces where good communication is important to a student's educational progress but for which the primary educational functions are informal learning, social

interaction or similar activity other than formal instruction. These areas include, but are not limited to, corridors, cafeterias, gymnasias, and indoor swimming pools.

3.1.2 acoustical privacy. Pertains to the acoustical attenuation between spaces that is needed to prevent conversation in one space from being understood in an adjacent space.

3.1.3 conforming learning space. Any classroom or other learning space for which the acoustical performance criteria and design requirements conform to this standard.

3.2 Terms relating to acoustical performance and design

The following terms are defined in a simplified form. Complete technical definitions are provided in ANSI S1.1.

3.2.1 noise level or sound level. Generic terms employed interchangeably throughout this standard to represent the frequency-weighted sound pressure level of an airborne sound. This descriptor is used to express the magnitude of a sound in a manner related to how the ear perceives this magnitude. Noise level or sound level is expressed in decibels, unit symbol dB.

3.2.1.1 A-weighted sound level. Sound pressure level measured with a conventional frequency weighting that roughly approximates how the human ear hears different frequency components of sounds at typical listening levels for speech. The A-weighting (see ANSI S1.4 or IEC 61672-1) attenuates the low-frequency (or low-pitch) content of a sound. A-weighted sound level is expressed in decibels, unit symbol dB.

3.2.1.2 C-weighted sound level. Sound pressure level measured with a conventional frequency weighting (see ANSI S1.4 or IEC 61672-1) that does not significantly attenuate the low-frequency (or low-pitch) content of a sound. C-weighted sound level is expressed in decibels, unit symbol dB.

3.2.1.3 one-hour-average A-weighted or C-weighted sound level. Level of the time-mean-square A-weighted or C-weighted sound pressure averaged over a one-hour period. One-hour-average sound level is expressed in decibels, unit symbol dB.

3.2.1.4 yearly average day-night average sound level. Level of the time-mean-square A-weighted

sound pressure averaged over a one-year period with 10 dB added to sound levels occurring in each nighttime period from 22:00 hours to 07:00 hours. Yearly average day-night average sound level is expressed in decibels, unit symbol dB.

3.2.2 background noise level. Sound in a furnished, unoccupied learning space, including sounds from outdoors, building services and utilities operating at their maximum levels. For the purposes of this standard, this excludes sound generated by people within the building or sound generated by temporary or permanent instructional equipment.

3.2.2.1 steady background noise. Noise from building services and utilities and from outdoor noise sources that is fairly constant over time.

3.2.2.2 unsteady background noise. Time varying noise from transportation sources, such as aircraft, vehicle traffic or from other time varying outdoor or indoor noise sources. Unsteady background noise varies substantially over time.

3.2.3 reverberation. An acoustical phenomenon that occurs in an enclosed space, such as a classroom, when sound persists in that space as a result of repeated reflection or scattering from surfaces enclosing the space or objects in the space, such as chairs or cabinets.

3.2.3.1 reverberation time. A measure of the amount of reverberation in a space and equal to the time required for the level of a steady sound to decay by 60 dB after it has been turned off. The decay rate depends on the amount of sound absorption in a room, the room geometry, and the frequency of the sound. Reverberation time is expressed in seconds, unit symbol s.

3.2.4 sound absorption and reflection. Acoustical phenomena that occur whenever sound strikes a surface. Absorbed sound is the portion of the sound energy striking the surface that is not returned as sound energy. Reflected sound is the remaining portion that bounces off the surface. The magnitude of the reflected sound in a room is determined by the amount of sound absorption at the surfaces, the room geometry, and the frequency of the sound. As distance from a sound source in a classroom increases, the sound is increasingly dominated by reflected sound.

3.2.4.1 sound absorption coefficient. A measure of the ability of a material to absorb sound and equal to the ratio of the intensity of the ab-

sorbed sound to the intensity of the incident sound. The sound absorption coefficient of a material normally varies with frequency. It ranges from about 0.2 to about 1.0 for sound-absorbing materials, to less than 0.05 for a smooth, painted concrete floor. Sound absorption coefficients measured in a laboratory (that is, in a reverberation room) can be larger than 1.0 because of test method and sample size effects.

3.2.5 acoustic isolation. A measure of the decrease in sound level (attenuation) when sound passes from one room to another, such as from one side of a wall to the other side. The passage of sound may be via an airborne path or via a structureborne path.

3.2.5.1 attenuation of airborne sound. Attenuation of sound passing through walls or ceilings, between spaces within a building, or through roofs or external walls. The attenuation of airborne sound depends on the sound reduction through these elements, on their size, on sound leakage around their periphery, on the sound absorption in the receiving space, and on the frequency of the sound.

3.2.5.2 sound transmission class. Single number rating for the acoustic attenuation of airborne sound passing through a partition or any other building element such as a wall, roof, or door as measured in an acoustical testing laboratory following accepted industry practice, abbreviation STC. A higher STC rating provides more sound attenuation through a partition.

3.2.5.3 noise isolation class. Single number rating of the noise isolation between two enclosed spaces that are acoustically connected by one or more paths, abbreviation NIC. The rating is derived from the difference in sound levels between two spaces. A higher NIC rating provides more noise isolation between the two spaces.

3.2.5.4 impact insulation class. Single number rating for the attenuation, measured in an acoustical testing laboratory, of structureborne sound through floor or floor-ceiling assemblies from floor impacts into the space below, abbreviation IIC. A higher IIC rating provides more impact sound attenuation into the space below.

3.2.5.5 field impact insulation class. Single number rating of the structureborne noise isolation provided by a floor or floor-ceiling assembly, abbreviation FIIC. The rating is derived from

Table 1 — Maximum A-weighted steady background noise levels and maximum reverberation times in unoccupied, furnished learning spaces

Learning space ^{a)}	Maximum one-hour average A-weighted steady background noise level ^{b,c)} dB	Maximum reverberation time for sound pressure levels in octave bands with midband frequencies of 500, 1000, and 2000 Hz s
Core learning space with enclosed volume < 283 m ³ (< 10 000 ft ³)	35	0.6
Core learning space with enclosed volume > 283 m ³ and ≤ 566 m ³ (> 10 000 ft ³ and ≤ 20 000 ft ³)	35	0.7
Core learning spaces with enclosed volumes > 566 m ³ (20 000 ft ³) and all ancillary learning spaces	40 ^{d)}	e)

a) See 3.1.1.1 and 3.1.1.2 for definitions of core and ancillary learning spaces.

b) See 4.3.1 for limits on unsteady (time varying) background noise levels.

c) See 4.3.2 for other limits on background noise from building services and utilities including C-weighted steady background noise levels.

d) When corridors are used solely for conveyance of occupants within the school building and structured learning activities do not occur, the A-weighted steady background noise level limit for such corridors may be increased to 45 dB. The use of corridors for formal learning purposes should be avoided.

e) See C3.3 in annex C for recommendations on control of reverberation in these spaces.

the sound levels measured in the receiving room when a standard tapping machine is operating on the floor assembly in the source room above. The higher the FIIC rating, the more the impact noise isolation between the two spaces.

4 Acoustical performance criteria and noise isolation design requirements and guidelines

4.1 Introduction

Acoustical performance criteria and design requirements are contained in the following sub-clauses. The performance criteria shall apply to classrooms and other core learning spaces and to ancillary learning spaces. For purposes of this standard it shall be assumed that the learning spaces are furnished consistent with their use and the building is unoccupied with doors and windows closed. Acoustical design requirements for minimum noise isolation apply only to fully enclosed classrooms and learning spaces.

4.2 Performance criteria for background noise and reverberation time

The one-hour-average A-weighted steady background noise level and the reverberation times shall not exceed the limits specified in table 1. The limits for the background noise shall apply for the following conditions:

- 1) for the noisiest continuous one-hour period during times when learning activities take place;
- 2) exterior and interior noise sources are operating simultaneously;
- 3) interior sources are operating as defined in 4.3.2; and
- 4) portable and permanent (built-in) instructional equipment, such as computers and audio-visual equipment, are turned off.

While designing to conform to both acoustical performance criteria in table 1 is required, conformance to the background noise level criterion is the more important of the two. When optional conformance testing is carried out, the tolerances specified in 4.7 reflect this relative importance.

4.3 Background noise levels

4.3.1 Unsteady background noise from transportation noise sources. School facilities should be sited and designed to limit the noise levels inside learning spaces from transportation noise sources, such as aircraft, road vehicles and trains. (See D2.3 in annex D for further guidance on outdoor-indoor noise isolation and school siting.)

The limits on A-weighted background noise levels in table 1 shall be increased by 5 dB when the noisiest hour is dominated by transportation noise and the following conditions apply to the A-weighted SLOW time-weighted background noise level. For core learning spaces with enclosed volumes not greater than 566 m³ (20 000 ft³), this level does not exceed 40 dB for more than 10% of this noisiest hour. For core learning spaces with enclosed volumes greater than 566 m³ (20 000 ft³) and for ancillary learning spaces, this level does not exceed 45 dB for more than 10% of this noisiest hour. (See E3.7.2 in annex E for a measurement method for this evaluation.)

4.3.2 Background noise from building services and utilities. Steady background noise from HVAC systems and other building services and utilities operating simultaneously shall conform to the requirements of table 1 for all operating modes (for example, cooling, heating, ventilating, and dehumidifying) and at the maximum operating conditions (for example, maximum fan speed with all lights on). Unsteady background noise levels from plumbing systems (for example, toilets and bathing rooms) operating at their noisiest condition, shall also conform to the limits in table 1 taking into consideration their normally limited operating time within any one hour. (See annex B for guidelines on control of noise from HVAC systems, building services, and utilities.)

4.3.2.1 Limits on steady C-weighted background noise levels from building services and utilities. The maximum one-hour-average C-weighted steady background noise levels from the combination of HVAC systems, lighting, and other building services and utilities operating simultaneously shall not exceed the limits on A-weighted steady background noise levels in table 1 by more than 20 dB.

4.3.2.2 Limits on disturbing sounds from building services and utilities. Disturbing sounds, such as rumble, hum, buzz, whine, hiss, or whistle, from HVAC systems and other building services

and utilities shall be controlled so as to not interfere with speech communication or be distracting or annoying to the occupants of the learning spaces.

4.3.2.3 Limits on time-varying noise levels from building services and utilities. The A-frequency-weighted and SLOW time-weighted noise level at any usable location in a room, from HVAC systems and other building services operating as specified in 4.3.2 shall not vary by more than 3 dB during any 5-s period. This shall be measured with a sound level meter conforming to at least the Type 2 requirements of ANSI S1.4 or the class 2 requirements of IEC 61672-1. Such time-varying noise shall be considered to be caused by the building systems and services, unless the noise is clearly recognized as being produced by transportation noise sources, such as road traffic or aircraft, addressed in 4.3.1.

4.3.3 Background noise from instructional equipment. For this standard, noise from instructional equipment is not included in the steady background noise. However, control of such noise, especially that from permanent built-in instructional equipment, should be carefully addressed in the planning stages for new and renovated schools. (See B5 in annex B for guidance on applicable noise control measures for such instructional equipment.)

4.4 Reverberation times

The maximum allowable reverberation times in unoccupied, furnished core learning spaces are specified in table 1 for core learning spaces with enclosed volumes of not more than 566 m³ (20 000 ft³). Design guidelines for controlling reverberation time in learning spaces of all sizes and for selection and proper certification for any acoustical materials applied to control this reverberation are presented in annex C.

4.5 Noise isolation design

The first and most cost effective step in achieving good noise isolation between learning spaces and other spaces in a school is accomplished in the facility planning stage. This includes optimizing the location of noisy spaces and activities to protect sensitive learning spaces. Where this is not possible, adequate noise isolation is needed.

4.5.1 Need for noise isolation. The acoustical performance criteria for background noise levels in

Table 2 — Minimum STC ratings required for single or composite wall, floor-ceiling, and roof-ceiling assemblies that separate an enclosed core learning space from an adjacent space

Adjacent space			
Other enclosed or open plan core learning space, speech clinic, health care room and outdoors ^{c)} 50	Common use and public use toilet room and bathing room 53	Corridor, ^{a)} staircase, office or conference room ^{a,b)} 45	Music room, mechanical equipment room, ^{d)} cafeteria, gymnasium, and indoor swimming pool 60

- a) For corridor, office, or conference room walls containing doors, the basic wall, exclusive of the door, shall have an STC rating as shown in the appropriate column in this table. The entrance door shall conform to the requirements of 4.5.5.
- b) When the need for acoustical privacy is critical, the minimum STC rating of the partitions around an office or conference room shall be increased to 50.
- c) An STC rating of 50 is the minimum for the exterior walls and roofs of a core learning space. However, this rating does not ensure conformance to the background noise limits in table 1 for noise from major outdoor noise sources. See D2.3 in annex D for further guidance on the selection of appropriate STC ratings.
- d) When the adjacent space is a mechanical equipment room containing fans circulating 140 m³/min. (5000 ft³/min.) or more, the minimum STC rating shall be 60. When the fan circulation is less than this rate, the STC rating may be as low as 45 providing the maximum A-weighted steady background noise level in the adjacent core learning space does not exceed 35 dB. The minimum STC rating shall include the effect of entry door(s) into the mechanical equipment room.

4.2 and 4.3 apply to unoccupied facilities. However, in occupied facilities, activity noises generated in one space can be transmitted through walls, floors, ceilings, and doors to adjacent learning spaces, thus contributing to the overall background noise level in those spaces. Adequate sound isolation is required to limit noise transmission between core learning spaces and adjacent spaces in occupied facilities. The minimum STC ratings of table 2 and table 3 are intended to provide this noise isolation for normal activities in adjoining spaces.

Certain educational styles (such as open plan and group learning) intentionally avoid the use of full enclosures between learning groups. Sometimes, partial height sound barriers or no barriers at all separate adjacent learning groups. Adequate noise isolation between adjacent learning groups cannot be assured unless each learning group is fully enclosed by ceiling-height sound barriers. Because of the inherent low noise isolation, partially enclosed or unenclosed learning spaces are not recommended when good speech communication is desired.

In occupied multistory educational facilities, the transmission of impact noise through the floor of the room above to the learning space below also contributes to the overall background noise level.

To limit impact noise disturbances in learning spaces, this standard also provides minimum impact insulation class (IIC) design requirements for the floor-ceiling assemblies above learning spaces for multistory educational facilities.

As discussed further in D1 in annex D, the noise isolation requirements of this standard are similar in concept to those in existing national and international building codes.

4.5.2 Noise isolation design requirements. In this standard, noise isolation is specified by the minimum values for the STC and IIC ratings for single and composite building elements that may provide acceptable noise isolation for learning spaces. Selection of these minimum ratings, achieved during architectural design, is the basis for limiting the transmission of background noise from external and interior sources into an enclosed learning space. After construction, a field measurement may be made to verify the noise isolation achieved [see 4.6 (3)].

When high noise isolation is required, as for music rooms, flanking of sound along common floors, walls, and roofs can become a limiting factor unless controlled with proper breaks in sound transmission paths or other similar treatments. There are many publications that provide details on de-

Table 3 — Minimum STC ratings recommended for single or composite wall, floor-ceiling and roof-ceiling assemblies separating an ancillary space from an adjacent space

Receiving ancillary Learning space	Adjacent space Corridor, ^{a)} staircase, common use and public use toilet and bathing room ^{b)}	Music room	Office or conference room ^{a)}	Outdoors ^{e)}	Mechanical equipment room, ^{f)} cafeteria, gymnasium or indoor swimming pool
Corridor	45	60 ^{c)}	45 ^{d)}	45 ^{c)}	55 ^{c)}
Music room	60	60	60	45	60
Office or conference room	45	60	45 ^{d)}	45	60

- a) For corridor, office or conference room walls containing entrance doors, the STC rating of the basic wall, exclusive of the door, should be 45. The entrance door should conform to the requirements of 4.5.5.
- b) The STC rating for an ancillary space/toilet partition does not apply when the toilet is private and connected to a private office. An STC rating higher than 45 may be required for separating a quiet office or conference room from a common use or public use toilet or bathing room.
- c) When the corridor will not be used as an ancillary learning space, the minimum STC rating may be reduced to not less than 45 or to not less than 40 for an exterior wall. Use of corridors as ancillary learning spaces should be avoided when they are located next to the noisy spaces indicated in the table by the high STC ratings.
- d) When the need for acoustical privacy is critical, the STC rating should be increased to 50.
- e) See D2.3 in annex D for further guidance on the selection of appropriate STC ratings.
- f) NOTE d) of table 2 applies except that the STC rating may be as low as 40 providing the maximum A-weighted steady background noise level in the adjacent ancillary learning space does not exceed 40 dB.

sign and construction of separating partitions that may achieve the required STC ratings. Annex D provides guidelines and references for such noise isolation design and construction.

4.5.3 Sound transmission class (STC) ratings

4.5.3.1 Core learning spaces. The minimum STC ratings in table 2 shall be employed for the acoustical design of wall, floor-ceiling and roof assemblies that separate enclosed or open plan core learning spaces from adjacent spaces. When the assembly includes two or more elements, such as doors or windows, the STC of this composite assembly also shall conform to the requirements of table 2.

Composite assemblies are walls, floor-ceiling and roof-ceiling constructions composed of more than one element (for example, a wall with a door, window, or penetrations by HVAC ducts or other services). (See NOTE a) to table 2 for special requirements for doors in corridor, office or conference room walls.)

Walls and floor-ceiling assemblies may not maintain their design STC rating if penetrations or openings for piping, electrical devices, recessed

cabinets, soffits, or heating, ventilating or exhaust ducts are unsealed. For this reason, all penetrations in sound-rated partitions shall be sealed and treated to maintain the required ratings. The STC rating requirements of table 2 shall also be employed for the design of temporary partitions that subdivide a learning space.

4.5.3.2 Ancillary learning spaces. Recommendations are given in table 3 for STC ratings for partitions (that is, walls and floor-ceiling assemblies) that enclose an ancillary learning space or that separate two ancillary spaces. When the partition includes two or more elements, such as doors, windows, or penetrations of the partition for HVAC ducts or other services, the STC of this composite construction also should conform to the recommendations of table 3.

4.5.4 Composite partitions. The required minimum STC ratings in table 2 apply to single or composite partitions. Basic wall assemblies (except those identified in NOTE a) for table 2) which contain doors or windows with STC ratings less than those given in table 2, will require higher STC ratings to conform to the required minimum STC ratings of the composite construction. This design

technique is also recommended for partitions enclosing the ancillary learning spaces covered by table 3. A method for estimating the STC rating of composite partitions is provided in D2.4 in annex D.

4.5.5 Entry doors into classrooms and other core learning spaces. To conform to the STC requirements of table 2 for composite walls, entrance doors into classrooms or other core learning spaces would be expected to have laboratory STC ratings of 30 or more in their operable condition. The STC rating for interior entry doors into, or between, music rooms shall be not less than 40. The location of classroom entry doors across a corridor should be staggered to minimize noise transmission between these classrooms.

Provisions should be made to ensure that the perimeter seals of sound rated doors are well maintained. Seals for entrance doors should be inspected and adjusted, as necessary, every six months. The gaskets of door seals should never be painted.

4.5.6 Impact Insulation Class (IIC) rating. The floor-ceiling assemblies of normally occupied rooms located above core learning spaces shall have IIC ratings of at least 45 and preferably 50. If a room below is an ancillary learning space, the floor-ceiling assembly shall have an IIC rating of at least 45. These IIC ratings shall apply without carpeting on the floor in the room above. In new construction, gymnasiums, dance studios or other high floor impact activity, shall not be located above classrooms or other core learning spaces. For refurbishment of existing structures, if it is not possible to avoid such an incompatible condition, the IIC rating of the separating floor-ceiling assembly shall be at least 70 when located above a core learning space with an enclosed volume not greater than 566 m³ (20 000 ft³); 65 when located above a core learning space with an enclosed volume greater than 566 m³ (20 000 ft³); and 65 when located above an ancillary learning space. Clause D2.5.1 in annex D provides further guidance on impact noise isolation.

4.6 Conformance to acoustical performance criteria and noise isolation design requirements

It is recommended that conformance to the acoustical performance criteria and noise isolation design requirements be verified by test. However, this standard does not require testing to demon-

strate conformance. When optional tests are performed to verify conformance with the requirements and recommendations of this standard, the following procedures shall be followed.

1) Tests to demonstrate conformance to the limits on background noise levels in table 1, 4.3.1, and 4.3.2.1 shall be performed in accordance with the procedures in E3 of annex E. If necessary, appropriate tests shall be performed to demonstrate conformance with the limits on disturbing or time varying noise from building services and utilities given in 4.3.2.2 and 4.3.2.3, (See E3.7.3 in annex E.)

2) Conformance to the limits on reverberation times in table 1 shall be verified by calculation or by measurement procedures in conformance, or equivalent, to those in E4 of annex E.

3) Conformance to the minimum sound transmission class (STC) design requirements of table 2 and the design recommendations of table 3 shall be verified by field determination of the noise isolation class (NIC) as described in E5.1 in annex E. However, it shall be considered unnecessary to verify conformance to these noise isolation design requirements and recommendations if conformance to the noise limits of table 1 is demonstrated for the noisiest hour when learning takes place.

4) Conformance to the impact insulation class (IIC) requirements of 4.5.6 shall be verified by the field testing procedures in E5.2 in annex E.

4.7 Conformance tolerances

When conformance testing or evaluation is performed, conformance to the requirements and recommendations of this standard is demonstrated if each of the following is achieved. No additional tolerances shall be allowed for the test methods or instruments used for such demonstrations except as specified in this subclause.

1) The measured A-weighted steady or unsteady background noise levels do not exceed the limits specified in table 1 and 4.3.1, respectively, by more than 2 dB. The C-weighted steady background noise levels do not exceed the limits in 4.3.2.1 by more than 2 dB.

2) Mean reverberation times, if calculated, do not exceed the limits in table 1 or, if measured, do not exceed the limits in table 1 by more than 0.1 s.

3) All separating walls and floor-ceiling assemblies have NIC ratings that are not less than a rating 5 points below the required STC rating in table 2 or

the recommended rating in table 3. For example, for a partition between a classroom and a speech clinic, conformance to the minimum STC rating of 50 in table 2 is achieved if the NIC rating is not less than 45.

4) All floor-ceiling assemblies separating occupied spaces from learning spaces below have a field impact insulation class (FIIC) rating that is not less than a rating 5 points below the design requirement specified in 4.5.6.

Annex A (Informative)

Rationale for acoustical performance criteria

A1 Introduction

The school classroom is an environment in which spoken language communication facilitates and enables students to learn essential academic, social, and cultural skills. Thus, the classroom serves as a communication channel for learning and should be free of acoustical barriers. This informative annex defines the perceptual, educational, and developmental rationale for the acoustical performance criteria specified in table 1 of this standard. These rationales allow determination of the signal-to-noise ratio and reverberation time that can ensure most children, adult learners, and teachers full and equal access to spoken communication within the classroom. The acoustical performance criteria in the standard are derived from empirical studies of classroom noise and reverberation and their effects on speech communication.

A1.1 Educational rationale

Intensive and continuous learning of social, intellectual, and communication skills occurs throughout childhood. A wide range of educational research studies [A1]* has shown that learning is predicated on the ability to communicate with spoken language, and that language input and language proficiency form the bases for most cognitive skills. Additionally, other research [A2] has shown that perception of spoken language provides the foundation for the ability to read and write. Communication with spoken language is essential to most classroom learning activities. Typically, as much as 60% of these activities involve students listening to and participating in spoken communications with the teacher and other students. The central role of spoken language in classroom learning underscores the need for a clear communication channel accessible to all students and teachers.

A1.2 Perceptual rationale

Communication with spoken language can occur successfully only when speech intelligibility is high. Research in speech perception [A3] has found that when the background noise is very low, speech intelligibility depends in part on the absolute sound level of the speech, and in part on the absence of excessive reverberation.

A1.3 Speech intelligibility in background noise

Most speech communication in classrooms occurs in the presence of background noise. When background noise is present, intelligibility depends on the sound pressure level of the speech and also on the level of the speech relative to the level of the noise, that is, the signal-to-noise ratio (SNR) [A4]. The sound levels of both the speech and noise are expressed as A-weighted sound levels in decibels. The relative speech to noise level, or SNR, expressed in decibels, is the sound level of the speech alone in the presence of background noise minus the sound level of the background noise.

Intelligibility increases as the SNR increases, either by raising the speech level or by decreasing the noise level. Speech perception research [A5] has shown that individuals with hearing impairments, speech and language disorders, or limited English proficiency require more favorable signal-to-noise ratios than individuals without these impairments or disorders to achieve high levels of speech intelligibility.

A1.4 Speech intelligibility in reverberant environments

Classrooms are enclosed spaces in which sound produces reverberation. Reverberation times in

*"[AX]" designates reference [AX] in the bibliography at the end of this annex.

excess of 0.4 s to 0.6 s reduce speech intelligibility both in quiet and in noise.

When both background noise and excessive reverberation are present, their effects on speech intelligibility are additive for individuals with normal speech, language, and hearing abilities. Speech perception research [A4, A6] has shown that individuals with impaired speech, language, and hearing abilities require signal-to-noise ratios that are at least 3 dB more favorable to offset their susceptibility to the negative effects of reverberation, as compared with individuals without impairments.

A1.5 Selective acoustical barriers to learning produced by background noise and reverberation

If spoken communication in the classroom becomes inaudible or unintelligible for some students and teachers because of excessive background noise or reverberation, a clear communication channel is no longer accessible to these children, creating a selective acoustical barrier to learning. Neither the child's ability to understand in quiet nor the adult teacher's ability to understand in the noisy classroom is a good predictor of when such barriers might exist. This difficulty in prediction is also exacerbated by a young child's unawareness of these barriers to learning.

A1.6 Scholastic achievement and the classroom acoustical environment

The link between the acoustical barriers in the classroom and the scholastic achievement of students has been evaluated in studies supporting the objectives of this standard. The reading scores of 2nd to 6th grade children in a school exposed to noise from a nearby elevated urban train track [A7, A8] were compared in quieter and noisier classrooms. The students, comparable in all respects, were receiving the same type of instruction. However, the children in the lower grades and noisier classrooms were three to four months behind in reading scores relative to those in the quieter classrooms and as much as 11 months behind for the higher grades. After a subsequent reduction of the track noise by 3 to 8 dB, the reading scores in the noisy classrooms were still approximately one year behind those in the quiet classrooms.

A major, controlled study of noise effects on scholastic achievement [A9] was carried out in 81

classrooms in 15 socio-economically matched Los Angeles schools located different distances from freeways. These differences caused the traffic-noise-generated indoor background noise to differ by up to 19 dB between the noisiest and quietest classrooms. Reading and math grade-equivalent scores evaluated for English-proficient students in 3rd and 6th grade classes, showed a decrease of approximately 2.2 years between the noisiest and quietest schools for the 6th grade classes and 0.7 years for the 3rd grade classes. This prominent noise effect on grade differences in scholastic achievement is believed the result of either differences in teaching style between grades or, more insidious, a possible cumulative, compounded effect of poor acoustics on learning as a student progresses through school.

A study of 13 schools in the United Kingdom [A10] compared their acoustical environment and corresponding speech communication conditions and teacher satisfaction before and after sound—absorbing treatment of the ceilings. After treatment, the average A-weighted background noise level in the unoccupied classrooms dropped from 45 dB to 40 dB reflecting the decrease in reverberant background noise level. The average reverberation time in the unoccupied rooms dropped from 0.7 to 0.4 seconds. The acoustically treated classrooms were favored by the teachers and pupils, who reported a greater ease of communication and increased student performance.

A2 Developmental rationale

Young children are more susceptible than adults to the effects of background noise and reverberation on communication with spoken language. Because of this susceptibility, young children also require more favorable classroom signal-to-noise ratios and reverberation times to achieve the same level of speech intelligibility as adults do. Developmental status, linguistic and cognitive proficiency, temporary hearing impairments, and early receptive and expressive language disorders are all factors that affect the greater susceptibility of young children to background noise and reverberation. For example, in a longitudinal study [A11] of preschool children in acoustically-treated or non-treated rooms in a child-care center, the children in the treated rooms scored higher in number-letter-word recognition after one year of reduced noise exposure than their cohorts in the non-treated rooms.

A2.1 Developmental status

Speech communication in unfavorable listening conditions is a complex, high-level task requiring a level of neurological maturity that is usually achieved only by 13 to 15 years of age. Consequently, young children may require more favorable signal-to-noise ratios and shorter reverberation times than older children require. Speech perception research [A12] has shown that 6-year-old children with normal hearing and normal language proficiency require signal-to-noise ratios 2 dB more favorable than 15-year-old children to achieve the same level of speech intelligibility. The 15-year olds, however, required the same signal-to-noise ratios as adults. In quiet listening conditions, the adults and both age groups of children had good speech intelligibility.

A3 Hearing impairment

Young children are also more susceptible to temporary conductive hearing impairment caused by ear infection (otitis media) than adults. Demographic research [A13] has identified otitis media as the most common medical disorder in young children, with an estimated incidence as high as 25% to 30% among kindergarten and first grade children. Other research [A14] has found an incidence greater than 10% of mild high-frequency sensorineural hearing impairment among children 6 to 19 years of age. Signal-to-noise ratio improvements of 3 dB to 5 dB together with increases in absolute speech sound levels of 10 dB to 30 dB are necessary for children with these impairments to achieve the same level of speech intelligibility in classrooms with high background noise.

A4 Language proficiency and language disorders

Children with expressive and receptive language disorders may also require more favorable signal-to-noise ratios to achieve good intelligibility, as compared with children without these disorders. Research studies have shown, for example, that children with language disorders have 10% to 40% poorer speech intelligibility in background noise than children without these disorders, despite comparable results in quiet environments. Children for whom English is not the first or primary language may have limited English proficiency. These children are often learning English in school at the same time that they are learning the regular academic curriculum.

Limitations in vocabulary and in the ability to "fill in the blanks" when partial communication occurs in difficult listening situations have been shown to reduce intelligibility for children with limited English proficiency [A15], again despite normal intelligibility in quiet environments. These children may require 2 to 5 dB more favorable signal-to-noise ratios in difficult listening situations to achieve the same level of intelligibility as children with normal English proficiency.

A related speech disorder problem caused by poor classroom acoustics stems from the increased frequency of voice impairments and their consequences for communication. In noisy or reverberant classrooms, teachers are more likely to have to raise their voices. The results are higher incidences of voice impairment among teachers and children have greater difficulty hearing verbal instruction presented by voice-impaired teachers in such noise or reverberation.

A5 Determining appropriate acoustical performance criteria and noise isolation design requirements

The acoustical performance criteria for this standard are expressed in table 1 in terms of background noise levels and reverberation times. Noise isolation design requirements for this standard are given in table 2, in terms of sound transmission class (STC) ratings for enclosed learning spaces, despite the fact that the rationale for these criteria and requirements is based on absolute and relative levels of speech. The terminology of the standard is necessary because speech levels are difficult to prescribe or standardize. However, the research literature on classroom speech sound levels can be used to specify the expected range of speech sound levels seen throughout a classroom. These sound levels, together with knowledge of the signal-to-noise ratios and reverberation times necessary for high intelligibility, were used to determine the requirements for acceptable background noise levels and reverberation times for unoccupied, furnished classrooms in table 1. The background noise level criteria were, in turn, used to determine acceptable STC ratings for walls, ceilings, and floors, in table 2, that will prevent noise from adjacent occupied enclosed spaces from exceeding the background noise level criteria in the classroom.

A5.1 Classroom speech levels

Research studies [A16] of sound levels for conversational speech and teachers' classroom speech [A17] show for the latter, the average A-weighted sound level is 67 dB at 1 m in a quiet classroom. In typical classrooms with little reverberation, speech sound levels in the rear of the classroom may be as low as 50 dB. The criteria for background noise levels in this standard assume minimum speech sound levels will be 50 dB anywhere in the classroom.

A5.2 Background noise levels

The 35 dB acoustical performance criteria for steady classroom background noise levels in table 1 were based on the assumption that a signal-to-noise ratio of at least +15 dB was necessary to ensure that noise will not be a barrier to learning within a classroom. Assuming a minimum speech level of 50 dB, a signal-to-noise ratio of at least +15 dB will always be achieved if the background noise level does not exceed 35 dB. The choice of +15 dB for the signal-to-noise ratio was based on several considerations. The American Speech-Language-Hearing Association [A18] recommends at least a +15 dB signal-to-noise ratio in classrooms to ensure that children with hearing impairments and language disabilities are able to achieve high speech intelligibility.

In addition, the research literature summarized in this annex also supports a signal-to-noise ratio of +15 dB.

Normal adults typically require 0 dB signal-to-noise ratios for high speech intelligibility when listening to simple and familiar speech material for short periods of time. An additional 2 dB is needed to compensate for neurological immaturity; an additional 5 dB is required to compensate for sensorineural and conductive hearing losses; an additional 5 dB is required for limited English proficiency and language disorders; and an additional 3 dB is required to compensate for the effects of excessive reverberation. These additional requirements for classrooms total 15 dB over that of normal adults, or a signal-to-noise ratio of +15 dB. This conclusion does not include any further increase in the signal-to-noise ratio that may be associated with the fact that children in the lower grades may be listening to unfamiliar speech material.

A5.3 Reverberation times

According to available research data, the effects of reverberation on speech intelligibility are controlled primarily by reverberation times at the three frequencies specified in table 1: 500, 1000, and 2000 Hz. Based on this research, it was assumed that reverberation times of 0.6 s, or less, in small and mid-sized classrooms and 0.7 s, or less, in larger classrooms will not degrade speech intelligibility excessively as long as signal-to-noise ratios of +15 dB or better are maintained. (The reverberation times in table 1 are given for unoccupied, furnished spaces. For occupied spaces, the reverberation times are expected to be 0.1 s to 0.2 s less than those in table 1.) These signal-to-noise ratios will be achieved if the background noise performance criteria also are satisfied. Thus, the acoustical performance criteria for both steady background noise levels and reverberation times should be satisfied simultaneously to ensure the elimination of acoustical barriers to classroom learning.

A6 Bibliography on effects of noise and reverberation on learning

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Annex B (Informative)

Design guidelines for noise control for building services, utilities, and instructional equipment

B1 Introduction

HVAC systems and other building services and utilities are complex systems of mechanical, electrical, and plumbing components supplied by many different manufacturers. This observation is particularly true for most HVAC systems designed for specific projects. Noise from these building systems can be generated and transmitted to a room in a wide variety of ways. Responsibility for providing an adequate noise control design that will allow conformance to the background noise level limits in table 1 resides with the architect and the architect's design subcontractors. During construction, responsibility for implementing the noise control design for each element of the building services may rest with each individual subcontractor, but the general contractor is likely to have overall re-

sponsibility to ensure that the design and implementation conforms to the background noise level limits in table 1.

B2 HVAC noise control

Specific limits on the maximum allowable A-weighted and C-weighted background noise level from HVAC equipment are given in 4.3. To achieve these limits, an HVAC system should be designed with noise control in mind. The following are some of the minimum features that should be employed for HVAC systems intended for any learning facility.

1) Unducted systems should not be employed since the sound they produce is inherently unable to conform to the background noise level criteria in table 1.

2) All grilles and diffusers (air devices) should be selected to have a catalog Noise Criteria (NC) rating of NC 18 or less for a single diffuser, providing the NC catalog ratings are based on a correction of 10 dB for sound absorption in the room. [B1]

NOTE Noise Criteria (NC) is a single number rating of room noise based on comparison of the octave-band sound pressure level spectrum of a noise with standardized octave-band sound pressure level contours that include low-frequency sound (see annex G).

3) Airflow velocities in trunk ducts should not exceed 4.1 m/s (800 ft/min). Branch ductwork sizes should match the air device's duct connection size. Duct silencers will be required inside the air-handling unit or in the main supply and return air ducts in most systems.

4) All ductwork should be fabricated and installed so as to achieve a low static pressure loss in accordance with procedures in the Sheet Metal & Air-Conditioning Contractors National Association (SMACNA) for HVAC System Duct Design, [B2]. To achieve the rated performance of air diffusers, the plenum depth should be the equivalent of at least three to four diameters of the duct going to the diffuser.

5) All rotating equipment and equipment with static pressure control dampers should be 3.3 m (10 ft), or farther if possible, from the classroom. HVAC fan equipment serving more than one classroom should be farther from the classrooms than equipment serving only one classroom.

6) Centrifugal fans with airfoil-shaped blades should be used in most cases in order to achieve the background sound levels required for the learning spaces. Centrifugal fans with forward curved blades should be avoided (especially with central air distribution systems) because this fan design typically generates excessive low-frequency noise when the total static pressure is greater than 2 inches of water.

7) Ductwork serving adjacent learning spaces should include sound attenuators or sound-absorbing duct lining (if required), or both, to reduce crosstalk through the duct system. The attenuation should be sufficient to preserve the noise isolation between the adjacent learning spaces.

8) To minimize HVAC noise transmission into core learning spaces, variable air volume (VAV) boxes and fan-powered boxes should not be located over these spaces. Instead, the elements should be lo-

ated over less sensitive spaces, which may include corridors.

The above guidelines are examples of the many noise control provisions that may be needed when designing an HVAC system. Before finalizing any HVAC noise control design, considering the very large number of HVAC systems types that may be employed for schools, the facility designer or the responsible subcontractor should consult one or more references such as those listed in clause B7. The ASHRAE Handbooks, [B3-B5] are especially helpful to assist in achieving an HVAC system design that will conform to the required minimum level of steady background noise. HVAC manufacturers should be able to provide useful design or noise-rating information for their systems or components [B6]. References [B7], [B8] and [B9] provide further guidance on noise control for HVAC systems and other building services.

B3 Noise control considerations for electrical equipment and systems

Significant background noise in a learning space can be produced by electrical equipment and its installation. Two such sources of noise are electrical fixtures and light fixture ballasts. Light fixtures with low-noise ballasts should be used in learning spaces to assist in conforming to the requirements of table 1 for background noise levels. Improper installation of electrical or cable boxes can degrade sound isolation between rooms. For single stud walls, electrical outlet boxes on opposing walls should never be in the same stud space. For dual-stud walls, the boxes should be separated by at least 0.6 m (24 inches). If back-to-back electrical boxes are necessary in double stud walls, either of the following methods should be used. The boxes should be enclosed in full gypsum board enclosures that do not contact the framing of the other row of studs and have all joints sealed with caulking or both boxes should be of the vapor-barrier type that are properly caulked and sealed.

B4 Plumbing systems noise control

Water flow noise from plumbing systems can be a significant contributor to the background noise level in a learning space. To minimize noise from plumbing fixtures and piping located adjacent to core and ancillary learning spaces, consideration should be given to the following installation details.

- 1) Run piping above corridor ceilings, not above learning spaces.
- 2) Locate restrooms away from classrooms.
- 3) Use cast iron waste water pipes, when possible. Plastic piping may require special care during installation to ensure quiet operation and should be wrapped with one or more layers of sound-attenuating material or, for plastic waste pipe, wrapped with sound-absorbing material and boxed in with gypsum wallboard.
- 4) Isolate all water piping from the building walls and structure using foam rubber wrapping or resilient clamps and hangers.
- 5) When it is necessary for a plumbing wall chase to be adjacent to a learning space, the wall should employ double stud construction [with a minimum 2.5 cm (1 inch) gap between the two rows of studs] with two layers of gypsum board on the classroom side and sound-absorbing insulation batts in both stud cavities.
- 6) Reduce the pressure of the supply water as much as possible and employ trapped-air water-hammer arrestors for water supply pipes serving flush or solenoid valve fixtures to reduce water hammer noise.
- 7) Use water siphon jet fixtures instead of blowout fixtures.
- 8) Inspect all plumbing installations for conformance to the noise control features before sealing the walls.

B5 Noise control for instructional equipment used in a classroom

As stated in 1.1.4, the background noise from portable or permanent, built-in equipment used during the course of instruction, such as audio-visual equipment or computers, is not within the scope of this standard. Cooling fans or other internal rotating components usually generate this noise. Because this noise can increase the background noise level in learning spaces, this equipment should be carefully selected and located to minimize its noise impact on the learning process. Except for computers, standards for the acoustical emission characteristics (for example, sound power level) of such equipment are not currently available.

Such instructional equipment, when operating, should be located as far as possible from students

or placed in noise-isolating enclosures. This procedure is especially important and practical for built-in audio-visual systems or overhead projectors. For such built-in equipment, a design goal should be to ensure that its operation will not cause the total one-hour average background noise level to exceed the limits specified in table 1 while HVAC systems and other building services and utilities are also operating.

The designer of the noise-control features should actively seek to determine whether potentially noisy instructional equipment is planned for permanent or long-term installation in a noise-sensitive instructional space. If so, appropriate noise isolating enclosures should be included in the classroom design planning.

The background noise level in a learning space containing a large number of computers, each with its own cooling fan, may be well above the background noise limits in table 1. In such learning spaces, special consideration should be given to noise control by selection of low-noise computers and the addition of more sound-absorbing treatment than needed to conform to the reverberation criteria in table 1 in order to minimize the reverberant level of this background noise. Sound-absorbing partial barriers may be needed between computer stations.

B6 Conforming to the limits for background noise level

Conforming to the noise level criteria specified in table 1 and the design techniques discussed in this annex may require coordinated action by the architects for design of the school building, the general building contractor, the school-facility design staff, the equipment suppliers, and a person with professional experience in building noise control technology.

Selection of a person experienced in building noise control technology is the ultimate responsibility of the owner or designer of the educational facility. However, such a person should be able to provide evidence of professionally recognized expertise in noise-control technology for building services, utilities, and equipment, or be employed by a firm with the same professionally recognized expertise.

The fact that a project has a person trained in building noise control technology on the design team does not ensure conformance to the provi-

sions of this standard. Workmanship and the quality of products used on the project are also major factors in achieving the required acoustical environment in all learning spaces. The best design can be negated by poor workmanship and use of products that do not conform to published performance specifications.

Manufacturers of school building services equipment, utilities (for example, HVAC and lighting) and instructional equipment usually can supply noise emission levels for their products. This information should be evaluated carefully during the equipment selection process.

B7 Bibliography for further guidance on noise control for HVAC, electrical, and plumbing systems

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Annex C (Informative)

Design guidelines for controlling reverberation in classrooms and other learning spaces

C1 Introduction

The amounts and locations of sound absorption treatments needed to limit reverberation are important considerations for good acoustical characteristics in learning spaces. Excessive reverberation can reduce the understanding of spoken words. Conversely, too much sound-absorbing treatment, especially in dedicated lecture rooms, can reduce beneficial early sound reflections causing speech levels from a talker to fall off rapidly with distance and thereby reduce speech intelligibility for distant listeners. This annex provides design guidelines for the control of reverberation in learning spaces by the addition of sound-absorbing materials. The guidelines are intended to assist

in achieving conformance to the reverberation time criteria in table 1.

C2 Procedure to estimate the amount of sound-absorbing material needed to achieve the design goal for reverberation time

The first step in developing an estimate of the minimum required area of acoustical treatment for installation in a learning space is to apply the Sabine formula [C1]. According to this formula, the minimum total sound absorption A needed to achieve a reverberation time of T_{60} seconds or less in a room of enclosed volume V is given by:

$$A \geq kVT_{60} \quad (C.1)$$

The constant $k = 0.161$ s/m when volume V is in cubic meters and the sound absorption A is in square meters. Constant $k = 0.049$ s/ft when volume V is in cubic feet and sound absorption A is in square feet.

Next, the total sound absorption is broken down into the sum of the products of the surface area S_i of each such sound-absorbing surface and the sound absorption coefficient α_i for this surface. That is, the total sound absorption A is given by the summation over all treated surfaces as expressed by the following relation:

$$A = \alpha_1 S_1 + \alpha_2 S_2 + \alpha_3 S_3 + \dots + \alpha_i S_i + A_R \quad (C.2)$$

where A_R is the residual sound absorption. A default value of A_R equal to 15% of the floor area accounts for the acoustically untreated room surfaces (for example, the untreated walls, ceiling, and bare, uncarpeted floor) and for the furnishings (for example, tables, chairs, and shelves (see C3.5)). For a carpeted room, a value for A_R of 20% of the floor area is recommended as a conservative default design value.

Alternatively, the designer can set A_R equal to 13% of the floor area plus the product of the carpet surface area and its sound absorption coefficient. The latter may vary from a minimum of less than 0.1 at 500 Hz to as high as 0.65 at 2000 Hz, depending on the type and thickness of the carpet and its underlayment. Many references, such as those listed in the bibliography to this annex, provide tables of sound absorption coefficients for different acoustical materials, including carpet, at different frequencies.

These same references may be used to provide alternative sound absorption coefficients for other surfaces in place of the preceding default assumptions. Tabulations of the sound absorption per table or chair are available from these references. Their values may be used if these furnishings are comparable to those intended for the learning space.

For best accuracy in calculations of reverberation time, it is recommended that laboratory-certified sound absorption coefficients be used. These are normally available from acoustical material manufacturers, (see C2.1).

Next, the values of α_i and S_i for the proposed materials and surface areas are substituted into equa-

tion (C.2). If necessary, the choices of material and material areas are adjusted until equation (C.1) is satisfied. The minimum total sound absorption is calculated from application of equation (C.1) for frequencies of 500 Hz, 1000 Hz, and 2000 Hz.

The process described above can be simplified substantially when only one type of sound-absorbing material is to be installed and A_R is assumed to be 15% of the floor area.

The volume V of the learning space can be expressed as the product of floor area S_f and average ceiling height H . Using equations (C.1) and (C.2) and a residual absorption of 15% of the uncarpeted floor area, it is straightforward to construct a table of the minimum required surface area S_1 as a percentage of the floor area for maximum reverberation times of 0.6 s and 0.7 s from table 1. The variables in the table are the sound absorption coefficient α_1 of the acoustical treatment and average ceiling height H .

With the assumptions described above, the entries in table C.1 for the minimum surface area of acoustical treatment S_1 as a percentage of floor area S_f were calculated from the following expression.

$$100(S_1/S_f) \geq 100\{[(kHT_{60}) - 0.15]/\alpha_1\} \quad (C.3)$$

where k is the constant employed in equation (C.1).

As shown in table C.1, for either of the two reverberation times, the required minimum surface area of acoustical treatment increases as the ceiling height increases and as the sound absorption coefficient decreases. The table shows the need to apply acoustical treatment to the walls as well as the ceiling for rooms with high ceilings and low sound absorption coefficients. Two examples illustrate application of the data in the table.

Example 1.

A rectangular core learning space has dimensions of 40 ft long by 25 ft wide by 9 ft high. It is planned to install sound-absorbing material only on the ceiling. The enclosed volume is $(40 \times 25 \times 9) = 9000$ ft³. From table 1, for this enclosed volume, the maximum reverberation time is 0.6 s at each of the three specified frequencies. Manufacturer's data indicate that the proposed acoustical ceiling material has sound absorption coefficients of 0.65, 0.80, and 0.90 at 500 Hz, 1000 Hz, and 2000 Hz, respectively.

From table C.1, for the smallest absorption coefficient of 0.65 and the 9 ft ceiling height, the required minimum area of treatment is 90% of the floor area of $40 \times 25 = 1000 \text{ ft}^2$, or 900 ft^2 . This leaves 10% of the ceiling area free for lighting and other services. If the allowance for lighting area is inadequate, some acoustical treatment may have to be installed on the walls.

NOTE 1. While the required sound absorption should be confirmed at each of the three frequencies, it will generally be found that conformance to the reverberation-time requirement of table 1 at 500 Hz will also ensure conformance at the two higher frequencies.

NOTE 2. If the manufacturer's sound absorption data are between the sound absorption coefficients listed in the first column of table C.1, the required treatment area can be computed by interpolation in the table. For example, if the lowest sound absorption coefficient for example 1 were 0.67 instead of 0.65, the relative treatment area for the ceiling would be $90\% \times (0.65/0.67)$ or 87% of the floor area or 870 ft^2 instead of 900 ft^2 .

A similar table can be constructed from equation (C.3) for a carpeted floor by changing the default value for A_R/S_f from 0.15 for uncarpeted floors to 0.2 for carpeted floors.

Example 2.

For the same core learning space as in example 1, it is now considered necessary to improve the intelligibility of speech in this lecture-type classroom. In accordance with the guidance in C3.1.2, additional sound-absorbing material is to be installed as a ring around the walls near the ceiling. The sound-absorbing ceiling treatment is to be of the same material as for example 1, but the proposed acoustical wall treatment has manufacturer-stated absorption coefficients of 0.45, 0.60, and 0.70 at 500 Hz, 1000 Hz, and 2000 Hz, respectively.

In this case, as a working assumption, assume that the ceiling is to provide 60% of the total sound absorption while the remaining 40% of the total sound absorption is provided by the wall treatment.

Therefore, the ceiling treatment area should be 60% of the 900 ft^2 determined for example 1 or $0.6 \times 900 = 540 \text{ ft}^2$. According to table C.1, for the 9 ft ceiling and the smallest sound absorption coefficient of 0.45 for the wall treatment, the minimum required surface area of wall-treatment material would be 130% of the floor area of 1000 ft^2 if it

were the only material used. However, under the assumptions, only 40% of that area is required or $0.4 \times 1.3 \times 1000 = 520 \text{ ft}^2$. For the room perimeter of 130 ft, the height of the wall treatment would need to be 4 ft on each of the four walls or 44% of the total wall area.

In summary, 540 ft^2 of ceiling treatment material and 520 ft^2 of wall treatment material would be required for the core learning space to conform to the 0.6 s reverberation time limit in table 1 while providing good intelligibility of spoken words. Other distributions of ceiling and wall treatment areas could be evaluated if it were considered that too much of the available wall area was devoted to sound-absorbing material.

C2.1 Sound absorption coefficients and related design considerations

The sound absorption coefficients for all acoustical materials supplied for the project should be determined in accordance with ASTM C423 [C2]. The learning facility owner's representative should request from the acoustical materials contractor(s):

- a) appropriate certification that all material(s) have been tested in full accordance with ASTM C423 and
- b) a table of the laboratory-certified sound absorption coefficients at 500, 1000 and 2000 Hz for the materials employed (see E4.2.1 in annex E). The mounting condition employed for these tests should be identified and, preferably, should be the same as the as-installed mounting configuration. The designer should recognize that when the cavity depth behind the acoustical material in a laboratory configuration mounting is greater than for the as-installed depth, the installed low-frequency sound absorption coefficients are usually lower than those for the laboratory tests.

Tradeoffs between the sound-absorption coefficients and the surface areas of treatment are allowed if the tradeoffs result in the same or lower reverberation times than those specified in table 1 for each of the three frequencies.

When selecting acoustical materials to meet the reverberation time performance criteria in table 1, it is prudent to allow for sufficient surface area coverage using sound absorption coefficients that fall in the lower range that alternative suppliers may provide. This procedure helps insure that the properly certified material from the lowest bidder is adequate.

Table C.1 — Minimum surface area of acoustical treatment for different sound absorption coefficients, ceiling heights, and reverberation times.

		(a) Reverberation time, T_{60} , of 0.6 s Ceiling height, H , ft								
Sound absorption coefficient, α_1	8	9	10	11	12	13	14	15	16	
	Ceiling height, H , m									
	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.88	
Minimum area of sound-absorbing material as a percentage of the floor area										
0.45	112	130	148	167	185	203	221	239	257	
0.50	101	117	134	150	166	183	199	215	232	
0.55	92	107	121	136	151	166	181	196	211	
0.60	84	98	111	125	139	152	166	179	193	
0.65	78	90	103	115	128	141	153	166	178	
0.70	72	84	95	107	119	130	142	154	166	
0.75	67	78	89	100	111	122	133	144	154	
0.80	63	73	83	94	104	114	124	135	145	
0.85	59	69	79	88	98	107	117	127	136	
0.90	56	65	74	83	92	101	111	120	129	
0.95	53	62	70	79	88	98	105	113	116	
1.00	50	59	67	75	83	91	100	108	116	

NOTE Sound absorption coefficients stated by a manufacturer to be greater than 1.0 based on laboratory tests may be taken as equal to 1.00 for purposes of this annex.

		(b) Reverberation time, T_{60} , of 0.7 s Ceiling height, H , ft								
Sound absorption coefficient, α_1	8	9	10	11	12	13	14	15	16	
	Ceiling height, H , m									
	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.88	
Minimum area of sound-absorbing material as a percentage of the floor area										
0.45	91	107	122	138	154	169	185	200	216	
0.50	82	96	110	124	138	152	166	180	194	
0.55	75	87	100	113	126	138	151	164	177	
0.60	68	80	92	104	115	127	139	150	162	
0.65	63	74	85	96	106	117	128	139	149	
0.70	59	69	79	89	99	109	119	129	139	
0.75	55	64	73	83	92	102	111	120	130	
0.80	51	60	69	78	86	95	104	113	121	
0.85	48	57	65	73	81	90	98	106	114	
0.90	46	53	61	69	77	85	92	100	108	
0.95	43	51	58	65	73	80	88	95	102	
1.00	41	48	55	62	69	76	83	90	97	

NOTE Sound absorption coefficients stated by a manufacturer to be greater than 1.0 based on laboratory tests may be taken as equal to 1.00 for purposes of this annex.

C3 Further design guidance

C3.1 Location of the absorbing material

C3.1.1 General Classrooms. In cases where there is no fixed lecture position for the teacher, and when ceiling heights are less than about 3 m (10 ft), the best option is to place most if not all of the sound-absorbing material on the ceiling. For ceiling heights greater than 3 m (10 ft), which is discouraged for classrooms, an increasing amount of the sound-absorbing material will have to be on the walls as the wall height increases above 3 m. If nearly all of the installed sound-absorbing material is on the ceiling, then it is prudent to introduce furnishings such as bookshelves of adequate height to assure that sound waves traveling across the room are scattered in the direction of the sound-absorbing acoustical ceiling.

C3.1.2 Lecture-type classrooms. Speech intelligibility studies [C3] have shown that, for lecture-type classrooms, it is best to ring the upper wall and ceiling with sound-absorbing material. This configuration enhances reflections to and from the back of the room, as well as back and forth across the room, thus promoting good speech communication between teacher and student and vice versa, as well as among students. This arrangement also enhances better communication for group discussions and pod formats where the teacher moves around the room.

For classrooms that have a relatively fixed teacher position, the sound-absorbing material should not be placed just above and in front of the teacher's position because that position would reduce the level of the teacher's voice at the positions of the students.

C3.2 Mounting of acoustical treatment in classrooms

Ceiling acoustical treatment is normally suspended from the ceiling with an air space specified by the architect. The height of the air space may, or may not, be the same as the 40 cm (16 inch) air space commonly used by manufacturers to achieve the sound absorption coefficients that are measured by a testing laboratory. As long as the minimum air space required for installing a lay-in ceiling exists, the actual sound absorption at frequencies of 500 Hz and higher should be not less than the published values. Experienced professionals should be consulted when reverberation at frequencies less than 500 Hz is a major concern.

Wall-mounted materials should be installed, as recommended by the manufacturer, with clips or glue to the wall surface or be fastened to added spacers to achieve the stated sound absorption coefficients.

C3.3 Reverberation control for ancillary and large core learning spaces

For ancillary spaces, such as corridors, gymnasias, cafeterias and large core learning spaces [volume > 566 m³ (> 20 000 ft³)] sound-absorbing material should be installed to reduce noise caused by the activities of occupants, as well as to control reverberation. The amount of acoustical treatment will vary widely, but corridors should generally have a total surface area of sound-absorbing material that is not less than 50% of the ceiling area and up to 75% if possible; 75% treatment area is recommended for corridors with high traffic or noisy lockers.

A measure of the sound absorption coefficient of acoustical materials is provided by a single number rating called the noise reduction coefficient (NRC), [C4, C5]. For cafeterias and for large core learning spaces with ceiling heights up to 3.7 m (12 ft), a suspended ceiling with an NRC of 0.70 or higher should be used for the full ceiling area exclusive of the area required for lights and ventilation grilles. Higher NRC ratings should be considered especially for ceiling heights less than 3.7 m. When the ceiling height is greater than 3.7 m (12 ft), especially if greater than 4.6 m (15 ft), a more detailed analysis by experienced personnel may be required to provide adequate control of reverberation. In any event, as suggested by table C.1, wall treatment should be included for such high-ceiling rooms. Depending on the amount of wall treatment, the ceiling NRC or treated area might then be reduced when some of the wall area is covered by sound-absorbing material. When permitted within sanitation restrictions, similar acoustical treatment should be employed in food-serving and food-preparation areas.

NOTE The Noise Reduction Coefficient is equal to the arithmetic mean of the sound absorption coefficients at 250, 500, 1000, and 2000 Hz, rounded to the nearest multiple of 0.05. The NRC of acoustical material should not be used for design or calculation of reverberation time for core learning spaces for purposes of this standard.

For rooms with high ceilings, such as gymnasias, the installation of acoustical treatment on the walls

is important to minimize reverberant build-up of noise level. Absence of any acoustical treatment on the walls of high-ceiling rooms can make the material on the ceiling less effective than expected.

Guidance is available in the references listed in the bibliography in C5 for many other architectural acoustics design objectives applicable to reverberation control in ancillary spaces and large core learning spaces. These objectives include but are not limited to:

- providing suitable reverberation times for large core learning spaces and dual-purpose ancillary spaces such as a cafeteria also used as an auditorium (e.g. - Ref. C5, C6, or C7), and
- including additional sound-absorbing material on the walls in corridors connecting noisy rooms to quieter areas of the school and in corridors with busy foot traffic or noisy lockers.

C3.4 Carpeting in classrooms

Carpeting in a classroom (for example, in an area where young children sit on the floor together for a story) can help substantially to reduce background noise in the classroom from chair and foot impacts or scuffing. Carpeting can also attenuate the transmission of this impact noise to the room below. The alternative use of neoprene chair leg tips should be considered as a way to help minimize chair-shuffling noise without the use of carpeting. See annex F for discussion of indoor air quality (IAQ) and multiple chemical sensitivity (MCS) issues for carpeting.

Carpeting alone usually does not provide enough sound absorption for classrooms since it is generally poor at low frequencies, even when newly installed. (See text following Equation C.2 for further details.)

C3.5 Absorption of furnishings and occupants

Calculations of reverberation times for learning spaces assume typical furnishings such as chairs, tables, and storage cabinets. A sound absorption equal to 5% of the floor area, already included in the residual absorption term A_R in equation C.2, is a conservative approximation for the sound absorption of these furnishings. These furnishings are normally floor-mounted and thus their quantity and hence their sound absorption will tend to be proportional to the floor area. The 5% figure is con-

sistent with limited experimental data comparing the reverberation for furnished and unfurnished classrooms.

The sound absorption of learning space occupants was considered in setting the limits on reverberation time in table 1 and should not be included in any calculations for the reverberation time of an unoccupied space. The sound absorption provided by an occupant is approximately equal to 0.55 m^2 (6.0 ft^2) for an adult student and about 20% less for a high school student and 40% less for an elementary grade student [C4].

C4 Guidelines for good acoustics in large classrooms and lecture rooms

This standard does not specify performance criteria or design requirements for enclosed learning spaces larger than 566 m^3 ($20\,000 \text{ ft}^3$). However, limited additional recommendations and design guidelines for larger rooms and other spaces in educational facilities, aside from those in C3.3, are given in this subclause.

Large lecture rooms generally differ physically and functionally in many ways from classrooms found in elementary and secondary schools. The teacher-student configuration tends to be fixed; the size of the room can vary greatly, sometimes accommodating hundreds of students. The shape of the room may vary from a traditional rectangular shape; HVAC systems usually have much greater capacities; and speech reinforcement systems as well as other fixed audiovisual facilities are common in such spaces.

For unamplified speech, beneficial sound-reflecting surfaces, especially over the teacher-lecturer, are necessary to assure adequate speech sound levels in the back of the room with relatively uniform distribution of the sound of spoken words. If the teacher-student configuration is fixed, beneficial reflections can be obtained with sound-reflecting surfaces placed above the lecturer, sometimes extending over the audience, on the ceiling, or sidewalls. Because of the larger room volumes, reverberation times usually are greater than in small classrooms, with values of 0.7 s to 1.1 s in occupied rooms not uncommon. To assure less variability in the reverberation time with changes in occupancy, it is always desirable to have sound-absorbing upholstered chairs in small auditoria. To minimize echoes, the back wall is often made sound absorbing, or is tilted to avoid sending reflections back toward the source, or both.

Because of the complexity of the design of large lecture rooms, experienced professionals should be consulted to ensure that the design and its implementation achieve the acoustical objectives of this standard.

Further guidance for detailed design considerations of lecture rooms can be found in a number of sources including [C1, C4-C11] listed in the bibliography.

C5 Bibliography

[C1] R.E. Apfel, *Deaf Architects and Blind Acousticians, A Guide to the Principles of Sound Design*, Apple Enterprises Press, New Haven, CT, (1998).

[C2] ASTM C423-00, *Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method*. [Web site - <http://www.astm.org>]

[C3] J. Bradley and R. Reich, "Optimizing Classroom Acoustics Using Computer Model Studies," *Canadian Acoustics*, 26 (4) 15-21 (1998).

[C4] V.O. Knudsen and C.M. Harris, *Acoustical Designing in Architecture* (1950), Republished by Acoustical Society of America Publications, Melville, N.Y. (1980).

[C5] W. Cavanaugh and J. Wiles, *Architectural Acoustics Principles and Practice*, Wiley, NY, (1999).

[C6] M.D. Egan, *Architectural Acoustics*, McGraw-Hill, NY (1988), San Francisco, CA (1998).

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[C9] M. Mehta, J. Johnson, and J. Rocafort, *Architectural Acoustics Principles and Design*, Prentice Hall, Upper Saddle River, NJ (1999).

[C10] C.J. Rosenburg, "Acoustic Design," *Architectural Graphics Standards, Eighth Edition*, J.R. Hoke, Jr., (ed), The American Institute of Architecture, Wash. DC (1988).

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Annex D (Informative)

Design guidelines for noise isolation

D1 Introduction

This annex provides informative design guidelines for noise isolation between learning spaces and between a learning space and other interior or exterior spaces. Application of these design guidelines will assist, but not guarantee, achieving conformance to the background noise level limits in table 1. The STC and IIC ratings in 4.5 are intended to provide a practical means of achieving this conformance. All acoustical aspects of the design and construction should therefore be consistent with this intent. In support of this intent, since many finished component assemblies involve the work of more than one building trade, architectural specifications should refer to noise control and isolation measures in all applicable sections. After completion of construction, on-site testing may

also be needed when it is necessary to verify conformance to the STC or IIC ratings of 4.5, (see E5.1 in annex E).

The noise isolation provided by wall or ceiling elements depends on both the materials used and the installation practices and may be strongly affected by sound leakage at joints and penetrations and unintended flanking paths around these elements. When a high degree of noise isolation is required, as for music rooms, flanking of sound transmission through common floors, walls, and ceilings can limit the isolation actually achieved unless proper steps are taken in the design and construction.

The noise isolation requirements of this standard are similar in concept to requirements incorporated in several existing national and international building codes. Examples include: a) Appendix Chapter 12 Division II-Sound Transmission Con-

trol of the 1997 Uniform Building Code (UBC), b) Section 1206 of the 2000 International Building Code, and c) Standard SSTD 8-87 of Southern Building Code Conference International (SBCCI). All of these prescribe minimum STC ratings for separating walls and floor-ceiling assemblies. Except for the SBCCI code, they also prescribe minimum IIC ratings for floor-ceiling assemblies. The requirements for this standard differ from those in the above codes because the application for the space is different and, in many cases, have more stringent acoustical design requirements.

D2 Noise isolation

D2.1 Noise isolation between interior spaces

Table 2 specifies the required minimum STC ratings for interior and exterior walls surrounding enclosed learning spaces. The table presents design requirements for STC ratings of typical wall constructions where the wall is continuous to the floor below or floor-ceiling system above, with all penetrations adequately sealed, (see the guidance in ASTM E497 [D1]). General design guidance on noise isolation is provided in many texts and reports on building noise control including references D2 to D15.

D2.2 Noise isolation of open-plan classrooms

The low noise isolation that is inherent with open-plan classrooms is generally well below the design requirements in table 2. Therefore, this standard emphasizes that open-plan classroom design should be strongly discouraged since the resulting background noise levels in a core learning space as a result of activities by students in other core learning spaces within an open classroom setting are highly likely to exceed the background noise limits in table 1. The poor acoustical performance of open-plan systems has a negative impact on the learning process and tends to defeat any teaching methodology advantages that may accrue from their use.

D2.3 Outdoor-to-indoor noise isolation

D2.3.1 Outdoor-to-noise environments. There is no single answer for the proper amount of noise isolation to include in the design to shield a learning space from industrial or transportation outdoor noise sources. Each situation is unique with regard to distance to, and the extent and characteristics of, industrial sources, local traffic, or other transportation noise sources. The best solution to out-

door-to-indoor noise isolation design is to measure the current, or predict the future, noise levels of external sources at the proposed locations for facades. The next step is to determine the necessary outdoor-to-indoor noise level reduction to achieve the required interior background noise level in table 1. (See D2.3.3 for one approximate method.) It is good design practice to allow a margin of safety to account for uncertainties, including the possibility that current outdoor sound levels may increase in the future. For predictions of external noise levels, widely accepted models for assessing industrial or transportation noise sources will normally be available to environmental planners or acoustical consultants. For some sites, maps or contours of the current or projected outdoor noise environment may be available from local planning departments.

Selection of materials and acoustical design for the exterior envelope of a school building should consider these measured or predicted noise levels. Knowledge of these levels can assist in achieving adequate acoustical design features to attenuate the outdoor noise levels and ensure that the interior background levels do not exceed the limits in table 1.

D2.3.2 Selecting sites for learning facilities. As recommended by ANSI S12.9/Part 5 [D10], learning facilities should not be located at sites where the yearly average day-night average sound level exceeds the following limits with corresponding construction methods:

- 60 dB to 65 dB for conventional construction methods for the learning facility, providing the external walls are designed to a minimum STC rating of 50 consistent with the minimum ratings in table 2 and table 3;
- 65 dB to 75 dB if the external shell of the learning facility is designed to provide adequate noise isolation in order to conform to the limits in table 1 for background noise levels (see D2.3.3).

Under no conditions should a new learning facility be located at a site where the yearly average day-night average sound level exceeds, or is predicted to exceed, 75 dB.

D2.3.3 Approximate STC ratings to achieve a desired outdoor-to-indoor noise level reduction. Given the limits on background noise levels from table 1 and the external noise environments established by one of the procedures outlined in

Table D.1 — Approximate difference between the minimum STC rating required for building envelope components and the required outdoor-to-indoor noise level reduction

Fenestration %	(STC rating of walls and roofs) minus (outdoor-to-indoor noise level reduction) dB	(STC rating of doors and windows) minus (outdoor-to-indoor noise level reduction) dB
1 to 25	15	6
26 to 70	20	11

NOTES

- a) Fenestration is the percentage of the total wall and roof surface area that consists of windows, doors, and other openings. For rooms without a roof, it is the percentage of the total wall area made up of windows, doors, and other openings.
- b) The values for the nominal STC rating minus the outdoor-indoor noise level reduction in columns 2 and 3 are based on the expectation that the dominant outdoor noise source is vehicular traffic. If other sources dominate, adjustments may be needed. For example, if aircraft noise is the dominant source, the minimum required STC rating may increase by about 2 dB.

D2.3.1 and D2.3.2, the recommended STC rating for the wall, roof, door, and window elements of the school building envelope may be estimated from the data in table D.1.

Table D.1 gives the approximate difference in decibels between the minimum STC rating of the exterior elements of a learning space and the required outdoor-to-indoor noise level reduction for two ranges of the relative area of the fenestration in the envelope. While only an approximation, the data in the table may be used for initial estimates of the STC rating required for the components of the exterior envelope of the structure.

NOTE Outdoor-to-indoor noise level reduction is the difference in A-weighted sound level between a specified outdoor sound field and the resulting A-weighted sound level in the room abutting the facade or facade element of interest. It can be measured in accordance with ASTM E966 [D9] where it is called "outdoor-indoor level reduction".

As an example, assume that the dominant source of exterior noise is road traffic and that the maximum one-hour-average A-weighted noise level is 65 dB at the nearest exterior classroom wall facing the traffic. To conform to the background noise limit inside the classroom of 35 dB from table 1, the nominal outdoor-to-indoor noise level reduction would have to be 65 – 35 or 30 dB. According to table D.1, for an exterior wall with fenestration greater than 25%, the nominal STC rating of the

exterior walls would have to be at least 30 + 20 or 50. The STC rating of the windows would have to be at least 30 + 11 or 41.

To obtain estimates of the required STC ratings that are better than those obtained from application of table D.1 would require an assessment of the frequency spectrum of the long-term average exterior noise level. Also needed is the frequency-dependent sound transmission through the walls, roof, windows, and doors that are planned for the envelope of the school building (see ref. D8, D9).

D2.4 STC ratings for composite elements of a wall or roof assembly

STC ratings for a composite of several elements in a structural assembly may be estimated by application of the data in table D.2. Table D.2 may be employed to determine the STC rating of two different building elements such as walls, doors and windows with STC ratings, STC (1) and STC (2), where STC (1) is greater than STC (2) and with corresponding surface areas S1 and S2.

Enter table D.2 in the column across the top with the difference in the STC ratings rounded to the nearest 3 dB. Then go down to the row indicated in the left-most column to the range that includes the area S2 as a percentage of the total area (S1 + S2) of both elements. At the intersection of the row and column, find the correction to subtract from

Table D.2 — Correction data for estimating the STC rating of a two-element composite building assembly.

S2/(S1+S2) × 100%	STC (1) rating minus STC (2) rating, dB									
	3	6	9	12	15	18	21	24	27	30
0 to 0.2	0	0	0	0	0	0	0	1	2	3
>0.2 to 0.5	0	0	0	0	0	1	1	3	4	6
>0.5 to 1	0	0	0	0	1	2	3	4	7	9
>1 to 2	0	0	0	1	2	3	4	7	9	12
>2 to 5	0	0	1	2	3	5	7	10	12	15
>5 to 10	0	1	2	3	5	7	10	13	16	19
>10 to 20	1	2	3	5	7	10	13	16	19	20
>20 to 30	1	2	4	7	9	12	15	18	21	24
>30 to 40	1	3	5	8	11	14	17	20	23	26
>40 to 60	2	4	7	9	12	15	18	21	24	27
>60 to 80	2	5	8	10	13	16	19	22	25	28
>80 to 100	3	6	9	12	15	18	21	24	27	30

STC (1) to yield the estimate for the STC rating of the composite assembly. For more than two elements in a composite assembly, repeat the process by combining the STC of the composite assembly consisting of the first two elements with the STC of the third element, and so on.

As stated in NOTE a) to tables 2 and 3, the STC rating for the walls of a corridor, office, or conference room containing entrance doors excludes these entrance doors. The design and anticipated STC rating for such entrance doors is given in 4.5.5.

D2.5 Isolation from impact noise or vibrating machinery

D2.5.1 Design guideline for impact noise isolation for floor-ceiling assemblies. For learning spaces in multi-story school buildings, classrooms in lower stories may need to be protected from the noise of impacts on the floor of rooms immediately above. Impact noise may arise from footfalls or the scuffing of furniture in the room above. Impact noise can be reduced sufficiently by ensuring that the floor-ceiling system has an adequately high Impact Insulation Class (IIC) rating. Installing carpet on the floor will almost always ensure an IIC rating greater than 50 but may not reduce the low-frequency impact sounds sufficiently. It is good practice to design the floor-ceiling assemblies to achieve a minimum IIC 50 rating without carpeting above classrooms or other core learning spaces. For this purpose a permanent resilient underlayment may be required to isolate the finished floor from the structural floor system.

To achieve high IIC ratings, it may be necessary to isolate the ceiling from the floor above. This can be accomplished by suspending the ceiling with resilient channels or isolation hangers. Good architectural practices, including careful isolation design and attention to detail in construction, are important to ensure the realization of high IIC ratings. References D8 and D11 to D15 in the bibliography provide extensive IIC test data. Product manufacturers can be consulted for additional data.

D2.5.2 Design guideline for noise isolation from vibrating machinery. Vibration isolation methods, such as rubber pads or spring systems under the mounting points, should always be employed under rotating machinery to isolate it from floor-ceiling systems and prevent structurally-transmitted sound from entering learning spaces. This isolation is particularly important for roof-mounted rotating machinery where the deflection of the roof has to be considered in vibration isolation design. Design methods for such vibration isolation are documented in widely available noise control handbooks, (See ref. D2, D8 and D15 in the bibliography).

D3 Bibliography for further guidance on noise and vibration isolation in school buildings

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Annex E (Normative)

"Good architectural practices" and procedures to verify conformance to this standard

E1 Introduction

This annex provides recommendations in clause E2 for "good architectural practices" that will help to achieve the objectives of this standard. Clauses E3, E4, and E5 describe procedures that shall be followed to verify conformance to the requirements and recommendations of this standard, in the event that such verification is required. If verification of conformance is not required, the procedures described in clauses E3, E4, and E5 are provided for information only and the entire annex then shall be considered to be informative rather than normative.

This standard covers a range of requirements, some of which are relatively simple to accommo-

date by following the design guidelines given in other annexes. However, concerns about the actual acoustical environment of learning spaces may arise depending on a combination of factors such as building siting, variability in the installation of the HVAC system, and variability in the details of the construction techniques. For these and other reasons, verification tests may be necessary to evaluate conformance to the requirements of this standard.

Nonconformance to the provisions of this standard may be suspected when subjective evaluation of a learning space under typical use indicates excessive background noise, reverberation, insufficient noise isolation, or poor speech intelligibility.

Verification tests and analyses, if required, should be performed by qualified personnel (see B6 in annex B).

E2 "Good architectural practices" and acoustical performance considerations during and after construction

E2.1 Prior to completing construction

"Good architectural practices" during the design and construction of a new or renovated learning space include the following actions:

phase 1 – designing to conform to this standard (see annexes B, C, and D);

phase 2 – monitoring activities during construction to ensure that acoustically important design features are not compromised; and

phase 3 – checking for conformance to the principal requirements of this standard before completion of construction or renovation is accepted.

For a new or a renovated learning space, the architectural design in phase 1 should utilize the guidance provided in annexes B, C, and D. Because many structural component assemblies involve work by more than one building trade, the architect's specifications should cross-reference the noise control and noise isolation measures in all applicable sections of the specifications.

During construction phase 2, in addition to, and in advance of, conventional on-site inspections, special training should be provided to those in relevant building trades who will perform the work, or to their supervisors. The training should describe guidelines for implementing what often may be unconventional or unfamiliar construction methods. For example, representatives of certain building trades may not realize that inadvertent or careless disposal of debris or temporary bracing in the space between wall surfaces can cause a drastic reduction in noise isolation between adjacent learning spaces.

It is important to emphasize to those doing the work during the construction phase that all cracks or joints between wall segments or wall-floor or wall-ceiling joints should be sealed with a permanently flexible caulking compound. However, no attempt should be made to seal cracks or joints that are wider than 6 mm (0.25 in.). Solid filler, also caulked, with a surface weight density comparable to that of the material on each side of the crack should be used to seal cracks that are wider than

6 mm. ASTM C919 [E1] provides procedures for the use of sealants to maintain the design for noise isolation. The architectural design drawings should include a reference to ASTM C919 for sealing procedures.

To check conformance to the key requirements of this standard after construction is completed but before the learning space is occupied (phase 3), the following evaluations are recommended:

- 1) measure the background noise levels within learning spaces,
- 2) measure the noise isolation between them, and
- 3) calculate (or measure) reverberation times (see E3, E4, and E5 for procedures).

E2.2 After commissioning

After commissioning (accepting completion of construction), "good architectural practices" include:

- 1) being alert for, and monitoring of, degradation of acoustical materials, and
- 2) responding to complaints about the acoustical environment in a learning space.

Over time, some of the noise control features designed into a learning facility may degrade. One example of such degradation is changes in the balance, or fan operation, of the HVAC system leading to excessive low-frequency noise. Another example is the degradation of designed noise isolation provided by operable partitions as a result of wear and tear of floor and edge seals. A third example is painting of the sound-absorbing material on ceilings and walls.

Tests to verify conformance to this standard may be performed in response to complaints about the acoustical environment in the learning spaces. The results of these tests, and those performed prior to accepting completion of construction, will assist in analyzing the basis for any future complaints about the acoustical environment in the learning spaces.

E3 Verifying background noise levels

E3.1 Selecting learning space for measurements

Ordinarily, comprehensive testing is not required for all learning spaces in a given facility to which this standard applies and appropriate sampling procedures should be adequate. Selection of the size of the sample should consider the need to

evaluate spaces expected to have the highest levels of background noise because of their proximity to internal noise sources (e.g., mechanical equipment rooms) or their proximity to external noise sources (e.g., road traffic).

The test procedures in the balance of this clause apply to each learning space in which background noise levels are to be measured.

E3.2 Room conditions

Background noise levels shall be measured while adjacent spaces (for example, rooms and corridors beside, above, and below the space in which the measurements are to be made) are unoccupied. Students or school staff members, in the remainder of the facility, shall be requested to not carry out any activity that could increase the background noise level in the room under investigation.

Background noise levels shall be measured during an hour when the background noise levels are expected to be a maximum. Background noise levels shall be measured with the HVAC system and other building services at their appropriate maximum operational conditions as specified in 4.3.2. Lights shall be on; doors and windows shall be closed.

E3.2.1 Instructional equipment

Portable and permanent instructional equipment (for example, computers and audio-visual systems) shall be turned off to obtain background noise levels required by this standard.

However, it is strongly recommended that background noise levels also be measured according to the procedures in this annex when such instructional equipment and building services are operating simultaneously. When this total background noise level exceeds the limit in table 1 by more than 3 dB, steps should be taken to reduce the level of the noise produced by the instructional equipment.

E3.3 Room description

The overall dimensions of the learning space shall be measured and the enclosing volume calculated. The locations and dimensions of major features shall be noted on a diagram with plan and elevation views showing: 1) the location of HVAC components and other noise sources within the

space; 2) the position and dimensions of windows and doors; and 3) the heights and locations of partial height walls.

E3.4 Test instruments

Two types of instruments are required — a sound level meter and a compatible acoustical calibrator (or sound calibrator).

E3.4.1 Sound level meter. The sound level meter shall provide frequency weightings A and C, and SLOW time-weighting.

The sound level meter shall be an integrating-averaging type capable of measuring time-average sound levels or a conventional sound level meter capable of measuring SLOW time-weighted sound levels. An integrating-averaging meter is preferred.

An integrating-averaging sound level meter shall conform to the class 1-performance specifications of IEC 61672-1 [E2] or to the performance specifications of ANSI S1.43 [E3] for type 1 integrating-averaging sound level meters. A conventional sound level meter shall conform to the class 1 specifications of IEC 61672-1 or to the specifications of ANSI S1.4 [E4] for type 1 sound level meters. For either type of sound level meter, conformance to IEC 61672-1 is preferred.

To demonstrate conformance to the background noise limits of table 1, the maximum A-weighted level of self-generated noise of the sound level meter shall not exceed 30 dB for the model of microphone installed on the sound level meter.

NOTE Sound level meters designed in conformance with the above IEC or ANSI standards may have A-weighted self-noise levels greater than 30 dB. Conformance to these standards does not assure compliance with this required maximum self-noise level.

To carry out the preliminary survey of the background noise levels in the manner described in E3.7, a conventional sound level meter conforming to IEC 61672-1 class-2 or ANSI S1.4 type-2 specifications may be an acceptable alternative. To be acceptable, the lowest noise level measurable by the instrument shall be at least 5 dB below the actual measured background level. This ability may be demonstrated by observation in a very quiet location. Alternatively, the manufacturer may provide the lowest measurable level for this instrument.

E3.4.2 Acoustical calibrator. The acoustical calibrator shall conform to the requirements of IEC

60942 [E5] for a class 1 instrument or to the requirements of ANSI S1.40 [E6] for a type 1 instrument. Conformance to the standard corresponding to the sound level meter standard is preferred. The actual sound pressure level and nominal frequency of the calibration signal shall be known for the microphone installed on the sound level meter.

E3.5 Calibration

The sound level meter and the acoustical calibrator shall each have a certificate from a qualified acoustical testing laboratory indicating that a calibration of both instruments has been performed within the time interval recommended by the manufacturer but not more than 24 months prior to the date of the tests. The certificate shall apply for reference environmental conditions defined by the manufacturer. The calibration of the sound level meter and acoustical calibrator shall be checked periodically to ensure that measurements with the sound level meter are accurate.

Before initiating sound level measurements, the calibration of the sound level meter shall be verified in accordance with the procedure described in the Instruction Manual for the calibrator. Adjustments shall be made to the calibration in accordance with this manual to account for any significant difference between the prevailing atmospheric pressure and air temperature and the reference conditions (i.e. - 760 mm Hg, and 23 °C).

E3.6 Selecting measurement locations

The customary listening areas used for speech communication shall be determined for each learning space. The customary listening areas include the students' seating areas and the areas used by the teacher. These listening areas may be relatively fixed within a classroom or vary substantially, depending on the seating arrangement and teaching style. A maximum of six measurement locations shall be selected within the customary listening area and at distances not less than 1 m (40 in.) from a wall or other large solid surface, except for measurement locations close to the floor.

The location in the customary listening area that has the highest sound level shall be designated the "key location". This location shall be determined by observing the A-frequency-weighted and SLOW time-weighted sound level as the sound level meter is carried around the learning space with the room conditions as noted in E3.2. Sound

levels shall be noted at measurement heights representative of seated and standing students. Alternatively, this key location may be selected by listening at suitable positions near the apparent source of highest noise levels. If this subjective choice of the key location cannot be confirmed by the subsequent measurements of background noise, the background noise measurements shall be repeated using a correct key location. Before determining the other measurement locations it is prudent to evaluate preliminary survey results at the key location, as called for in E3.7.

A second location shall be on the opposite side of the listening area from the key location. Four other locations, two on each side of the listening area, shall be selected ahead and behind the key and second locations.

Three of the measurement heights above the floor, including that for the key location, shall be at the nominal ear elevation for students seated in a chair or on the floor. The other three heights shall be representative of the ear position of a standing student. The recommended approximate heights are shown in the following table.

Grade level	Approximate measurement height above the floor		
	Seated positions		Standing
	In a chair	On the floor	
K to 6	0.8 m (33 in.)	0.5 m (20 in.)	1.1 m (44 in.)
7 to 9	1.0 m (40 in.)	Not applicable	1.4 m (54 in.)
10 to 12 and adults	1.1 m (44 in.)	Not applicable	1.5 m (60 in.)

For learning spaces used by students of widely varying ages, at least four of the six measurement locations shall be those for the younger students.

Each measurement location shall be shown on a floor plan diagram and shall include the actual measurement heights employed.

E3.7 Measuring background noise

Following the initial survey described below, which can employ a hand-held sound level meter, the remainder of the background noise measurements should be conducted with the meter mounted on a tripod to minimize operator-induced noise and reflections from the operator's body. (A tripod may be

necessary for even the initial survey if the observed sound levels are very low). A large flat surface, such as a table or chair seat, shall not be used to support the instrument. To ensure that any air currents do not affect the reading of the sound level meter, and to protect the microphone from accidental damage, an appropriate microphone windscreen shall always be employed. The number of persons in the listening area shall be minimized, preferably with the test conductor the only person in the area.

The measurement of background noise shall begin with a preliminary survey to:

- 1) find the key location where the background noise level is the highest (see E3.6);
- 2) assess the likelihood that the background noise level conforms to the limits in table 1; and
- 3) determine if the background noise is steady or unsteady.

The sound level meter used for this preliminary survey may be an integrating-averaging type or a conventional type. In either case, it may be one that conforms only to the class-2 requirements of IEC 61672-1 or the type 2 requirements of ANSI S1.4 if the meter also conforms to the requirements in E3.4.1 for the lowest measurable level.

At the key location, the time-average A-weighted sound level shall be measured over each of five nominally consecutive 30-second intervals. The highest 30-second average, the lowest 30-second average and the total average of all five 30-second averages shall be noted. The same type of data shall be obtained for C-weighted sound levels. Each 30-second average may be obtained with an integrating-averaging meter set to a 30-second averaging period or, with a conventional sound meter, by visually observing the mean indication of the A-weighted and SLOW time-weighted sound level over the 30-second interval.

If the average background noise level from the above five A-weighted measurements is at least 3 dB more than the limits in table 1, then it may be concluded that the background noise levels in the room are not in conformance with the standard. No further background noise measurements are needed. If the average background noise level from the above five measurements is at least 3 dB less than the limits in table 1 and the background noise is judged steady as defined below, it may be concluded that the background noise levels in the room are in conformance with the standard. No

further A-weighted background noise measurements are needed.

If the average of the five 30-second samples falls within a 3 dB range above or below the limits of table 1, then confirmation of conformance or non-conformance to these limits shall be determined by additional tests carried out in accordance with one of the following procedures.

If the difference between the highest and the lowest noise levels of the five 30-second samples at the key location is not more than 3 dB, the background noise shall be judged steady and the measurement procedure in E3.7.1 shall be employed. If this difference is more than 3 dB, the background noise shall be judged unsteady and the measurement procedure of E3.7.2 shall be employed.

E3.7.1 Steady background noise. The one-hour-average steady background level for the typical usage hour may be obtained from measurements of one 30-second average sound level at each measurement location after ensuring that the room conditions are as specified in E3.2. Each 30-second average sound level may be measured in one of two ways and the results noted for each measurement location:

- 1) by use of an integrating-averaging sound level meter for a 30-second measurement interval or
- 2) by visual observation for 30 seconds of the mean sound level observed on a conventional sound level meter with SLOW time-weighting.

If any non-typical short-duration sound, such as a door slam, occurs during any measurement period, the measurement shall be stopped, the memory cleared if an integrating-averaging instrument is being used, and the 30-second measurement repeated.

The C-weighted sound level also shall be measured at the key measurement location applying the same process employed for the A-weighted sound levels. If the C-weighted sound level at this location exceeds the limit for A-weighted levels in table 1 by more than 18 dB, it is recommended that a more thorough evaluation be made of the C-weighted levels at other locations in the room to ensure conformance to 4.3.2.1.

E3.7.2 Unsteady background noise from transportation noise sources. For unsteady background noise, the measurement procedure of E3.7.1 (1) shall be followed, using an integrating-averaging sound level meter which, preferably,

can also determine the A-weighted SLOW time-weighted noise level exceeded for 10% of any measurement interval. The integration and averaging measurement interval shall be 60 minutes instead of 30 seconds.

During this measurement, the time of day and the apparent sources of significant transportation noise shall be identified and noted. Non-typical short-duration loud sounds that occur during the integration interval shall be noted, but the integration shall not be interrupted. Prior to reporting the one-hour-average sound level, the measured data may be processed to exclude such non-typical short-duration sounds.

The A-weighted, SLOW time-weighted noise level exceeded for 10% of the observation hour shall be noted directly if the sound level meter has this capability. Alternatively, manual data processing may be employed. For example, a record of 120 observations of 30-second samples of the A-weighted SLOW time-weighted noise level can be used to determine the level exceeded for 10% of the hour.

E3.7.3 Disturbing sounds from building services and utilities. If the presence of disturbing sounds (see 4.3.2.2) is suspected from building services and other utilities, a more thorough analysis of the acoustic environment may be required using appropriate signal analysis equipment familiar to an experienced observer.

E3.8 Verifying conformance to background noise limits

E3.8.1 Steady background noise. For the customary listening area in the learning space, conformance to the requirements of this standard is verified for steady background noise when the following conditions are satisfied.

- The 30-second-average A-weighted sound level at each measurement location does not exceed the corresponding limit specified in table 1, within the tolerance of 4.7 (1); and
- The 30-second-average C-weighted sound level at the key measurement location does not exceed the corresponding 30-second-average A-weighted sound level by more than the limit specified in 4.3.2.1.

E3.8.2 Unsteady background noise from transportation noise sources. Conformance is verified if the one-hour-average A-weighted sound level and the A-weighted, SLOW time-weighted

level exceeded 10% of the time do not exceed the limits specified in 4.3.1. The tolerance of 4.7 (1) applies separately and not cumulatively to each of these limits for the continuous test hour.

E4 Verifying reverberation times

E4.1 Methods

The preferred method to verify that the actual reverberation times do not exceed the maximum reverberation time specified in table 1 is to calculate the reverberation time at 500 Hz, 1000 Hz, and 2000 Hz. Alternatively, reverberation times may be measured directly. Reverberation times shall be measured when the calculated reverberation times exceed the limits from table 1, when the observed reverberation of the learning space appears to be excessive, or when significant differences are suspected between the assumed and the actual mounting conditions for the acoustic treatment.

If calculated and measured reverberation times differ by more than 0.1 s, the measured reverberation time shall take precedence. Results of calculations or measurements of reverberation times shall be rounded to the nearest 0.1 s and shall be within the tolerance limits of 4.7 (4) of the performance requirements in table 1.

E4.2 Reverberation time by calculation

The dimensions of the room shall be measured and the enclosing volume calculated. The dimensions of the sound-absorbing surfaces on the ceiling and walls shall be measured and the surface areas calculated for each different type of sound-absorbing surface.

The total sound-absorbing area in the room shall be determined by means of equation (C.2) in annex C with appropriate estimates for the sound absorption coefficients for the various sound-absorbing surfaces. A residual sound-absorbing area shall be computed according to C2.1 in annex C to account for absorption by furnishings and untreated surfaces. A default value for this residual absorption shall be 15% of the floor area for uncarpeted rooms or 20% for carpeted rooms. Sound absorption provided by occupants of the room shall be ignored. The reverberation time shall be calculated for each frequency by the Sabine equation (e.g. - see equation (C.1) in annex C).

E4.2.1 Sound absorption coefficients used for calculations. To calculate the reverberation time, best estimates of the sound absorption coefficients for the as-installed acoustic materials shall be used. These coefficients (see NOTE) shall be obtained from:

- a) the acoustical materials contractor, accompanied by the certification that they were obtained in accordance with ASTM C423 (see C2.1 in annex C) or,
- b) published results obtained in accordance with ASTM C423 for nominally identical materials and mounting configurations, (see bibliography)

If possible, allowance should be made for acoustically significant differences between the tested and as-installed mounting configuration.

NOTE Manufacturers do not commonly provide the octave band sound absorption coefficients needed for this standard. The values reported are usually those measured for one-third octave bands centered at these octave frequencies. If desired, sound absorption coefficients over the full octave band may be estimated by arithmetically averaging available one-third octave band values at 400, 500, and 630 Hz for the 500 Hz octave band, at 800, 1000 and 1250 Hz for the 1000 Hz octave band, and at 1650, 2000, and 2500 Hz for the 2000 Hz octave band.

When such reasonable data or estimates of the sound absorption coefficients are not available then verification of reverberation time shall only be done using the measurement method in E4.3.

E4.3 Reverberation time by measurement

Measurements of reverberation times shall be performed by, or under the supervision of, a person experienced in performing such measurements. The measurements shall follow procedures in conformance with, or equivalent to, those specified for field tests in ASTM E336 [E7] or in Appendix X2 of ASTM C423 [E8]. The recommended sound signal is random noise with a bandwidth extending at least from 315 Hz to 3150 Hz.

Reverberation times shall be measured at least at the key location noted in E3.6 for each learning space where reverberation times are to be measured.

Before measuring reverberation times, all HVAC fans and other noise-generating equipment, such as instructional equipment, should be turned off if

their noise prevents acquisition of valid measurements of reverberation times. All soft materials that are not a permanent part of the learning space (such as loose clothing and art supplies) shall be removed from the room. The learning space shall be otherwise furnished in the normal manner with chairs, tables, shelves, or cabinets. All windows, doors, and cabinets shall be closed. No more than two persons shall be present during the actual measurements.

No adjustments shall be made to any reverberation time measurements to account for the added absorption of any furnishings of any sort that were not present in the room at the time of the measurements.

E5 Verifying airborne and structureborne noise isolation

E5.1 Airborne noise isolation

When required, tests for conformance to airborne noise isolation requirements in table 2 shall be performed in accordance with the procedures of ASTM E336 [E7] and ASTM E413 [E9] for determining the Noise Isolation Class (NIC) as an approximation to the sound transmission class (STC) rating of a structural element. If there are no significant flanking sound-transmission paths and all sound leaks have been well sealed, the NIC rating is usually equal to, or slightly greater than, the STC rating determined by field tests for assemblies that separate two enclosed learning spaces.

The same ASTM test procedures also should be used to demonstrate conformance with the STC ratings recommended in table 3 for receiving ancillary learning spaces. All sound transmitted from the source room to the receiving room shall be considered to be transmitted through the separating partition. Engineering judgment shall be applied in the interpretation of measured NIC ratings; guidance for this judgment is provided in ASTM E336. The measured NIC ratings shall be within the tolerance limits of 4.7 (2) of the STC design requirements in table 2 and design recommendations in table 3.

E5.2 Structureborne (impact) noise isolation

When required, tests for conformance to structureborne or impact noise isolation requirements in 4.5.6 shall be performed in accordance with the testing procedures for determination of the Field Impact Insulation Class (FIIC) as defined in ASTM

E1007 [E10] for floor-ceiling assemblies separating occupied spaces from learning spaces below. All sound transmitted from the source room to the receiving room below shall be considered to be transmitted through the floor-ceiling assemblies.

E5.3 Sound leakage paths

Tests for airborne and structureborne noise isolation shall not be attempted until all sound leakage paths and gaps have been eliminated by caulking and sealing in accordance with the recommended practice in ASTM C919 [E1].

E6 Test report

A test report shall document the results of all tests or calculations carried out in conformance with the procedures of E3 to E5 of this annex. The report shall reference this standard and the applicable clauses of this annex. The report shall describe the instruments used and their dates of calibration when applicable. The report shall include tables of all measured data and the results of all analyses. Drawings shall be included to show the items noted in E3.3 and E3.6. To support validation of the reverberation time by calculations, the report shall also include the types, locations, and areas of permanently installed sound-absorbing material and their mounting methods.

The report shall state whether the learning space does or does not conform to the requirements of this standard and shall identify the applicable clause(s). If the space does not conform to the requirements of this standard, the report may include, if requested, recommendations for modifications to achieve compliance. These recommendations should be prepared or approved by a person experienced in the applicable acoustical technology.

The report shall name the persons performing the validation tests or calculations and the name of the person who prepared the report.

E7 Bibliography

[E1] ASTM C919-98, Standard Practice for Use of Sealants in Acoustical Applications [Web site - <http://www.astm.org>].

[E2] IEC 61672-1, Electroacoustics — Sound level meters — Part 1: Specifications. [Web site - <http://www.iec.ch>]

[E3] ANSI S1.43-1997 (R 2002), American National Standard Specification for Integrating-Averaging Sound Level Meters [Web site - <http://asa.aip.org>].

[E4] ANSI S1.4-1983 (R 2001), American National Standard Specification for Sound Level Meters.

[E5] IEC 60942: 1997, Electroacoustics — Sound calibrators. (Including IEC 60942-am1:2000.)

[E6] ANSI S1.40-1984 (R 2001), American National Standard Specification for Acoustical Calibrators.

[E7] ASTM E336-97, Standard Test Method for Measurement of Airborne Sound Insulation in Buildings.

[E8] ASTM C423-00, Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

[E9] ASTM E413-87 (1999), Standard Classifications for Rating Sound Insulation.

[E10] ASTM E1007-97, Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling and Associated Support Structures.

Annex F (Informative)

Potential conflicts between the acoustical requirements of this standard and indoor air quality (IAQ) and multiple chemical sensitivity (MCS)

F1 Introduction

Concerns about indoor air quality (IAQ) and multiple chemical sensitivity (MCS) issues have

caused some schools to remove all porous materials from the classrooms and, in some cases, from the ventilation supply ducts, thus potentially compromising the benefits for classrooms that used

the frequency spectrum of the noise - a refinement that is beyond the scope of this standard and is not recommended.

A-weighted and C-weighted sound levels are considered adequate descriptors for purposes of this standard to evaluate the acoustical environment in learning spaces. The difference, measured in 56 classrooms, between the A-weighted time-average sound level of steady background noise and the corresponding value of any of the three descriptors noted below varied from 2 dB to 24 dB depending on the location of the learning space in the U.S. and whether the HVAC system was operating. *Thus, none of these supplemental descriptors should be employed for judging conformance to this standard.*

G2 Noise Criteria Rating (NC)

The noise criteria (NC) rating, in common use by architects and consultants for acoustical room design, is based on contours of octave-band sound pressure levels of the background noise. It is thus a measure of the frequency spectrum of this noise and reflects the change in the sensitivity of human hearing as the background noise level changes [G1], especially at frequencies important for speech communication and for annoyance of low-frequency sound.

G3 Balanced Noise Criteria Rating (NCB)

The balanced noise criteria (NCB) rating [G2] are also based on similar contours of octave-band sound pressure levels. The contours for the NCB descriptor extend to lower frequencies than do the contours for the NC descriptor.

G4 Room Criteria Rating (RC)

The room criteria (RC) rating [G3] is recommended by ASHRAE for evaluating background noise from HVAC systems and other mechanical equipment by use of contours of octave-band sound pressure levels. These contours are similar to those for the NC and NCB descriptors but have lower allowable sound levels at very low and very high frequencies.

G5 Bibliography

- [G1] L.L. Beranek and I. L. Ver, *Noise and Vibration Control Engineering*, Wiley, NY (1992).
- [G2] ANSI S12.2-1995 (R 1999), *American National Standard Criteria for Evaluating Room Noise*. [Web site - <http://asa.aip.org>].
- [G3] ASHRAE Handbook, *HVAC Applications*, (American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. Atlanta, GA 30329 (1999). [Web site - <http://ashrae.org>].

OTHER ACOUSTICAL STANDARDS AVAILABLE FROM THE STANDARDS SECRETARIAT OF
THE ACOUSTICAL SOCIETY OF AMERICA

- ASA NOISE STDS INDEX 3-1985 Index to Noise Standards

S1 STANDARDS ON ACOUSTICS

- ANSI S1.1-1994 (R 1999) American National Standard Acoustical Terminology
- ANSI S1.4-1983 (R 2001) American National Standard Specification for Sound Level Meters
- ANSI S1.4A-1985 (R 2001) Amendment to S1.4-1983
- ANSI S1.6-1984 (R 2001) American National Standard Preferred Frequencies, Frequency Levels, and Band Numbers for Acoustical Measurements
- ANSI S1.8-1989 (R 2001) American National Standard Reference Quantities for Acoustical Levels
- ANSI S1.9-1996 (R 2001) American National Standard Instruments for the Measurement of Sound Intensity
- ANSI S1.10-1966 (R 2001) American National Standard Method for the Calibration of Microphones
- ANSI S1.11-1986 (R 1998) American National Standard Specification for Octave-Band and Fractional-Octave-Band Analog and Digital Filters
- ANSI S1.13-1995 (R 1999) American National Standard Measurement of Sound Pressure Levels in Air
- ANSI S1.14-1998 American National Standard Recommendations for Specifying and Testing the Susceptibility of Acoustical Instruments to Radiated Radio-frequency Electromagnetic Fields, 25 MHz to 1 GHz
- ANSI S1.15-1997/Part 1 (R 2001) American National Standard Measurement Microphones, Part 1: Specifications for Laboratory Standard Microphones
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S2 STANDARDS ON MECHANICAL VIBRATION AND SHOCK

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Schomer & Associates
2117 Robert Drive
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Tel: +1 217 359 6602

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S. B. Blaeser, *Standards Manager*

Standards Secretariat
Acoustical Society of America
35 Pinelawn Rd.,
Suite 114E

Melville, NY 11747

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Published by the American National Standards Institute

SAL00018



Nonauditory Effects of Noise on Children: A Critical Review

Gary W. Evans
Cornell University
New York, USA

Stephen J. Lepore
Carnegie Mellon University
USA

Large numbers of children both in the United States and throughout the economically developing world are chronically exposed to high levels of ambient noise. Although a great deal is known about chronic noise exposures and hearing damage, much less is known about the nonauditory effects of chronic ambient noise exposure on children. To estimate the risk of ambient noise exposure to healthy human development, more information about and attention to nonauditory effects such as psychophysiological functioning, motivation, and cognitive processes is needed. This article critically reviews existing research on the nonauditory effects of noise on children; develops several preliminary models of how noise may adversely affect children; and advocates an ecological perspective for a future research agenda.

Keywords: noise, stress, nonauditory effects, health, cognitive

INTRODUCTION

In 1973 nearly 10 million American school children were exposed to ambient noise levels that exceed federal standards for hearing protection in work settings (Environmental Protection Agency, 1974). Recent studies estimate that American children on average are exposed daily to noise levels in the range of 76-80 Leq (unweighted average of decibel levels for 24 hours) (Roche et al., 1982; Schori & McGatha, 1978). To put these figures in perspective, the EPA recommended limit for risk to hearing is 70 Leq daily exposure for children. Since these assessments of childhood noise exposure, there have been marked increases worldwide in the number of children exposed to noise levels loud enough to impair hearing: this is especially true in underdeveloped countries (Evans, 1990; Suter, 1991).

Many *nonauditory* effects of noise on children also have been detected during the past two decades of research. Nonauditory effects of noise refer to impacts not directly related to sound-

induced damage to the auditory system. Nonauditory effects of noise, such as elevated sympathetic nervous system activity or disturbances in attentional processes, are apparent in children exposed to noise levels far below those necessary to induce auditory damage.

Although there is abundant evidence and analysis of the auditory effects of noise on children (Kryter, 1985; Mills, 1975), there has been little systematic, critical analysis of the nonauditory effects of noise exposure among children. This is a critical omission if we are interested in estimating the true risk of noise exposure to healthy human development. The present article critically examines the empirical evidence on the nonauditory effects of noise on children. The work is organized into three general areas of functioning: physiological, motivation, and cognitive. Both conceptual as well as methodological limitations in the extant research are examined.

Physiological Effects of Noise

Work in animal models and in various occupational settings suggests heightened activation of the cardiovascular system among organisms

Correspondence may be addressed to Gary Evans, Department of Design and Environmental Analysis, College of Human Ecology, Cornell University, Ithaca, NY 14853-4401, USA.

Table 1. Effects of noise on cardiovascular outcomes

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Brackbill et al. (1982)	HR	1 h white noise for 4 consecutive days. 50 and 75 dBA.	(78 males) ages 1 mon. to 80 yrs.	In infants and 8-year olds, HR decreased as sound levels increased. No other main or interactive effects of noise.
Cohen et al. (1980)	BP	Aircraft. 95 dBA peak.	(262) grades 3-4.	Noisy-school children had higher SBP and DBP than quiet-school children.
Cohen et al. (1981)	BP	Aircraft. 95 dBA peak.	(163) grades 3-4, longitudinal sample.	In the longitudinal attrition sample, there were no effects of noise on BP.
Cohen et al. (1986)	BP	Aircraft. 16 dBA sound reduction in noise-abated classrooms.	(163) grades 3-4, longitudinal sample.	SBP marginally lower and DBP significantly lower in quiet- than noisy-school children. SBP and DBP marginally lower in quiet- than noise-abated school children. No BP differences in children in noisy vs. noise-abated school.
Cohen et al. (1986)	BP	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Noisy-school children had higher BP than quiet-school children if were enrolled for 2 yrs or less. No noise effects on children enrolled more than 2 yrs.
Karsdorf & Klappach (1968)	BP	Traffic and street. 63-84 phon.	(262) grades 7-10.	Children in quiet schools had normal BP; whereas those in moderately- to very-noisy schools had elevated BP, especially among older boys.
Ising et al. (1990)	BP	Low altitude military flights. 125 dBA peak/Leq 68 dBA.	(433) ages 10-13 yrs.	Noise-related increases in SBP and DBP for girls, but not boys. Noise-related HR deceleration in boys and girls, but deceleration only significant in boys.
Karagodina (1969)	BP	Aircraft. 112 dBA peak/Leq 58 dBA.	(unavailable) ages 9-13 yrs.	Noisy-school children had higher BP than quiet-school children.
Roche et al. (1982)	BP	Self-report of exposure to loud noise sources. 80- Leq.	(233) ages 12-14 yrs.	Self-reported noise exposure levels not associated with BP.

Note: HR = heart rate, BP = blood pressure, S = systolic, D = diastolic.

chronically exposed to noise (Kryter, 1985; Smith, in press). As shown in Table 1, several studies have also uncovered evidence of possible linkages between chronic noise exposure and elevated blood pressure among children.

With two exceptions, all of the studies shown in Table 1 report elevations of resting blood pressure among children chronically exposed to noise. The one experimental study (Brackbill et al., 1982) found habituation to noise, which is a well established psychophysiological finding with short-term noise exposures (Glass & Singer, 1972). The extent of blood pressure elevations found from chronic exposure are probably not clinically significant for children during their youth (Voors et al., 1976), but could portend elevations later in life that might be health damaging (Berenson, 1980). To our knowledge,

there have been no long-term follow up studies of children exposed to noise at an early developmental stage. We know essentially nothing about the long-term consequences of early noise exposure on developing cardiovascular systems.

Both of the studies in Table 1 that found nonsignificant correlations between noise exposure and chronic blood pressure levels have methodological limitations. Roche et al. (1982) relied on children's retrospective reports of exposure to noise events (e.g., motorcycle use) during the previous six months. No data were presented on the reliability or validity of these noise estimates. Furthermore, the children monitored did not live near especially high noise sources (e.g., airports). Instead exposure to point noise sources such as machinery was estimated. Finally, resting blood pressure was only estimated

with one reading. On the other hand, this is the only study to examine the association between typical, daily noise exposures and resting blood pressure among children. All other studies have assessed the association between chronic blood pressure and exposure to high noise sources such as airports, roads, or trains. Analyses of the health effects of typical noise exposure for children are needed but with more adequate measurements of both noise exposure and blood pressure.

The second study to find a nonsignificant association between chronic noise exposure and resting blood pressure levels was conducted with children exposed to high levels of noise from an airport. Cohen et al. (1981) found that a difference in blood pressure between children attending noisy versus quiet elementary schools in a cross-sectional analysis did not replicate when reassessed one year later. Attritional analyses suggested that the failed longitudinal replication was caused by emigration of the families of children in noisy areas with the highest levels of blood pressure. Among children attending quiet schools, on the other hand, there was no selective attrition related to blood pressure levels.

Unlike other studies listed in Table 1, the three studies by Cohen and colleagues (Cohen et al., 1980; 1981; 1986) include statistical controls (e.g., social class, education) to counter potential third variable explanations of the associations uncovered between noise exposure and chronic levels of blood pressure. However, none of the studies is prospective, nor do any show a dose response relation between noise and blood pressure. Furthermore, all of the extant studies have relied upon gross indices of noise exposure – typically peak readings measured at schools.

Noise in the fetal and neonatal environment may be particularly harmful to fetuses and newborns because they are in a period of great organismic plasticity. It is well established that environmental sounds and vibration influence physiological and behavioral responses in the fetus (Pikus, 1991). There are contradictory data on the relations between ambient noise exposure and birth weight (for reviews see Pikus, 1991; Smith, in press) but little or no definitive evidence for teratological effects of chronic noise exposure (Edmonds et al., 1979; Meyer et al., 1989). Nonetheless, it is critical for more thorough and extended investigation of the potential impacts of routine modern medical procedures such as ultrasound monitoring or

placement of premature babies in intensive care nurseries with extremely noisy equipment (Gottfried et al., 1981; Lawson et al., 1977).

Summary

Residing or attending school near a major noise source is associated with elevated blood pressure. More research is clearly called for, especially tracking children before, during, and after exposure to noisy environments. All evidence to date is correlational and even though some studies have included good controls, stronger, quasi-experimental designs are needed to firmly tie noise to the etiology of cardiovascular changes in children. The degree of blood pressure elevations is small, on the order of 4–8 mm of mercury, but these elevations do not appear to habituate with continued exposure (cf., Cohen et al., 1986). The clinical significance of such changes in childhood blood pressure is difficult to determine. The ranges of blood pressure among noise-exposed children are within normal levels and do not suggest hypertension. On the other hand, elevations in blood pressure among children appear to track into adulthood (Beren-son, 1980), increasing the potential risk for cardiovascular disease. It would also be of value to examine neuroendocrine makers of stress (e.g., cortisol) that have been implicated in the casual pathways between stressors and cardiovascular outcomes.

Emotional/Motivational Effects of Noise

The uncontrollability of chronic noise exposure may affect childrens' emotional and motivational states. When organisms are exposed to repeated, uncontrollable events, learned helplessness can occur (Abramson et al., 1978; Seligman, 1975). Learned helplessness means the organism learns that the outcomes of its behavior are independent of its responses. Learned helplessness is manifested as a lack of effort or responsiveness to environmental stimuli and challenges. Uncontrollable noise has been shown to induce helplessness in adults (Hiroto, 1974; Hiroto & Seligman, 1975; Krantz et al., 1974). Moreover, adults immediately following exposure to uncontrollable noise are less likely to persist on difficult or challenging aftereffect puzzles than their counterparts with prior exposure to controllable noise (Cohen, 1980; Glass & Singer, 1972).

Overall, though, very little is known about the

Table 2. Effects of noise on motivation (learned helplessness)

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Cohen et al. (1980)	Performance on moderately difficult puzzle after pretreatment with insoluble or soluble puzzle.	Aircraft. 95 dBA peak.	(262) grades 3-4.	Noisy-school children failed more on pretreatment soluble puzzle and difficult test puzzle, and were more likely to give up on difficult puzzle, than quiet-school children. There was a nonsignificant trend suggesting that longer exposure to a noisy school was associated with greater time to complete difficult puzzle.
Cohen et al. (1981)	Performance on moderately difficult puzzle.	Aircraft. 95 dBA peak.	(163) grades 3-4, longitudinal sample.	Noisy-school children were more likely to fail at the test puzzle and to take longer to solve the puzzle than quiet-school children. No noise effect on rate of giving up.
Cohen et al. (1981)	Performance on moderately difficult puzzle.	Aircraft. 16 dBA sound reduction in noise-abated classrooms.	(163) grades 3-4, longitudinal sample.	Sound attenuation improved children's performance on the original test puzzle.
Cohen et al. (1986)	Performance on moderately difficult puzzle.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Noisy-school children failed difficult puzzle more frequently than did quiet-school children.
Cohen et al. (1986)	Choice task.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Noisy-school children more likely than quiet-school children to give choice of reward to experimenter.
Moch-Sibony (1984)	Rosenzweig frustration tolerance test.	Aircraft. 29 vs 54 SIL.	(80) kindergarten.	Noise-related decreases in frustration tolerance.
Wachs (1987)	Observer ratings of mastery-oriented play behavior.	Ratings of noise: 1 = normal level voices in home for 15 min. period to 4 = noisy level voices in home for more than half 15 min. period.	(88) 12 mon.	Less mastery-oriented play behavior in noisier homes.

Note: SIL = speech interference level.

relations between chronic exposure to environmental stressors such as noise and the induction of helplessness in human beings. Community surveys of noise annoyance frequently note that while annoyance is common, complaints or other actions to intervene are rare (Evans & Tafalla, 1987). Most residents who are annoyed by noise report feeling unable or helpless to alter the situation (Jue et al., 1984). The small minority who do complain or take other actions report feeling greater self-efficacy to cope with the noise (Jue et al., 1984).

As shown in Table 2, a few studies have examined the effects of noise on children's motivational states. The significant relations between noise exposure and motivational deficits in one cross-sectional study (Cohen et al., 1980) were replicated both in a longitudinal study (Cohen et al., 1981) and in a second, cross-sectional study

(Cohen et al., 1986). Higher noise exposure in children has been associated with reduced persistence on challenging puzzles and greater abdication of choice over rewards (see Table 2). Perhaps the most persuasive data of reduced motivation in an achievement related situation is Cohen et al.'s (1980) findings on giving up. Not only were children from noisy schools less likely to solve a challenging puzzle within a four minute time period, a substantially greater proportion of them (15%) simply gave up before the allotted time had elapsed, often remarking that they couldn't do the task, in comparison to 2% of their quiet school counterparts who gave up.

Of additional interest, teachers from schools located in noisy settings report more difficulties motivating students to perform than do teachers from relatively quiet schools (Crook & Langdon, 1974; Kyzar, 1977; Moch-Sibony, 1984).

Even very young children appear to be less motivated to engage in object mastery or control over their environment, after prolonged exposure to noise. For example, 12-month-old infants living in noisier households tended to engage in less effective, mastery-oriented interactions with toys in their homes than did children from relatively quiet homes (Wachs, 1987).

Learned helplessness is more apt to occur when individuals make stable, personological attributions (e.g., ability) rather than ascribe global or temporary reasons (e.g., bad luck, poor effort) for their failures (Abramson et al., 1974; Silver et al., 1982). No research on noise and motivation has examined these underlying attributional processes. Future research should also directly manipulate contingencies in a task (e.g., provision of insoluble puzzles) and then examine differences in tendencies to become helpless along with attributional measures, as a function of chronic noise exposure. In addition, researchers should examine the possible mental health consequences of noise-related learned helplessness. If noise heightens vulnerability to helplessness, then it is reasonable to suspect possible connections between chronic noise exposure and certain psychological problems in children. In one exploratory study, Wachs (1988) found a positive association between noise levels in the home and adaptability, but noise was unrelated to several other indices of temperament. In another study, a composite index of noise and confusion/clutter in the home was linked to difficulty in care requirements for 18-month-old children, although not for 12-month or 24-month-olds (Wachs, 1989).

Summary

Brief exposures to uncontrollable noise are capable of inducing learned helplessness in adults. Chronic residential exposure to noise also appears to be associated with feelings of helplessness among adults living nearby airports. Although the evidence is scant, there are suggestive findings indicating that children chronically exposed to ambient noise sources may be more vulnerable to learned helplessness. Children attending schools in airport flight paths are less likely to solve or persist in attempting to solve challenging puzzles. They are also more likely to abdicate choice over a reward to an adult rather than exercising the choice option themselves. Teachers of children in noisy schools also report, on average, greater difficulties in

motivating children in their school work. Noise in the home may be associated with mastery motivation in very young children. In addition to the small number of studies, all of which are correlational, another drawback to this area of work has been a lack of systematic integration of more sophisticated developmental paradigms for the measurement of motivational deficits in children. The potential pathways among chronic noise exposure, helplessness, and psychological health warrant further research.

Cognitive Effects of Noise

Research on the cognitive effects of noise exposure on children has received the most attention from researchers. This area of research can be subdivided into three subtopics: (i) attention and perception, (ii) memory, and (iii) intellectual achievement.

Attention and perception

The cognitive ability to perceive order and contingency in the environment presumably depends on some modicum of sustained attention to event sequences as they unfold. The interruptive, distracting effects of high ambient noise levels might directly affect the young child's ability to sustain voluntary attention or to concentrate (Heft, 1985).

As shown in Table 3, studies by Karsdorf and Klappach (1968), Kyzar (1977) and by Moch-Sibony (1984) have revealed deficits in standardized measures of sustained attention among children chronically exposed to noise. The standardized tests involve searching for target geometric stimuli from among fields of similar objects. In addition, teachers report that children in noisy schools tend to have more difficulties in concentrating in comparison to children from relatively quieter schools (Crook & Langdon, 1974; Ko, 1979; Kryter, 1985; Kyzar, 1977).

Cognitive studies on children with variable exposures to chronic noise sources also indicate possible decrements in visual attention (see Table 3). Children from noisy homes took longer to locate target pictorial stimuli within an array of pictures than did children from relatively quiet homes (Heft, 1979). Children attending daycare centers located near train tracks performed marginally more poorly on a visual search task

Table 3. Effects of noise on attention

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Crook & Langdon (1971)	Teachers' reports of concentration.	Aircraft. 75 dBA peak.	(76 teachers) primary and secondary.	Teachers in noisy schools reported more concentration problems in students than did those in quieter schools.
Hambrick-Dixon (1986)	Cross-out letters in quiet or noise.	Train. 108 dBA peak.	(109 black) ages 4-6 yrs.	Children from noisy daycare performed task marginally worse than children from quiet daycare.
Hambrick-Dixon (1988)	Visual stimulus detection with verbal or key press response.	Train. 108 dBA peak.	(102 black) ages 5-7 yrs.	Interaction between location of daycare, response mode, exposure duration, and sex: On key response, girls in noisy daycare less than 2 yrs made more errors than girls in quieter daycare less than 2 yrs. On verbal response, girls in noisy daycare more than 2 yrs made more errors than girls in quiet daycare more than 2 yrs. No differences in performance of boys in any condition.
Heft (1979)	Response latency in visual search.	Noise ratings: 1=low to 7=high.	(94) ages 4-7 yrs.	Higher household-noise level associated with longer response latency.
Karsdorf & Klappach (1968)	Errors and latency on Bourbon test.	Traffic and street. 63-84 phon.	(262) grades 7-10.	Noisy-school students had longer response latency and more errors than quiet-school students.
Ko (1979)	Teachers' reports of concentration.	Aircraft. 105 dBA peak.	(2100 teachers) primary and secondary.	Teachers in noisy schools reported more concentration problems in students than did those in quieter schools.
Kyzar (1977)	Minnesota clerical test.	Traffic and street. 62-94 dBA.	(56) elementary school.	Noise-related deficits in clerical-type task.
Kryter (1985)	Teachers' reports of concentration.	Aircraft. 87 dBA peak.	unavailable.	Teachers in noisy schools reported more concentration problems in students than did those in quieter schools.
Moch-Sibony (1984)	Zazzo sustained attention task.	Aircraft. 29-54 SIL.	(80) kindergarten.	Noisy-school children had poorer sustained attention than did quiet-school children.
Acute noise				
Zentall & Shaw (1980)	Visual search for letters.	Taped class noise from free time (71 dBA) and work time (57 dBA).	(36) grade 2 (hyperactive and non-hyperactive controls).	Noise x Hyperactivity interaction: Hyperactive children made fewer commission errors in low than in high noise conditions; non-hyperactive children unaffected by noise.

Note: SIL = speech interference level.

than did children from relatively quiet daycare centers (Hambrick-Dixon, 1986). In a subsequent study, Hambrick-Dixon (1988) uncovered a more complex relation between chronic noise exposure and attention, utilizing a vigilance task: Gender, exposure duration to train noise at the daycare center, and the response mode for the task (naming versus pressing a key) moderated the association between noise and performance.

Unfortunately, several of the sustained attention and noise studies suffer from methodological shortcomings. The Kyzar (1977) and Karsdorf and Klappach (1968) studies have inadequate controls

for sociodemographic factors. Furthermore, all of the studies are cross-sectional and only the Moch-Sibony (1984) study carefully screened children for normal hearing. The Heft (1979) study relied upon observer ratings of home noise levels, no actual noise measurements were taken.

The Hambrick-Dixon (1988) results are particularly complex and difficult to interpret. One possible explanation for the inconsistency between her results and those of other researchers is that she measured the ability of children to detect a visual signal using tachistoscopic presentation times (100 msec). Thus rather than

Table 4. Effects of noise on auditory discrimination/speech perception

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Cohen et al. (1973)	WAD	Traffic and street. 55-66 dBA.	(54) grades 2-5.	Noise associated with poorer auditory discrimination.
Cohen et al. (1980)	WAD	Aircraft. 95 dBA peak.	(262) grades 3-4.	No effects of noise on auditory discrimination.
Cohen et al. (1986)	WAD	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	No effects of noise on auditory discrimination.
Moch-Sibony (1984)	MP	Aircraft. 29 vs 54 SIL.	(80) kindergarten.	Noise associated with poorer auditory discrimination.
Acute noise				
Blue & Vergason (1975)	GFW	Recorded sounds (unspecified). 55 dBA.	(34) grades 1,3.	Race x Noise interaction: Black children's performance affected more negatively by noise than was white children's performance.
Nober & Nober. (1975)	WAD	Recording of classroom noise vs ambient noise. 39.5-64.7 dBA.	(39) ages 5-7 yrs (healthy control, retarded, and speech-deficit).	Fewer errors when tested in quiet vs. normal classroom noise levels. Control and retarded children performed worse in noise than in quiet; speech-deficit group performed worse in noise than in quiet, but the effect was not significant.
McCroskey & Devens (1977)	WAD	Classroom noise recording. 4 dBA above ambient classroom noise	Unavailable.	Noise associated with decrements in auditory discrimination.
Glenn et al. (1978)	Speech discrimination	Recorded hospital sounds. 75 dB SPC (typical for hospitals).	(21) ages 9-14 yrs (institutionalized MR).	Noise mask significantly degraded speech discrimination.
Laraway (1985)	Digit discrimination	Intermittent white noise. 80 dB SPC.	(46) ages 5-21 yrs (CP, healthy controls).	Noise mask degraded performance of CP children but not controls. Noise effects greatest in younger (< 7 yrs) children.
Laskey & Tobin (1973)	Message comprehension	Speech and white noise. 74 dB SPC.	(22) ages 6-8 yrs (possible LD, non-LD controls).	Speech, but not white noise, interfered with auditory message comprehension in LD children. Control children unaffected by noise.

Note: WAD = Wepman auditory discrimination test, GFW = Goldman-Fristoe-Woodcock auditory discrimination task, MP = Massiot Phillips auditory discrimination test, SIL = speech interference level, LD = learning disabled, CP = cerebral-palsied, MR = mentally retarded.

measuring sustained visual attention, Hambrick-Dixon probably measured signal detectability.

As expected given the physical properties of noise, considerable attention has been given to auditory information processing among children exposed to chronic or acute noise sources. One of the cognitive strategies that children may learn in order to adapt to the distracting properties of chronic noise is to filter or tune out unwanted auditory stimuli. The tendency of children in noisy environments to tune out noise may become overgeneralized, such that various types of acoustic stimuli, including speech, are not attended to carefully (Deutsch, 1964). In a direct

test of the tuning out hypothesis, Cohen et al. (1973) compared the ability of children living in quiet and noisy apartments (proximity to a freeway) within the same building to discriminate between similar sounds under quiet conditions. Cohen et al. (1973) as well as Moch-Sibony (1984) found an association between chronic noise exposure and auditory discrimination (see Table 4). Both of these studies had good controls for socioeconomic status, and pre-screened children for hearing loss. Moreover, Cohen et al. (1973) showed that with longer exposure durations, the association between noise and deficits in auditory discrimination became stronger.

Table 5. Effects of noise on resistance to auditory distractors

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Cohen et al. (1980)	Cross-out letters in ambient or distracting (story recording) condition.	Aircraft. 95 dBA peak.	(262) grades 3-4.	Noise × Month enrolled interaction: with less than 2 yrs enrollment, noisy-school children performed better than quiet-school children under distraction. Between 2-4 yrs enrollment, no noise effects. With more than 4 yrs enrollment, noisy-school children performed worse than quiet-school children.
Cohen et al. (1981)	Cross-out letters in ambient or distracting condition.	Aircraft. 95 dBA peak.	(163) grades 3-4, longitudinal sample.	With 2-4 years enrollment, noisy-school children were less distracted than quiet-school children. With more than 4 yrs enrollment, performance was nearly the same across conditions.
Cohen et al. (1986)	Cross-out letters in ambient or distracting condition.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Children attending noisy schools for 2-4 yrs were less distracted than their quiet-school counterparts. However, after 4 yrs enrollment, performance was nearly the same across conditions.
Cohen et al. (1981)	Cross-out letters in ambient or distracting condition.	Aircraft. 16 dBA reduction in noise-abated classrooms.	(163) grades 3-4, longitudinal sample.	No effects of noise abatement on distractibility.
Hambrick-Dixon (1986)	Weschler IQ task and match animals with color disks in quiet or noise conditions.	Train. 108 dBA peak.	(109 black) ages 4-6 yrs.	Children from noisy daycare performed better in noisy than in quiet conditions. The opposite was found for children from quiet daycare centers.
Heft (1979)	Figure discrimination in matching task in quiet or noise.	Story reading. Noise ratings: 1 = low to 7 = high.	(94) ages 4-7 yrs.	Auditory distraction had less of a negative effect on children from noisy homes than on children from quiet homes.
Acute noise				
Tumure (1970)	Performance and glances away from a visual discrimination task.	Recording of child songs/stories. 60 dBA.	(30) ages 5.5, 6.5, 7.5 yrs.	No noise effects on glances, but performance worse in noisy than in quiet conditions.
Steinkamp (1980)	Multiple perceptual and cognitive tasks.	Classroom sounds and gadgets. Ambient noise.	(24) ages 6-8 yrs (hyperactive, non-hyperactive controls).	Classroom noise and distracting visual materials caused deficits on most tasks. No interaction with hyperactivity.

In two subsequent studies, Cohen et al. (1980; 1986) were unable to replicate these findings on noise and auditory discrimination using a different noise source (aircraft as opposed to traffic). The traffic noise study (Cohen et al., 1973) also drew primarily from working class families; whereas the airport study was conducted in a poverty area. Using a different auditory discrimination task, however, did reveal deficiencies in auditory discrimination in children chronically exposed to noise from airports (Cohen et al., 1986). Children were presented a constant signal (man reading a story) superimposed against four different white noise backgrounds. The task was

to choose the optimum signal to noise ratio. Children who attended noisy schools for longer periods were significantly poorer at this signal to noise discrimination task (see Table 4).

Not surprisingly, the acute noise experimental studies in Table 4 indicate that children have difficulty with auditory discrimination during acute noise exposure (Blue & Vergason, 1975; Glenn et al., 1978; Laraway, 1985; Nober & Nober, 1973). Thus noise can directly interfere with children's ability to discriminate between meaningful auditory stimuli. Noise, particularly irrelevant speech, also interferes with comprehen-

sion of spoken language (Glenn et al., 1978; Laraway, 1985; Lasky & Tobin, 1973). The Glenn et al. (1978) data are noteworthy because the researchers used simulated recordings of an institutional setting for the mentally retarded as their noise 'mask'. Typical, ambient levels from the institution were sufficient to produce marked deficits in discriminating speech sounds among mentally retarded children.

Although there are clear overall trends showing that concurrent noise can mask auditory discrimination, as well as speech, there may be individual differences in these effects. Blue and Vergason (1975) found racial differences in auditory discrimination with black children being more adversely affected than white children by concurrent noise. This study was conducted in the Southeastern United States and may not have controlled for the dialect used in stimulus materials. Laraway (1985) reported that only cerebral palsied children were adversely affected by a noise mask in a task in which children were asked to repeat auditorily presented digits. Lasky and Tobin (1973) revealed that only children with suspected learning disabilities had difficulties in tracking an auditory signal against a background of competing, irrelevant speech. The latter study also showed that speech, but not white noise of a similar volume, interfered with message comprehension.

An interesting and provocative question raised by Deutsch's original hypothesis and some of the subsequent empirical work is whether children chronically exposed to noise become so adept at filtering out noise, that they become resistant to its distracting properties. A number of studies shown in Table 5 present suggestive evidence in support of this hypothesis of differential resistance to noise distractors. However, the data are complex.

Kindergarten children from noisy homes were less distracted by irrelevant speech during a visual discrimination task than those from quiet homes (Heft, 1979). In this task, children selected one of several figures that correctly matched a standard figure. Cohen and colleagues (1980) found a similar pattern of results, but only for elementary students exposed to aircraft noise for two years or less. For those exposed longer, auditory distraction during a visual search task (crossing out e's in a text above reading level of the child) interfered more with the performance of noisy-

school children than it did for quiet-school children. This effect was also replicated in a different sample (Cohen et al., 1986). Hambrick-Dixon (1986) uncovered an even more complex pattern of data on a visual coding task among very young children. In this task preschool children placed colored discs next to animal drawings according to an initial set of model comparisons. For children from noisy daycare centers, performance on this task was better under noisy testing conditions than quiet ones; whereas for children from quiet daycare centers, performance was superior during quiet testing conditions than under noisy ones.

Thus, although there is some evidence that children chronically exposed to noise are less distractable by auditory stimuli during a task, with very long exposure (4+ years), they appear to lose this advantage over non-noise-exposed children. Children exposed for short periods of time to chronic noise, may be able to gate out auditory distractors more effectively during tasks; whereas children exposed for long periods of time, may lose this gating ability. This could occur because despite sustained efforts to gate out unwanted sounds, children learn that this coping strategy is ultimately ineffective since the noise remains as a potent distractor.

The type of task, type of noise, and some individual difference variables also may influence whether concurrent auditory stimuli are distracting during task performance. For example, although both Heft (1979) and Cohen et al. (1980; 1986) found that concurrent speech distracted children during a visual search task (finding target objects in a matrix, crossing out target letters in text, respectively), Hambrick-Dixon (1986) had no main effect of a distractor (background noise of a daycare free play period) on performance of a visual matching task (placement of colored discs next to animal drawings). Turnure (1970) found a distracting effect of speech on school children's performance on a visual discrimination task (choosing the odd geometric shape out of three stimuli). However behavioral manifestation of distraction (glancing up) was not observed. Zentall and Shaw (1980) found that classroom noise recordings did not affect a visual letter search task for normal children and degraded performance for hyperactive, elementary-aged children. Finally, Steinkampf (1980) found that the combination of recorded classroom sounds

Table 6. Effects of noise on memory

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Hambrick-Dixon (1986)	Serial, incidental, visual, paired-associates learning.	Train. 108 dBA peak.	(109 black) ages 4-6 yrs.	No noise effects.
Heft (1979)	Incidental memory of visual stimuli.	Noise ratings: 1 = low to 7 = high.	(94) ages 4-7 yrs.	Higher household noise level associated with poorer incidental memory.
Acute noise				
Fenton et al. (1974)	4 number digit-span.	White noise. 22-72 dBA.	(10 male) ages 9-11 yrs (LD and non-LD).	More errors made in the high noise than in the low noise conditions.
Hygge (1993)	Recall and recognition of reading passage.	Recorded simulations of aircraft, train, traffic, and verbal noise. 66-76 dBA.	(417) ages 12-14 yrs.	Within-subjects analyses revealed a marginal Noise x Source interaction: recall on difficult questions was lower among children in aircraft and traffic noise conditions than in control conditions; no differences in recall in train and verbal noise conditions relative to control condition. Between-subjects analyses also revealed a Noise x Source interaction: recall on difficult questions was lower among children in aircraft noise conditions than in controls; other noise sources did not affect recall. No noise effects on recognition task. Individual differences in learning ability did not moderate noise effects.
Johansson (1983)	Paired-associates learning and letter memory.	White noise. 51 dBA continuous; 55-78 dBA intermittent.	(66) age 10 yrs.	No noise effects.

Note: LD = learning disabled.

played at normal volume and the presence of interesting gadgets were distracting for several tasks among normal and hyperactive boys. Because the latter study did not separate ambient noise from visual distractors, the specific effects of noise cannot be determined.

It is difficult to discern any clear patterns in the above findings on acute, concurrent noise and distraction among children. Speech, as opposed to background noise (e.g., recordings of classroom noise), may be more distracting during task performance. Unfortunately since no studies have used the same task with different aged children, we cannot infer any developmental trends from the data. However it is noteworthy that studies showing no effects tested the youngest children.

Summary

Children chronically exposed to noise may suffer from attentional deficits. Although suggestive,

the work in this area suffers from sufficient methodological flaws (e.g., controls for SES) to prohibit definitive conclusions. Children chronically exposed to noise develop cognitive strategies to cope with the interruptive, distracting influence of noise. Some data suggest that children learn to ignore or tune out auditory stimuli if they have been chronically exposed to noise. At least during the first few years of exposure, children from noisy residential areas appear to be more resistant to acute auditory distractors, presumably because of their enhanced ability to tune out auditory stimuli. These same children may suffer deficits in auditory discrimination. Acute noise distracts children during cognitive task performance, especially when the distractors contain meaningful speech. These acute auditory distraction effects may be more problematic for certain subgroups of children, especially those with some pre-existing cognitive deficits. More research, particularly on groups potentially at risk should be a high priority.

Memory

The noise and memory literature on children (Table 6) is sparse but generally in agreement with the adult literature (Cohen et al., 1986; Smith, in press). There appears to be little or no effects of noise on simple memory tasks from chronic exposure (Hambrick-Dixon, 1986) or acute exposure (Johansson, 1983). However, if sufficient processing demands are placed upon memory, deficits begin to appear in children exposed to noise (Fenton et al., 1974; Hygge, 1993).

Hygge's (1993) experimental findings (see Table 6) are interesting because he compared relatively easy and difficult memory tasks under quiet and noisy conditions, finding that only the difficult tasks were sensitive to noise exposure. Heft's (1979) incidental memory deficits are also noteworthy because they fit with a typical noise and memory finding in adults. The adult incidental memory studies have been interpreted as indicative of attention narrowing or focusing on dominant stimuli (Cohen et al., 1986). Attention narrowing appears to be common under arousing conditions in general (Broadbent, 1971) and under noise specifically (Hockey, 1979). Greater attention to more central cues could lead to poorer encoding of more peripheral material.

Summary

Although there is little research on children's memory under chronic or acute noise conditions, the data are generally in accord with the adult literature on the subject. Noise exposure has little if any effect on children's short term or working memory. Memory tasks that put especially demanding loads on working memory, however, may show some deficits. Narrowing of attention to more central cues under noise may cause poorer memory for incidental information. The potential role of attentional processes in noise-related memory effects warrants further scrutiny.

Intellectual Achievement

Given the reasonable possibility that chronic noise exposure interferes with auditory discrimination and attentional mechanisms, it is not surprising that several researchers have uncovered evidence linking noise exposure with deficits in reading. It is important to note at the onset that unlike chronic effects of noise on cognition, studies of reading and achievement confound chronic and acute noise exposure since they all have relied

upon archival records of achievement tests. As indicated in Table 7, however, the handful of studies of acute noise on intellectual achievement find few if any negative effects. This suggests, indirectly, that the community noise and achievement findings are probably caused by chronic and not acute exposure.

Two clusters of chronic noise associations with intellectual achievement are shown in Table 7. The first group of studies, conducted primarily by Wachs and colleagues, have explored the impacts of early exposure to noise in the home on infants and toddlers. Their work in general finds positive evidence that noise can interfere with normal cognitive development. The findings have been replicated and extended in longitudinal studies (see Wachs & Gruen, 1982, for an overview of this research program). Measurements of cognitive development affected by noise include mental representations of objects, use of objects as tools to achieve goals, and relating words to objects.

One major weakness in Wach's and other research on noise and young children (e.g., Heft, 1979) is reliance on observer ratings of noise exposure rather than actual measurement of physical sound levels. Recently, however Wachs (1988) has validated this measurement approach against decibel meter readings. Another finding that indicates that the effects are due to noise is that access to a secluded quiet room or shelter within the home largely ameliorates the associations between noise ratings and measures of cognitive development (Wachs & Gruen, 1982). Michelson (1968) has found the same buffering effect of a stimulus shelter with home noise levels on elementary school aged children's reading ability. These data on buffering effects of quiet, secluded study spaces in noisy homes raise the possibility, however, that some of the apparent effects of residential noise exposure on cognitive development could be due to residential crowding. It is obviously difficult to disentangle the ecological covariation between these two environmental conditions. Moreover, both of them appear to be associated with deficits in reading acquisition in young children (Evans et al., 1990).

The second group of studies in Table 7, has examined the association between chronic noise exposure at school and/or home with standardized measures of reading and other intellectual achievement tests. With two exceptions, the data

Table 7. Effects of noise on intellectual achievement

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Bronzaft (1981)	Reading.	Train. 6-8 dBA sound reduction in noisy classrooms.	(955) grades 2-6.	After sound reduction with insulation on noisy side of school, students' reading scores on noisy side of school were equivalent to those of students on quiet side of school. In the year before insulation, students on noisy side of school had worse reading scores than students on quiet side of school.
Bronzaft & McCarthy (1975)	Reading.	Train. 59-89 dBA.	(161) grades 2, 4, 6.	Students' reading scores lower on noisy side of school than on quiet side, especially in higher grades.
Cohen et al. (1973)	Reading.	Traffic and street. 55-66 dBA.	(54) grades 2-5.	Noise associated with greater reading deficits in children living in apartments for 4 or more years.
Cohen et al. (1980)	Reading and math.	Aircraft. 95 dBA peak.	(262) grades 3-4.	No noise effects.
Cohen et al. (1981)	Reading and math.	Aircraft. 95 dBA peak.	(163) grade 3-4, longitudinal.	No noise effects.
Cohen et al. (1981)	Reading and math.	Aircraft. 16 dBA sound reduction in noise-abated classrooms.	(163) grade 3-4, cross-sectional.	Noise abatement results in 3rd grade only. Third graders in noise-abated classrooms performed better in math than 3rd graders in non-abated classrooms; 3rd graders in noise-abated classrooms also performed better in reading, but not significantly so.
Cohen et al. (1986)	Reading and math.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	No noise effects.
Gottfried & Gottfried (1984)	BSID, OP, MS, TELD	Noise ratings: 1 = normal level voices in home for 15 min. period to 4 = noise level voices in home for more than half 15 min. period.	(130) 12 mon. infants tested every 6 mon. up to 42 mon.	Higher household noise associated with lower scores on OP at 12-18 mon., on TELD at 39 mon., on BSID at 18 mon., and on MS scores at 42 mon.
Green et al. (1982)	Percent reading below grade level.	Aircraft. 96.2 dBA peak.	(8,240) grades 2-6.	Greater percentage of noisy-school children read below grade level. Effects strongest in higher grades.
Lukas et al. (1981)	Reading and math.	Traffic and street. 70 dBA peak.	(2500) grades 3,6 (100 classes sampled).	Reading scores lower for 3rd and 6th graders in noisier classes. Math scores lower in students in noisier 3rd grade classes, but higher in 6th grade students in noisier classes.
		Ambient classroom and community. 45-75 dBA.		Inverse correlations between community noise and math and reading scores were similar to but less consistent than those between classroom noise and math and reading scores. There also was a synergistic effect of home and school noise on reading.

Table 7. *Continued*

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Wachs et al. (1971)	IPDS	Noise ratings: 1 = normal level voices in home for 15 min. period to 4 = noise level voices in home for more than half 15 min. period.	(102) ages 7, 11, 15, 18, 22 mon.	Higher household noise associated with lower IPDS scores.
Wachs (1978)	SB	Ratings of noise: same as Wachs et al. (1971).	(23) ages 2-3 yrs, longitudinal.	Higher household noise associated with poorer SB performance in boys, no significant effect in girls.
Wachs (1979)	IPDS	Ratings of noise: same as Wachs et al. (1971).	(31) ages 2-3 yrs, longitudinal.	Higher household noise associated with lower IPDS scores in boys and higher IPDS scores in girls.
Wachs & Gandour (1983)	IPDS	Ratings of noise: same as Wachs et al. (1971).	(100) ages 7, 11, 15, 18, 22 mon.	Higher levels of household noise associated with lower IPDS scores, particularly in fussy and irritable infants.
Michelson (1968)	Language, spelling, and math.	Home environment ratings. Scale unavailable.	(710) grades 1-5.	Noise associated with language and spelling difficulties. Noise not associated with math achievement.
Maser et al. (1978)	Reading and math.	Aircraft. 90 dBA peak.	(1917) grades 3, 5, 7, 10.	Noise associated with reading and math deficits in 7th and 10th graders, but only marginal effects on 5th graders. Children with lower aptitudes were most adversely affected by noise.
Acute noise				
Christie & Glickman (1980)	SPM	Recorded classroom noise. 40 and 70 dBA.	(156) grades 1, 3, 5.	Noise × Sex interaction: Boys performed better in noisy than in quiet conditions; girls performed better in quiet than in noisy conditions.
Johansson (1983)	Reading and math.	White noise. 51 dBA continuous, and 55-78 dBA intermittent.	(66) age 10 yrs.	Noise × Intelligence interaction on multiplication and reading performance. Above-average intelligence children solved more multiplication problems in noise than in quiet; below-average intelligence children showed the opposite trend, but noise effects were not significant. Below-average intelligence children tended to have poorer reading speed under noise; there was little difference in reading performance between noise groups with above-average intelligence.
Kassinove (1972)	Math.	Recorded child stories and music. 70-80 dBA.	(80) grades 3,6.	No noise effects on response latency, accuracy, or time-out from task.
Slater (1968)	Reading and math.	Ambient classroom noise, music, stomping and banging, tractor-mower, or quiet crossed with taped white noise. 45-90 dBA and 50-80 dBA white noise.	(263) grade 7.	No noise effects on speed or accuracy.

Table 7. *Continued*

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Weinstein & Weinstein (1979)	Reading.	Classroom: Ambient noise levels during early (noisy) and late (quiet) time of day. 47-60 dBA.	(60) grade 4.	No noise effects.
Zentall & Shaw (1980)	Math.	Taped noise from 2nd grade class. 64 and 69 dBA.	(48) grade 2 (hyperactive, normal controls).	Noise x Hyperactivity interaction: Hyperactive children performed marginally worse in high noise than in low noise; non-hyperactive children performed worse in low noise than in high noise conditions.

Note: BS = Bayley scales of infant development, OP = object permanence scale, MS = McCarthy scales of children's abilities, TELD = test of early language development, IPDS = Piagetian-type measure of infant psychological development, SD = Stanford-Binet test of intelligence, SPM = standard progressive matrix test.

converge on the conclusion of a relation between community noise exposure and reading ability. Several of the studies have good controls for sociodemographic characteristics in the samples and some have screened out children with auditory deficits. Moreover, Green et al. (1982) found a dose response function between noise exposure and reading deficits. Furthermore, the effects in the Bronzaft studies (Bronzaft, 1981; Bronzaft & McCarthy, 1975) cannot be attributed to self-selection. Children were not assigned in any systematic manner to classrooms on the noisy or quiet side of a building located next to elevated train tracks. On the other hand, all of the studies except for Bronzaft (1981) and Cohen et al. (1981) are cross-sectional and neither of these longitudinal studies are prospective. The Bronzaft (1981) findings are particularly important because they indicate that classrooms on the side of an elementary school near elevated train tracks that previously had lower reading scores in comparison to classrooms on the opposite side of the building (Bronzaft & McCarthy, 1975) no longer differed in reading scores following noise insulation in the schools and on the tracks.

The two studies that have not found reliable noise effects on reading may have poor statistical power. Both Cohen et al. (1980; 1986) and Moch-Sibony (1984) tested children from different schools, with different teachers, and in the former case from different school districts. In addition, both restricted their analyses to children from lower grades and did not attempt to tease out the

effects of noise on children of differing ability.

As indicated in several of the citations in Table 7, children in higher grades appear to be more negatively affected by noise exposure on reading than their younger counterparts (cf., Cohen et al., 1973; Green et al., 1982; Lukas et al., 1981; Maser et al., 1978). Children who have lower aptitude or other difficulties may be more vulnerable to the harmful effects of noise on reading (Maser et al., 1978). We also noted earlier several distraction studies indicating more disruptive effects on children with various learning deficiencies. Finally, Lukas and colleagues (1981) uncovered a significant synergistic effect of home and school noise exposure on reading scores.

Summary

Acute noise exposure appears to have little effect on reading and other intellectual activities. During early development, however, residential noise appears to delay cognitive development. In addition, chronic exposure to noise has been associated with reading deficits in seven out of nine studies, particularly for children in higher elementary school grades. There is also evidence that children with lower aptitude and those who also live in noisier homes appear more susceptible to the association of chronic noise exposure at school with reading deficits. The latter trend is interesting to consider in light of attentional data also showing more negative effects of noise exposure on children with pre-existing cognitive deficits.

DISCUSSION

Overview

We know with a good deal of certainty that chronic exposure to noise is associated in children with modest elevations of resting blood pressure, attentional deficiencies, and deficits in reading. Other effects suspected from chronic noise exposure include diminished task motivation, deficits in auditory discrimination, shifts in resistance to auditory distractors, poorer memory when high information processing demands are present, and deficits in infant cognitive development. The latter group of suspected effects include inconsistent data in some cases (auditory discrimination, resistance to distraction) or trends that have only been uncovered in one or two studies (motivation, memory, infant cognitive development). Tables 1-7 provide summary information that forms the bases for these conclusions.

Two major methodological shortcomings are prominent in the literature we have reviewed. Most critically, there is a total lack of prospective, longitudinal designs in this research area. Prospective, longitudinal studies are the strongest, *quasi*-experimental designs that can be applied in field studies and help deal with the host of threats (e.g., self-selection, confounding third variables) that plague correlational designs (see Cohen et al., 1986; Evans & Lepore, in press, for further discussion of methodological problems in field studies of environmental stressors). Such prospective studies must include well matched comparison groups and collect important personal data known to relate to outcomes of interest. Besides their utility as potential control variables in nonexperimental study designs, background variables can enhance statistical power by reducing unexplained variance in the outcome measure of interest. Studies on cardiovascular outcomes, for example, need to collect data on family history of hypertension. Research on reading should collect information on parental education levels and child's intelligence. Prospective, longitudinal designs will have to contend, however, with the potential interfering effects of selective attrition. As documented earlier, Cohen and his colleagues (1981), in one of only two longitudinal studies of noise and children, found that a year later children with the highest levels of blood pressure in their initial

cross-sectional analysis of quiet and noisy schools had moved out of the area. No such selective attrition was found among children in quiet schools.

The second major methodological shortcoming in nonauditory noise research and children has been lack of precision in two aspects of procedural conditions during testing. Testing conditions must be uniform and quiet. Reliance on archival measures of reading, for example, confounds acute with chronic noise exposure since ambient noise sources are likely to be present during the conduct of achievement tests. Testing must occur under quiet conditions in order to determine whether chronic noise affects reading or some other outcome of interest. More thorough audiometric screening is needed in nonauditory studies of noise and children to insure that the effects are not due to hearing loss.

Ecological Perspective

The purpose of this section is to outline some major conceptual shortcomings in the existing work on the nonauditory effects of noise on children and to lay out a preliminary research agenda. An ecological perspective (Bronfenbrenner, 1979) would significantly advance our understanding of this topic. Such a perspective includes greater attention to temporal issues plus the social and environmental contexts in which chronic noise exposure occurs. It also entails examination of the underlying, mediational processes that may link some of the psychophysiological, motivational, and cognitive processes related to chronic noise exposure.

Temporal parameters

Foremost, there has been a severe lack of developmental analyses, except in a few reading studies and in some of Wach's work on infant development in the home environment (see Table 7), of the effects of chronic noise on children. Developmental research approaches are critical in noise studies because it is highly likely that noise has differential impacts on physiological, cognitive and motivational processes as a function of developmental status. Consider for example reading acquisition. It is well established that reading acquisition depends upon the development of certain language competencies (e.g., phonological awareness) that are age

dependent (Mann & Brady, 1988). Noise exposure prior to or following the development of phonological awareness may not affect reading acquisition in the same way as noise exposure during the critical period of phonological awareness learning. Unless a developmental approach is added to noise research, such questions cannot be addressed.

A related but distinct conceptual limitation has been neglect of temporal parameters such as age at time of exposure and history of exposure to noise. For example, several studies on resistance to distractors from noise indicate the effects are contingent upon noise exposure history (see Table 5). Children exposed to ambient noise levels for shorter periods of time appear to be more resistant to the distracting properties of noise (see Table 5). The findings could relate to work on motivational deficiencies from prolonged noise exposure. Perhaps children attempt to filter out noise during early periods of exposure but eventually give up on this strategy. Duration effects could also relate to the specificity of resistance to auditory distractors. It would be interesting, for example, to investigate children's ability to filter out aircraft noise versus white noise or irrelevant speech, as a function of length and type of chronic noise exposure.

Unfortunately, we cannot disentangle age effects from exposure duration effects. For example, the apparently stronger linkages between chronic noise exposure and reading scores among older children (see Table 7) could be a function of a critical period of exposure or the result of longer, cumulative adverse impacts. Related to this latter option, we know nothing at this stage about the long-term effects of early childhood exposure to noise. What happens in later childhood or adolescence to children who spend all or part of their early years attending school or living near an airport or busy street?

Context

Greater attention to the ecological context in which chronic noise exposure occurs may prove fruitful for future research on noise and children. This ecological context might include more ecologically valid noise exposure estimates, attention to the indirect effects of noise on children via adult caregivers, and measurement of other social and environmental conditions covarying with chronic noise exposure. With one

exception (Lukas et al., 1981) none of the field studies of noise and children have attempted to calculate overall noise exposure. It may be recalled that Lukas and colleagues found a synergistic effect of home and school noise exposure on reading.

Furthermore, the noise estimates that researchers have relied upon do not take into account children's mobility, exposure to noise sources in the home, or the attenuation properties of the structures they inhabit.

Nearly all of the work on noise and children involves comparisons between noisy and quiet settings. With one exception, Green et al. (1982), there is no information on dose response functions. Besides its evidentiary value, dose response curves would have public policy importance. We currently are unable to provide clear statements about what level of noise is harmful for children or to say what the efficacy would be of providing specific sound attenuation interventions.

Not only are children attending school or residing in homes in noisy areas exposed to noise but so are their principal caregivers. The behaviors of caregivers in noisy settings could indirectly influence children's responses to noise (Bronfenbrenner, 1979). For example, perhaps parents in noisy homes do not speak to their children or read to them as often as parents in quieter neighborhoods. Classroom observations and teachers' self-reports indicate that aircraft or train noises interrupt teacher lecturing (Crook & Langdon, 1974; Kyzar, 1977; Moch-Sibony, 1974), in one study causing a 10% reduction in total teaching time (Bronzaft & McCarthy, 1975). It is also well documented that teachers in noise-exposed classrooms report greater annoyance and fatigue during the school day in comparison to teachers from quiet classrooms (Crook & Langdon, 1974; Ko, 1979; 1981; Sargent et al., 1980). Therefore some of the adverse effects of noise on child development could be mediated through the negative impacts of noise on the child's primary caregivers. Parents and teachers may have less patience and energy to devote to children because of the adverse effects of noise on themselves. More directly, noise may alter the manner in which parents and teachers instruct children, altering reading or speaking patterns. Recent data indicate that parent-child interactions may be affected by household noise levels. Parents from noisier homes appeared less

interested in their children's activities and talked less with their children (Wachs, 1989; Wachs & Camli, 1991). Controls for education levels of the mother did not change these findings.

Ambient noise exposure rarely occurs in isolation of other social and environmental problems. Noisy environments frequently covary with crowding and pollution and are often part of the fabric of poverty, including substandard housing, conflictual households and various other psychosocial strains. Although the ecological covariation of noise with other adverse environmental and social factors makes it difficult to isolate the effects of noise on children, we should be mindful that the harmful effects of noise may be amplified by the context in which noise is often embedded. It may be precisely those children who develop under such impoverished physical and social circumstances who are most vulnerable to the harmful effects of noise (Bronfenbrenner, 1979; Evans et al., 1990). We have recently found among adults, for example, that the negative effects of residential crowding on psychological distress are significantly worsened by chronic strains associated with poverty (e.g., insufficient utilities, poor housing quality, financial insecurities) (Lepore et al., 1991).

Noise levels may also operate within a context of important individual differences among children. There is some evidence that some children are more at risk for adverse noise effects on cognitive development. Less intelligent children's math and reading performance appears more sensitive to noise exposure (Johansson, 1983; Maser et al., 1978). Studies of young children and infants suggest greater susceptibility to chronic noise-related problems among boys in comparison to girls (Wachs, 1978; 1987; 1989). On the other hand, girls may be more distracted by acute noise exposure (Christie & Glickman, 1980; Hambrick-Dixon, 1988). Cognitive performance during acute noise appears to be disrupted more by noise for individuals with pre-existing learning deficits (cerebral palsy, learning disabled).

In addition to alerting researchers and policy makers to the potential of subgroups of children at high risk for negative effects of noise, these findings also have another important implication. Some of the small or even conflicting nonauditory effects of noise reviewed herein may be conservative estimates of noise effects since they by and large have not examined interactive effects.

While in some cases there may be little if any overall noise effects on children, it would be erroneous to conclude from such data profiles that noise is an inconsequential environmental problem for children. There may be large segments of the child population whose development may be significantly compromised by noise exposure early in life.

Mediational processes

Another area of future research that might emanate from an ecological perspective on noise and children is greater scrutiny of the potential interplay among the various psychophysiological, cognitive, and motivational processes that appear to be affected by chronic noise exposure. Cohen and his colleagues (1973) examined Deutsch's (1964) hypothesis that children chronically exposed to noise may learn to tune out auditory stimuli indiscriminantly and thus not pay sufficient attention to speech. They found that children from noisier apartments were deficient in auditory discrimination. Of particular interest, this deficiency significantly accounted for the poorer reading abilities of the noise-exposed children. This study stands alone as the only analysis of an underlying process to explain how noise affects children.

Given the findings (see Table 4) that noise can mask speech and evidence that speech perception and other linguistic skills such as phoneme awareness are critical precursors to reading acquisition (Mann & Brady, 1988), more work is called for on the effects of chronic noise exposure on psycholinguistic processes and their potential mediating link with reading. Other pathways warranting further investigation include those between chronic noise exposure, motivation, attention, and reading.

There are also plausible interconnections among chronic noise exposure and several of the cognitive processes we have reviewed. For example, people chronically exposed to noise may become more resistant to the distracting effects of acute noise exposure during a task because they can ignore or filter out auditory distractors. This ability may occur as a result of learning to tune out or filter auditory sounds. Thus one would expect a relation between the ability to ignore auditory distractors and deficits in auditory discrimination associated with chronic noise exposure. Analogously, we would expect a mediational pathway

between chronic noise exposure, attentional focusing and deficits in incidental memory performance.

Thus rather than only treating different outcome variables such as reading, attentional processes, and resistance to distraction as separate correlates or effects of noise exposure, more thought and careful analyses are required to investigate how these variables may form causal links to one another. In other words, both the direct and indirect pathways of the nonauditory effects of noise on children need to be investigated. From a theoretical and public policy perspective, this is perhaps most crucial in the case of reading. Although stronger data on the adverse effects of chronic noise exposure on reading would be valuable from an evidentiary point of view, what is of paramount importance now is a shift in focus to explanations of why and how chronic noise adversely influences reading acquisition.

There may also be some potent interplay among psychophysiological processes and some of the cognitive strategies apparently influenced by chronic noise exposure. For example, presumably it takes some effort to tune out or ignore noise. Experimental data as well as field studies with adults indicate that cognitive efforts to maintain task performance during noise come at a price of heightened sympathetic arousal (Tafalla & Evans, 1993; Welch, 1979). When performance suffers under noise, slight or no sympathetic arousal is apparent. However, if performance is maintained under noise which is possible except under tasks of very high load demands on attention and working memory (Cohen et al., 1986; Smith, in press), then indices of sympathetic arousal should be substantially elevated during noise exposure.

The associations between chronic noise exposure in children (see Table 1) and heightened blood pressure raise several important questions about mechanisms. For example, are blood pressure elevations caused by repeated sympathetic arousal induced by the distracting and interfering properties of community noise conditions? Alternatively, are the elevations mediated by adrenocortical activity and thus primarily indicative of chronic stress? To our knowledge, no analyses of various psychoneuroendocrine pathways between noise and blood pressure elevations have been investigated. Given the central role of cognitive appraisal in psychological

stress, it would also behoove researchers to examine whether psychosocial factors such as perceived control, self-confidence to ignore/tune out noise, or annoyance, moderate the effects of noise on blood pressure and other psychophysiological processes among children.

Another fruitful area of psychophysiological research would be to investigate the potential role of chronic noise exposure in cardiovascular reactivity. Individual differences in reactivity to standard psychosocial elicitors of stress (e.g., mental arithmetic) may be predictive of cardiovascular disease (Krantz & Manuck, 1984; Matthews et al., 1986). Research on cardiovascular reactivity in both adults and children has ignored the potential etiological role of chronic exposure to environmental stressors. More detailed analyses, focusing on possible behavioral toxicological effects of in utero or neonatal noise impacts are also called for. This is especially pertinent in light of contemporary medical practices such as ultra sound monitoring or placement of premature infants in neonatal intensive care units.

Large numbers of children both in America and, in rapidly growing numbers in the Third World, are being exposed to levels of ambient noise that are not only a threat to hearing but may have harmful effects on physiological and cognitive development. The potential for harmful effects from chronic noise exposure on children's development is great; what we know with certainty about the problem is, unfortunately at the moment, insufficient. At the same time, there is a foundation of evidence clearly suggesting potentially harmful effects from chronic noise exposure among children. We also have enough data on hand to formulate preliminary models of underlying, mediating mechanisms that could account for the effects of noise. It is also clear that more longitudinal work with prospective designs is crucial to definitively demonstrate the relationships between chronic noise exposure and children's development. Such designs afford stronger internal validity given the impossibility of randomly assigning children to varying community noise levels. Longitudinal designs allow us to examine changes in behaviors over time plus provide the opportunity to examine whether self-selection has occurred prior to noise exposure.

ENDNOTE

This article is based in part on earlier presentations at the Fifth International Congress on Noise as a Public Health Problem, Stockholm, Sweden and A Strategy for Noise Prevention in the 90's, American Speech and Hearing Association, Washington, DC. Preparation of this article was partially supported by the National Heart Lung and Blood Institute, RO1 HL47325-01A1, the Nordic Noise Council, and the Swedish Environmental Protection Board.

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Effects of Aircraft Noise on Reading Ability of School-Age Children

KENDALL B. GREEN, Ph.D.
BERNARD S. PASTERNAK, Ph.D.
ROY E. SHORE, Ph.D.
Institute of Environmental Medicine
New York University Medical Center
550 First Avenue
New York, New York 10016

ABSTRACT. The percent of students reading below grade level from 1972 to 1976 was regressed on racial, socioeconomic, educational, and noise level variables for all elementary schools in Brooklyn and Queens, New York. Schools were assigned noise exposure scores based on Noise Exposure Forecast contours for New York City airports. The correlations between these noise scores and a variety of noise level metrics ranged from 0.74 to 0.97. The regression coefficients adjusted for confounding factors, indicated that an additional 3.6% of the students in the noisiest schools read at least 1 yr below grade level with 95% confidence limits from 1.5 to 5.8%. The dose-response relationship indicated that the percent reading below grade level increased as noise level increased.

SEVERAL STUDIES have examined the effect of exposure to high levels of environmental noise on children's reading ability. Cohen et al.¹ found that elementary school students living for at least 4 yr on the lower floors of an apartment complex above a heavily trafficked bridge in New York City showed greater impairment of reading ability than those living on higher floors. Indoor noise levels varied from 66 decibels (dB) on the lower floors to 55 dB on the higher floors. When differences in parental education level were controlled, however, the correlation between floor level and reading test scores was reduced to marginal statistical significance in the 54 students tested. No effect was observed in children living in the complex

for less than 4 yr, suggesting that the effect resulted from chronic noise exposure.

Bronzaft and McCarthy² found a statistically significant decrease in mean reading test scores of elementary school students whose classrooms faced an elevated subway line compared to pupils in the same school whose classrooms faced quiet streets. Noise levels increased to 89 dB whenever an elevated subway train passed by, but on the quiet side the noise level remained at 59 dB. Classrooms did not differ in overall intellectual or achievement level and pupil assignment to classrooms was random. However, the possibility that the observed differences in reading test scores were due to noise distraction while the students were taking the test was not eliminated.

Maser et al.³ reported that children who attended school under the Seattle-Tacoma airport flight paths showed a deficit on standardized tests of scholastic achievement compared to students in quiet schools. The deficit increased as the students continued in the noisy schools, becoming statistically significant by the seventh grade. The deficit was evident within groups of students divided into thirds based on their initial academic aptitude. However, other differences between the schools, such as teacher training or ability, racial composition, and socioeconomic level of the student body were not controlled.

Cohen et al.⁴ reported that reading and math test scores of third grade students in noise-abated classrooms were higher than those in classrooms without noise abatement after adjusting for race, number of months in school, and mean cognitive ability of the class measured in the first grade. Only the differences in the math test scores were

statistically significant. Students in the noise-abated classrooms, however, also scored higher than students in quiet classrooms in schools far away from the Los Angeles International Airport, the source of noise in this study. These quiet schools were in a different school district, and the authors believed that the different administration policies, quality of teaching, and level of Federal aid were more important than noise exposure in affecting performance on reading and math tests.

In summary, these studies suggest that elementary school students who live and attend school in noisy environments have reduced scores on reading tests. However, these studies have examined only a few selected schools and they have not examined the effects of different levels of noise exposure on reading ability. This study was designed to answer these objections. This study utilizes the vast amount of data on every school collected by the New York City Board of Education for several years and the published noise exposure contour maps for the major New York City airports. Multiple linear regression was used to control for confounding factors and to assess the significance of the noise exposure.

METHODS

Noise exposure estimation. Brooklyn and Queens elementary schools were divided into five groups based on Noise Exposure Forecast (NEF) contours for John F. Kennedy (JFK) and LaGuardia airports. Schools in each noise group were assigned a noise exposure score of 0, 1, 2, 4, or 8. Because of the large reduction in the size of the noise-impacted areas around JFK during the period under study, 1972-76, two sets of noise exposure scores were used. The first set, called the Noise 70 scale was based on 1970 contours for JFK⁵ and 1972 contours for LaGuardia.⁶ The second set, the Noise 78 scale, was based on 1978 contours for JFK⁷ and the same 1972 contours for LaGuardia. The criteria used to group the schools, the number of schools, and the noise exposure scores assigned to each group using the two noise scales are presented in Table 1.

Since the noise levels were not measured in the 362 schools, summary values from the long-term 24-hr noise measurements made by the Federal Aviation Administration⁸ and by Tom O'Hare of the Environmental Protection Agency (personal communication, 1978) were compared with the noise scores assigned to the measurement locations to examine the validity of the noise scales. Since the noise

scales were designed to measure only the relative noise exposure levels of the different schools, the product moment correlation between the noise scores and the noise levels is an appropriate measure of agreement. The results, presented in Table 2, indicate good agreement between the noise scales and a variety of noise level metrics. The correlations with the Noise 78 scale ranged from 0.81 to 0.97 and the correlations with the Noise 70 scale were lower, 0.74 to 0.91, as would be expected since the noise measurements were taken between 1975 and 1978. Thus, the grouping of schools by the NEF contours and the assignment of noise scale values seem to have enough validity to justify their use in a preliminary study where the expense of obtaining more exact estimates of the noise level in each of the 362 schools would be prohibitive.

Reading test statistics and other data. A magnetic tape obtained from the New York City Board of Education contained the aggregate results of the annual nationally standardized tests of reading ability given in the New York City public schools and data on racial composition, socioeconomic level, and various educational factors for each school during the period 1972 to 1976. The dependent variables used in this study were the percent of students in each grade whose test scores placed them either 1 or more yr below grade level, or 2 or more yr below grade level. The independent variables taken from the tape include the percent of students in each of five ethnic groups, the percent eligible for free lunch programs, the absentee, admissions and departure rates, the pupil-teacher ratio, the percent of teachers with 5 or more yr experience, and the percent of teachers on two pay scales which reflect the amount of post-baccalaureate education. The data for these variables were based on the entire school with the exception of the racial composition data which were specific for each grade after 1973. The means and standard deviations of the variables used in the regressions are presented in Table 3. As an example of the distribution of the dependent variables, Figure 1 presents a histogram of the percent of fourth grade students reading 1 or more yr below grade level.

The percent of students reading below grade level in each grade was regressed on the independent variables for each of the years 1972 to 1976 and for all 5 yr combined. The data from each school were weighted proportionally to the number of students who took the reading test. Regressions using the combined 5-yr data included indicator variables for the different years to allow for temporal

Table 1.—Criteria for Grouping School Attendance Zones, the Noise Scale Values, and the Number of Schools in Each Group

Criteria for Grouping School Attendance Zones	Noise Scale Value	No. Schools in Each Group Using	
		Noise 78	Noise 70
Outside of the NEF 30 contours	0	295	211
Touching the NEF 30 contours	1	30	41
Between the NEF 30 and 40 contours	2	24	86
Touching the NEF 40 contours	4	9	17
Within the NEF 40 contours	8	4	7

Table 2.—Noise Scale and Noise Level Measurements

Location	Noise Score		Peak Noise Level	L _{0.1} *	L ₁ †	L ₁₀ ‡	L _{dn} §	L _{eq} #	NEL//	% > 75**
	78	70								
Rockaway Park	8	8	95.5	88.2	80.4	66.1	75.5	67.7	5.88	2.28
Cedarhurst	4	8	94.6	87.6	78.2	62.8	71.3	66.9	4.90	1.36
Laurelton	2	4	90.6	80.0	71.3	60.6	67.2	61.4	1.38	0.26
S. Ozone Park	1	2	84.7	76.6	69.3	60.6	62.1	59.5	0.89	0.09
Belle Harbor	1	1	89.4	79.8	71.1	58.7	64.0	60.1	1.02	0.21
Howard Beach	4	4	96.2	85.1	75.8	65.7	72.1	66.9	4.90	1.47
16-41 156 St.	0	0	88.6	NA††	NA	NA	62.5	59.8	0.95	NA
76-48 268 St.	0	0	85.6	NA	NA	NA	57.1	55.4	0.35	NA
57-41 134 St.	2	2	NA	NA	NA	NA	67.3	66.6	4.68	NA
Correlation with 78 noise score			0.82	0.87	0.93	0.88	0.94	0.81	0.86	0.97
	70		0.78	0.91	0.94	0.74	0.86	0.79	0.84	0.88

*L_{0.1} = Noise level exceeded only 0.1% of the day in dB.

†L₁ = Noise level exceeded only 1.0% of the day in dB.

‡L₁₀ = Noise level exceeded only 10% of the day in dB.

§L_{dn} = Day-night weighted noise level in dB.

#L_{eq} = Equal weighted noise level in dB.

//NEL = Noise energy level = $10^{(L_{eq}/10)} \times 10^{-6}$ in N/m².

**% > 75 = Percent of the day that the noise level was above 75 dB as estimated by linear regression of log dB vs. z scores of the percentiles.

††NA = Not available.

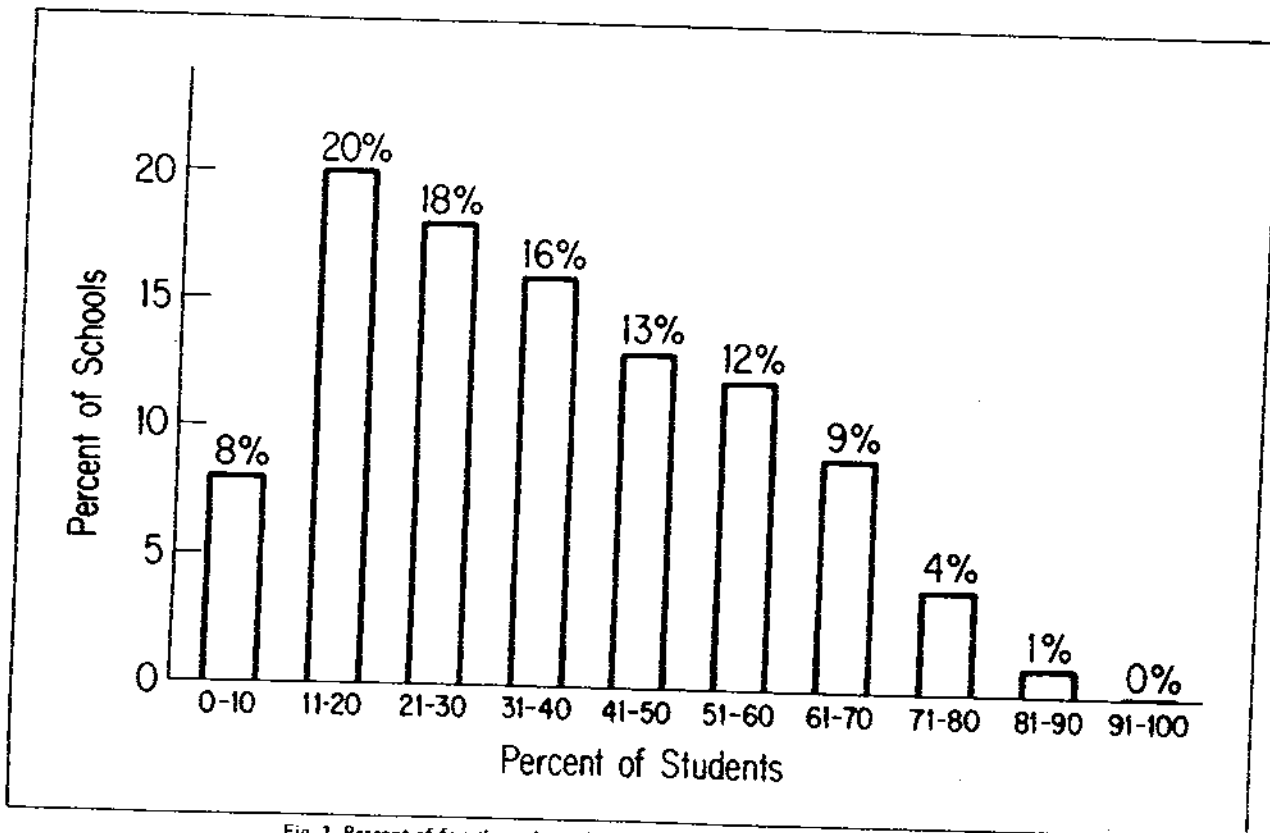


Fig. 1. Percent of fourth grade students reading 1 or more year below grade level.

Table 3.—Means and Standard Deviations of the Regression Variables by School Grade for 1972 to 1976 Combined

	Grade				
	2nd	3rd	4th	5th	6th
Number of observations*	1812	1803	1788	1779	1048
% Reading 1+ yr below grade level	10.0† (9.74)‡	27.9 (16.0)	37.4 (19.3)	33.5 (18.8)	35.8 (20.2)
% Reading 2+ yr below grade level		2.84 (3.65)	11.1 (9.61)	16.8 (13.4)	18.4 (14.6)
Noise 78 score	.364 (1.14)	.361 (1.13)	.361 (1.13)	.372 (1.15)	.402 (1.21)
Noise 70 score	.849 (1.42)	.853 (1.43)	.856 (1.43)	.870 (1.45)	.928 (1.56)
% Eligible for free lunch programs	50.9 (27.6)	51.2 (27.7)	51.1 (27.7)	50.3 (27.7)	45.9 (28.2)
% Black	39.9 (34.2)	40.6 (34.0)	41.3 (33.9)	41.2 (33.6)	36.5 (32.2)
% Puerto Rican	18.2 (21.9)	18.1 (22.0)	17.7 (21.8)	17.1 (21.2)	15.5 (20.2)
% Indian	.05 (.35)	.05 (.34)	.06 (.37)	.05 (.41)	.04 (.33)
% Oriental	2.07 (3.67)	1.97 (3.54)	1.92 (3.28)	1.88 (3.18)	2.09 (3.39)
% Hispanic	4.41 (7.64)	4.21 (7.51)	4.17 (7.48)	4.22 (7.64)	3.57 (5.17)
Pupil-teacher ratio	23.15 (6.48)	23.16 (6.93)	23.13 (6.46)	23.20 (6.07)	23.52 (3.91)
Absentee rate	.1247 (.0352)	.1243 (.0360)	.1239 (.0349)	.1233 (.0343)	.1200 (.0331)
Admissions rate	.3847 (.0998)	.3804 (.0968)	.3794 (.0966)	.3769 (.0946)	.3599 (.0897)
Departure rate	.2440 (.0847)	.2429 (.0841)	.2426 (.0835)	.2406 (.0835)	.2315 (.0857)
% Teachers with 5+ yr experience	73.19 (17.54)	73.05 (17.56)	73.13 (17.49)	73.78 (17.20)	75.07 (16.82)
% Teachers on C6 salary schedule §	35.10 (15.77)	34.99 (15.82)	35.04 (15.81)	35.55 (15.84)	37.25 (16.15)
% Teachers on C1 salary schedule #	20.74 (13.54)	20.83 (13.53)	20.76 (13.46)	20.25 (13.24)	18.96 (12.77)

*Number of schools with that grade summed over the 5 yr.
†Mean.
‡Standard deviation values appear in parentheses.
§C6 salary schedule reflects more than 60 hr post-baccalaureate education.
#C1 salary schedule reflects less than 30 hr post-baccalaureate education.

changes in the mean reading level. Squared, square root, and interaction terms for the percent Black, percent Puerto Rican, and the percent eligible for free lunch programs were included in the regressions to remove abnormal trends in the plots of residual values against these variables.

The relationship between the level of aircraft noise exposure and the percent reading below grade level, the dose-response relationship, was examined by regression analysis using indicator variables for each of the noise level groups instead of a single variable with the noise scale val-

ues. This method of analysis is explained further in the Appendix.

RESULTS

Noise scale variable coefficients. The partial regression coefficients for the noise scale variables (b), their two-tailed level of statistical significance (P value) and the square of the multiple correlation coefficient (R^2) are presented in Table 4 for the regressions using the combined 5-yr data. All of the coefficients are positive, indicating that

Grade	b^* (Noise 78)	P Value†	$R^2‡$	b (Noise 70)	P Value	R^2
2	0.376	.013	0.50	0.438	<.001	0.50
3	0.926	<.001	0.67	0.906	<.001	0.67
4	0.764	<.001	0.76	0.842	<.001	0.76
5	0.697	.001	0.73	0.565	.001	0.73
6	0.757	.004	0.77	0.263	NS§	0.77
<i>Two or more Years below Grade Level</i>						
3	0.116	.067	0.40	0.181	<.001	0.40
4	0.688	<.001	0.62	0.662	<.001	0.62
5	0.375	.038	0.62	0.481	.001	0.62
6	0.541	.016	0.67	0.259	NS	0.67

* b = Partial regression coefficient.
† P Value = two-tailed level of statistical significance.
‡ R^2 = Square of the multiple correlation coefficient.
§NS = Not statistically significant.

the percent reading below grade level was higher in the noise-exposed schools. The coefficients were statistically significant at the .05 probability level in 15 of 18 regressions.

The coefficients from the regressions of the percent reading 1 or more yr below grade level range in magnitude from 0.263 to 0.926. By weighting each of these coefficients proportionally to the average number of students in that grade and inversely proportional to the variance of the coefficient, a summary coefficient of 0.62 with 95% confidence limits of 0.51 to 0.74 can be obtained.⁹ Since regression coefficients estimate the average change in the dependent variable that accompanies a one unit change in the independent variable, this coefficient suggests that a one unit increase in noise score would be accompanied by an increase of 0.62% in the number of students reading 1 or more yr below grade level in an average school.

The coefficients from the regressions using yearly data, which are not shown, were occasionally negative (11 of 90). Forty-one coefficients, all positive, were statistically significant. For the last 3 yr of the study, for which grade-specific racial composition data were available, all the coefficients were positive and 37 of 54 were statistically significant. These coefficients were of similar magnitude within each combination of grade, reading test statistic, and noise scale, indicating stability in the estimates of the effect of noise using data from different years.

Dose-response relationship. The difference in the percent reading 1 or more yr below grade level in the various noise exposure groups, as extrapolated from the indicator variable coefficients, is presented in Figure 2 along with a dotted line representing the linear dose-response relationship assumed by the use of the noise scale. The increase

in the indicator variable coefficients with increasing noise score was statistically significant indicating that the percent reading below grade level increased with increasing noise level. Although the percent reading below grade level appears to be higher than the linear dose-response relationship at moderate noise levels, and less than the linear relationship at high levels, tests of the goodness of fit, described in the Appendix, indicated that there was no significant improvement when the indicator variables were used rather than the noise scale variable in three of four

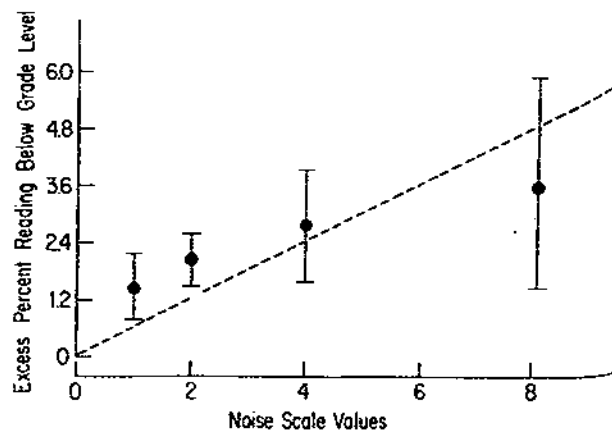


Fig. 2. Dose-response relationship between aircraft noise scale values and the difference in the percent reading below grade level in the noise scale zero group of schools and each of the other groups. Point estimates and 95% confidence limits for the effect at each level are plotted along with a dotted line representing the linear dose-response relationship assumed by the use of the noise scale values.

regressions. Thus, the data are largely compatible with a linear dose-response relationship.

The actual level of reading impairment in the different noise exposure groups can be directly estimated from the dose-response curve. The mean difference in the percent reading 1 or more yr below grade level in the noisiest schools, those within the NEF 40 contour, compared to the quietest schools, outside the NEF 30 contour, is 3.6% with 95% confidence limits from 1.5% to 5.8%.

DISCUSSION

Several limitations of this study need to be considered: (1) the noise exposure scale, (2) pupil transfers, (3) the variables used to control confounding, and (4) the aggregate nature of the statistics.

Although we do not know whether the effect of noise on reading ability is best related to the noise energy level, peak noise level, the amount of time the noise is above a certain level or some other metric, the noise scale used in this study correlated well with a variety of noise metrics. Thus it is doubtful that the use of another metric with the noise contours generated from it would result in a substantially different division of schools into noise groups. The results would, therefore, be similar if another noise scale were used.

The average noise exposure of all the students in a school zone is derived from local and domestic noise sources as well as aircraft. Examination of neighborhood noise contours¹⁰ indicated that the effects of local noise sources, such as elevated subway trains and heavily trafficked streets, were greatly reduced only a few blocks from the source. Thus it is doubtful that these noise sources would substantially alter the average noise exposure for all the students. Domestic noise exposure could not be directly estimated, therefore the results of this study depend on the assumption that this factor does not substantially confound the analysis.

Although elementary schools draw the vast majority of their pupils from the immediate neighborhood, transfers are allowed for a variety of reasons. If poor readers tended to transfer from noise-exposed schools into nonexposed, the noise variable coefficients would be decreased. Analysis of such transfers indicated that more poor readers transferred into nonexposed schools than would be expected from the percent of all students in nonexposed schools.¹¹ However, the number of such transfers, about 2% of the school population was too small to greatly affect the regression coefficients. Transfers of minorities for purposes of racial balance have also generally been from noise-exposed to nonexposed areas. These transfers would also tend to decrease the magnitude of the noise variable coefficients because these students, who are likely to be poor readers, are counted in the nonexposed schools although they live in noise-exposed areas. Thus, due to transfers, the noise variable coefficients would tend to underestimate the effects of noise on reading ability; however, the bias would probably be small.

Although this study includes adequate measures of many factors which affect reading ability, the only variable which directly measures the important factor of socioeconomic status is the percent of students eligible for free

lunch programs, the number of low income families. The racial composition variables are also highly correlated with socioeconomic status, and the use of squared, square root and interaction terms allows the model to accommodate nonlinear effects of these variables. Although it is doubtful that additional measures of socioeconomic level, such as parental occupation or educational level, would alter the results, they would be useful to demonstrate the adequacy of control over this important factor.

It is possible that there are other factors strongly correlated with both noise levels and reading ability and which would, therefore, affect the noise variable coefficients. However, an examination of maps constructed from basic racial, socioeconomic, educational, and residential data from the 1970 census¹² failed to reveal any factors which were strongly correlated with the noise contours around both airports. Census data were not included in the regressions because there are often considerable differences between the general population in a census tract and the families from that tract that have children in the public schools.

The major limitation of this study is the aggregate nature of the statistics which preclude examination of individual reading ability. Factors which affect the percent reading below grade level may not have the same effect on individual reading ability. To measure the effect of noise on individual reading ability, it would be necessary to relate each student's noise exposure from all sources to the student's reading test scores controlling for race, socioeconomic level, and other confounders. Such a study is recommended.

Table 5.—Variables Included in the Regression Analyses*

% FLUNCH, (% FLUNCH) ² , (% FLUNCH) ^{1/2}
% Black, (% Black) ² , (% Black) ^{1/2} , (% Black) × (% FLUNCH)
% Puerto Rican, (% Puerto Rican) ² , (% Puerto Rican) ^{1/2}
(% Puerto Rican) × (% FLUNCH), (% Puerto Rican) × (% Black)
% Other Hispanic
% Oriental
% American Indian
Absentee rate
Admissions rate
Departure rate
Pupil-Teacher Ratio
% Teachers with ≥ 5 yr experience
% Teachers with < 30 hr post-baccalaureate education
% Teachers with > 60 hr post-baccalaureate education
Indicator variables for different yr
Noise score

*The following abbreviations are used in this table to indicate squaring a variable ()², taking the square root of a variable ()^{1/2} and forming an interaction term by multiplying two variables together () × (). The percent eligible for free lunch program is abbreviated % FLUNCH.

Table 6.—Dose-Response Relationship: Scaled Indicator Variable Coefficients and Weighted Averages

Noise Scale Values	Noise Scale, Grade and Reading Test Statistic				Weighted Average*
	Noise 78 Grade 4 Two Plus‡	Noise 70 Grade 4 One Plus§	Noise 70 Grade 5 Two Plus	Noise 70 Grade 5 One Plus	
1	1.26 (.866)†	3.70 (.966)	2.06 (1.51)	2.91 (1.52)	2.38 (0.58)
2	1.23 (.949)	3.88 (.707)	3.95 (1.10)	3.66 (1.11)	3.23 (0.47)
4	5.41 (1.50)	3.39 (1.36)	4.62 (2.05)	4.65 (2.06)	4.41 (0.94)
8	7.50 (1.91)	5.18 (2.15)	4.04 (3.25)	4.46 (3.27)	5.86 (1.65)

*Weights are proportional to the inverse of the variance.
 †Standard errors of scaled coefficient are given in parentheses.
 ‡Two Plus = the percent of students reading 2 or more yr below grade level.
 §One Plus = the percent of students reading 1 or more yr below grade level.

Table 7.—Regression Analysis of the Noise Scale Goodness of Fit

	Noise Scale, Grade and Reading Test Statistic			
	Noise 78 Grade 4 Two Plus‡	Noise 70 Grade 4 One Plus#	Noise 70 Grade 5 Two Plus	Noise 70 Grade 5 One Plus
SS Reg* (indicator variables)	10.28021	51.01620	20.32366	46.10372
SS Reg (Noise Scale)	10.27374	50.87240	20.28738	46.06004
Change in SS Reg	.00647	.14380	.03628	.04368
Change in SS Reg/3	.00216	.04793	.01209	.01456
Mean sq error†	.00354	.00871	.00679	.00948
F Statistic	.609	5.50	1.78	1.58
P Value §	.61	.01	.16	.20

*SS Reg = sum of squares due to regression. The regression model used is indicated in parentheses.
 †Mean sq error = mean square due to error.
 ‡Two Plus = the percent of students reading 2 or more yr below grade level.
 §P Value = probability level.
 #One Plus = the percent of students reading 1 or more yr below grade level.

CONCLUSIONS

Although the conclusions of this study must be qualified because of the less-than-ideal measures of noise exposure and socioeconomic level that were available and the aggregate nature of the statistics, the results support the hypothesis that high levels of environmental noise are inversely related to reading ability in elementary school children. The regression coefficients indicate that an additional 3.6% of the students in the noisiest schools read at least 1 yr below grade level with 95% confidence limits from 1.5% to 5.8%. The dose-response relationship suggests that the percent reading below grade level increases with increasing noise level.

The Environmental Protection Agency estimates that 15% of the U.S. population is exposed to average noise levels above 65 dB and 1.5% is exposed to levels above 75 dB¹³ which are roughly equivalent to the noise levels at the NEF 30 and 40 contours, respectively. Since this study and others suggest that some children exposed to these noise levels would have decreased reading ability, additional studies are necessary to determine more precisely the extent of the reading impairment at environmental noise levels.

APPENDIX

The use of indicator variables to estimate the dose-response relationship is similar to using analysis of covari-

ance to estimate the effects of different levels of a non-metric factor (the noise exposure groupings) while adjusting for all the other variables listed in Table 5. Four indicator variables were used to code for each group of schools, using the schools assigned a noise score of zero as the reference group. All four indicator variables were given a value of zero for these schools in the reference group. Each of the other groups of schools had an indicator variable which was assigned a value of one for that group and zero for the other three. Thus the first indicator variable was coded zero for all schools except those assigned a noise scale value of one.

The coefficient for each indicator variable from the multiple regression analysis estimates the mean difference in the percent reading below grade level between the schools coded for by that indicator variable and the reference group, adjusted for the effects of the other variables. For example, the coefficient for the first indicator variable from a regression of the percent of fourth graders reading 2 or more yr below grade level was 0.867 (not given elsewhere in this paper). Thus, 0.867 was the average difference in the percent reading below grade level between schools with a noise score of one and those with a noise score of zero on the Noise 78 scale.

To combine this estimate of the effect of noise in that group of schools with estimates from other regressions, it was necessary to take into account the differences in the coefficients that result from using different grades and reading test statistics. These differences were eliminated by dividing the indicator variable coefficients by the noise scale variable coefficient obtained from regression on the same data. This standardized ratio expressed the change in reading ability in multiples of the noise scale variable coefficient. In this example, the noise scale variable coefficient was 0.688, as given in Table 4, and the ratio was 0.867/0.688, or 1.26.

The standardized ratios and the weighted averages for each noise scale group are presented in Table 6. Since these ratios are not as readily understood as the percent reading below grade level, the averages were transformed back into the latter by multiplying each by the summary noise scale variable coefficient, 0.62, for Figure 2. Thus, in the highest noise scale group, the weighted average of the noise scale variable coefficient was 5.9 which when multiplied by the summary noise scale variable coefficient, yields the estimate that an additional 3.6% of the students in an average-sized school in the noisiest zone would read at least 1 yr below grade level compared to schools in the quietest area.

In addition, the degree to which the regression model with the indicator variables fits the data better than the model with the noise scale variable can be determined from the difference in the sum of squares due to regression for each model. This difference divided by the number of additional parameters used, 3, and by the mean square due to error can be tested against the *F* distribution to determine the probability that chance alone could account for the difference in the sum of squares. The results, presented in Table 7, indicate that chance could easily account for the differences in the goodness of fit in all but one case.

Further details on the use of indicator variables in regression analysis can be obtained from several textbooks.^{14, 15}

This research is part of a center program supported by Grant ES 00260 from the National Institute of Environmental Health Sciences.

Submitted for publication May 18, 1981; revised; accepted for publication November 15, 1981.

Requests for reprints should be sent to: Dr. B.S. Pasternack, Institute of Environmental Medicine, NYU Medical Center, 550 First Avenue, New York, NY 10016.

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Research Report

A PROSPECTIVE STUDY OF SOME EFFECTS OF AIRCRAFT NOISE ON COGNITIVE PERFORMANCE IN SCHOOLCHILDREN

Staffan Hygge,¹ Gary W. Evans,² and Monika Bullinger³

¹Centre for Built Environment, University of Gävle, Gävle, Sweden; ²Department of Design and Environmental Analysis and Department of Human Development, Cornell University; and ³Department for Medical Psychology, University of Hamburg, Hamburg, Germany

Abstract—Before the opening of the new Munich International Airport and the termination of the old airport, children near both sites were recruited into aircraft-noise groups (aircraft noise at present or pending) and control groups with no aircraft noise (closely matched for socioeconomic status). A total of 326 children (mean age = 10.4 years) took part in three data-collection waves, one before and two after the switch-over of the airports. After the switch, long-term memory and reading were impaired in the noise group at the new airport, and improved in the formerly noise-exposed group at the old airport. Short-term memory also improved in the latter group after the old airport was closed. At the new airport, speech perception was impaired in the newly noise-exposed group. Mediation analyses suggest that poorer reading was not mediated by speech perception, and that impaired recall was in part mediated by reading.

A consequence of modern means of transportation is widespread noise exposure. In Europe, almost 25% of the population is exposed to equivalent noise levels (L_{eq}) of 65 dBA or more (Berglund & Lindvall, 1995). At this level, annoyance is marked, sleep is disturbed, and some cognitive processes are impaired (Cohen, Evans, Stokols, & Krantz, 1986; Evans & Lepore, 1993; Smith & Jones, 1992). Noise exposure is consistently correlated with reading deficits and may interfere with speech perception and long-term memory in primary-school children (Evans & Lepore, 1993).

The simultaneous opening and closing of the new and former Munich Airport provided us with an unprecedented opportunity to conduct a prospective study of the effects of aircraft noise on children. This is the only prospective study of nonauditory effects of noise on children that has been undertaken. Moreover, cessation of noise at the old airport provided a unique opportunity to assess whether expected, noise-related impairments are reversible. Sociodemographically matched control groups exposed to little aircraft noise were formed at both airports. By testing the children in silence and not in everyday-noise settings, we eliminated confounds between chronic versus acute noise. Furthermore, examination of the interplay among attention, memory, and reading over time enabled us to test whether expected noise-related reading deficits could be accounted for by shifts in underlying cognitive processes.

Previous cross-sectional research (Cohen et al., 1986; Cohen, Glass, & Singer, 1973; Evans & Maxwell, 1997) indicated that noise-related reading deficits might be mediated by a cognitive strategy wherein children become less attentive to auditory stimuli as a way to cope with noise. It is unclear whether such shifts in attentional strategies are general to noise

or specific to speech. Laboratory noise also impairs both long-term memory (Hygge, 1997; Hygge, Boman, & Enmarker, in press) and short-term memory (Hamilton, Hockey, & Rejman, 1977; Hockey, 1979). Both speech perception and memory are related to reading acquisition (Crowder & Wagner, 1992; Mann & Brady, 1988).

In summary, we collected prospective data to assess how children's reading was affected by changes in ambient noise levels caused by modified airport operations. In addition, we investigated two cognitive processes, attention and memory, implicated in prior experimental work on acute noise exposure, and how they relate to speech perception.

METHOD

Design and Subjects

The two experimental groups comprised children who were (old airport) or would be (new airport) exposed to aircraft noise. The two control groups were selected from areas that had little exposure to aircraft noise. The control groups were matched with their respective experimental groups on the basis of sociodemographic characteristics. One wave of data collection started 6 months prior to the changeover of airports, the second wave was 1 year later, and the third wave 2 years later. A total of 326 children participated: 43 in the old-airport, no-noise group; 65 in the old-airport, noise group; 107 in the new-airport, no-noise group; and 111 in the new-airport, noise group. Their ages ranged from 8 to 12 ($M = 10.4$, $SD = 0.85$). The children at the new airport were tested 3 to 5 months before the children at the old airport, but there was no difference in average year of birth. Criteria for taking part in the study were a minimum of 2 years of residence and German fluency, which ruled out confounds with ethnicity. Normal hearing, as assessed by audiometric screening, was also a criterion for participation. The experimental and control groups at the two airports did not differ in age, gender, ethnicity, number of family members, parental occupation, or education, and attrition did not differ among the four groups, $\chi^2(3, N = 326) = 1.64, p > .10$.

Procedure and Materials

At each data-collection wave, the children were tested individually in silence for 1.5 hr on 2 consecutive days in a specially designed temperature-controlled and sound-attenuated mobile laboratory that traveled to their schools. The children worked individually on an array of different tasks. In this article, we present only the cognitive dependent measures. (For data on physiological stress and mental health, see Bullinger, Hygge, Evans, Meis, & von Mackensen, 1999; Evans, Bullinger, & Hygge, 1998; Evans, Hygge, & Bullinger, 1995.)

Address correspondence to Staffan Hygge, Laboratory of Applied Psychology, Centre for Built Environment, University of Gävle, SE-801 76 Gävle, Sweden; e-mail: staffan.hygge@hig.se.

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Reading

A standardized German reading test was employed (Biglmaier, 1969). The children read paragraphs and word lists of increasing difficulty. Some of the words in the lists were pseudowords, but phonologically appropriate in German.

Memory

On the first day, the children read a text in intermittent broadband noise at 80 dBA L_{eq} , and the number of lines read within the 12-min time limit was noted. On the second day, the children were tested for long-term memory (recall) in silence. We introduced noise exposure during encoding to make the task more difficult. Children's performance on this test is sensitive to acute noise exposure (Hygge, 1997). For the short-term memory test, strings of consonants were presented one per second over headphones. Randomly, the sequence was stopped, and the children were asked to write down as many consonants as they could remember, in the correct position, starting at the end of the sequence. Letters in the correct or adjacent positions were scored as correct. Acute noise is known to impair performance on this task (Hamilton et al., 1977).

Attention

Two indices of general attention were used: visual search and reaction time. The visual search task is sensitive to ventilation noise (Hygge, 1991) and chronic stress (Baum, Gatchel, & Schaeffer, 1983). For this task, the children were presented with 12 complex figures and 5 simple target figures and asked to identify which one of the target figures was embedded in each complex figure. In the reaction time task, the children responded to random occurrences of red and green lights by pressing two different buttons. The children performed this task first in a silent 5-min session and then in an equally long session with aircraft noise at 85 dBA L_{eq} .

Speech perception

The speech perception measure was adapted from Hygge, Rönnerberg, Larsby, and Arlinger (1992). The children heard a story against different noise backgrounds (aircraft noise, road noise, and broadband noise) and used buttons labeled "+" and "-" to adjust the sound level of the story when it dropped randomly by 10 dBA. They were instructed to readjust the volume to the point where they could understand what was said if they concentrated. Noise-exposed children appear to ignore or tune out speech-relevant stimuli (Cohen et al., 1973, 1986; Evans & Maxwell, 1997) and are expected to require better signal-to-noise ratios than children who have not been exposed to noise.

RESULTS

Noise Levels

Noise levels were measured with a Brüel & Kjær (Copenhagen, Denmark) Community noise-level analyzer for a 24-hr period during data collection at the mobile laboratory. The expected changes in noise levels were observed at both airports (see Table 1).

Table 1. Noise levels (24-hr dBA L_{eq}) before and after the airport switch

Airport and group	Before switch (Wave 1)	After switch (Wave 3)
Old airport—aircraft noise	68	54*
Old airport—no aircraft noise	59	55
New airport—aircraft noise	53	62
New airport—no aircraft noise	53	55

*This number is an average from Waves 2 and 3 because there was only one observation in Wave 3, at a suspect value of 49.

Reading

On the word-list part of the reading test, only difficult words showed differences between the groups (see Fig. 1). The Airport \times Group \times Wave interaction was significant, $F(2, 252) = 5.10$, $p = .007$. (All F tests with repeated measures of wave were treated as multivariate analyses of variance, MANOVAs, rather than univariate analyses of variance, ANOVAs. These MANOVAs yield higher p values,

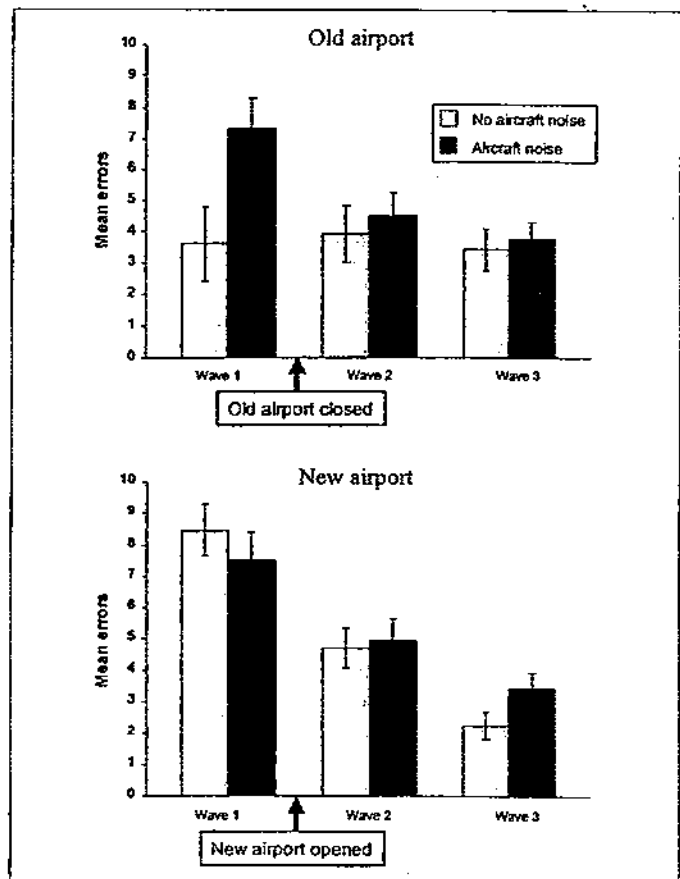


Fig. 1. Mean number of errors on the difficult word list as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

and thus are more conservative, than the corresponding univariate epsilon-corrected Greenhouse-Geisser ANOVAs.) Separate *t* tests (two-tailed throughout, except as noted) showed a difference between groups at the old airport at Wave 1, $t(99) = 2.68, p = .009$, but not at Waves 2 and 3 ($ts < 1$). At the new airport, there was a marginal difference between groups at Wave 3, $t(154) = 1.80, p = .074$, but not at Waves 1 and 2 ($ts < 1$).

The results for the prose component of the reading test were similar to those for the word-list test, but not as marked. For the most difficult paragraphs (Numbers 8–12), there was a weak Airport \times Group \times Wave interaction, $F(2, 172) = 2.16, p = .118$ (see Fig. 2). Separate *t* tests revealed a difference between groups at the old airport at Wave 1, $t(82) = 2.79, p = .007$, but not at Waves 2 and 3 ($ts < 1$). At the new airport there were no significant effects.

Memory

On the long-term recall task (see Fig. 3), there was a significant Airport \times Group \times Wave interaction, $F(2, 311) = 4.25, p = .015$. Separate *t* tests showed a marginally significant difference between groups at the old airport at Wave 1, $t(104) = 1.88, p = .062$, one-tailed, but not at Waves 2 and 3 ($ts < 1.28$). At the new airport, there was a difference between groups at Wave 3, $t(208) = 2.72, p = .007$, but not at Waves 1

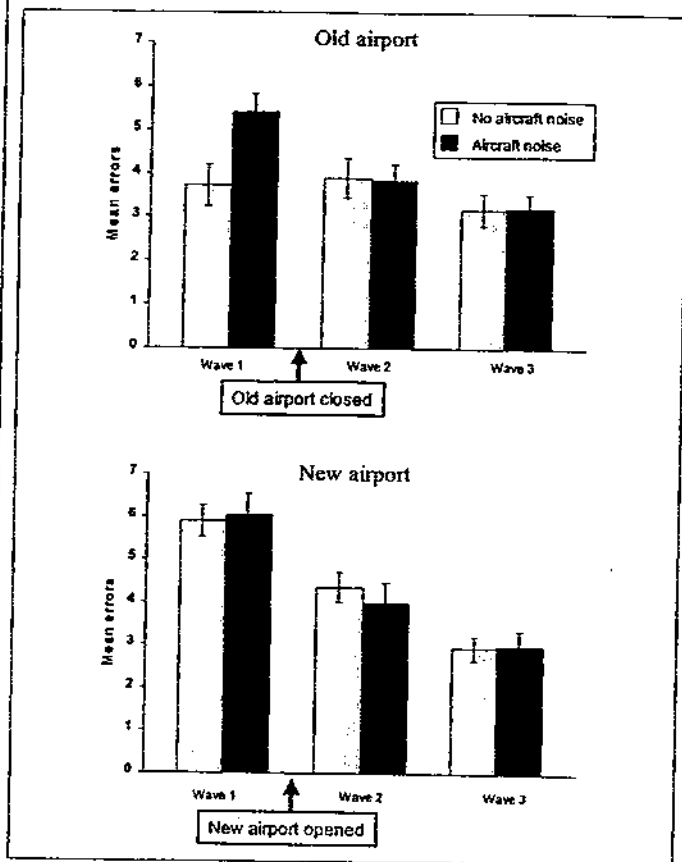


Fig. 2. Mean number of errors on the difficult paragraphs in the reading test as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

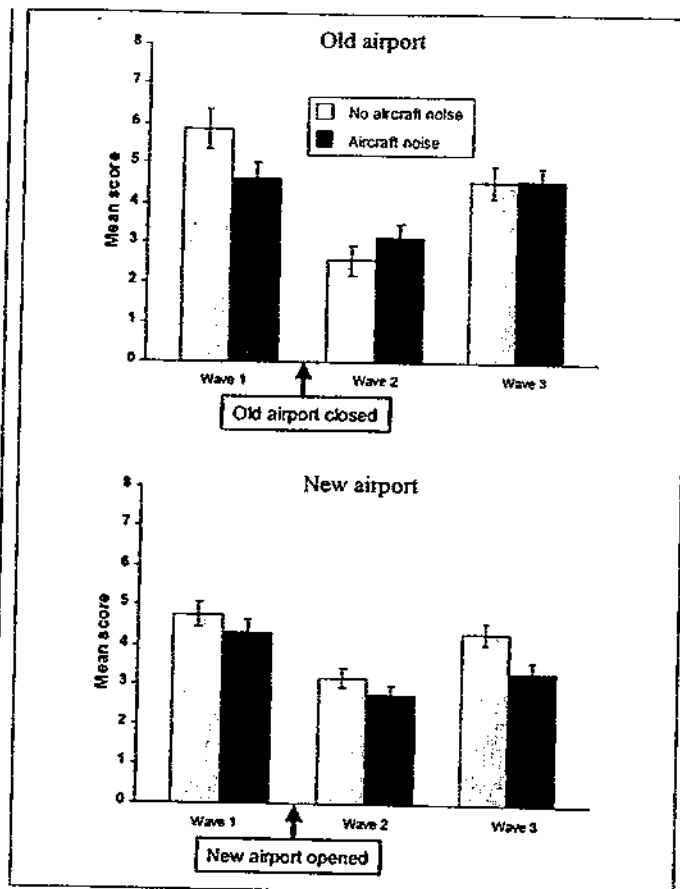


Fig. 3. Mean score on the long-term memory task as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

and 2 ($ts < 1.12$). For the number of lines completed, there were no noise effects.

At the old airport, the short-term memory test showed a significant Group \times Wave interaction, $F(2, 203) = 5.97, p = .004$. The poorer short-term memory performance of the noise group recovered to reach the level of the control group's performance at Waves 2 and 3 (see Fig. 4). Separate *t* tests showed tendencies toward more correct responses in the no-noise group than in the noise group at Wave 1, $t(104) = 1.70, p = .092$; the difference was in the opposite direction at Wave 2, $t(104) = 1.63, p = .108$, and there was no difference between groups at Wave 3. At the new airport, there were no differences between the groups across the waves.

Attention

For the embedded-figures task, there were no reliable interactions involving chronic aircraft noise over time.

For the reaction time task, a MANOVA of reaction time and errors together yielded an Airport \times Group \times Wave interaction, $F(4, 179) = 5.58, p = .004$. Performing the task in acute noise or no noise did not qualify this interaction, and there was no main effect of acute noise, $F_s < 1$. Only reaction time, not errors, contributed to the interaction. The aircraft-noise group at the old airport was slower than its control group

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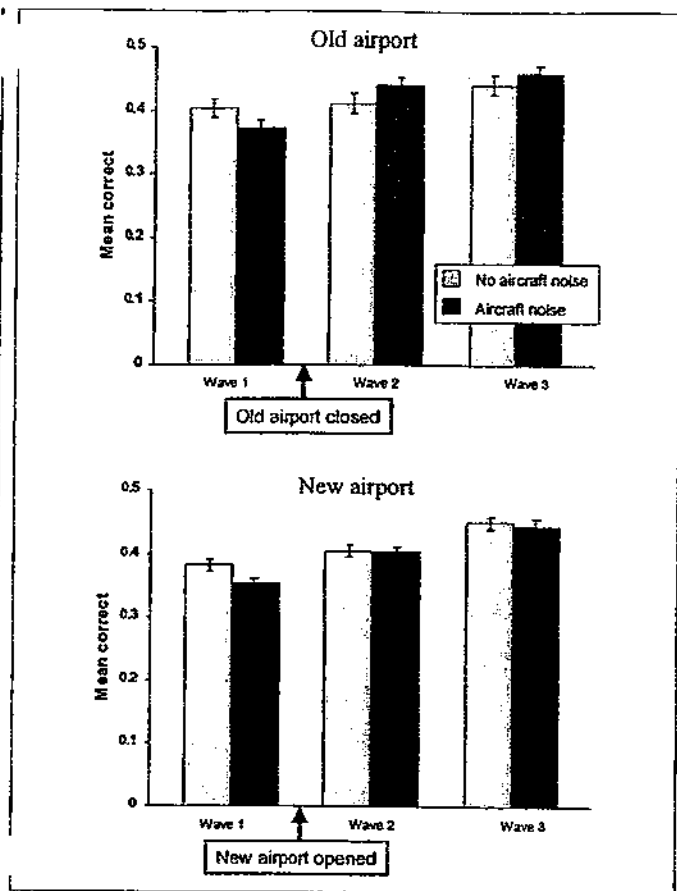


Fig. 4. Mean proportion of correct items on the short-term memory task as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

at Wave 2, $t(61) = 2.29, p = .026$, but not at the other waves ($t_s < 1.34$). At the new airport, the aircraft-noise group was slower than the no-aircraft-noise group at Wave 3, $t(121) = 2.09, p = .039$.

Speech Perception

Because of apparatus failure and resulting low n_s , data from Wave 2 on the speech perception task were discarded. As Figure 5 shows, speech perception improved from Wave 1 to Wave 3 at the old airport, but there was no differential improvement between the groups. At the new airport, the onset of aircraft noise seemed to block improvement in auditory discrimination from Wave 1 to Wave 3, as evidenced by the Group \times Wave interaction, $F(3, 150) = 7.63, p = .000$.

Mediation

To probe for mediation, we entered into path analyses (LISREL; Jöreskog & Sörbom, 1996) the difference scores between performance in the last and first measurement waves for the paragraph reading task, the difficult word list, the long-term memory task, the number of lines completed, the short-term memory task, and the speech perception task. The results of these path analyses were straightforward and showed a

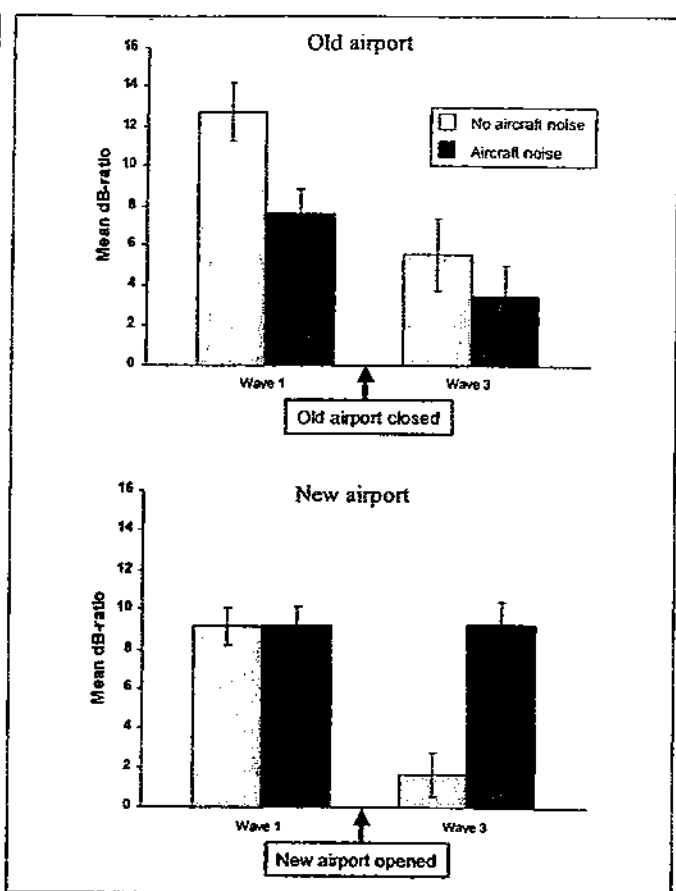


Fig. 5. Mean dB-ratio of speech to noise on the speech perception task as a function of airport, noise group, and measurement wave. Error bars show standard errors of the means.

very good fit between data from both airports and one of the models (see Fig. 6). Good fits were indicated by both a high p value ($>.05$) for chi-square and a low value of the root mean square error of approximation ($<.08$; Jöreskog & Sörbom, 1996). In this model, the noise effect on the reading tasks was not mediated by memory or speech perception. For long-term memory, there was a partial mediation by the word-list component of the reading task. For all the other tested variables in different combinations there were no indications of mediating links. The value of N in this analysis was low, mainly because of participants not finishing the difficult reading paragraphs in Wave 1. However, path analyses not including reading, and thus having a higher N , yielded path coefficients between the other variables that were of approximately the same strength as shown in Figure 6.

DISCUSSION

These longitudinal data complement nearly 20 cross-sectional studies showing adverse impacts of aircraft noise on reading in elementary-school children. Moreover, these effects occur prospectively and may be reversible. We have also demonstrated prospective impacts of chronic noise on long-term memory. More work is needed to determine the sensitivity of this effect to the duration of exposure, as well as children's age.

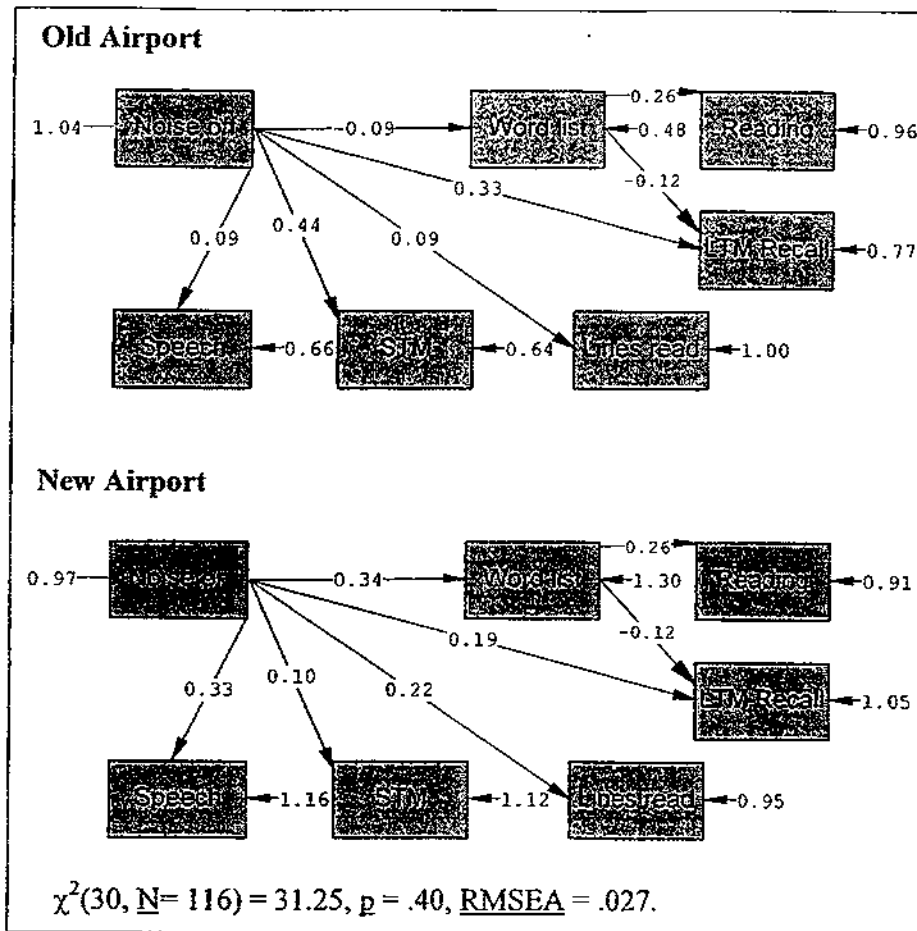


Fig. 6. Model fit (chi-square and root mean square error of approximation, RMSEA) and standardized path coefficients between cognitive measures. The cognitive measures were calculated as difference scores between the last and first measurement waves for the difficult word list ("Word list"), the paragraph reading task ("Reading"), the long-term memory task ("LTM Recall"), the number of lines completed ("Lines read"), the short-term memory task ("STM"), and the speech perception task ("Speech"). The paths from Word list to Reading (0.26) and LTM Recall (-0.12), with values in smaller print, were constrained to be equal at the two airports.

This is also the first study to show prospective impacts of chronic noise on a cognitive process, long-term memory. Weaker evidence suggests noise-induced deficiencies in speech perception and short-term memory.

Reading and long-term memory effects replicated, disappearing when the old airport closed and emerging after the new airport opened. This provides strong causal evidence for the vulnerability of central language processing to noise exposure, and the reversible nature of the impact. Additional research is needed to see whether the adverse noise effects on reading and recall continue over time. Note that at the new airport the negative effects were stronger at Wave 3 than at Wave 2, which suggests a cumulative noise effect.

The speech perception findings warrant further research. Differences in speech perception did not mediate noise effects on reading. The lack of mediation is inconsistent with prior cross-sectional studies (Cohen et al., 1973, 1986; Evans & Maxwell, 1997). The present longitudinal data raise doubts about the validity of inattention, or "tuning out," as an explanatory mechanism for the adverse impacts of noise on reading performance.

Furthermore, although children's reading worsened with cumulative noise exposure at the new airport and recovered following noise cessation at the old airport, speech perception deficits among noise-exposed children at the old airport did not recover. This suggests that speech perception did not mediate the noise effects on reading, a conclusion that is also indicated by the structural equation results. An explanation for this pattern of results may be the developmental timing of the noise exposure. Perhaps noise exposure damages the development of speech perception in different ways during the early and late portions of the reading-acquisition period.

Future research needs to address the importance of both the developmental timing and the duration of noise exposure in determining the effect of noise on reading and cognitive development. Research also needs to sample a wider range of noise levels in order to generate a dose-response function for reading, which would provide additional basic evidence and better inform public policy for noise protection of children.

Acknowledgments—This study was conducted with Staffan Hygge with the National Swedish Institute for Building Research and with Kungl Tekniska Högskolan—Royal Institute of Technology, both in Gävle, Sweden. We are grateful to the families who cooperated with this research. We thank Gerhard Heim, Sylvia von Mackensen, Markus Meis, Gunnar Söderqvist, and Christian Wigren for their dedication to the project. This research was partially supported by the Society for the Psychological Study of Social Issues, the National Institute of Health (R01 HL 4732 01A), the National Institute of Child Health and Human Development (1 F33 HD 08473-01), the Nordic Scientific Group for Noise Effects, the Swedish Environmental Protection Agency, the German Research Foundation (DFG), and the National Swedish Institute for Building Research. The third author was also supported by a DFG Heisenberg Fellowship. We are particularly grateful to Nils Antoni, former director of the National Swedish Institute for Building Research, who efficiently made necessary funds available at the outset of the Munich study.

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(RECEIVED 12/1/00; REVISION ACCEPTED 11/1/01)

Nonauditory Effects of Noise on Children: A Critical Review

Gary W. Evans
Cornell University
New York, USA

Stephen J. Lepore
Carnegie Mellon University
USA

Large numbers of children both in the United States and throughout the economically developing world are chronically exposed to high levels of ambient noise. Although a great deal is known about chronic noise exposures and hearing damage, much less is known about the nonauditory effects of chronic ambient noise exposure on children. To estimate the risk of ambient noise exposure to healthy human development, more information about and attention to nonauditory effects such as psychophysiological functioning, motivation, and cognitive processes is needed. This article critically reviews existing research on the nonauditory effects of noise on children; develops several preliminary models of how noise may adversely affect children; and advocates an ecological perspective for a future research agenda.

Keywords: noise, stress, nonauditory effects, health, cognitive

INTRODUCTION

In 1973 nearly 10 million American school children were exposed to ambient noise levels that exceed federal standards for hearing protection in work settings (Environmental Protection Agency, 1974). Recent studies estimate that American children on average are exposed daily to noise levels in the range of 76-80 Leq (unweighted average of decibel levels for 24 hours) (Roche et al., 1982; Schori & McGatha, 1978). To put these figures in perspective, the EPA recommended limit for risk to hearing is 70 Leq daily exposure for children. Since these assessments of childhood noise exposure, there have been marked increases worldwide in the number of children exposed to noise levels loud enough to impair hearing: this is especially true in underdeveloped countries (Evans, 1990; Suter, 1991).

Many *nonauditory* effects of noise on children also have been detected during the past two decades of research. Nonauditory effects of noise refer to impacts not directly related to sound-

induced damage to the auditory system. Non-auditory effects of noise, such as elevated sympathetic nervous system activity or disturbances in attentional processes, are apparent in children exposed to noise levels far below those necessary to induce auditory damage.

Although there is abundant evidence and analysis of the auditory effects of noise on children (Kryter, 1985; Mills, 1975), there has been little systematic, critical analysis of the nonauditory effects of noise exposure among children. This is a critical omission if we are interested in estimating the true risk of noise exposure to healthy human development. The present article critically examines the empirical evidence on the nonauditory effects of noise on children. The work is organized into three general areas of functioning: physiological, motivation, and cognitive. Both conceptual as well as methodological limitations in the extant research are examined.

Physiological Effects of Noise

Work in animal models and in various occupational settings suggests heightened activation of the cardiovascular system among organisms

Correspondence may be addressed to Gary Evans, Department of Design and Environmental Analysis, College of Human Ecology, Cornell University, Ithaca, NY 14853-4401, USA.

Table 1. Effects of noise on cardiovascular outcomes

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Brackbill et al. (1982)	HR	1 h white noise for 4 consecutive days. 50 and 75 dBA.	(78 males) ages 1 mon. to 80 yrs.	In infants and 8-year olds, HR decreased as sound levels increased. No other main or interactive effects of noise.
Cohen et al. (1980)	BP	Aircraft. 95 dBA peak.	(262) grades 3-4.	Noisy-school children had higher SBP and DBP than quiet-school children.
Cohen et al. (1981)	BP	Aircraft. 95 dBA peak.	(163) grades 3-4, longitudinal sample.	In the longitudinal attrition sample, there were no effects of noise on BP.
Cohen et al. (1986)	BP	Aircraft. 16 dBA sound reduction in noise-abated classrooms.	(163) grades 3-4, longitudinal sample.	SBP marginally lower and DBP significantly lower in quiet- than noisy-school children. SBP and DBP marginally lower in quiet- than noise-abated school children. No BP differences in children in noisy vs. noise-abated school.
Cohen et al. (1986)	BP	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Noisy-school children had higher BP than quiet-school children if were enrolled for 2 yrs or less. No noise effects on children enrolled more than 2 yrs.
Karsdorf & Klappach (1968)	BP	Traffic and street. 63-84 phon.	(262) grades 7-10.	Children in quiet schools had normal BP; whereas those in moderately- to very-noisy schools had elevated BP, especially among older boys.
Ising et al. (1990)	BP	Low altitude military flights. 125 dBA peak/Leq 68 dBA.	(433) ages 10-13 yrs.	Noise-related increases in SBP and DBP for girls, but not boys. Noise-related HR deceleration in boys and girls, but deceleration only significant in boys.
Karagodina (1969)	BP	Aircraft. 112 dBA peak/Leq 58 dBA.	(unavailable) ages 9-13 yrs.	Noisy-school children had higher BP than quiet-school children.
Roche et al. (1982)	BP	Self-report of exposure to loud noise sources. 80-Leq.	(233) ages 12-14 yrs.	Self-reported noise exposure levels not associated with BP.

Note: HR = heart rate, BP = blood pressure, S = systolic, D = diastolic.

chronically exposed to noise (Kryter, 1985; Smith, in press). As shown in Table 1, several studies have also uncovered evidence of possible linkages between chronic noise exposure and elevated blood pressure among children.

With two exceptions, all of the studies shown in Table 1 report elevations of resting blood pressure among children chronically exposed to noise. The one experimental study (Brackbill et al., 1982) found habituation to noise, which is a well established psychophysiological finding with short-term noise exposures (Glass & Singer, 1972). The extent of blood pressure elevations found from chronic exposure are probably not clinically significant for children during their youth (Voors et al., 1976), but could portend elevations later in life that might be health damaging (Berenson, 1980). To our knowledge,

there have been no long-term follow up studies of children exposed to noise at an early developmental stage. We know essentially nothing about the long-term consequences of early noise exposure on developing cardiovascular systems.

Both of the studies in Table 1 that found nonsignificant correlations between noise exposure and chronic blood pressure levels have methodological limitations. Roche et al. (1982) relied on children's retrospective reports of exposure to noise events (e.g., motorcycle use) during the previous six months. No data were presented on the reliability or validity of these noise estimates. Furthermore, the children monitored did not live near especially high noise sources (e.g., airports). Instead exposure to point noise sources such as machinery was estimated. Finally, resting blood pressure was only estimated

with one reading. On the other hand, this is the only study to examine the association between typical, daily noise exposures and resting blood pressure among children. All other studies have assessed the association between chronic blood pressure and exposure to high noise sources such as airports, roads, or trains. Analyses of the health effects of typical noise exposure for children are needed but with more adequate measurements of both noise exposure and blood pressure.

The second study to find a nonsignificant association between chronic noise exposure and resting blood pressure levels was conducted with children exposed to high levels of noise from an airport. Cohen et al. (1981) found that a difference in blood pressure between children attending noisy versus quiet elementary schools in a cross-sectional analysis did not replicate when reassessed one year later. Attritional analyses suggested that the failed longitudinal replication was caused by emigration of the families of children in noisy areas with the highest levels of blood pressure. Among children attending quiet schools, on the other hand, there was no selective attrition related to blood pressure levels.

Unlike other studies listed in Table 1, the three studies by Cohen and colleagues (Cohen et al., 1980; 1981; 1986) include statistical controls (e.g., social class, education) to counter potential third variable explanations of the associations uncovered between noise exposure and chronic levels of blood pressure. However, none of the studies is prospective, nor do any show a dose response relation between noise and blood pressure. Furthermore, all of the extant studies have relied upon gross indices of noise exposure - typically peak readings measured at schools.

Noise in the fetal and neonatal environment may be particularly harmful to fetuses and newborns because they are in a period of great organismic plasticity. It is well established that environmental sounds and vibration influence physiological and behavioral responses in the fetus (Pikus, 1991). There are contradictory data on the relations between ambient noise exposure and birth weight (for reviews see Pikus, 1991; Smith, in press) but little or no definitive evidence for teratological effects of chronic noise exposure (Edmonds et al., 1979; Meyer et al., 1989). Nonetheless, it is critical for more thorough and extended investigation of the potential impacts of routine modern medical procedures such as ultrasound monitoring or

placement of premature babies in intensive care nurseries with extremely noisy equipment (Gottfried et al., 1981; Lawson et al., 1977).

Summary

Residing or attending school near a major noise source is associated with elevated blood pressure. More research is clearly called for, especially tracking children before, during, and after exposure to noisy environments. All evidence to date is correlational and even though some studies have included good controls, stronger, quasi-experimental designs are needed to firmly tie noise to the etiology of cardiovascular changes in children. The degree of blood pressure elevations is small, on the order of 4-8 mm of mercury, but these elevations do not appear to habituate with continued exposure (cf., Cohen et al., 1986). The clinical significance of such changes in childhood blood pressure is difficult to determine. The ranges of blood pressure among noise-exposed children are within normal levels and do not suggest hypertension. On the other hand, elevations in blood pressure among children appear to track into adulthood (Beren-son, 1980), increasing the potential risk for cardiovascular disease. It would also be of value to examine neuroendocrine makers of stress (e.g., cortisol) that have been implicated in the casual pathways between stressors and cardiovascular outcomes.

Emotional/Motivational Effects of Noise

The uncontrollability of chronic noise exposure may affect children's emotional and motivational states. When organisms are exposed to repeated, uncontrollable events, learned helplessness can occur (Abramson et al., 1978; Seligman, 1975). Learned helplessness means the organism learns that the outcomes of its behavior are independent of its responses. Learned helplessness is manifested as a lack of effort or responsiveness to environmental stimuli and challenges. Uncontrollable noise has been shown to induce helplessness in adults (Hiroto, 1974; Hiroto & Seligman, 1975; Krantz et al., 1974). Moreover, adults immediately following exposure to uncontrollable noise are less likely to persist on difficult or challenging aftereffect puzzles than their counterparts with prior exposure to controllable noise (Cohen, 1980; Glass & Singer, 1972).

Overall, though, very little is known about the

Table 2. Effects of noise on motivation (learned helplessness)

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Cohen et al. (1980)	Performance on moderately difficult puzzle after pretreatment with insoluble or soluble puzzle.	Aircraft. 95 dBA peak.	(262) grades 3-4.	Noisy-school children failed more on pretreatment soluble puzzle and difficult test puzzle, and were more likely to give up on difficult puzzle, than quiet-school children. There was a nonsignificant trend suggesting that longer exposure to a noisy school was associated with greater time to complete difficult puzzle.
Cohen et al. (1981)	Performance on moderately difficult puzzle.	Aircraft. 95 dBA peak.	(163) grades 3-4, longitudinal sample.	Noisy-school children were more likely to fail at the test puzzle and to take longer to solve the puzzle than quiet-school children. No noise effect on rate of giving up.
Cohen et al. (1981)	Performance on moderately difficult puzzle.	Aircraft. 16 dBA sound reduction in noise-abated classrooms.	(163) grades 3-4, longitudinal sample.	Sound attenuation improved children's performance on the original test puzzle.
Cohen et al. (1986)	Performance on moderately difficult puzzle.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Noisy-school children failed difficult puzzle more frequently than did quiet-school children.
Cohen et al. (1986)	Choice task.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Noisy-school children more likely than quiet-school children to give choice of reward to experimenter.
Moch-Sibony (1984)	Rosenzweig frustration tolerance test.	Aircraft. 29 vs 54 SIL.	(80) kindergarten.	Noise-related decreases in frustration tolerance.
Wachs (1987)	Observer ratings of mastery-oriented play behavior.	Ratings of noise: 1 = normal level voices in home for 15 min. period to 4 = noisy level voices in home for more than half 15 min. period.	(88) 12 mon.	Less mastery-oriented play behavior in noisier homes.

Note: SIL = speech interference level.

relations between chronic exposure to environmental stressors such as noise and the induction of helplessness in human beings. Community surveys of noise annoyance frequently note that while annoyance is common, complaints or other actions to intervene are rare (Evans & Tafalla, 1987). Most residents who are annoyed by noise report feeling unable or helpless to alter the situation (Jue et al., 1984). The small minority who do complain or take other actions report feeling greater self-efficacy to cope with the noise (Jue et al., 1984).

As shown in Table 2, a few studies have examined the effects of noise on children's motivational states. The significant relations between noise exposure and motivational deficits in one cross-sectional study (Cohen et al., 1980) were replicated both in a longitudinal study (Cohen et al., 1981) and in a second, cross-sectional study

(Cohen et al., 1986). Higher noise exposure in children has been associated with reduced persistence on challenging puzzles and greater abdication of choice over rewards (see Table 2). Perhaps the most persuasive data of reduced motivation in an achievement related situation is Cohen et al.'s (1980) findings on giving up. Not only were children from noisy schools less likely to solve a challenging puzzle within a four minute time period, a substantially greater proportion of them (15%) simply gave up before the allotted time had elapsed, often remarking that they couldn't do the task, in comparison to 2% of their quiet school counterparts who gave up.

Of additional interest, teachers from schools located in noisy settings report more difficulties motivating students to perform than do teachers from relatively quiet schools (Crook & Langdon, 1974; Kyzar, 1977; Moch-Sibony, 1984).

Even very young children appear to be less motivated to engage in object mastery or control over their environment, after prolonged exposure to noise. For example, 12-month-old infants living in noisier households tended to engage in less effective, mastery-oriented interactions with toys in their homes than did children from relatively quiet homes (Wachs, 1987).

Learned helplessness is more apt to occur when individuals make stable, personological attributions (e.g., ability) rather than ascribe global or temporary reasons (e.g., bad luck, poor effort) for their failures (Abramson et al., 1974; Silver et al., 1982). No research on noise and motivation has examined these underlying attributional processes. Future research should also directly manipulate contingencies in a task (e.g., provision of insoluble puzzles) and then examine differences in tendencies to become helpless along with attributional measures, as a function of chronic noise exposure. In addition, researchers should examine the possible mental health consequences of noise-related learned helplessness. If noise heightens vulnerability to helplessness, then it is reasonable to suspect possible connections between chronic noise exposure and certain psychological problems in children. In one exploratory study, Wachs (1988) found a positive association between noise levels in the home and adaptability, but noise was unrelated to several other indices of temperament. In another study, a composite index of noise and confusion/clutter in the home was linked to difficulty in care requirements for 18-month-old children, although not for 12-month or 24-month-olds (Wachs, 1989).

Summary

Brief exposures to uncontrollable noise are capable of inducing learned helplessness in adults. Chronic residential exposure to noise also appears to be associated with feelings of helplessness among adults living nearby airports. Although the evidence is scant, there are suggestive findings indicating that children chronically exposed to ambient noise sources may be more vulnerable to learned helplessness. Children attending schools in airport flight paths are less likely to solve or persist in attempting to solve challenging puzzles. They are also more likely to abdicate choice over a reward to an adult rather than exercising the choice option themselves. Teachers of children in noisy schools also report, on average, greater difficulties in

motivating children in their school work. Noise in the home may be associated with mastery motivation in very young children. In addition to the small number of studies, all of which are correlational, another drawback to this area of work has been a lack of systematic integration of more sophisticated developmental paradigms for the measurement of motivational deficits in children. The potential pathways among chronic noise exposure, helplessness, and psychological health warrant further research.

Cognitive Effects of Noise

Research on the cognitive effects of noise exposure on children has received the most attention from researchers. This area of research can be subdivided into three subtopics: (i) attention and perception, (ii) memory, and (iii) intellectual achievement.

Attention and perception

The cognitive ability to perceive order and contingency in the environment presumably depends on some modicum of sustained attention to event sequences as they unfold. The interruptive, distracting effects of high ambient noise levels might directly affect the young child's ability to sustain voluntary attention or to concentrate (Heft, 1985).

As shown in Table 3, studies by Karsdorf and Klappach (1968), Kyzar (1977) and by Moch-Sibony (1984) have revealed deficits in standardized measures of sustained attention among children chronically exposed to noise. The standardized tests involve searching for target geometric stimuli from among fields of similar objects. In addition, teachers report that children in noisy schools tend to have more difficulties in concentrating in comparison to children from relatively quieter schools (Crook & Langdon, 1974; Ko, 1979; Kryter, 1985; Kyzar, 1977).

Cognitive studies on children with variable exposures to chronic noise sources also indicate possible decrements in visual attention (see Table 3). Children from noisy homes took longer to locate target pictorial stimuli within an array of pictures than did children from relatively quiet homes (Heft, 1979). Children attending daycare centers located near train tracks performed marginally more poorly on a visual search task

Table 3. Effects of noise on attention

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Crook & Langdon (1971)	Teachers' reports of concentration.	Aircraft. 75 dBA peak.	(76 teachers) primary and secondary.	Teachers in noisy schools reported more concentration problems in students than did those in quieter schools.
Hambrick-Dixon (1986)	Cross-out letters in quiet or noise.	Train. 108 dBA peak.	(109 black) ages 4-6 yrs.	Children from noisy daycare performed task marginally worse than children from quiet daycare.
Hambrick-Dixon (1988)	Visual stimulus detection with verbal or key press response.	Train. 108 dBA peak.	(102 black) ages 5-7 yrs.	Interaction between location of daycare, response mode, exposure duration, and sex: On key response, girls in noisy daycare less than 2 yrs made more errors than girls in quieter daycare less than 2 yrs. On verbal response, girls in noisy daycare more than 2 yrs made more errors than girls in quiet daycare more than 2 yrs. No differences in performance of boys in any condition.
Heft (1979)	Response latency in visual search.	Noise ratings: 1 = low to 7 = high.	(94) ages 4-7 yrs.	Higher household-noise level associated with longer response latency.
Karsdorf & Klappach (1968)	Errors and latency on Bourbon test.	Traffic and street. 63-84 phon.	(262) grades 7-10.	Noisy-school students had longer response latency and more errors than quiet-school students.
Ko (1979)	Teachers' reports of concentration.	Aircraft. 105 dBA peak.	(2100 teachers) primary and secondary.	Teachers in noisy schools reported more concentration problems in students than did those in quieter schools.
Kyzar (1977)	Minnesota clerical test.	Traffic and street. 62-94 dBA.	(56) elementary school.	Noise-related deficits in clerical-type task.
Kryter (1985)	Teachers' reports of concentration.	Aircraft. 87 dBA peak.	unavailable.	Teachers in noisy schools reported more concentration problems in students than did those in quieter schools.
Moch-Sibony (1984)	Zazzo sustained attention task.	Aircraft. 29-54 SIL.	(80) kindergarten.	Noisy-school children had poorer sustained attention than did quiet-school children.
Acute noise				
Zentall & Shaw (1980)	Visual search for letters.	Taped class noise from free time (71 dBA) and work time (57 dBA).	(36) grade 2 (hyperactive and non-hyperactive controls).	Noise x Hyperactivity interaction: Hyperactive children made fewer commission errors in low than in high noise conditions; non-hyperactive children unaffected by noise.

Note: SIL = speech interference level.

than did children from relatively quiet daycare centers (Hambrick-Dixon, 1986). In a subsequent study, Hambrick-Dixon (1988) uncovered a more complex relation between chronic noise exposure and attention, utilizing a vigilance task: Gender, exposure duration to train noise at the daycare center, and the response mode for the task (naming versus pressing a key) moderated the association between noise and performance.

Unfortunately, several of the sustained attention and noise studies suffer from methodological shortcomings. The Kyzar (1977) and Karsdorf and Klappach (1968) studies have inadequate controls

for sociodemographic factors. Furthermore, all of the studies are cross-sectional and only the Moch-Sibony (1984) study carefully screened children for normal hearing. The Heft (1979) study relied upon observer ratings of home noise levels, no actual noise measurements were taken.

The Hambrick-Dixon (1988) results are particularly complex and difficult to interpret. One possible explanation for the inconsistency between her results and those of other researchers is that she measured the ability of children to detect a visual signal using tachistoscopic presentation times (100 msec). Thus rather than

Table 4. Effects of noise on auditory discrimination/speech perception

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Cohen et al. (1973)	WAD	Traffic and street. 55-66 dBA.	(54) grades 2-5.	Noise associated with poorer auditory discrimination.
Cohen et al. (1980)	WAD	Aircraft. 95 dBA peak.	(262) grades 3-4.	No effects of noise on auditory discrimination.
Cohen et al. (1986)	WAD	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	No effects of noise on auditory discrimination.
Moch-Sibony (1984)	MP	Aircraft. 29 vs 54 SIL.	(80) kindergarten.	Noise associated with poorer auditory discrimination.
Acute noise				
Blue & Vergason (1975)	GFW	Recorded sounds (unspecified). 55 dBA.	(34) grades 1,3.	Race x Noise interaction: Black children's performance affected more negatively by noise than was white children's performance.
Nober & Nober (1975)	WAD	Recording of classroom noise vs ambient noise. 39.5-64.7 dBA.	(39) ages 5-7 yrs (healthy control, retarded, and speech-deficit).	Fewer errors when tested in quiet vs. normal classroom noise levels. Control and retarded children performed worse in noise than in quiet; speech-deficit group performed worse in noise than in quiet, but the effect was not significant.
McCroskey & Devens (1977)	WAD	Classroom noise recording. 4 dBA above ambient classroom noise	Unavailable.	Noise associated with decrements in auditory discrimination.
Glenn et al. (1978)	Speech discrimination	Recorded hospital sounds. 75 dB SPC (typical for hospitals).	(21) ages 9-14 yrs (institutionalized MR).	Noise mask significantly degraded speech discrimination.
Laraway (1985)	Digit discrimination	Intermittent white noise. 80 dB SPC.	(46) ages 5-21 yrs (CP, healthy controls).	Noise mask degraded performance of CP children but not controls. Noise effects greatest in younger (< 7 yrs) children.
Laskey & Tobin (1973)	Message comprehension	Speech and white noise. 74 dB SPC.	(22) ages 6-8 yrs (possible LD, non-LD controls).	Speech, but not white noise, interfered with auditory message comprehension in LD children. Control children unaffected by noise.

Note: WAD = Wepman auditory discrimination test, GFW = Goldman-Fristoe-Woodcock auditory discrimination task, MP = Massiot Phillips auditory discrimination test, SIL = speech interference level, LD = learning disabled, CP = cerebral-palsied, MR = mentally retarded.

measuring sustained visual attention, Hambrick-Dixon probably measured signal detectability.

As expected given the physical properties of noise, considerable attention has been given to auditory information processing among children exposed to chronic or acute noise sources. One of the cognitive strategies that children may learn in order to adapt to the distracting properties of chronic noise is to filter or tune out unwanted auditory stimuli. The tendency of children in noisy environments to tune out noise may become overgeneralized, such that various types of acoustic stimuli, including speech, are not attended to carefully (Deutsch, 1964). In a direct

test of the tuning out hypothesis, Cohen et al. (1973) compared the ability of children living in quiet and noisy apartments (proximity to a freeway) within the same building to discriminate between similar sounds under quiet conditions. Cohen et al. (1973) as well as Moch-Sibony (1984) found an association between chronic noise exposure and auditory discrimination (see Table 4). Both of these studies had good controls for socioeconomic status, and pre-screened children for hearing loss. Moreover, Cohen et al. (1973) showed that with longer exposure durations, the association between noise and deficits in auditory discrimination became stronger.

Table 5. Effects of noise on resistance to auditory distractors

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Cohen et al. (1980)	Cross-out letters in ambient or distracting (story recording) condition.	Aircraft. 95 dBA peak.	(262) grades 3-4.	Noise × Month enrolled interaction: with less than 2 yrs enrollment, noisy-school children performed better than quiet-school children under distraction. Between 2-4 yrs enrollment, no noise effects. With more than 4 yrs enrollment, noisy-school children performed worse than quiet-school children.
Cohen et al. (1981)	Cross-out letters in ambient or distracting condition.	Aircraft. 95 dBA peak.	(163) grades 3-4, longitudinal sample.	With 2-4 years enrollment, noisy-school children were less distracted than quiet-school children. With more than 4 yrs enrollment, performance was nearly the same across conditions.
Cohen et al. (1986)	Cross-out letters in ambient or distracting condition.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	Children attending noisy schools for 2-4 yrs were less distracted than their quiet-school counterparts. However, after 4 yrs enrollment, performance was nearly the same across conditions.
Cohen et al. (1981)	Cross-out letters in ambient or distracting condition.	Aircraft. 16 dBA reduction in noise-abated classrooms.	(163) grades 3-4, longitudinal sample.	No effects of noise abatement on distractibility.
Hambrick-Dixon (1986)	Weschler IQ task and match animals with color disks in quiet or noise conditions.	Train. 108 dBA peak.	(109 black) ages 4-6 yrs.	Children from noisy daycare performed better in noise than in quiet conditions. The opposite was found for children from quiet daycare centers.
Heft (1979)	Figure discrimination in matching task in quiet or noise.	Story reading. Noise ratings: 1=low to 7=high.	(94) ages 4-7 yrs.	Auditory distraction had less of a negative effect on children from noisy homes than on children from quiet homes.
Acute noise				
Tumure (1970)	Performance and glances away from a visual discrimination task.	Recording of child songs/stories. 60 dBA.	(30) ages 5.5, 6.5, 7.5 yrs.	No noise effects on glances, but performance worse in noisy than in quiet conditions.
Steinkamp (1980)	Multiple perceptual and cognitive tasks.	Classroom sounds and gadgets. Ambient noise.	(24) ages 6-8 yrs (hyperactive, non-hyperactive controls).	Classroom noise and distracting visual materials caused deficits on most tasks. No interaction with hyperactivity.

In two subsequent studies, Cohen et al. (1980; 1986) were unable to replicate these findings on noise and auditory discrimination using a different noise source (aircraft as opposed to traffic). The traffic noise study (Cohen et al., 1973) also drew primarily from working class families; whereas the airport study was conducted in a poverty area. Using a different auditory discrimination task, however, did reveal deficiencies in auditory discrimination in children chronically exposed to noise from airports (Cohen et al., 1986). Children were presented a constant signal (man reading a story) superimposed against four different white noise backgrounds. The task was

to choose the optimum signal to noise ratio. Children who attended noisy schools for longer periods were significantly poorer at this signal to noise discrimination task (see Table 4).

Not surprisingly, the acute noise experimental studies in Table 4 indicate that children have difficulty with auditory discrimination during acute noise exposure (Blue & Vergason, 1975; Glenn et al., 1978; Laraway, 1985; Nober & Nober, 1973). Thus noise can directly interfere with children's ability to discriminate between meaningful auditory stimuli. Noise, particularly irrelevant speech, also interferes with comprehen-

sion of spoken language (Glenn et al., 1978; Laraway, 1985; Lasky & Tobin, 1973). The Glenn et al. (1978) data are noteworthy because the researchers used simulated recordings of an institutional setting for the mentally retarded as their noise 'mask'. Typical, ambient levels from the institution were sufficient to produce marked deficits in discriminating speech sounds among mentally retarded children.

Although there are clear overall trends showing that concurrent noise can mask auditory discrimination, as well as speech, there may be individual differences in these effects. Blue and Vergason (1975) found racial differences in auditory discrimination with black children being more adversely affected than white children by concurrent noise. This study was conducted in the Southeastern United States and may not have controlled for the dialect used in stimulus materials. Laraway (1985) reported that only cerebral palsied children were adversely affected by a noise mask in a task in which children were asked to repeat auditorily presented digits. Lasky and Tobin (1973) revealed that only children with suspected learning disabilities had difficulties in tracking an auditory signal against a background of competing, irrelevant speech. The latter study also showed that speech, but not white noise of a similar volume, interfered with message comprehension.

An interesting and provocative question raised by Deutsch's original hypothesis and some of the subsequent empirical work is whether children chronically exposed to noise become so adept at filtering out noise, that they become resistant to its distracting properties. A number of studies shown in Table 5 present suggestive evidence in support of this hypothesis of differential resistance to noise distractors. However, the data are complex.

Kindergarten children from noisy homes were less distracted by irrelevant speech during a visual discrimination task than those from quiet homes (Heft, 1979). In this task, children selected one of several figures that correctly matched a standard figure. Cohen and colleagues (1980) found a similar pattern of results, but only for elementary students exposed to aircraft noise for two years or less. For those exposed longer, auditory distraction during a visual search task (crossing out e's in a text above reading level of the child) interfered more with the performance of noisy-

school children than it did for quiet-school children. This effect was also replicated in a different sample (Cohen et al., 1986). Hambrick-Dixon (1986) uncovered an even more complex pattern of data on a visual coding task among very young children. In this task preschool children placed colored discs next to animal drawings according to an initial set of model comparisons. For children from noisy daycare centers, performance on this task was better under noisy testing conditions than quiet ones; whereas for children from quiet daycare centers, performance was superior during quiet testing conditions than under noisy ones.

Thus, although there is some evidence that children chronically exposed to noise are less distractable by auditory stimuli during a task, with very long exposure (4+ years), they appear to lose this advantage over non-noise-exposed children. Children exposed for short periods of time to chronic noise, may be able to gate out auditory distractors more effectively during tasks; whereas children exposed for long periods of time, may lose this gating ability. This could occur because despite sustained efforts to gate out unwanted sounds, children learn that this coping strategy is ultimately ineffective since the noise remains as a potent distractor.

The type of task, type of noise, and some individual difference variables also may influence whether concurrent auditory stimuli are distracting during task performance. For example, although both Heft (1979) and Cohen et al. (1980; 1986) found that concurrent speech distracted children during a visual search task (finding target objects in a matrix, crossing out target letters in text, respectively), Hambrick-Dixon (1986) had no main effect of a distractor (background noise of a daycare free play period) on performance of a visual matching task (placement of colored discs next to animal drawings). Turnure (1970) found a distracting effect of speech on school children's performance on a visual discrimination task (choosing the odd geometric shape out of three stimuli). However behavioral manifestation of distraction (glancing up) was not observed. Zentall and Shaw (1980) found that classroom noise recordings did not affect a visual letter search task for normal children and degraded performance for hyperactive, elementary-aged children. Finally, Steinkampf (1980) found that the combination of recorded classroom sounds

Table 6. Effects of noise on memory

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Hambrick-Dixon (1986)	Serial, incidental, visual, paired-associates learning.	Train. 108 dBA peak.	(109 black) ages 4-6 yrs.	No noise effects.
Heft (1979)	Incidental memory of visual stimuli.	Noise ratings: 1 = low to 7 = high.	(94) ages 4-7 yrs.	Higher household noise level associated with poorer incidental memory.
Acute noise				
Fenton et al. (1974)	4 number digit-span.	White noise. 22-72 dBA.	(10 male) ages 9-11 yrs (LD and non-LD).	More errors made in the high noise than in the low noise conditions.
Hygge (1993)	Recall and recognition of reading passage.	Recorded simulations of aircraft, train, traffic, and verbal noise. 66-76 dBA.	(417) ages 12-14 yrs.	Within-subjects analyses revealed a marginal Noise x Source interaction: recall on difficult questions was lower among children in aircraft and traffic noise conditions than in control conditions; no differences in recall in train and verbal noise conditions relative to control condition. Between-subjects analyses also revealed a Noise x Source interaction: recall on difficult questions was lower among children in aircraft noise conditions than in controls; other noise sources did not affect recall. No noise effects on recognition task. Individual differences in learning ability did not moderate noise effects.
Johansson (1983)	Paired-associates learning and letter memory.	White noise. 51 dBA continuous; 55-78 dBA intermittent.	(66) age 10 yrs.	No noise effects.

Note: LD = learning disabled.

played at normal volume and the presence of interesting gadgets were distracting for several tasks among normal and hyperactive boys. Because the latter study did not separate ambient noise from visual distractors, the specific effects of noise cannot be determined.

It is difficult to discern any clear patterns in the above findings on acute, concurrent noise and distraction among children. Speech, as opposed to background noise (e.g., recordings of classroom noise), may be more distracting during task performance. Unfortunately since no studies have used the same task with different aged children, we cannot infer any developmental trends from the data. However it is noteworthy that studies showing no effects tested the youngest children.

Summary

Children chronically exposed to noise may suffer from attentional deficits. Although suggestive,

the work in this area suffers from sufficient methodological flaws (e.g., controls for SES) to prohibit definitive conclusions. Children chronically exposed to noise develop cognitive strategies to cope with the interruptive, distracting influence of noise. Some data suggest that children learn to ignore or tune out auditory stimuli if they have been chronically exposed to noise. At least during the first few years of exposure, children from noisy residential areas appear to be more resistant to acute auditory distractors, presumably because of their enhanced ability to tune out auditory stimuli. These same children may suffer deficits in auditory discrimination. Acute noise distracts children during cognitive task performance, especially when the distractors contain meaningful speech. These acute auditory distraction effects may be more problematic for certain subgroups of children, especially those with some pre-existing cognitive deficits. More research, particularly on groups potentially at risk should be a high priority.

Memory

The noise and memory literature on children (Table 6) is sparse but generally in agreement with the adult literature (Cohen et al., 1986; Smith, in press). There appears to be little or no effects of noise on simple memory tasks from chronic exposure (Hambrick-Dixon, 1986) or acute exposure (Johansson, 1983). However, if sufficient processing demands are placed upon memory, deficits begin to appear in children exposed to noise (Fenton et al., 1974; Hygge, 1993).

Hygge's (1993) experimental findings (see Table 6) are interesting because he compared relatively easy and difficult memory tasks under quiet and noisy conditions, finding that only the difficult tasks were sensitive to noise exposure. Heft's (1979) incidental memory deficits are also noteworthy because they fit with a typical noise and memory finding in adults. The adult incidental memory studies have been interpreted as indicative of attention narrowing or focusing on dominant stimuli (Cohen et al., 1986). Attention narrowing appears to be common under arousing conditions in general (Broadbent, 1971) and under noise specifically (Hockey, 1979). Greater attention to more central cues could lead to poorer encoding of more peripheral material.

Summary

Although there is little research on children's memory under chronic or acute noise conditions, the data are generally in accord with the adult literature on the subject. Noise exposure has little if any effect on children's short term or working memory. Memory tasks that put especially demanding loads on working memory, however, may show some deficits. Narrowing of attention to more central cues under noise may cause poorer memory for incidental information. The potential role of attentional processes in noise-related memory effects warrants further scrutiny.

Intellectual Achievement

Given the reasonable possibility that chronic noise exposure interferes with auditory discrimination and attentional mechanisms, it is not surprising that several researchers have uncovered evidence linking noise exposure with deficits in reading. It is important to note at the onset that unlike chronic effects of noise on cognition, studies of reading and achievement confound chronic and acute noise exposure since they all have relied

upon archival records of achievement tests. As indicated in Table 7, however, the handful of studies of acute noise on intellectual achievement find few if any negative effects. This suggests, indirectly, that the community noise and achievement findings are probably caused by chronic and not acute exposure.

Two clusters of chronic noise associations with intellectual achievement are shown in Table 7. The first group of studies, conducted primarily by Wachs and colleagues, have explored the impacts of early exposure to noise in the home on infants and toddlers. Their work in general finds positive evidence that noise can interfere with normal cognitive development. The findings have been replicated and extended in longitudinal studies (see Wachs & Gruen, 1982, for an overview of this research program). Measurements of cognitive development affected by noise include mental representations of objects, use of objects as tools to achieve goals, and relating words to objects.

One major weakness in Wach's and other research on noise and young children (e.g., Heft, 1979) is reliance on observer ratings of noise exposure rather than actual measurement of physical sound levels. Recently, however Wachs (1988) has validated this measurement approach against decibel meter readings. Another finding that indicates that the effects are due to noise is that access to a secluded quiet room or shelter within the home largely ameliorates the associations between noise ratings and measures of cognitive development (Wachs & Gruen, 1982). Micheison (1968) has found the same buffering effect of a stimulus shelter with home noise levels on elementary school aged children's reading ability. These data on buffering effects of quiet, secluded study spaces in noisy homes raise the possibility, however, that some of the apparent effects of residential noise exposure on cognitive development could be due to residential crowding. It is obviously difficult to disentangle the ecological covariation between these two environmental conditions. Moreover, both of them appear to be associated with deficits in reading acquisition in young children (Evans et al., 1990).

The second group of studies in Table 7, has examined the association between chronic noise exposure at school and/or home with standardized measures of reading and other intellectual achievement tests. With two exceptions, the data

Table 7. Effects of noise on intellectual achievement

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Chronic noise				
Bronzaft (1981)	Reading.	Train. 6-8 dBA sound reduction in noisy classrooms.	(955) grades 2-6.	After sound reduction with insulation on noisy side of school, students' reading scores on noisy side of school were equivalent to those of students on quiet side of school. In the year before insulation, students on noisy side of school had worse reading scores than students on quiet side of school.
Bronzaft & McCarthy (1975)	Reading.	Train. 59-89 dBA.	(161) grades 2, 4, 6.	Students' reading scores lower on noisy side of school than on quiet side, especially in higher grades.
Cohen et al. (1973)	Reading.	Traffic and street. 55-66 dBA.	(54) grades 2-5.	Noise associated with greater reading deficits in children living in apartments for 4 or more years.
Cohen et al. (1980)	Reading and math.	Aircraft. 95 dBA peak.	(262) grades 3-4.	No noise effects.
Cohen et al. (1981)	Reading and math.	Aircraft. 95 dBA peak.	(163) grade 3-4, longitudinal.	No noise effects.
Cohen et al. (1981)	Reading and math.	Aircraft. 16 dBA sound reduction in noise-abated classrooms.	(163) grade 3-4, cross-sectional.	Noise abatement results in 3rd grade only. Third graders in noise-abated classrooms performed better in math than 3rd graders in non-abated classrooms; 3rd graders in noise-abated classrooms also performed better in reading, but not significantly so.
Cohen et al. (1986)	Reading and math.	Aircraft. 95 dBA peak.	(165) grade 3, new sample.	No noise effects.
Gottfried & Gottfried (1984)	BSID, OP, MS, TELD	Noise ratings: 1 = normal level voices in home for 15 min. period to 4 = noise level voices in home for more than half 15 min. period.	(130) 12 mon. infants tested every 6 mon. up to 42 mon.	Higher household noise associated with lower scores on OP at 12-18 mon., on TELD at 39 mon., on BSID at 18 mon., and on MS scores at 42 mon.
Green et al. (1982)	Percent reading below grade level.	Aircraft. 96.2 dBA peak.	(8,240) grades 2-6.	Greater percentage of noisy-school children read below grade level. Effects strongest in higher grades.
Lukas et al. (1981)	Reading and math.	Traffic and street. 70 dBA peak.	(2500) grades 3,6 (100 classes sampled).	Reading scores lower for 3rd and 6th graders in noisier classes. Math scores lower in students in noisier 3rd grade classes, but higher in 6th grade students in noisier classes.
		Ambient classroom and community. 45-75 dBA.		Inverse correlations between community noise and math and reading scores were similar to but less consistent than those between classroom noise and math and reading scores. There also was a synergistic effect of home and school noise on reading.

Table 7. *Continued*

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Wachs et al. (1971)	IPDS	Noise ratings: 1 = normal level voices in home for 15 min. period to 4 = noise level voices in home for more than half 15 min. period.	(102) ages 7, 11, 15, 18, 22 mon.	Higher household noise associated with lower IPDS scores.
Wachs (1978)	SB	Ratings of noise: same as Wachs et al. (1971).	(23) ages 2-3 yrs, longitudinal.	Higher household noise associated with poorer SB performance in boys, no significant effect in girls.
Wachs (1979)	IPDS	Ratings of noise: same as Wachs et al. (1971).	(31) ages 2-3 yrs, longitudinal.	Higher household noise associated with lower IPDS scores in boys and higher IPDS scores in girls.
Wachs & Gandour (1983)	IPDS	Ratings of noise: same as Wachs et al. (1971).	(100) ages 7, 11, 15, 18, 22 mon.	Higher levels of household noise associated with lower IPDS scores, particularly in fussy and irritable infants.
Michelson (1968)	Language, spelling, and math.	Home environment ratings. Scale unavailable.	(710) grades 1-5.	Noise associated with language and spelling difficulties. Noise not associated with math achievement.
Maser et al. (1978)	Reading and math.	Aircraft. 90 dBA peak.	(1917) grades 3, 5, 7, 10.	Noise associated with reading and math deficits in 7th and 10th graders, but only marginal effects on 5th graders. Children with lower aptitudes were most adversely affected by noise.
Acute noise				
Christie & Glickman (1980)	SPM	Recorded classroom noise. 40 and 70 dBA.	(156) grades 1, 3, 5.	Noise × Sex interaction: Boys performed better in noisy than in quiet conditions; girls performed better in quiet than in noisy conditions.
Johansson (1983)	Reading and math.	White noise. 51 dBA continuous, and 55-78 dBA intermittent.	(66) age 10 yrs.	Noise × Intelligence interaction on multiplication and reading performance. Above-average intelligence children solved more multiplication problems in noise than in quiet; below-average intelligence children showed the opposite trend, but noise effects were not significant. Below-average intelligence children tended to have poorer reading speed under noise; there was little difference in reading performance between noise groups with above-average intelligence.
Kassinove (1972)	Math.	Recorded child stories and music. 70-80 dBA.	(80) grades 3,6.	No noise effects on response latency, accuracy, or time-out from task.
Slater (1968)	Reading and math.	Ambient classroom noise, music, stomping and banging, tractor-mower, or quiet crossed with taped white noise. 45-90 dBA and 50-80 dBA white noise.	(263) grade 7.	No noise effects on speed or accuracy.

Table 7. *Continued*

Author(s)	Outcome	Noise Source/Level	Sample Population (n)	Basic Result
Weinstein & Weinstein (1979)	Reading.	Classroom: Ambient noise levels during early (noisy) and late (quiet) time of day. 47-60 dBA.	(60) grade 4.	No noise effects.
Zentall & Shaw (1980)	Math.	Taped noise from 2nd grade class. 64 and 69 dBA.	(48) grade 2 (hyperactive, normal controls).	Noise × Hyperactivity interaction: Hyperactive children performed marginally worse in high noise than in low noise; non-hyperactive children performed worse in low noise than in high noise conditions.

Note: BS = Bayley scales of infant development, OP = object permanence scale, MS = McCarthy scales of children's abilities, TELD = test of early language development, IPDS = Piagetian-type measure of infant psychological development, SD = Stanford-Binet test of intelligence, SPM = standard progressive matrix test.

converge on the conclusion of a relation between community noise exposure and reading ability. Several of the studies have good controls for sociodemographic characteristics in the samples and some have screened out children with auditory deficits. Moreover, Green et al. (1982) found a dose response function between noise exposure and reading deficits. Furthermore, the effects in the Bronzaft studies (Bronzaft, 1981; Bronzaft & McCarthy, 1975) cannot be attributed to self-selection. Children were not assigned in any systematic manner to classrooms on the noisy or quiet side of a building located next to elevated train tracks. On the other hand, all of the studies except for Bronzaft (1981) and Cohen et al. (1981) are cross-sectional and neither of these longitudinal studies are prospective. The Bronzaft (1981) findings are particularly important because they indicate that classrooms on the side of an elementary school near elevated train tracks that previously had lower reading scores in comparison to classrooms on the opposite side of the building (Bronzaft & McCarthy, 1975) no longer differed in reading scores following noise insulation in the schools and on the tracks.

The two studies that have not found reliable noise effects on reading may have poor statistical power. Both Cohen et al. (1980; 1986) and Moch-Sibony (1984) tested children from different schools, with different teachers, and in the former case from different school districts. In addition, both restricted their analyses to children from lower grades and did not attempt to tease out the

effects of noise on children of differing ability.

As indicated in several of the citations in Table 7, children in higher grades appear to be more negatively affected by noise exposure on reading than their younger counterparts (cf., Cohen et al., 1973; Green et al., 1982; Lukas et al., 1981; Maser et al., 1978). Children who have lower aptitude or other difficulties may be more vulnerable to the harmful effects of noise on reading (Maser et al., 1978). We also noted earlier several distraction studies indicating more disruptive effects on children with various learning deficiencies. Finally, Lukas and colleagues (1981) uncovered a significant synergistic effect of home and school noise exposure on reading scores.

Summary

Acute noise exposure appears to have little effect on reading and other intellectual activities. During early development, however, residential noise appears to delay cognitive development. In addition, chronic exposure to noise has been associated with reading deficits in seven out of nine studies, particularly for children in higher elementary school grades. There is also evidence that children with lower aptitude and those who also live in noisier homes appear more susceptible to the association of chronic noise exposure at school with reading deficits. The latter trend is interesting to consider in light of attentional data also showing more negative effects of noise exposure on children with pre-existing cognitive deficits.

DISCUSSION

Overview

We know with a good deal of certainty that chronic exposure to noise is associated in children with modest elevations of resting blood pressure, attentional deficiencies, and deficits in reading. Other effects suspected from chronic noise exposure include diminished task motivation, deficits in auditory discrimination, shifts in resistance to auditory distractors, poorer memory when high information processing demands are present, and deficits in infant cognitive development. The latter group of suspected effects include inconsistent data in some cases (auditory discrimination, resistance to distraction) or trends that have only been uncovered in one or two studies (motivation, memory, infant cognitive development). Tables 1-7 provide summary information that forms the bases for these conclusions.

Two major methodological shortcomings are prominent in the literature we have reviewed. Most critically, there is a total lack of prospective, longitudinal designs in this research area. Prospective, longitudinal studies are the strongest, *quasi*-experimental designs that can be applied in field studies and help deal with the host of threats (e.g., self-selection, confounding third variables) that plague correlational designs (see Cohen et al., 1986; Evans & Lepore, in press, for further discussion of methodological problems in field studies of environmental stressors). Such prospective studies must include well matched comparison groups and collect important personal data known to relate to outcomes of interest. Besides their utility as potential control variables in nonexperimental study designs, background variables can enhance statistical power by reducing unexplained variance in the outcome measure of interest. Studies on cardiovascular outcomes, for example, need to collect data on family history of hypertension. Research on reading should collect information on parental education levels and child's intelligence. Prospective, longitudinal designs will have to contend, however, with the potential interfering effects of selective attrition. As documented earlier, Cohen and his colleagues (1981), in one of only two longitudinal studies of noise and children, found that a year later children with the highest levels of blood pressure in their initial

cross-sectional analysis of quiet and noisy schools had moved out of the area. No such selective attrition was found among children in quiet schools.

The second major methodological shortcoming in nonauditory noise research and children has been lack of precision in two aspects of procedural conditions during testing. Testing conditions must be uniform and quiet. Reliance on archival measures of reading, for example, confounds acute with chronic noise exposure since ambient noise sources are likely to be present during the conduct of achievement tests. Testing must occur under quiet conditions in order to determine whether chronic noise affects reading or some other outcome of interest. More thorough audiometric screening is needed in nonauditory studies of noise and children to insure that the effects are not due to hearing loss.

Ecological Perspective

The purpose of this section is to outline some major conceptual shortcomings in the existing work on the nonauditory effects of noise on children and to lay out a preliminary research agenda. An ecological perspective (Bronfenbrenner, 1979) would significantly advance our understanding of this topic. Such a perspective includes greater attention to temporal issues plus the social and environmental contexts in which chronic noise exposure occurs. It also entails examination of the underlying, mediational processes that may link some of the psychophysiological, motivational, and cognitive processes related to chronic noise exposure.

Temporal parameters

Foremost, there has been a severe lack of developmental analyses, except in a few reading studies and in some of Wach's work on infant development in the home environment (see Table 7), of the effects of chronic noise on children. Developmental research approaches are critical in noise studies because it is highly likely that noise has differential impacts on physiological, cognitive and motivational processes as a function of developmental status. Consider for example reading acquisition. It is well established that reading acquisition depends upon the development of certain language competencies (e.g., phonological awareness) that are age

dependent (Mann & Brady, 1988). Noise exposure prior to or following the development of phonological awareness may not affect reading acquisition in the same way as noise exposure during the critical period of phonological awareness learning. Unless a developmental approach is added to noise research, such questions cannot be addressed.

A related but distinct conceptual limitation has been neglect of temporal parameters such as age at time of exposure and history of exposure to noise. For example, several studies on resistance to distractors from noise indicate the effects are contingent upon noise exposure history (see Table 5). Children exposed to ambient noise levels for shorter periods of time appear to be more resistant to the distracting properties of noise (see Table 5). These findings could relate to work on motivational deficiencies from prolonged noise exposure. Perhaps children attempt to filter out noise during early periods of exposure but eventually give up on this strategy. Duration effects could also relate to the specificity of resistance to auditory distractors. It would be interesting, for example, to investigate children's ability to filter out aircraft noise versus white noise or irrelevant speech, as a function of length and type of chronic noise exposure.

Unfortunately, we cannot disentangle age effects from exposure duration effects. For example, the apparently stronger linkages between chronic noise exposure and reading scores among older children (see Table 7) could be a function of a critical period of exposure or the result of longer, cumulative adverse impacts. Related to this latter option, we know nothing at this stage about the long-term effects of early childhood exposure to noise. What happens in later childhood or adolescence to children who spend all or part of their early years attending school or living near an airport or busy street?

Context

Greater attention to the ecological context in which chronic noise exposure occurs may prove fruitful for future research on noise and children. This ecological context might include more ecologically valid noise exposure estimates, attention to the indirect effects of noise on children via adult caregivers, and measurement of other social and environmental conditions co-varying with chronic noise exposure. With one

exception (Lukas et al., 1981) none of the field studies of noise and children have attempted to calculate overall noise exposure. It may be recalled that Lukas and colleagues found a synergistic effect of home and school noise exposure on reading.

Furthermore, the noise estimates that researchers have relied upon do not take into account children's mobility, exposure to noise sources in the home, or the attenuation properties of the structures they inhabit.

Nearly all of the work on noise and children involves comparisons between noisy and quiet settings. With one exception, Green et al. (1982), there is no information on dose response functions. Besides its evidentiary value, dose response curves would have public policy importance. We currently are unable to provide clear statements about what level of noise is harmful for children or to say what the efficacy would be of providing specific sound attenuation interventions.

Not only are children attending school or residing in homes in noisy areas exposed to noise but so are their principal caregivers. The behaviors of caregivers in noisy settings could indirectly influence children's responses to noise (Bronfenbrenner, 1979). For example, perhaps parents in noisy homes do not speak to their children or read to them as often as parents in quieter neighborhoods. Classroom observations and teachers' self-reports indicate that aircraft or train noises interrupt teacher lecturing (Crook & Langdon, 1974; Kyzar, 1977; Moch-Sibony, 1974), in one study causing a 10% reduction in total teaching time (Bronzaft & McCarthy, 1975). It is also well documented that teachers in noise-exposed classrooms report greater annoyance and fatigue during the school day in comparison to teachers from quiet classrooms (Crook & Langdon, 1974; Ko, 1979; 1981; Sargent et al., 1980). Therefore some of the adverse effects of noise on child development could be mediated through the negative impacts of noise on the child's primary caregivers. Parents and teachers may have less patience and energy to devote to children because of the adverse effects of noise on themselves. More directly, noise may alter the manner in which parents and teachers instruct children, altering reading or speaking patterns. Recent data indicate that parent-child interactions may be affected by household noise levels. Parents from noisier homes appeared less

interested in their children's activities and talked less with their children (Wachs, 1989; Wachs & Camli, 1991). Controls for education levels of the mother did not change these findings.

Ambient noise exposure rarely occurs in isolation of other social and environmental problems. Noisy environments frequently covary with crowding and pollution and are often part of the fabric of poverty, including substandard housing, conflictual households and various other psychosocial strains. Although the ecological covariation of noise with other adverse environmental and social factors makes it difficult to isolate the effects of noise on children, we should be mindful that the harmful effects of noise may be amplified by the context in which noise is often embedded. It may be precisely those children who develop under such impoverished physical and social circumstances who are most vulnerable to the harmful effects of noise (Bronfenbrenner, 1979; Evans et al., 1990). We have recently found among adults, for example, that the negative effects of residential crowding on psychological distress are significantly worsened by chronic strains associated with poverty (e.g., insufficient utilities, poor housing quality, financial insecurities) (Lepore et al., 1991).

Noise levels may also operate within a context of important individual differences among children. There is some evidence that some children are more at risk for adverse noise effects on cognitive development. Less intelligent children's math and reading performance appears more sensitive to noise exposure (Johansson, 1983; Maser et al., 1978). Studies of young children and infants suggest greater susceptibility to chronic noise-related problems among boys in comparison to girls (Wachs, 1978; 1987; 1989). On the other hand, girls may be more distracted by acute noise exposure (Christie & Glickman, 1980; Hambrick-Dixon, 1988). Cognitive performance during acute noise appears to be disrupted more by noise for individuals with pre-existing learning deficits (cerebral palsy, learning disabled).

In addition to alerting researchers and policy makers to the potential of subgroups of children at high risk for negative effects of noise, these findings also have another important implication. Some of the small or even conflicting nonauditory effects of noise reviewed herein may be conservative estimates of noise effects since they by and large have not examined interactive effects.

While in some cases there may be little if any overall noise effects on children, it would be erroneous to conclude from such data profiles that noise is an inconsequential environmental problem for children. There may be large segments of the child population whose development may be significantly compromised by noise exposure early in life.

Mediational processes

Another area of future research that might emanate from an ecological perspective on noise and children is greater scrutiny of the potential interplay among the various psychophysiological, cognitive, and motivational processes that appear to be affected by chronic noise exposure. Cohen and his colleagues (1973) examined Deutsch's (1964) hypothesis that children chronically exposed to noise may learn to tune out auditory stimuli indiscriminantly and thus not pay sufficient attention to speech. They found that children from noisier apartments were deficient in auditory discrimination. Of particular interest, this deficiency significantly accounted for the poorer reading abilities of the noise-exposed children. This study stands alone as the only analysis of an underlying process to explain how noise affects children.

Given the findings (see Table 4) that noise can mask speech and evidence that speech perception and other linguistic skills such as phoneme awareness are critical precursors to reading acquisition (Mann & Brady, 1988), more work is called for on the effects of chronic noise exposure on psycholinguistic processes and their potential mediating link with reading. Other pathways warranting further investigation include those between chronic noise exposure, motivation, attention, and reading.

There are also plausible interconnections among chronic noise exposure and several of the cognitive processes we have reviewed. For example, people chronically exposed to noise may become more resistant to the distracting effects of acute noise exposure during a task because they can ignore or filter out auditory distractors. This ability may occur as a result of learning to tune out or filter auditory sounds. Thus one would expect a relation between the ability to ignore auditory distractors and deficits in auditory discrimination associated with chronic noise exposure. Analogously, we would expect a mediational pathway

between chronic noise exposure, attentional focusing and deficits in incidental memory performance.

Thus rather than only treating different outcome variables such as reading, attentional processes, and resistance to distraction as separate correlates or effects of noise exposure, more thought and careful analyses are required to investigate how these variables may form causal links to one another. In other words, both the direct and indirect pathways of the nonauditory effects of noise on children need to be investigated. From a theoretical and public policy perspective, this is perhaps most crucial in the case of reading. Although stronger data on the adverse effects of chronic noise exposure on reading would be valuable from an evidentiary point of view, what is of paramount importance now is a shift in focus to explanations of why and how chronic noise adversely influences reading acquisition.

There may also be some potent interplay among psychophysiological processes and some of the cognitive strategies apparently influenced by chronic noise exposure. For example, presumably it takes some effort to tune out or ignore noise. Experimental data as well as field studies with adults indicate that cognitive efforts to maintain task performance during noise come at a price of heightened sympathetic arousal (Tafalla & Evans, 1993; Welch, 1979). When performance suffers under noise, slight or no sympathetic arousal is apparent. However, if performance is maintained under noise which is possible except under tasks of very high load demands on attention and working memory (Cohen et al., 1986; Smith, in press), then indices of sympathetic arousal should be substantially elevated during noise exposure.

The associations between chronic noise exposure in children (see Table 1) and heightened blood pressure raise several important questions about mechanisms. For example, are blood pressure elevations caused by repeated sympathetic arousal induced by the distracting and interfering properties of community noise conditions? Alternatively, are the elevations mediated by adrenocortical activity and thus primarily indicative of chronic stress? To our knowledge, no analyses of various psychoneuroendocrine pathways between noise and blood pressure elevations have been investigated. Given the central role of cognitive appraisal in psychological

stress, it would also behoove researchers to examine whether psychosocial factors such as perceived control, self-confidence to ignore/tune out noise, or annoyance, moderate the effects of noise on blood pressure and other psychophysiological processes among children.

Another fruitful area of psychophysiological research would be to investigate the potential role of chronic noise exposure in cardiovascular reactivity. Individual differences in reactivity to standard psychosocial elicitors of stress (e.g., mental arithmetic) may be predictive of cardiovascular disease (Krantz & Manuck, 1984; Matthews et al., 1986). Research on cardiovascular reactivity in both adults and children has ignored the potential etiological role of chronic exposure to environmental stressors. More detailed analyses, focusing on possible behavioral toxicological effects of in utero or neonatal noise impacts are also called for. This is especially pertinent in light of contemporary medical practices such as ultrasound monitoring or placement of premature infants in neonatal intensive care units.

Large numbers of children both in America and, in rapidly growing numbers in the Third World, are being exposed to levels of ambient noise that are not only a threat to hearing but may have harmful effects on physiological and cognitive development. The potential for harmful effects from chronic noise exposure on children's development is great; what we know with certainty about the problem is, unfortunately at the moment, insufficient. At the same time, there is a foundation of evidence clearly suggesting potentially harmful effects from chronic noise exposure among children. We also have enough data on hand to formulate preliminary models of underlying, mediating mechanisms that could account for the effects of noise. It is also clear that more longitudinal work with prospective designs is crucial to definitively demonstrate the relationships between chronic noise exposure and children's development. Such designs afford stronger internal validity given the impossibility of randomly assigning children to varying community noise levels. Longitudinal designs allow us to examine changes in behaviors over time plus provide the opportunity to examine whether self-selection has occurred prior to noise exposure.

ENDNOTE

This article is based in part on earlier presentations at the Fifth International Congress on Noise as a Public Health Problem, Stockholm, Sweden and A Strategy for Noise Prevention in the 90's, American Speech and Hearing Association, Washington, DC. Preparation of this article was partially supported by the National Heart Lung and Blood Institute, RO1 HL47325-01A1, the Nordic Noise Council, and the Swedish Environmental Protection Board.

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CHRONIC NOISE AND PSYCHOLOGICAL STRESS

Gary W. Evans,¹ Staffan Hygge,² and Monika Bullinger³

¹Cornell University; ²Royal Institute of Technology, Gävle, Sweden; and ³University of Munich

Abstract—This article illustrates the value of incorporating psychological principles into the environmental sciences. Psychophysiological, cognitive, motivational, and affective indices of stress were monitored among elementary school children chronically exposed to aircraft noise. We demonstrate for the first time that chronic noise exposure is associated with elevated neuroendocrine and cardiovascular measures, muted cardiovascular reactivity to a task presented under acute noise, deficits in a standardized reading test administered under quiet conditions, poorer long-term memory, and diminished quality of life on a standardized index. Children in high-noise areas also showed evidence of poor persistence on challenging tasks and habituation to auditory distraction on a signal-to-noise task. They reported considerable annoyance with community noise levels, as measured utilizing a calibration procedure that adjusts for individual differences in rating criteria for annoyance judgments.

Since the early 1970s, psychologists have contributed insights to the analysis of environmental problems (Ittelson, 1976). Current concerns focus on human perceptions of environmental risks (Vaughan, 1993; Wandersman & Hallman, 1993) and the role of the physical environment in human health and well-being (Baum & Fleming, 1993). The concept of psychological stress has proven a useful heuristic to conceptualize human responses to suboptimal environmental conditions (Cohen, Evans, Stokols, & Krantz, 1986; Evans & Cohen, 1987). The present article provides evidence that chronic noise exposure is associated with psychophysiological, cognitive, motivational, and affective indices of psychological stress.

Laboratory studies have shown that acute noise degrades complex task performance (Smith & Jones, 1992) and elevates neuroendocrine and cardiovascular markers of psychological stress (Evans & Cohen, 1987). Chronic noise is associated with elevated cardiovascular functioning among children (Cohen et al., 1986) and is consistently correlated with reading deficits among elementary school children (Evans & Lepore, 1993). Experimental exposure to uncontrollable noise produces learned helplessness (Glass & Singer, 1972; Seligman, 1975), and long-term exposure to community noise may contribute to helplessness among children (Cohen et al., 1986).

The present study extends these earlier findings in several respects. This is the only study to examine neuroendocrine indices of chronic stress among persons exposed to community noise. Without neuroendocrine markers, it is difficult to interpret children's elevated cardiovascular reactions to chronic noise exposure as evidence of stress (Grunberg & Singer, 1990;

Krantz & Falconer, 1995). Furthermore, although resting cardiovascular levels are an important indicator of health, cardiovascular reactivity to acute stressors may contribute more to the etiology of coronary heart disease (Krantz & Manuck, 1984).

Several measures of human performance were also assessed in the present study. Speech perception was examined because of its relevance to noise and its potential role in reading acquisition (Mann & Brady, 1988). We also examined two attention tasks, choice reaction time and visual search. There is some evidence of deficits in both working memory (Hamilton, Hockey, & Rejman, 1977) and long-term memory (Hygge, 1993) during acute noise exposure. No research has examined the generalizability of these types of findings to persons chronically exposed to noise.

Many prior studies have uncovered associations between ambient noise levels and reading deficits (Evans & Lepore, 1993). Unfortunately, all of these studies have relied on archival reading achievement scores, thereby confounding chronic and acute noise exposure. We administered a standardized reading test under carefully controlled, quiet conditions.

Children chronically exposed to noise (Cohen et al., 1986) and to crowding (Rodin, 1977) suffer increased vulnerability to learned helplessness. We designed a conceptual replication of these earlier findings, adapting Glass and Singer's (1972) after-effects paradigm for use with children. Numerous acute stressors reliably decrease persistence on challenging puzzles presented immediately after stressor exposure (Cohen, 1980; Glass & Singer, 1972). This paradigm, to our knowledge, has never been adapted for children or been used to examine chronic stress and motivation.

Although adults living in noise-impacted communities react with annoyance (Evans & Cohen, 1987), very little is known about children's affective responses to noise. We investigated this issue in two ways. First, we examined children's annoyance to a series of standardized auditory stimuli, as well as to community noise sources. This procedure enabled us to examine both raw and calibrated annoyance ratings. Calibration may enhance the sensitivity of annoyance scales given large individual differences in response criteria for assessing annoyance (Berglund & Nordin, 1990). The second way we investigated children's affective reactions to chronic noise exposure was by assessing quality-of-life ratings. Quality of life can be assessed accurately in young children (Bullinger, von Mackensen, & Kirchberger, 1994), indexing perceived physical, psychological, social, and daily functioning.

Summarizing, we employed the concept of psychological stress as a heuristic to conceptualize human responses to suboptimal environmental conditions. Our analyses focused on psychophysiological, cognitive, motivational, and affective processes in relationship to chronic noise exposure among young children.

Address correspondence to Gary Evans, Department of Design and Environmental Analysis, College of Human Ecology, Cornell University, Ithaca, NY 14853-4401; e-mail: gwe1@cornell.edu.

METHOD

Subjects

Participants were 135 third and fourth graders (mean age = 10.78 years) living either in a high-noise-impact urban neighborhood (24-hr Leq = 68.1 dBA; peak = 79.8 dBA) surrounding the Munich International Airport or in a quiet urban neighborhood (24-hr Leq = 59.2 dBA; peak = 69.0 dBA) in Munich. An increase of 10 dBA is experienced as approximately twice as loud. Leq is an unweighted average of sound pressure intensity. Children in the quiet, comparison areas were matched to the children in the noise-impacted area according to socioeconomic status. Households did not differ in type of occupation, $\chi^2(4, N = 116) = 4.96$; parental education, $t(122) = 1.58$; or family size, $t(122) = 1.10$. All of the children in this study first passed an audiometric screening to ensure that none had hearing loss.

Dependent Measures

Psychophysiological

Blood pressure was measured with an automated blood pressure monitor (A&D Digital, UA 751) while the child was seated comfortably. Twelve-hour overnight urinary epinephrine and norepinephrine were assayed with high-performance liquid chromatography with electrochemical detection (Riggin & Kissinger, 1977), and cortisol was measured with a radioimmune assay; iodine¹²⁵ (Baxter Travenol Diagnostics, Cambridge, Mass.). Sample volumes were determined, and a small amount of urine was randomly extracted and frozen at -70°C . Half of the extracted urine was also pH adjusted to further inhibit oxidation of catecholamines. See Grunberg and Singer (1990) and Lundberg (1984) for more details on utilizing urinary neuroendocrine measures as indices of chronic stress.

Cognitive

Cognitive measures included indices of attention, memory, and reading.

Attention. A signal-to-noise measure assessed speech perception against a noise background. Each child listened to a story at his or her preferred volume. This volume level defined continuous background noise (road traffic, aircraft, or broadband) played throughout the story. At fixed, random intervals, the storyteller's voice dropped 10 dBA, and the child readjusted the story volume to a comfortable listening level.

An embedded figures task required the children to search for any one of five target figures contained within complex line drawings.

In a simple choice reaction time task, the children were presented with random sequences of red and green lights and were instructed to press the key labeled "red" or "green" to indicate the color of each light. Two 8-min sequences were run. The first session was conducted in silence and the second one in aircraft noise (80 dBA Leq).

Memory. Each child read an interesting text. Random, intermittent broadband noise bursts (peak dBA = 80) were pre-

sented throughout the 12-min period. A day later, the child's long-term recall for the text was assessed.

Working memory span was assessed by presenting consonants at the rate of one per second. At random intervals, the sequence was stopped and the child was requested to recall, in order, as many consonants as possible. Accuracy was defined as correct recall of the consonants in serial position (Hamilton et al., 1977).

Reading. Children read paragraphs as well as word lists on the Biglmaier (1969) Reading Test (a valid and reliable German standardized test) under quiet conditions. Standardized scoring criteria were applied to each subscale.

Motivation, annoyance, and quality of life

Motivation. After reading the long-term memory text under noisy conditions, the children were given two line-tracing puzzles adapted from Glass and Singer's (1972) aftereffects paradigm. The puzzles consisted of animal names connected together by lines. Children "traveled" to each animal via the connecting lines but without lifting their pencils or retracing any line. They attempted the first puzzle until they solved it or gave up, and then moved on to the second puzzle. The initial puzzle was insoluble, and the index of motivation was the number of attempts to solve this puzzle. The second puzzle was soluble. The order of the two puzzles was deliberately fixed so that each child would experience success following initial failure on the first puzzle. All children solved the second puzzle. The task lasted 10 min. Attributions for failure on the initial puzzle were also assessed. These data are not included here because of space limitations.

Annoyance. The children provided magnitude estimates of noise annoyance (0 = not at all annoying; 100 = the most noise one could withstand without putting one's hands over one's ears) by moving their fingers along a vertical graphic scale. They were trained how to use this scale by first jumping as far as possible, which was designated as 100. They then jumped distances equivalent to magnitudes of 50, 25, 75, and 10.

Four-s noise bursts were randomly presented over headphones at 42, 54, 66, 78, and 90 dBA Leq. Broadband noise, aircraft noise, and road traffic noise were presented in separate sets. The annoyance rating for each noise burst was indicated on the vertical graphic scale from 0 to 100. The children also indicated how annoyed they were with community noise levels. Both Bandura and Schunk's (1981) original scale development and our own pilot work indicate high reliability for this magnitude estimation procedure with young children.

Nine uncalibrated noise ratings were summed to provide the community noise rating for each child. Calibrated scores were individually adjusted by the slope of the regression line fitting each child's annoyance ratings of the broadband-noise standard stimuli to his or her community noise estimates. For more details on calibration scoring procedures, see Berglund and Nordin (1990).

Quality of life. Quality of life was assessed by the KINDL, a valid and reliable index of the four principal domains of qual-

ity of life (physical, psychological, social, functional daily life; Bullinger et al., 1994).

Procedure

Testing occurred in a climate-controlled, sound-attenuated trailer at the children's school. Forty-eight-hr outdoor noise levels were monitored at the trailer 6 m above ground with a B&K Model 4426 Sound Meter.

Experimental tasks were conducted in fixed order on 2 consecutive days. Children were run individually in booths, with an experimenter sitting across a small table from each child. On Day 1, each child was first taught the magnitude estimation procedure (jumping), as described. Then an initial blood pressure reading was taken, and the child completed a brief mood scale. Then the following tasks occurred: noise annoyance; audiogram; blood pressure; mood scale; signal-to-noise measure; blood pressure; long-term memory text with noise, accompanied by blood pressure readings every 4 min; Glass and Singer aftereffects measure (line-tracing puzzles); and blood pressure. Total testing time for Day 1 was 85 min.

At the end of Day 1, parents were given a urine specimen bottle and instructions for collecting the 12-hr overnight sample. Parents were requested to collect in the container all urine the child voided that same night and the next morning between 20:00 and 8:00. This container was kept refrigerated and contained a preservative.

On Day 2, parents brought back the urine specimen container. Testing began with an initial blood pressure reading, followed by a mood scale and then a brief interview, a blood pressure reading, recall of the prose text from the day before, the standardized German reading test, a blood pressure reading, the embedded figures task, the test of working memory, another blood pressure reading, and finally the reaction time task, accompanied by blood pressure readings every 4 min. The child was then given a gift and provided the opportunity to ask questions about the study. Total time for Day 2 was 87 min.

The KINDL was administered at home prior to the laboratory testing.

RESULTS

Psychophysiological

Neuroendocrine

Overnight resting levels of urinary catecholamines were significantly different between the children chronically exposed to

aircraft noise and those unexposed: $t(120) = 2.89, p < .025$, for epinephrine and $t(120) = 3.43, p < .001$, for norepinephrine. (All statistical tests are two-tailed unless otherwise indicated.) As shown in Table 1, resting, baseline adrenomedullary neuroendocrine levels were elevated in association with chronic exposure to high levels of community noise. There was, however, no significant relationship between chronic exposure to aircraft noise and cortisol levels, $t(120) < 1.0$.

Baseline cardiovascular

There was a marginally significant relationship between noise exposure and baseline systolic blood pressure, $F(1, 109) = 3.03, p < .08$. (Degrees of freedom vary throughout because of missing data and in the case of blood pressure readings, because some readings were clearly incorrect.) Baseline diastolic blood pressure was unrelated to noise exposure, $F(1, 109) < 1.0$. Baseline measures were calculated by taking the average of three resting indices from Day 1 and three resting measures from Day 2. On each day, an initial resting blood pressure reading was taken to help desensitize children to the procedure. This initial reading is not included in the results reported here. The blood pressure analyses include a covariate (ponderosity) for body fat.

Cardiovascular reactivity

There was significantly lower reactivity in systolic blood pressure among children chronically exposed to aircraft noise in comparison to their quiet-community counterparts, $F(1, 109) = 15.62, p < .001$ (see Table 1). Diastolic reactivity was unrelated to chronic noise conditions, $F(1, 109) < 1.0$. Cardiovascular reactivity was calculated by subtracting the resting baseline index from the initial blood pressure reading during the prose reading for the long-term memory task.

Cognitive

Attention

As shown in Table 2, children from noisy communities chose a lower signal-to-noise ratio than did those from quiet communities, $t(103) = 1.78, p < .05$ (one-tailed). The type of background noise (road, aircraft, broadband) did not interact with the main effect of community noise level. Noisy children's habituation to auditory distractors generalized across different types of noise. Preferred volume level for the signal (story reading) under quiet conditions was equivalent between the two groups, $t(103) < 1.0$. The two noise groups did not differ in

Table 1. *Psychophysiological measures*

Variable	Quiet communities	Noisy communities
Epinephrine	368.62 ng/hr	526.36 ng/hr
Norepinephrine	766.22 ng/hr	1,108.82 ng/hr
Cortisol	3.62 µg/hr	3.75 µg/hr
Resting diastolic blood pressure	63.56 mm Hg	63.39 mm Hg
Resting systolic blood pressure	100.73 mm Hg	102.65 mm Hg
Reactivity diastolic blood pressure	-0.71 mm Hg	-0.34 mm Hg
Reactivity systolic blood pressure	1.66 mm Hg	-3.31 mm Hg

Chronic Noise and Psychological Stress

Table 2. Cognitive measures

Variable	Quiet communities	Noisy communities
Signal/noise	10.87 dB	6.81 dB
Embedded figure (number correct: 0-12)	5.60	6.10
Reaction time (quiet conditions)	440.7 ms	450.0 ms
Reaction time (noisy conditions)	438.0 ms	454.0 ms
Long-term recall (number correct: 0-25)	5.76	4.54
Reading (number of errors)		
Text	41.30	50.80
Word recognition	4.57	7.10

performance on the embedded figures task, $t(131) < 1.0$, nor in reaction times either under quiet ($t(108) < 1.0$) or under noisy ($t(108) < 1.0$) testing conditions.

Memory

On the long-term recall task, children from noisy communities performed worse than their counterparts, $t(130) = 2.13$, $p < .05$. There were slight reductions in working memory span among children chronically exposed to noise. Only one of these differences was statistically significant (the fifth serial position from the last item presented).

Reading

As shown in Table 2, children from noisy communities had significantly more errors on the text subscale of the German standardized reading test than children from quiet communities, $t(127) = 2.02$, $p < .05$. On the word list subscale, children from the noisy and quiet areas differed on the most difficult section of the test, $t(125) = 2.10$, $p < .05$. The two groups did not differ on the easy and intermediate portions of the test. Children from the two groups completed equivalent portions of both the prose and the word list tests.

Motivation, Annoyance, and Quality of Life

Motivation

Children from noisy communities persisted less than children from quiet communities on the insoluble puzzle in the aftereffects task, $t(130) = 2.35$, $p < .02$ (see Table 3).

Annoyance

Children living in noisier areas were significantly more annoyed by the noise in their communities, as indexed by calibrated community measures, $t(132) = 2.17$, $p < .05$. The raw, uncalibrated scores showed the same trend.

Quality of life

As can be seen in Table 3, trends on the KINDL index were generally in the expected direction, but only the difference on the psychological subscale proved statistically significant, $t(124) = 2.47$, $p < .01$.

DISCUSSION

This article demonstrates the value of integrating psychological principles into the environmental sciences. Psychophysiological stress processes linked to coronary heart disease; central cognitive processes, including speech perception, memory, and basic reading skills; motivation; and emotional affect are all associated with chronic exposure to noise among children.

Our data reveal a link between chronic exposure to noise in the community and elevated neuroendocrine markers of stress, along with marginally increased resting levels of systolic blood pressure. Similar small increments in blood pressure have been noted previously (Cohen et al., 1986), but these are the first data on neuroendocrine markers of chronic noise exposure. We also reveal differential cardiovascular reactivity in response to task demands as a function of chronic environmental stress. Our pattern of psychophysiological stress findings (elevated baseline indices, diminished reactivity to challenge) is potentially quite important to consider in light of theories about stress and disease. Chronic stressor exposure, particularly exposure to stressors unamenable to instrumental control, may deplete coping capacity, rendering the organism less able to mobilize resources when needed to respond to acute challenges (Lepore & Evans, in press). At the same time, chronically elevated baseline indices of neuroendocrine and cardiovascular functioning

Table 3. Motivation, annoyance, and quality-of-life measures

Variable	Quiet communities	Noisy communities
Motivation (number of attempts to solve insoluble puzzle)	6.77	5.48
Calibrated annoyance (broadband noise equivalents)	62.49	67.47
Quality of life ^a		
Psychological (11-55)	30.20	27.85
Physical (9-45)	26.88	26.91
Social (9-45)	26.42	26.06
Functional (11-55)	30.04	29.33

^aThe higher the score, the higher the quality of life.

can cause physical damage directly via changes in hemodynamics and arterial tissue structure and indirectly via suppressed immune functioning (Cohen, Kessler, & Gordon, 1995).

Several cognitive processes are associated with community noise levels. Prior studies have shown correlations between ambient noise exposure and reading levels (Evans & Lepore, 1993). We demonstrated this association with a standardized reading test administered under quiet, controlled conditions. All prior studies have utilized archival reading records of tests administered under ambient testing conditions in school and thus have confounded chronic levels of noise exposure with acute levels during the testing periods. An important policy question raised by our data is, once children fall behind in reading skills because of noise exposure, do these deficits persist, or continue to widen, with continued noise exposure? We also do not know whether noise-related reading deficits are reversible should children change their residence or if extensive sound attenuation is installed in buildings where the children spend most of their time (i.e., school, home).

The cognitive data reveal a mixed pattern of results. Long-term memory was worse among the schoolchildren from noisy communities. Asked to recall information from an interesting text they had read the day before, they performed less accurately than children from quiet communities. Similar trends have been shown in laboratory research on acute noise (Hygge, 1993). Chronic noise exposure may diminish working memory span, although the effects appear quite small.

Neither the embedded figures task nor the reaction time task revealed any associations with noise exposure. Both of these results replicate studies of acute noise (Broadbent, 1979; Smith & Jones, 1992).

Children chronically exposed to noise were less sensitive to distracting, background noise during a speech perception task than were children from quiet neighborhoods. The noise-exposed children consistently chose a lower signal-to-noise ratio when readjusting a speaker's voice against noisy background conditions. Moreover, this perceptual adaptation generalized across different noise sources. Broadband noise, road traffic noise, and aircraft noise all revealed the same pattern. Under quiet conditions, preference for volume level of the speaker's voice was the same for children from quiet and noisy neighborhoods. These perceptual adaptation findings are consistent with prior work suggesting that children cope with chronic noise exposure by tuning out auditory stimuli (Cohen et al., 1986).

Overall, the cognitive data add to the growing list of studies indicating selective impairments in cognitive functioning among children reared under poor environmental conditions. In young children, more complex, higher order skills, such as reading, problem solving, and comprehension of difficult materials, appear vulnerable to adverse environmental conditions (Cohen et al., 1986; Evans & Cohen, 1987; Wachs & Gruen, 1982). The perceptual adaptation findings also raise important questions about the long-term consequences of children's coping mechanisms. Children may cope with adverse environmental conditions by developing cognitive strategies (e.g., tuning out ambient noise) that have consequences for language acquisition and speech processing.

We adapted Glass and Singer's (1972) stressor aftereffect

paradigm to measure potential motivational impacts of chronic stressor exposure on the children. Children from noisy communities exhibited less persistence in task performance when challenged. These data conceptually replicate earlier findings utilizing a different paradigm to assess motivational deficiencies in children chronically exposed to crowding (Rodin, 1977) and to noise (Cohen et al., 1986). The potential role of adverse physical or psychosocial conditions in early motivational development is an important and largely neglected topic of psychological inquiry.

Children living in noisy communities find the levels of environmental noise where they live annoying. Both raw and calibrated, the magnitude estimations of annoyance indicate this trend. These children also rated the quality of life, particularly psychological, in their communities as poorer than did the children from quiet communities.

Although we demonstrated that the noisy and quiet communities were similar with respect to socioeconomic status, the correlational design of our study precludes causal conclusions. Nonetheless, our preliminary evidence warrants more intensive follow-up, utilizing prospective, longitudinal field studies of chronic environmental stressors and children's health and well-being.

To summarize, our results reflect a general pattern of adverse psychological stress reactions associated with chronic exposure to noise among elementary-school-aged children. The children who were studied showed no apparent auditory damage during standard audiometric examination. Both neuroendocrinological and cardiovascular indices of chronic stress were elevated; long-term memory, speech perception, and standardized reading test scores indicate deficits; and children living proximate to a major airport reported more annoyance and a lower quality of life than did children in quiet communities. These data are sobering when one considers that more than 10 million American schoolchildren are exposed to comparable noise levels and that worldwide population exposure to noise is escalating exponentially with accompanying industrial development (Suter, 1991). Psychological principles have much to offer to the conceptualization and analysis of environmental problems.

Acknowledgments—We are extremely grateful to the families who cooperated with this research project. We thank Sylvia von Mackensen, Gerhard Helm, Gunnar Söderqvist, and Christian Wigren for their dedication to this project. Financial support for this research came from the Society for the Psychological Study of Social Issues, the National Institutes of Health (ROI HL 4732 01A), the Nordic Noise Group, the Nordic Scientific Group for Noise Effects, the Swedish Environmental Protection Agency, and the German Research Foundation. The third author was also supported by the DFG Heisenberg Fellowship.

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(RECEIVED 6/17/94; ACCEPTED 10/9/94)

Aftereffects of Stress on Human Performance and Social Behavior: A Review of Research and Theory

Sheldon Cohen
University of Oregon

A review of experimental and correlational studies of the aftereffects of stress on performance suggests that these effects occur as a consequence of a wide range of unpredictable, uncontrollable stressors including noise, electric shock, bureaucratic stress, arbitrary discrimination, density, and cold pressor. Moreover, these effects are not limited to a restricted range of stressful situations that involve a lack of predictability and controllability over a distracting stimulus, but they can also be induced by increased task demand. Interventions that increase personal control and/or stressor predictability are effective in reducing poststressor effects. There is also evidence for poststimulation effects on social behavior that generally involve an insensitivity toward others following stressor exposure. Studies of exposure to environmental stressors in naturalistic settings report effects similar to those found in laboratory settings. Several theories (e.g., psychic cost, learned helplessness, arousal) are examined in light of existing evidence. Although some theories receive more support than others, it is suggested that the reliability and the generality of poststimulation effects occur in part because of a multiplicity of causes.

The notion that continued exposure to a stressor may produce effects that appear only after stimulation is terminated has been central to the stress literature for a number of years. This assertion is derived principally from an adaptive-cost hypothesis which suggests that although humans can often adapt to extreme conditions, there are cumulative costs of adaptation. An early form of this hypothesis, which emphasized the biological costs of the adaptive process, was proposed by Selye (1956). He asserted that after prolonged exposure to a stressor, one's adaptive reserves are drained, resistance breaks down, and exhaustion sets in. Others (Basowitz,

Persky, Korchin, & Grinker, 1955; Dubos, 1965; Milgram, 1970; Wohlwill, 1966) make similar points in regard to poststressor effects on behavior. In the words of Dubos, "Although man is highly adaptable and can therefore achieve adjustments to extremely undesirable conditions, such adjustments often have . . . indirect effects that are deleterious" (1968, p. 139).

The early empirical work on the aftereffects of stress focused on stressor effects on physical and psychological health. For example, there are a number of studies on the cumulative effects of disease, malnutrition, and toxic chemicals on normal bodily functions (see Dubos, 1965). There is also an extensive research literature on the association between subjects' reports of recent life changes and subsequent changes in somatic and psychological health (cf. Dohrenwend & Dohrenwend, 1974).

It was only recently, however, that the first experimental studies of the postexposure effects of stressors on behavior were reported (Glass & Singer, 1972). The major emphasis

Preparation of this article was supported by National Science Foundation Grant BNS 77-08576 and by National Institute of Environmental Health Sciences Grant 1 R01 ES01764-01.

The author is indebted to Gary Evans, David Krantz, and Myron Rothbart for comments on an earlier draft.

Requests for reprints should be sent to Sheldon Cohen, Department of Psychology, University of Oregon, Eugene, Oregon 97403.

of Glass and Singer's research program was on determining whether the cognitive context of a stressor mediated performance on tasks administered immediately after stressor termination. Based on earlier research which demonstrated that the ability (or perceived ability) to predict or escape an aversive event reduced both the aversive quality of the stimulus (e.g., Corah & Boffa, 1970; Pervin, 1963) and the resultant physiological response (e.g., Champion, 1950; Corah & Boffa, 1970; Stotland & Blumenthal, 1964), they hypothesized that performance following stress exposure may be similarly mediated by stressor predictability and perceived control over stressor termination.

Glass and Singer's (1972) early work was strongly influenced by the adaptive-cost hypothesis. Specifically, they suggested that deleterious effects on performance following exposure to unpredictable, uncontrollable stressors should occur because the substantial effort required to adapt to these aversive events would leave one less able to cope with subsequent demands and frustrations. Since predictable and controllable stressors were viewed as considerably less aversive, adaptation to these stressors would presumably require less effort and therefore would be less likely to impair poststimulation performance. At the completion of their research program, Glass and Singer concluded that exposure to unpredictable, uncontrollable stressors produces poststimulation deficits in performance on a number of tasks and that the ability to predict and/or control the stressor ameliorates these effects. However, they also concluded that the adaptive process is not responsible for these poststress performance deficits.

Since the publication of the Glass and Singer (1972) book there have been over 30 published studies on the poststimulation effects of stressors on performance and social behavior. Moreover, a number of cognitive and motivational explanations for the after-effects of stress have been offered and in some cases tested. This article reviews the existing laboratory and field research on the after-effects of stress on performance and interpersonal behavior and outlines a number of possible explanations for these effects. The re-

search review is divided into five major sections. The first section examines studies that have attempted to determine whether there are effects of unpredictable, uncontrollable stress on performance following stressor termination. The second and third sections examine those studies that attempt to ameliorate poststimulation effects by providing subjects with a predictable version of the stressor and/or with control over the stressor. The fourth section describes studies of the poststimulation effects of stress on social behavior, and the fifth section reviews naturalistic studies of stress aftereffects. Finally, the theory review examines each of eight alternative explanations for poststress effects on performance and social behavior in light of existing data and reevaluates the adaptive-cost hypothesis.

Research Review

Aftereffects of Unpredictable and Uncontrollable Stressors

Studies reviewed in this section compare performance after exposure to an unpredictable, uncontrollable stressor with performance in an experimental control condition in which there was either a less intense form of the stressor or no stressor exposure. A number of these studies also included conditions in which the stressor was predictable and/or controllable. These conditions are not discussed here but are presented in later sections.

Noise. Glass and Singer (1972) reported five studies that examined poststimulation effects after exposure to unpredictable, uncontrollable noise (pp. 47, 50, 52, 55, 80). Their studies typically involved approximately 25 minutes of exposure to 108-110-dB (A) random-intermittent bursts of a broadband conglomerate noise made up of a number of fairly typical urban sounds. During noise exposure, the subject worked on simple cognitive tasks. Autonomic response was monitored during stressor exposure. Immediately after the noise exposure period, one or more of three measures were administered to the subject: the Feather (1961) tolerance for frustration task (studies reported in Glass & Singer, 1972, pp. 47, 52, 55), a proofreading

task (Glass & Singer, 1972, pp. 47, 50, 52, 55, 80), and the Stroop (1935) Color-Word task (Glass & Singer, 1972, p. 80).

The Feather measure requires a subject to work on two soluble and two insoluble line puzzles for 15 minutes. The subject can only work on one puzzle at a time and cannot return to a puzzle after moving on to the next. The puzzles are presented so that the first and third are insoluble and the second and fourth are soluble. The criterion measure (amount of tolerance for frustration) is the number of trials—puzzle cards—or amount of time spent on insoluble puzzles. The proofreading task involves correcting misspellings, grammatical mistakes, incorrect punctuation, transpositions, and typographical errors. Each subject is usually given between 8 and 15 minutes (although nothing is said about time), and the quality of performance is measured as the percentage of errors not found of the total number of errors that could have been detected at the point the subject was told to stop. In the Stroop task, task stimuli are the names of four colors (green, red, orange, and blue), each of which is printed in one of the other three colors. For example, the word *green* may be printed in red, orange, or blue. The four color words are presented randomly over a series of trials, and the subject is asked to name the color in which the word is printed. A control version of the task, in which subjects are required to name the colors of sets of asterisks or zeros, is also administered to each subject. Stroop interference scores (on accuracy and speed) are obtained by subtracting a subject's score on the control stimuli from the subject's Stroop score.

Poststimulation deficits in performance occurred in all five of the studies and on all three of the tasks. Except for a lack of effect on the proofreading task in one study (p. 80), the effects were totally reliable. Moreover, Glass and Singer (1972, p. 47; see also, Glass, Singer, & Friedman, 1969, Experiment 1) reported poststimulation effects following exposure to 56-dB random noise as well as to the more intense 108-dB bursts.

There have been a number of successful attempts at replicating the poststimulation ef-

fects of unpredictable high-intensity noise on human performance. Thus Rotton, Olszewski, Charleton, and Soler (1978) reported less tolerance for frustration among subjects exposed to 80-dB (A) random-intermittent bursts of conglomerate noise than among subjects working in quiet. Likewise, Gardner (1978) found that subjects exposed to random-intermittent bursts of conglomerate noise at 100 dB (A) provided poorer poststimulation performance on a proofreading task than did subjects not exposed to noise. Percival and Loeb (in press, Experiment 1) found less tolerance for frustration among subjects exposed to random-intermittent, 95-dB (A), conglomerate noise than among subjects exposed to a continuous, soft (46-dB) broadband sound. Percival and Loeb did not, however, find poststimulation effects on proofreading performance.

Studies of the impact of variable continuous noise, when there are unpredictable components of the noise (e.g., aperiodic bursts of static or office noise), also report poststimulation effects. Thus Wohlwill, Nasar, DeJoy, and Foruzani (1976) found less tolerance for frustration among subjects exposed to 30 minutes of continuous 80–85-dB (A) conglomerate noise than among subjects working in quiet. Sherrod, Hage, Halpern, and Moore (1977) found similar effects for 18 minutes of continuous exposure to 94-dB (A) conglomerate noise. Finally, Rotton et al. (1978) found that those exposed to 15 minutes of meaningful speech (two lectures on phobias) at 80 dB (A) had less tolerance for frustration following stimulus termination than did a no-speech (quiet) control group.

Attempts by Harris (Note 1) to replicate the poststimulation effects of unpredictable noise were less fruitful. Harris reported three studies, one in which he used noise [85–105 dB (A)] from an automobile horn and two in which he used a conglomerate noise of similar intensity. All three of the studies included both fixed and random-intermittent noise conditions and a quiet control group. Harris failed to find postnoise performance decrements on either proofreading (Experiments 1 and 2) or a serial search task (Ex-

periment 3). It should be noted, however, that the average level of proofreading performance for his subjects was very low in all conditions, which suggests a floor effect.

A failure to replicate the postnoise effect was also reported by Frankenhaeuser and Lundberg (1974). After exposure to 40 minutes of aperiodic bursts of 65-85-dB (A) conglomerate noise, subjects did not show less (or more) tolerance for frustration than after working on a task without noise or after relaxing. The tolerance for frustration score in this study was the time that a subject was willing to spend on an insoluble task after an obligatory period of 80 minutes on that task. It is likely that because of the long period of required work, this measure is considerably less sensitive than the Feather measure, which has no obligatory work period.

Two studies reported by Moran and Loeb (1977) similarly failed to find a noise after-effect. Participants were exposed to recordings of aircraft overflights [peaking at 90-105 dB (A)] that were either continuous or random-intermittent. A quiet experimental control group was also included. There were no effects of the noise (continuous or random-intermittent) on either the tolerance for frustration or the proofreading task. The authors pointed out, however, that it is possible that neither of the noise conditions in these two studies was actually unpredictable, since aircraft noise peaks were always signaled by onset of the overflight noise. This explanation is supported by later work from Loeb's laboratory (Percival & Loeb, in press, Experiment 2) in which decreased persistence on the tolerance for frustration task was found to occur after exposure to random-intermittent bursts of conglomerate noise and after exposure to random-intermittent bursts of aircraft noise peaks (eliminating the gradual onsets and offsets) but not following exposure to recorded normal aircraft flyovers (which include gradual onsets and offsets). There were no effects of any of the noise exposure manipulations on poststimulation proofreading performance.

DeJoy (Note 2) failed to find poststimulation effects of either random or fixed-intermittent 85-dB (A) print shop noise on either

a proofreading or an insoluble anagrams task. Since the anagrams task was affected by task load during noise (discussed later), it appears that this task was sensitive to a post-stimulation effect but that the noise failed to produce the effect.

Although the Glass and Singer (1972) work suggests that poststimulation effects occur only following unpredictable noise, two studies reported similar deficits following exposure to high-intensity, steady-state (no unpredictable components) continuous noise. Thus Hartley (1973) found deterioration of performance on a five-choice reaction time task following a 20-minute exposure to 100-dB (A) continuous broadband noise, as opposed to exposure to the same noise at 70 dB. Broadbent (1979) similarly exposed subjects to a broadband continuous noise of either 55 or 85 dB (C). The interference score on the Stroop Color-Word task was not affected by the sound level of the previous noise exposure. However, after noise, but not after quiet, subjects named patches of colored inks relatively faster than they read color names printed in black. Since both the Broadbent and the Hartley studies were primarily concerned with variations in sound level (there were no no-noise control groups), the effects they reported may depend on variations in intensity rather than on stimulus predictability (cf. Broadbent, 1977). This argument receives inferential support from Broadbent's (1979) failure to find effects of the high-versus low-intensity sound on Stroop interference, which has been reliably affected in those studies that compared an unpredictable noise condition to a quiet control group.

As is apparent from Table 1, nearly all of the studies that used steady-state continuous and variable continuous noise found post-stimulation deficits in performance. As mentioned previously, it is possible that the effect of steady-state continuous noise depends on variations in intensity, whereas that of variable continuous noise depends on variations in predictability. As is apparent from Table 2, results of studies of random-intermittent exposure are less consistent. Possible reasons for the failure of a number of these studies to replicate the Glass and Singer

Table 1
Nature of Noise Stimulus and Aftereffect Measures in Studies That Used Continuous Noise

Study	Description of noise	Performance aftereffects measure	Duration of noise	Sound level	Mode of delivery
Broadbent (1979)	Broadband, steady state	Stroop interference	20 min.	85 dB (C)	Speakers
Hartley (1973)	Broadband, steady state	Color naming/reading names of colors*	40 min.	100 dB (A)	Speakers
Rotton, Olszewski, Charleton, & Soler (1978)	Meaningful speech	Five-choice reaction time*	15 min.	80 dB (A)	Earphones
Sherrod, Hage, Halpern, & Moore (1977)	Conglomerate (with aperiodic bursts of electronic static)	Tolerance for frustration*	18 min.	94 dB (A)	Speakers
Wohlwill, Nasar, DeJoy, & Foruzani (1976)	Conglomerate (with aperiodic bursts of office noise)	Tolerance for frustration*	30 min	80-85 dB (A)	Speakers
Moran & Loeb (1977) Experiments 1 and 2	Aircraft sounds	Tolerance for frustration, proofreading	14.34 min.	90-105 dB (A) peaks	Not reported

* The noise described was associated with a deficit in performance on that aftereffect task.

(1972) work (particularly, Frankenhaeuser & Lundberg, 1974; Moran & Loeb, 1977; Harris, Note 1) have been presented earlier and are noted in Table 2. There appear to be no consistent differences between those intermittent noise studies that found aftereffects and those that failed to find aftereffects on the number of noise bursts, duration of noise exposure, percentage of the total period that they were exposed to noise, sound level, and whether the noise was delivered through ear-phones or speakers.

In sum, the data on poststimulation effects of noise on performance are consistent for variable continuous and steady-state continuous noise and mixed for intermittent exposure. The relative reliability of the poststimulation effect following continuous as opposed to intermittent sound may be attributable to the greater exposure time (noise on) in continuous noise studies. Nevertheless, if we confine ourselves to those studies that used clearly unpredictable noise and reasonably sensitive aftereffects measures, even the intermittent literature provides considerable support for the reliability of the postnoise effect.

Crowding. Those who study the effects of crowding on human behavior have found it useful to distinguish between two kinds of density—social density and spatial density (cf. Loo, 1973). Social density is manipulated by varying the number of people occupying a fixed quantity of space, and spatial density is manipulated by varying the available space but keeping the number of people constant. Since there is evidence that the effects of density are to some degree dependent on this distinction (e.g., Baum & Koman, 1976), the following review of the effects of high levels of density on poststimulation performance will similarly distinguish between these two kinds of density.

In an early study of the aftereffects of spatial density, Sherrod (1974) had groups of eight female high school students perform a number of tasks in either a large or a small room. After 1 hour of exposure, subjects were moved into a large reception area. Each student, at her own desk, was administered the tolerance for frustration and proofreading

tasks. Those subjects who had been working in high density (small room) showed less tolerance for frustration than did their low-density (large room) counterparts. There were no differences on the proofreading task.

Similar postcrowding deficits on the Feather tolerance for frustration task are reported by Evan's (1979) with mixed-sex groups of 10 persons and by Nicosia, Hyman, Karlin, Epstein, and Aiello (in press) for both male and female groups with 4 persons. The latter study, however, failed to find any poststimulation effects of high density on a visual search task and a problem-solving task. In a final study, Aiello, DeRisi, Epstein, and Karlin (1977) reported that following 30 minutes of sitting in a room with 3 other subjects, female undergraduates who were crowded (small room) scored lower on two measures of creativity than did their uncrowded (large room) counterparts. In sum, all four of the existing studies of the aftereffects of spatial density reported poststimulation effects.

There are two studies of the poststimulation effects of social density. The first was conducted by Saegert, Mackintosh, and West (1975, Experiment 2) in a railroad station in midtown Manhattan. Male and female subjects were asked to do a number of tasks during a crowded or uncrowded time of day. After task completion, the subject was brought to a quiet secluded place and administered the Stroop Color-Word task. Whereas females who had been exposed to high levels of density performed more poorly on the Stroop than did their low-density counterparts, males performed better after high- than after low-density exposure. Although other studies have found interactions between density and gender on a number of dependent measures (see Sundstrom, 1978, for a review), the relationship between one's gender and whether one experiences stress in a particular high-density setting is still unclear. As a consequence, we do not know whether it is the males or the females who are experiencing stress in this situation, and thus it is impossible to determine whether these data indicate a poststress effect.

In a study by Dooley (1978), groups of

Table 2
Nature of Noise Stimulus and Aftereffect Measures in Studies That Used Random-Intermittent Noise

Study	Description of noise	Performance aftereffects measure	No. of bursts	Duration of noise	Percentage of time on	Sound level	Mode of delivery	Comments
Gardner (1978)	Conglomerate	Proofreading ^a	24	3.6 min.	15	100 dB (A)	Earphones	
Glass & Singer (1972) (pp. 47, 50, 52, 55, 80)	Conglomerate	Tolerance for frustration ^a Proofreading ^{a, b} Stroop ^a	23-25	3.6-5 min.	15-20	55 and 108 dB (A)	Speakers	
Percival & Loeb (in press)								
Experiment 1	Conglomerate	Tolerance for frustration ^a	24	3.6 min.	15	95 dB (A)	Speakers	
Experiment 2 ^c	Aircraft overflights Aircraft overflight peaks White noise Conglomerate noise	Proofreading Tolerance for frustration ^a Proofreading	16	7.13 min.	29	95 dB (A)	Speakers	
Rotton, Olszewski, Charleton, & Soler (1978)	Conglomerate	Tolerance for frustration ^a	60	9 min.	60	80 min.	Earphones	
DeJoy (Note 2)	Printing shop noise	Proofreading frustration	60	10 min.	33	85 dB (A)	Speakers	
Frankenhaeuser & Lundberg (1974)	Conglomerate	Tolerance for frustration	20	40 min.	50	65-85 dB (A)	Speakers	Insensitivity of measure of frustration tolerance
Harris (Note 1)								
Experiment 1	Auto horn	Proofreading	30	3.8 min.	12.5	85-105 dB (A)	Not reported	Possible floor effect on proofreading in Experiments 1 and 2
Experiment 2	Conglomerate	Proofreading	30	3.8 min.	12.5	85-105 dB (A)	Not reported	
Experiment 3	Conglomerate	Serial search	30	3.8 min.	12.5	85-105 dB (A)	Not reported	
Moran & Loeb (1977) Experiments 1 and 2	Aircraft overflights	Tolerance for frustration	14	4.6 min.	29	90-105 dB (A)	Not reported	Aircraft noise peaks were always signaled by the onset of overflight noise

^a The noise described was associated with a deficit in performance on that aftereffect task.

^b A proofreading effect was found in all but one study (Glass & Singer, 1972, p. 80).

^c Decreased tolerance for frustration occurred following aircraft overflight peaks and conglomerate noise but not following aircraft overflights and white noise.

either three or nine male undergraduates performed a simulated marketing task in a small room. In an experimental control group, a single subject performed the same task alone. After task completion subjects were moved to individual cubicles in which they were administered a proofreading task. Results indicated that the poststimulation effects in this study were mediated by individual differences in personal space needs. Both high- and low-density conditions (as opposed to the alone condition) had a negative impact on the proofreading quality of subjects with far (need more) personal space but not on those with close (need less) personal space. It appears that the mere presence of others in the small room, rather than the manipulated level of high density, acted as the stressor in this study. Moreover, those subjects who were most likely to experience stress when involved in close interactions with others (i.e., those with far personal space) showed aftereffects. Those less likely to experience stress (i.e., those with close personal space) did not show the effects. In sum, there is evidence for a postdensity effect in cases in which the close presence of others is likely to be experienced as stressing.

Task load. Three studies have indicated that subjects who experience a high task load perform more poorly following task completion than those assigned a low task load. Thus Coben and Spacapan (1978, Experiment 1) found in a four-choice reaction time experiment that those required to respond to 100 lights per minute had less tolerance for frustration following task completion than those responding to 50 lights per minute. There were, however, no effects of task load on proofreading performance. (This experiment controlled for subjects' perceptions of success-failure and thus is not explicable in those terms.) Hartley (1973) reports that those required to perform a serial reaction time task for the first 20 minutes of the experiment performed more poorly on the same task in the last 20 minutes than those who read during the initial stage of the study. (This effect may, of course, be attributable to boredom on the part of those required to perform the same task twice.) Similarly, Rot-

ton et al. (1978) found that the expectation that one would be required to recall a speech, even though one was never actually required to do so, resulted in lower tolerance for frustration following task completion than for those not expecting a recall test. DeJoy (Note 2), however, found no differences in tolerance for frustration (insoluble anagrams task) or proofreading following performance of a high- versus a low-load coding task.

Other social and nonsocial stressors. Glass and Singer (1972) also reported that poststimulation deficits in performance occur following electric shock, a frustrating experience with a bureaucracy, and an experience of arbitrary or sex discrimination. In the electric shock study (Glass & Singer, 1972, p. 110) those subjects exposed to unpredictable and uncontrollable shock performed more poorly on both the Stroop and proofreading tasks following exposure. A later study (Glass et al., 1973), found similar poststimulation effects of electric shock on the Stroop. Experiences of bureaucratic harassment (Glass & Singer, 1972, p. 124) similarly resulted in poorer proofreading for the harassed than for the nonharassed groups after the experience had ended, and the study of the effects of discrimination in the amount of pay received for participating in the experiment (p. 132) found that those who experienced discrimination performed more poorly on the Stroop following the experience than those who did not experience discrimination.

Conclusions. The previously cited studies provide evidence for both the reliability and generality of the poststimulation effect of stress on performance. These effects have appeared in the vast majority of studies, and these studies have used a wide range of stressors. The data suggest that the effect is most likely to occur when the stressor is clearly unpredictable and when a sensitive aftereffects measure is used. Moreover, factors that might mediate the stressfulness of the situation (e.g., subject gender and need for personal space in the social density studies) are important determinants of whether a particular manipulation will produce an aftereffect. The most reliable mea-

asures appear to be those used by Glass and Singer (1972), although the proofreading task has proved less reliable (e.g., Cohen & Spacapan, 1978; Glass & Singer, 1972, p. 80; Sherrod, 1974) than the Feather and Stroop tasks. The inconsistency of the proofreading measure may be attributable to the large variation among subjects' literary skills that often results in substantial error variance on proofreading scores. Although other measures have only been used in individual studies, poststimulation effects have been obtained on a serial reaction time task (Hartley, 1973) and a creativity task (Aiello et al., 1977). Aftereffects measures that have failed include visual search tasks (Nicosia et al., in press; Harris, Note 1) and a problem-solving task (Nicosia et al., in press). Since in all of the Glass and Singer studies and replications, the poststimulation tasks were administered shortly after stressor termination, there are no data on the time course of the effect.

Predictable Versus Unpredictable Stressors

Glass and Singer reported five studies that compared the poststimulation effects of predictable versus unpredictable noise. The first two studies (Glass et al., 1969, Experiment 1; see also, Glass & Singer, 1972, pp. 47, 52) compared fixed versus random-intermittent exposure to a broadband conglomerate noise made up of a number of fairly typical urban sounds. In both of these studies, those exposed to unpredictable noise performed more poorly than did the predictable noise group on both the tolerance for frustration and proofreading tasks. There was no difference between poststimulation performance of the predictable noise group and a no-noise control group. The first study also indicated that predictability of the noise was a more important determinant of poststimulation effects than was the intensity (56 vs. 108 dB) of the sound. In a third study (Glass & Singer, 1972, p. 55) predictability was manipulated by the use of signaled (by a light) versus unsignaled (light occurrence is random) noise bursts. Again, those exposed to unpredictable noise were less persistent on insoluble puzzles administered after noise

termination. The effect of unpredictable noise on proofreading was, however, not replicated.

Predictability was manipulated in two other studies that were primarily designed to assess the effect of inhibiting adaptation on post-stimulation effects. (See the section on Adaptive-Cost Hypothesis under Theory Review.) The first study was the only one in which Glass and Singer (1972, p. 141) reported a clear reversal of the predictability effect. For subjects working on difficult math problems during exposure, higher frustration tolerance and better proofreading occurred in the random-intermittent condition than in the fixed-intermittent condition. This was not true for those working on simple problems. The second study (Glass & Singer, 1972, p. 147) resulted in the usual predictability effect with those who were exposed to random-intermittent noise, whether the interburst intervals were 51 sec or 96 sec, performing more poorly on the proofreading task than those who were exposed to fixed-intermittent bursts.

Gardner (1978, Study 1, Table 1) similarly presented subjects with fixed or random-intermittent conglomerate noise of 100 dB. A proofreading task performed after noise exposure was performed more poorly by those exposed to unpredictable than by those exposed to predictable noise. Likewise, Percival and Loeb (in press) reported that subjects exposed to 24 minutes of 95-dB random-intermittent conglomerate noise showed less tolerance for frustration following exposure than either those exposed to equivalently intense fixed-intermittent sound or those exposed to a soft (46-dB) broadband sound. Studies by Harris (Note 1), Moran and Loeb (1977), and DeJoy (Note 2) described earlier also manipulated the predictability of the noise. As mentioned earlier, none of these investigations indicated aftereffects of either predictable or unpredictable sound.

In sum, the role of predictability in producing stress aftereffects has not received considerable attention since the publication of the Glass and Singer book. Existing evidence does, however, suggest that aftereffects are more likely to occur following exposure to the unpredictable rather than a predictable stressor.

Controllable Versus Uncontrollable Stressors

Glass and Singer (1972) reported a number of studies which indicated that the after-effects of stress occur following uncontrollable but not controllable stressors. First, there were two identical studies (pp. 64, 65) that used 108-dB aperiodic noise in which half of the subjects were instructed how to terminate the noise by pressing a button (perceived control). In fact, the perceived control subjects did not actually terminate the noise. In both studies, following noise exposure, those provided with perceptions of control over stimulus termination had more tolerance for frustration and performed better on the proofreading task than did their counterparts without perceptions of control.

In a third study, Glass and Singer (1972, p. 69; see also, Glass, Reim, & Singer, 1971) tested the proposition that indirect control (i.e., having access to another person who could terminate the noise) would be similar to having direct control over noise termination. Their hypothesis was confirmed. Following exposure to the 108-dB conglomerate noise, those with indirect control performed better than those lacking the perception that they (or their partner) could control the termination of the noise. In a final study, Glass and Singer (1972, p. 74) found that knowing that someone else was able to terminate the noise (for themselves) during the experiment but that one's own exposure could not be terminated (relative deprivation) did not increase poststimulation effects. However, as in previous studies, a proofreading task administered after stimulus termination was performed more poorly by those lacking perceived control than by those with control.

A replication of the aftereffects of noise that used a slightly different operation of perceived control is reported by Gardner (1978). An inability to replicate Glass and Singer when using an informed consent form that explicitly informed the subject that he or she could leave the experiment without loss of pay led Gardner to use the informed consent form as a way of manipulating control. Gardner reported that although it was impossible to replicate the aftereffects of unpredictable, uncontrollable noise with in-

formed consent, the effect was replicable when informed consent was not required. Unfortunately, those who received the informed consent were not only given the perception of control over termination of the stressor (i.e., they could leave at will) but also were making an explicit choice (to the extent of signing their names) to participate in the study prior to noise exposure. Thus, it is unclear whether the ameliorative effects of informed consent in this study are attributable to increased control or to increased choice and commitment.

Perceived control over the termination of the stressor was also examined in the previously described study of spatial density by Sherrod (1974). Besides the high-density (small room) and low-density (large room) conditions, an additional condition was included in which subjects were assigned to a high-density setting but were told that they could leave the room and work in a larger room if they so desired (density with perceived control). As in the noise studies, the perceived control subjects did not actually use this option. The high-density group showed the least persistence on the insoluble puzzles, followed by an intermediate level of persistence by those high-density subjects with perceived control, and finally, the most persistence was shown by the low-density group. As mentioned earlier, there were no effects on the proofreading task.

The previously described studies all provided subjects with the perceived ability to terminate the stressor, but in all cases subjects did not actually perform any coping responses. That is, they knew they could terminate the stressor but did nothing about it. A slightly different form of control was offered to subjects in a study of the after-effects of electric shock reported by Glass et al. (1973). During an initial trial block, all of the subjects received a series of 10 6-sec shocks and were required to press a reaction time key at the onset of each shock. During a second block of trials, the perceived control group was told that they could decrease the duration of each shock (from 6 to 3 sec) by maintaining a fast reaction time to the onset of the shock. For half of these sub-

jects, all shocks were halved (perceived control with reduction), and for the remaining subjects none of the shocks were halved (perceived control without reduction). Two experimental control groups received shocks of either 3 sec (no perceived control with reduction) or 6 sec (no perceived control without reduction) but were given no indication that shock duration was related to their behavior. Thus in this case, subjects with control were actually implementing that control by attempting to maintain fast reaction time. Performance on the Stroop, administered after the two blocks of shock trials were completed, indicated that subjects who were told that they could control the duration of the shock and ostensibly succeeded in doing so (perceived control with reduction) performed better on the Stroop than both of the no-perceived-control groups and better than the group given the expectancy that control was possible who actually failed to control (perceived control without reduction).

A number of studies of the learned helplessness phenomenon have also examined the effects of implemented control over a stressor on poststress performance. Compared with those with the ability to escape or avoid loud noise, those lacking control subsequently performed more poorly on anagrams (Gatchel, McKinney, & Koebernick, 1977; Hiroto & Seligman, 1975), a concealed figures test (Krantz & Stone, 1978), and a proofreading task (Krantz & Stone, 1978). In contrast to the previously described studies, subjects in the unavoidable, unescapable stress conditions in these studies experienced failure as well as stress. (The unavoidable stress conditions in these studies are similar to the perceived control no-reduction condition in the study by Glass et al., 1973, described previously.) The fact that control and success-failure are confounded in these studies makes it difficult to assess whether the mechanisms involved are the same as in the other aftereffects work (cf. Cohen, Rothbart, & Phillips, 1976; Griffith, 1977).

Two recent studies of helplessness induced by exposure to uncontrollable bursts of noise (tones) provide data that are inconsistent with those reported in the aftereffects litera-

ture (Gatchel, Paulus, & Maples, 1975; Gatchel & Proctor, 1976). Both of these studies included an experimental control group in which subjects were instructed to merely sit and passively listen to loud tones (no success or failure). This condition is similar to an unpredictable, uncontrollable stressor condition in the aftereffects paradigm and thus would be expected to result in poststimulation deficits in performance. Although a learned helplessness group, who thought they could escape the noise but actually could not, showed poststimulation deficits on an anagram task, the group who passively listened to the tones did not show deficits. The noise dose in these experiments, however, was small in comparison with previously cited noise studies.²

The research discussed previously has been limited to studies that provided control over the termination of a stressor. A study of the aftereffects of noise by Sherrod et al. (1977) extended this work by investigating the relative contribution of control over initiation of the stressor as well as over termination. Subjects with initiation control were allowed to choose whether they would be exposed to noise. The experimenter stressed, however, that for the purposes of the study, he would prefer that they turn the noise on (they all did). Subjects without initiation control were given no such choice. Termination control was provided in the same way as in the Glass and Singer studies. Following noise exposure the Feather task was administered. Sherrod and his colleagues reported that the least

² At the beginning of both of these studies, the subject, after hearing a sample tone, was offered the opportunity to withdraw from the experiment. As we outline later in this article, such a choice, by providing a form of control over the situation, is likely to ameliorate any poststimulation effects (cf. Sherrod et al., 1977). If we assume that the learned helplessness effect in these studies was a response to failure and not to a lack of control, it is possible that the ability to choose whether to participate in the study ameliorated control-related effects for the passive listening group but did not affect the learned helplessness (failure) group. Admittedly, however, these studies constitute an additional failure to replicate postnoise effects, and this post hoc explanation must be viewed as only tentative.

tolerance for frustration was shown by those who lacked any kind of control over the noise, intermediate tolerance was shown by those with initiation control, termination control caused an even greater increase in tolerance, and combined control (both initiation and termination) caused the greatest increase. Thus although initiation control was not as effective as termination control, increasing overall perceptions of control by combining initiation and termination was the most effective intervention.

In a field study of the stress involved in donating blood, Mills and Krantz (1979, Experiment 1) investigated the roles of providing information about a threatening event and of providing choices about that event in mediating poststress response. Information and choice were both conceptualized as forms of personal control because they presumably allow one to alter or affect their outcomes. In this study, blood donors were offered or not offered a choice of which arm blood would be drawn from. This manipulation offers some control over the procedure but not directly over either the initiation or termination of the stressor. Also, although all donors received some information prior to the procedure, in half of the cases (high information) this information dealt with the details of the procedure and the sensations the donor might expect, whereas in the remaining cases (low information) the information was limited to a general description of the Red Cross blood donor program. The Stroop Color-Word test was administered during the donor recovery period. There were no differences between conditions in Stroop performance. However, the authors pointed out that the nursing interventions during the procedure and the refreshments given to donors following the procedure precluded an adequate assessment of aftereffects in this setting. In addition, the time that elapsed between the stress experience and the aftereffects measure was long in comparison with previously discussed studies in which the aftereffects measures were administered either immediately or after a short respite.

A laboratory study of cold stress by the same authors (Mills & Krantz, 1979, Ex-

periment 2) similarly manipulated information about the stress experience and choice of hand to be placed in the cold water. In this case, however, those who were allowed to choose the hand to be used could also elect to remove their hand from the cold water if they chose to do so. The proofreading measure was administered following stressor exposure. Subjects with choice of hand and perceived control over stressor termination (high choice) were more accurate proofreaders than those given neither choice nor the perception of control (low choice). Also under low-choice conditions, providing information led to improved performance, whereas under high-choice conditions, providing information made little difference. It appears that in this case combining two forms of control did not further decrease poststress effects. It should be pointed out, however, that the high-choice condition itself involved two forms of control (hand choice and immersion time in cold water). Thus, it might be more accurate to conclude that the addition of a third form of control did not decrease poststress effects.

In a final study, DeJoy (Note 2) compared posttask performance of subjects who had some control over a difficult coding task (self-paced) with the performance of subjects who lacked task control (experimenter-paced). The two conditions were yoked (average stimulus exposure time of self-paced subject used for experimenter-paced subject) to equate conditions on time on task. Experimenter-paced subjects performed more poorly on an insoluble anagrams task (tolerance for frustration) administered immediately following completion of the coding task than did self-paced subjects. There were no effects on the proofreading task.

Conclusions. The data are almost unanimous in supporting the role of both perceived and implemented control over termination of a stressor in ameliorating stress aftereffects. In some cases those groups with control performed as if they were not exposed to a stressor (e.g., Gardner, 1978; Glass et al., 1973), whereas in others (e.g., Sherrod et al., 1977) control provided some improvement in poststress task performance but did not com-

pletely ameliorate the effect. The single study of initiation control similarly suggests a lessening in poststress performance deficits. Initiation control does not, however, appear to be as effective as termination control. There is also some mixed evidence that providing subjects with choice over an aspect of the stress situation and/or with information about the procedure and expected sensations similarly lessens the poststimulation impact of the stressor.

Is providing someone with more than one kind of control a more powerful intervention than providing them with a single mode of control? The combination of initiation and termination control does prove to be more effective than either of these modes alone (Sherrod et al., 1977). However, the combination of two kinds of choice and one kind of information control does not seem to be more effective than either of these modes alone (Mills & Krantz, 1979). It could be that combined modes of control do help to reduce poststress performance deficits until one reaches levels equivalent to performance following no-stress conditions (as in the Sherrod et al., 1977, study), but additional control is unimportant if that level is already reached (as in Mills & Krantz, 1979).

The research clearly demonstrates that providing one with increased control over a stressor or over a stress setting decreases deficits in poststimulation performance. None of the reviewed studies, however, have investigated whether increased control over a setting is beneficial when there is no stressor present. (This assumes that the demanding coding task used in the DeJoy, Note 2, study was experienced as a stressor.) That is, since none of these studies included a condition that provided control over a nonstressing setting (e.g., perceived ability to leave if the experiment is not fun or choice of task or task order on a simple task), it is unclear whether there is an interaction between stress and control or a main effect for control. Since there is some evidence that perceived control over a simple task setting may improve performance in that setting (Perlmutter & Monty, 1977), an overall rather than stress-specific effect of control does seem possible.

Aftereffects on Social Behavior

Recent studies on the poststimulation effects of uncontrollable stress on social behavior have extended the scope of the original aftereffects research. For example, two studies have reported decreased poststimulation helping after exposure to unpredictable, uncontrollable stress. In an experiment by Sherrod and Downs (1974), subjects performed a task while listening to either a recording of a soothing simulated seashore or a stressing recording of dixieland jazz plus a male voice reading nonrelevant prose. In a third condition subjects listened to the stressing tape but were told that they could terminate the distracting stimulus if they wished (perceived control). After the completion of the 20-minute experiment, subjects left the laboratory and were confronted by a second experimenter who asked for voluntary help in pretesting some experimental materials. Subjects who listened only to soothing seashore sounds volunteered the most times, followed by subjects who listened to the stressing tape but who had perceived control, followed finally by stress-without-control subjects. Thus, exposure to uncontrollable stress decreased poststimulation helping with the addition of control over the termination of the noise partially ameliorating these effects.

Similar results were found in a study of the aftereffects of density and task load conducted in a large shopping center (Cohen & Spacapan, 1978, Experiment 2). Subjects were required to perform high- or low-information rate shopping tasks during periods in which the shopping center was crowded or uncrowded. After completing their task, subjects (on their way to meet the experimenter) entered a deserted corridor in which they encountered a woman who feigned dropping a contact lens. Those subjects who performed high-load tasks and/or were crowded helped less often and for less time than their low-task-load, uncrowded counterparts.

Increased aggressive behavior following exposure to uncontrollable stress was reported by Donnerstein and Wilson (1976). In their experiment, subjects completed a math task under either quiet, high-intensity noise or

high-intensity noise with perceived control over the termination of the noise. Following noise exposure, half of the subjects were angered (by the person they would later aggress against) and half of the subjects were not angered. Angered (but not nonangered) subjects with no control revealed an increase in aggression, whereas the level of aggression of perceived-control subjects was no different than that of no-noise subjects.

Three studies described earlier also used poststress measures of social behavior. Thus Rotton et al. (1978) found that both loud speech and the combination of conglomerate noise and a taxing task reduced one's ability to differentiate among people occupying different roles. Epstein and Karlin (1975) reported that groups of men who were crowded were less cohesive and more competitive following the stress experience. Women, however, were more cohesive and less competitive following the crowded versus noncrowded experience. Finally, Dooley (1978) failed to find any relationship among social density, volunteering for a future experiment, or rating of attractiveness of same-sex persons.

Overall, it appears that exposure to unpredictable and uncontrollable stress is followed by a decreased sensitivity to others. This includes a decrease in helping, a decrease in the recognition of individual differences, and an increase in aggression.

Naturalistic-Correlational Studies of Aftereffects

A number of recent studies have investigated the impact of living and/or working in a stressful environment on task performance and social behavior outside of the stressing environment. For example, several investigators have examined the effects of prolonged exposure to community noise on the performance of elementary school children. In one study, Cohen, Glass, and Singer (1973) tested children living in apartment buildings built on bridges spanning a busy expressway. When tested in a quiet setting, children who lived in noisier apartments showed greater impairment of auditory discrimination and reading ability than did those who lived in quieter apartments. The length of residence increased

the magnitude of the correlation between noise and auditory discrimination. Additional analyses ruled out social class variables and hearing losses as possible explanations. A study of children attending school in the air corridor of a busy metropolitan airport (Cohen, Evans, Krantz, & Stokols, 1980) indicated that children living and attending school in the air corridor were poorer on both a simple and a difficult puzzle-solving task and were more likely to give up on the task than their quiet neighborhood counterparts. Again, there were controls for social class and for hearing damage. Unlike the apartment noise study, this study did not find that children from noisy environments (schools) had poorer verbal abilities.

A study of 4½- to 6½-year-old children from homes described by their parents as either noisy or quiet similarly suggests poorer post-stimulation task performance on the part of children from noisier homes (Heft, 1979). The children performed a simple matching (visual search) task and then were administered a recall test for some of the incidental stimuli in that task. Children from noisy homes performed more poorly on both the matching and incidental memory tasks than those from quieter homes. Performance on a second matching task indicated similar deficits for children from noisy as opposed to quiet homes. Analyses controlled for age, preschool experience, and income level of parents. It should be noted, however, that self-reports of noise level do not usually correlate highly with objective noise measures (cf. Kryter, 1970) and thus limit the generality of these findings.

Two naturalistic investigations of crowding also suggest effects that occur outside of the stressing environment. Baum and Valins (1977) reported a number of studies of the behavior of dormitory residents who, because of dormitory design, were exposed to prolonged and repeated personal encounters with large numbers of other residents (long-corridor residents) versus those whose forced encounters included a comparatively small number of others (short-corridor and suite residents). Under controlled conditions outside of the dormitory, those who had a large

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number of personal encounters showed less group consensus after a discussion, sat further away from, spent less time looking at, and initiated fewer conversations with a stranger (confederate), used a withdrawal strategy more often in a prisoner's dilemma game, and were less likely to assert themselves by asking questions in an ambiguous situation.

Two studies reported by Rodin (1976) similarly suggest aftereffects of residential density. In the first study 6-9-year-old children from high-density apartments of a low-income housing project were less likely than children from less dense homes from the same project to control (choose) their own outcomes. In a second study, eighth-grade children from high-density apartments were more adversely affected by a learned helplessness pretreatment—insoluble puzzles—than were their low-density counterparts. These effects persisted even after statistical control for social class and race were used.

The studies discussed previously suggest that prolonged exposure to a stressor is associated with a number of poststimulation effects on performance and social behavior. Although it is likely that some of these effects are specific to the stressor (e.g., the tendency of those who are forced into constant contact with others to avoid strangers in the Baum and Valins work), a number of the studies indicate a more general helplessnesslike effect (Baum & Valins, 1977; Cohen et al., 1980; Rodin, 1976). It is important to emphasize that these studies are all correlational and thus do not allow causal inference.

The Meaning of the Stressor and the Meaning of the Control Manipulation

Although the data on the effects of uncontrollable stressors on poststimulation performance and social behavior is reasonably consistent, there have been a number of published and unpublished² failures to replicate these effects. These inconsistencies are probably inevitable given the complexity of the situation being presented to a subject. First, it is likely that our responses to loud noise and to other potentially stressing stimuli are

mediated by cognitions other than control, and we may often unintentionally invoke such cognitions in our laboratories. For example, Cohen (in press) has outlined a number of situational characteristics of laboratory settings that may affect the meaning of the potential stressor for the subject and consequently, whether it will produce stress-related responses. Among others, these factors include (a) whether the participants in the study are aware that the exposure to the aversive stimulus will last for only a short period (cf. Altman, 1975), (b) the salience of the implied contract between the experimenter and the subject that suggests no harm will come to the subject during the experimental procedure, (c) whether the subject chose to participate in the study and whether an informed consent slip was signed.

Averill (1973) has pointed out that the stress-reducing properties of a personal control intervention similarly depend on the meaning of the control response for the individual. Thus telling a subject that pressing a button will terminate a loud noise may or may not suggest that he or she has control over the termination of the stressor. One alternative interpretation of this intervention might be that the stressor must be pretty dangerous if the experimenter needs to provide an escape mechanism.

Theory Review

Adaptive-Cost Hypothesis

Glass and Singer's (1972) working hypothesis was that the process of adaptation requires cognitive work. This work included searching for appropriate coping responses and/or attempting to redefine the stimulus. Moreover, they assumed that the work required to adapt to unpredictable and uncontrollable stressors was substantially greater than that required to adapt to predictable and controllable stimulation. According to Glass and Singer, the adaptive-cost hypothesis predicts that poorer performance on aftereffects tasks should vary directly with degree

² Unpublished research conducted in my own laboratory. (See, also, Baddeley, Note 3; Evans, Note 4; Stokols, Note 5.)

of adaptation, since a greater degree of adaptation implies a greater amount of adaptive effort. Presumably, increased adaptive effort would deplete one's available psychic energies and would thus result in deficits on subsequent demanding tasks.

Glass and Singer (1972) presented two arguments that led them to discard this hypothesis. First, they assumed that decrements in galvanic skin response (GSR) to noise and shock are valid indices of the cognitive effort involved in adaptation. This follows from their assumption that the greater the adaptation, the greater the amount of adaptive effort. There were no significant correlations between aftereffects scores and indices of GSR adaptation for subjects in various conditions. Thus there was no evidence for differential cognitive work. Second, they assumed that a situation in which one was exposed to unpredictable stress but in which adaptation was inhibited would not result in poststimulation effects. This should be true, since a lack of adaptation implies a lesser degree of adaptive effort. They were successful in inhibiting physiological adaptation in two studies (pp. 141-153) but found poststimulation effects even in the conditions in which subjects did not physiologically adapt. They thus concluded that "it is not the adaptive process that causes adverse aftereffects" (p. 153).

Although the authors describe the effort of adaptation as a cognitive process of searching for appropriate coping strategies and of redefining the stimulus, they take physiological evidence based on one index of autonomic response as the measure of adaptation. Existing knowledge concerning the relationship between cognition under stress and corresponding physiological fluctuations is equivocal at best (cf. Kahneman, 1973). Moreover, it is likely that those subjects who were prevented from physiologically adapting worked just as hard (if not harder) to cope with and redefine the stressor. In other words, it is possible that a significant amount of effort may be expended even if adaptation does not occur. Thus, aftereffects may occur because of the adaptive process even when adaptation fails. In sum, although the Glass

and Singer (1972) data do not provide support for the adaptive-cost hypothesis, neither do they provide convincing evidence to justify its rejection. Unfortunately, none of the more recent studies have attempted direct tests of this explanation.

Information Overload

An alternative form of a psychic cost hypothesis was recently proposed by Cohen (1978). He argued that unpredictable, uncontrollable stressors, because they are potentially threatening, substantially increase demands on attentional capacity. This increased demand might occur because individuals are required to continually monitor potentially threatening stimuli to evaluate their adaptive significance and to decide on appropriate coping responses (cf. Lazarus, 1966). Increased demand may also occur because of effort required in tuning out or inhibiting response to the distracting stimulus. Cohen further suggested that an individual's attentional capacity is not fixed but shrinks when there are prolonged demands. This shrinkage or *cognitive fatigue* presumably increases with both the attentional load of an activity and the duration of an activity. Thus prolonged exposure to an environmental stressor and/or to a high information rate task should result in cognitive fatigue—an insufficient reserve of attention to perform demanding tasks.

What are the implications of the cognitive fatigue hypothesis for the performance of ongoing and subsequent tasks? Task duration under experimental conditions is usually limited to between 20 minutes and an hour. Although this may be sufficient to cause a significant decay in available capacity, it may not affect performance on an ongoing task that by that point is well practiced and requires little effort. Subsequent tasks, however, that demand considerable attention on the part of the subject would be sensitive to fluctuations in available processing capacity. Thus we would expect depletions in attentional capacity resulting from prolonged task and environmental demand to be manifest in deficits on difficult tasks administered immediately after termination of the principal task.

Three recent studies (mentioned earlier) have provided direct support for the cognitive fatigue hypothesis. All three suggested that those experiencing a high task load perform more poorly on subsequent tasks than those experiencing lower task loads. For example, Hartley (1973) reported that both increased task load and increased noise result in poorer performance on a subsequent serial reaction time task performed in quiet. Moreover, there is an additive effect of task load and noise on poststimulation performance. Rotton et al. (1978) similarly reported that deficits on the Feather tolerance for frustration task increase with both task load of a previous task and the addition of noise to that task. Again, there is an additive effect when these conditions are combined. In a final study, Cohen and Spacapan (1978, Experiment 1) reported that deficits on the tolerance for frustration task (but not on the proofreading task) increased as task demand and task duration of a previously performed task increased. Moreover, self-reports of mental fatigue similarly increased with both task load and task duration. Thus subjects' self-perceptions were consistent with both the predictions of the cognitive fatigue hypothesis and the data from the tolerance for frustration task.

A study reported by Wohlwill et al. (1976) is not, however, consistent with the cognitive fatigue hypothesis. They reported that subjects who listened to noise but did not perform a concurrent task showed the same aftereffects as those who worked on a task while listening to noise. Since performing a task under noise should demand greater attentional capacity than merely being exposed to the noise, the cognitive fatigue hypothesis would suggest that the noise plus task condition would show a greater magnitude of aftereffects. Interpretation of this study is difficult, however, since the no-task subjects were given instructions that may have led them to assume that they were expected to process (possibly remember) task stimuli. Unfortunately, the investigators did not administer any self-report measures of cognitive fatigue or ask subjects how they perceived the experimental situation.

Cohen also suggested that posttask (or poststress) attentional deficits can have detrimental effects on interpersonal behavior. He argued that lacking adequate attention reserves, an individual sets priorities for use of his or her attention. The most common strategy is to focus available attention on inputs most relevant to one's own goals, neglecting other cues, social and nonsocial alike (cf. Milgram, 1970). Important social cues that are often neglected when attention is restricted include those that carry information concerning the moods and subtly expressed needs of others. The neglect of such cues results in a lowered probability of helping another, expressing sympathy for another, or reacting appropriately to another's needs. Other proposed social consequences of attentional focusing following high attentional demand include oversimplification and distortion in the perception and evaluation of communications and persons.

Evidence for the contention that conditions leading to cognitive fatigue will result in less sensitivity to others comes from a number of recent studies. In a study conducted in a field setting (Cohen & Spacapan, 1978, Experiment 2), after performing a high-load shopping task, subjects were less likely to help a woman search for a contact lens than their counterparts who performed a low-load task. Similarly, subjects who had been crowded were less likely to help than those who had not been crowded. Again, there is an additive effect in the high task load, high-density condition. Rotton et al. (1978) reported increased difficulty in differentiating between people who occupy different roles following both increased task load and noise exposure. Thus it appears that poststimulation task deficits and insensitivity to social cues can be induced by manipulation of task load as well as by unpredictable stress. Previously cited studies on poststress aggression (Donnerstein & Wilson, 1976) and poststress helping (Sherrod & Downs, 1974) can be similarly viewed from this perspective.

Learned Helplessness Theory

Glass and Singer (1972; see, also, Seligman, 1975) suggested that aftereffect deficits

are attributable to learned helplessness. They argued that subjects who are unable to predict and control a stressor learn that their reinforcements are independent of their responses, which results in motivational decrements that are manifested in poorer performance on poststimulation tasks. Such an interpretation requires at least two assumptions: (a) Learned helplessness can be induced when performance on the experimental task (task performed during stressor exposure) is not instrumental in escaping or avoiding the aversive stimulus; and (b) helplessness will generalize to a wide range of cognitive tasks, including tasks that do not require a direct problem-solving strategy. (Test tasks used in learned helplessness studies usually require subjects to initiate responses in a trial-and-error fashion; cf. Wortman & Brehm, 1975.)

Evidence relevant to this last assumption has been reported by Cohen et al. (1976). These authors found that task impairment on the Glass and Singer aftereffects tasks can be replicated when a more standard learned helplessness pretreatment is used. Employing a pretreatment used by Roth and her colleagues (e.g., Roth & Bootzin, 1974) in previous studies, Cohen et al. found that subjects who received noncontingent reinforcement showed deficits on the tolerance for frustration and the Stroop color word task similar to the deficits found by Glass and Singer for subjects exposed to uncontrollable noise. Further support for the helplessness explanation is provided by a study by Glass and Singer (1972) in which subjects who were told that solving experimental puzzles would terminate the noise, but who actually received insoluble puzzles, took more time to solve a final puzzle that was soluble than those subjects who had been working on soluble puzzles and perceived that they were shortening noise exposure (p. 89). Both of these studies confounded controllability and success-failure. (Cohen et al. did attempt to minimize this effect by yoking the contingent and noncontingent groups on number of reinforcements and number of trials.) As mentioned earlier, a number of learned helplessness studies involved the administration of

escapable or unescapable noise. However, since controllability and success-failure are also confounded in these studies, it is unclear whether they are appropriate analogs of the aftereffects paradigm.

The strongest source of support for the learned helplessness interpretation comes from the naturalistic studies of stress aftereffects. Work in crowded college dormitories (Baum & Valins, 1977), in high-density low-income housing (Rodin, 1976), and in schools located in the air corridor of a busy urban airport (Cohen et al., 1980) all suggested that those living under environmental stress show behavioral manifestations of helplessness.

Although the above data lend support to the helplessness hypothesis, there are recent data that call the helplessness interpretation into question. Seligman (1975) argued that a major consequence of experience with uncontrollable events is motivational—undermining the motivation to initiate voluntary responses that control other events. One manifestation of the motivational deficit is that “helplessness retards the initiation of aggressive as well as defensive responses” (Seligman, 1975, p. 33). A study by Donnerstein and Wilson (1976), however, indicated that after stimulation is terminated subjects who lack control over noise are more (not less) likely than subjects with perceived control over the noise to shock a person who angers them.

The helplessness interpretation is especially compelling because it provides an obvious explanation for poststimulation effects on the extremely reliable Feather task. That is, less persistence on a difficult task is characteristic of helplessness. It is, however, difficult to explain why increased task load would lead to helplessness, especially when success feedback is held constant across conditions (Cohen & Spacapan, 1978, Experiment 1). Moreover, helplessness is accompanied by a relatively negative affective state (Gatchel et al., 1975; Miller & Seligman, 1975; Pittman & Pittman, 1979; Seligman, 1975). Yet aftereffect studies generally reported no differences between conditions in reported affect following stressor exposure (e.g., Cohen & Spacapan, 1978;

Glass & Singer, 1972; Mills & Krantz, 1979, Experiment 2; Pennebaker, Burnam, Schaeffer, & Harper, 1977; Wohlwill et al., 1976). In addition, the overall mood tone of subjects in all conditions is sometimes positive (e.g., Cohen & Spacapan, 1978; Wohlwill et al., 1976).

Arousal Theory

A number of investigators have mentioned the possible role of arousal in producing after-effects (e.g., Evans, 1978; Glass & Singer, 1972; Poulton, 1978). The most popular form of this theory assumes that those exposed to uncontrollable and unpredictable stressors show higher levels of arousal immediately following exposure than those exposed to predictable and/or controllable stressors. How would increased arousal affect poststimulation task performance and social behavior? It is generally believed that there is an optimal level of arousal for performance of a particular task (cf. Poulton, 1970). Performance increases with increments in arousal up to that optimal point and decreases as the arousal level increases above that point (the classic inverted U curve). This proposed relationship between arousal and task performance is often attributed to a narrowing of attention that occurs under conditions designed to induce arousal (Easterbrook, 1959). The first inputs to be reduced (dropped out) are those that are irrelevant or only partially relevant to task performance. As arousal increases, attention is further restricted and task relevant cues are also neglected. In some tasks, proficiency demands the use of a wide range of cues (e.g., dual-task performance or single tasks that require the integration of information from many sources). Any narrowing of attention is likely to adversely affect performance of such tasks because remaining attention would likely be less than that required to process task-relevant cues. In other tasks, proficiency demands the use of only a restricted range of cues. Such tasks improve with moderate reductions in attentional span (improvement in performance occurs only to the extent that reducing competing cues facilitates a particular task) but are detrimentally affected

when available attention falls below that required to process task-relevant cues. Thus, continued reduction in attentional span will improve and then impair performance.

It follows that the optimal level of arousal (and thus attentional focus) varies with the complexity (number of cues required) of the task. Optimal levels of arousal for complex tasks are lower than those for simple tasks. Thus high levels of arousal, like those that are presumably elicited by laboratory stress manipulations, are usually assumed to have detrimental effects on complex tasks but not on simple tasks. Assuming that the standard aftereffects measures are complex tasks and that subjects are experiencing a high level of arousal following stressor termination, arousal theory would account for poststimulation deficits in task performance. However, it is unclear whether the standard aftereffects tasks can be considered complex and/or whether they generally show performance deterioration under heightened levels of arousal. For example, existing data show that Stroop performance often improves under arousal-inducing conditions. (See the review in Broadbent, 1971.) This improvement is attributed to an arousal-elicited focusing of attention on appropriate task cues (colors) and to a consequent dropping out of competing cues (words). As an aftereffects task, Stroop performance suffered following exposure to unpredictable and uncontrollable stress. Moreover, the proofreading task could be classified as a simple rather than a complex task, since it involves processing of only a restricted range of cues (cf. Easterbrook, 1959). Thus we might also expect improved performance on proofreading under heightened arousal.

To further confuse the situation, Poulton (1978) has argued that postnoise effects on task performance are due to the level of arousal falling below normal following exposure. If we assume that the standard aftereffects tasks are simple, this approach would similarly provide an explanation for poststimulation effects, since optimal levels of arousal for simple tasks are presumed to be high and any decrease in arousal would cause a decrease in performance.

Insensitivity to social cues can also be ex-

plained by the arousal model if we assume that levels of arousal are increased following exposure to unpredictable, uncontrollable stress. Increases in arousal level are said to be associated with a focusing of attention on cues most relevant to task performance (Easterbrook, 1959; Kahneman, 1973). As suggested in our earlier discussion of Cohen's (1978) attentional model, attentional focusing could lead to an insensitivity to others' needs.

The omnipresent problem in making arousal theory interpretations is the elusiveness of the arousal concept. Although a detailed description of this problem is beyond the scope of this article, it is important to point out that it is unclear how an investigator is to determine a subject's level of arousal. Some argue for behavioral (subjects behave "as they should" when aroused) and self-report measures (cf. Poulton, 1970), and many investigators use physiological measures—usually measures of autonomic response. Unfortunately, behavioral, physiological and self-report measures of arousal do not consistently correlate with one another (cf. Poulton, 1970). Moreover, it is generally accepted that there is no unitary form of physiological arousal (cf. Lacey, 1967) and that individual physiological measures do not correlate with one another. (See the review by Sternbach, 1966.) Nevertheless, many investigations of arousal under stress in laboratory situations use only one or two measures and assume that they reflect a general level of arousal. Thus the first point to be made is that the existing data on the relationship between poststress arousal level and performance are suspect, since we are not sure what arousal is or how it is to be measured and since we are sure that the way it has been measured in the past is inadequate.

Do those exposed to unpredictable and uncontrollable stressors show different levels of physiological arousal than those exposed to predictable and/or controllable stressors after the stressor is removed? There are little existing data on physiological response after exposure is terminated, but there are considerable data on relative levels of arousal at or near the end of the stress session.³ Glass

and Singer (1972) used three phasic measures of arousal in their research: Palmar skin resistance, vasoconstriction of blood vessels in the fingertip, and an electromyographic (muscle tension) measure. They reported that subjects habituate on all three autonomic channels, irrespective of the unpredictability and perceived controllability of the noise. That is, by the end of the exposure period, there is no difference among experimental groups in the levels of reaction to stressor stimuli obtained. A similar lack of differences between conditions in phasic response was reported in two studies of perceived control over the termination of noise by Pennebaker et al. (1977). This lack of differences, however, is inconsistent with some earlier research which suggested that there are significant reductions in electrodermal response, in conditions in which the subject can control or predict the onset and/or offset of stressor stimuli (e.g., Champion, 1950; Corah & Boffa, 1970; Geer, Davison, & Gatchel, 1970).

It is, however, more generally acceptable to use tonic rather than phasic response as a measure of a general level of arousal (cf. Glass & Singer, 1972). The only study that compared tonic response after exposure to predictable or unpredictable noise (Weidner & Matthews, 1978) found that subjects exposed to noise as compared with quiet had

³ The exception to this is evidence that during the initial stage of an anagram test, administered after noise exposure, students exposed to inescapable noise (learned helplessness condition) had a lower skin conductance level (SCL) than did those exposed to escapable noise (Gatchel & Proctor, 1976; Gatchel et al., 1977). An experimental control group in which subjects merely listened to loud tones (equivalent to the Glass and Singer no-control condition) showed the lowest SCL. There were, however, no differences between conditions on skin conductance response in either study. Moreover, the earlier study (Gatchel & Proctor, 1976) found no differences among escape, experimental control, and no-escape (helplessness) conditions following noise for either spontaneous skin conductance fluctuations or heart rate. As suggested earlier, these studies did not find postnoise behavioral aftereffects in the experimental control condition that was similar to the no-perceived-control condition in the Glass and Singer studies.

elevated hand temperature and blood pressure but that subjects exposed to predictable versus unpredictable noise showed no difference. Glass and Singer also reported that there were no differences between various experimental conditions in their studies in the level of skin conductance during stressor exposure, and a later study of control over electric shock (Glass et al., 1973) similarly indicated no difference between conditions in tonic conductance. Some earlier studies, however, suggested that those with control over termination of a stressor do show lower tonic levels during stressor exposure (e.g., Geer et al., 1970), although the evidence is mixed (e.g., Glass et al., 1973; see, also, review by Averill, 1973).

Comparisons of tonic arousal levels under stress and no-stress conditions (no manipulations of control or predictability) have, however, suggested differences at or near the end of the stress session (e.g., Aiello, Epstein, & Karlin, 1975; Evans, 1979), but only mixed support for differences comes from the studies that assessed arousal after the stressor was removed (Frankenhaeuser & Lundberg, 1974; Rotton et al., 1978; Weidner & Matthews, 1978). Thus it appears that there is little evidence for differential levels of physiological response following stressor termination. However, as we have suggested, "the fact that one autonomic measure fails to reveal expected differences does not necessarily rule out the existence of arousal differences" (Glass & Singer, 1972, p. 146).

Self-report measures of stress also provide only meager evidence for differential levels of arousal among the various experimental conditions. Although Glass and Singer (1972) reported a study in which one self-report measure suggested greater stress for those in the unpredictable, uncontrollable stress conditions, as opposed to those exposed to predictable and/or controllable stress (p. 66), for the most part these measures covary with the presence or absence of the stressor but not with the presence or absence of control or predictability. Several later studies (Mills & Krantz, 1979, Experiment 2; Pennebaker et al., 1977) similarly reported no differences between those with and those without control

on self-reports of frustration, tension, and alertness. The previously described study by Sherrod and his colleagues (1977) also found that neither initiation nor termination control affected self-reports of stressfulness.

In sum, there is little evidence for differential levels of arousal following an unpredictable, uncontrollable stressor, as opposed to predictable and/or controllable stressor. Moreover, it is also unclear whether such differences in arousal level would have consistently negative effects on the standard aftereffects tasks.

Frustration-Mood Hypothesis

A simple explanation for the aftereffects of stress is that exposure to unpredictable, uncontrollable stressors causes frustration, annoyance, and irritation, which results in a less motivated performance on poststress tasks and in a lower likelihood of being sensitive to the needs of others. There is evidence that those who experience a negative mood state are less likely to help another (cf. Isen, 1970; Moore, Underwood, & Rosenhan, 1973) and that frustration often results in aggression and other negative interpersonal behaviors (e.g., Berkowitz, 1969). Evidence that those exposed to unpredictable, uncontrollable stressors experience negative mood states following stress termination is, however, equivocal.

The study that comes closest to testing the frustration-mood hypothesis is Donnerstein and Wilson's (1976) investigation of poststress aggression. Consistent with the frustration-mood hypothesis, those subjects who were exposed to noise without perceived control (and thus who were presumably frustrated) and who were also angered (additional frustration) administered more shock to a confederate than either subjects with perceived control over the termination of the noise or those who were not angered. A number of other studies, however, do not indicate any differences in poststress annoyance and irritation between those with and those without perceived control (Glass & Singer, 1972; Pennebaker et al., 1977; Sherrod et al., 1977). Moreover, even studies that compared unpredictable, uncontrollable stressors to no-

stress experimental control conditions often indicated that there were no reliable differences in reported mood between conditions (e.g., Cohen & Spacapan, 1978; Frankenhaeuser & Lundberg, 1974; Wohlwill et al., 1976) and that the overall mood of subjects in all conditions was positive following the experimental session (e.g., Cohen & Spacapan, 1978; Wohlwill et al., 1976). These studies, however, typically include only one or two global items about the "stressfulness" or "enjoyableness" of the experiment and thus may not provide a sensitive measure of mood. As summarized earlier (in the section on Arousal Theory), there is also little evidence for the differential levels of arousal that one might expect to be correlated with increased frustration and mood shifts. In sum, although a frustration-mood hypothesis is compelling because of its simplicity, there are few data which suggest that significant differences in mood or arousal actually exist following the various experimental conditions.

Persistent Coping Strategies

It is possible that those exposed to unpredictable, uncontrollable stressors use coping strategies during stressor exposure and maintain these strategies even after the stressor is terminated. Although a particular strategy may be adjustive during exposure, it may or may not prove to be adaptive after exposure termination. This persistence may be due to overlearning of a coping response (cf. Rodin & Baum, 1978). This approach suggests that the coping response is under stimulus control but is not voluntary. For example, one may cope with crowding by withdrawing and persist in withdrawing from strangers even when not crowded.

The laboratory study of spatial density by Epstein and Karlin (1975) provided evidence for the persistence of a coping strategy that is used during stress exposure. They reported that single-sex groups of women and men differed in their reaction to crowding stress. Consistent with cultural norms, women tended to share their distress with each other, whereas men tended to hide their distress. These norms of sharing and hiding persisted into the poststress session in which men who

had been crowded were less cohesive and more competitive than uncrowded men and in which women who had been crowded were more cohesive and less competitive than uncrowded women. Baum and Valins (1977) studies of dormitory design similarly suggested the persistence of a coping response. Those subjects from dormitories with a high level of forced interaction made more active attempts to avoid the possibility of contact with a stranger outside of the dormitory than those from dormitories with lower levels of interaction. Thus, an avoidance response that presumably developed as an attempt to cope with dormitory life seemed to persist even outside of the dormitory setting.

A persistent coping strategy as a response to prolonged exposure to noise was proposed by Deutsch (1964). She suggested that children reared in a noisy environment eventually become inattentive to acoustic cues; that is, they learn to "tune out" sound. In tuning out his or her noisy environment, a child is not likely to distinguish between speech-relevant and speech-irrelevant sounds. Thus he or she will lack experience with appropriate speech cues and will generally show an inability to recognize relevant sounds and their referents. The inability to discriminate sound is presumed to account, in part, for subsequent problems in learning to read. A child who cannot readily discriminate basic speech sounds faces a difficult task in learning to associate these sounds with their appropriate signs.

A study described earlier by Cohen et al. (1973) found some evidence for this hypothesis by establishing that children who spent their earlier years living in an intensely noisy environment were unable to develop adequate auditory discrimination ability and unable to acquire basic reading skills. There was, however, no direct measure in this study of the tuning out strategy. One strong alternative hypothesis is that the traffic noise made it difficult for the children to hear their parents (speech was masked) and consequently to learn auditory discriminations. A later study by Heft (1979), however, does provide evidence for the use of a tuning out strategy on the part of children living in

noisy environments. If children exposed to noise tune out their acoustic environment, they should be less affected by an auditory distractor than are children from quieter environments. Heft found that the performance of children from homes described by parents as noisy was less strongly affected by the presence of an auditory distractor than was the performance of those from homes described as quiet. Unfortunately, children from noisy homes performed more poorly under quiet conditions than those from quiet homes, which suggests that the lack of a distraction effect might be attributable to a base performance level that could not get much worse under any condition (floor effect).

In sum, evidence from laboratory and naturalistic research suggests that persistent coping strategies are responsible for at least some poststimulation effects. Although the data previously described are limited to situations in which the coping strategy is one that develops as a response to a particular stressor (e.g., withdrawal as a response to crowding), it is possible that general strategies that are used to cope with a wide range of stressors persist after stressor termination (cf. Milgram, 1970). For example, the strategy of focusing one's attention on the essential aspects of a task during exposure (e.g., Hockey, 1970; Wachtel, 1968) may persist even after exposure is terminated. This could account for the decrements in performance on complex tasks reported in the aftereffects literature.

Dissonance and Self-Perception

In their early effort to explain aftereffects, Glass and Singer (1972) alluded to cognitive dissonance (Festinger, 1957) and self-perception analyses (Bem, 1967). Briefly, these analyses suggest that since subjects with perceived control choose to be exposed to the noise for little incentive, they judge it less stressing and therefore do not show aftereffects. However, when Glass and Singer (1972, p. 106) turned to a classical dissonance manipulation—allowing or not allowing subjects to choose whether they would be exposed to noise—they were unable to produce aftereffects on the proofreading or

Stroop tasks. Sherrod et al. (1977), however, reported that allowing subjects to choose whether they would be exposed to noise did partially ameliorate poststimulation deficits in performance. On the other hand, although the choice manipulation in the Glass and Singer study affected a subject's willingness to participate in a future experiment, Sherrod et al. reported that willingness to participate in a future study was unaffected by manipulations of initiation and termination control. Thus the evidence relevant to this hypothesis is at best mixed.

Although these theories provide an explanation for the ameliorative effects of control, they do not explain why poststimulation effects occur in the unpredictable, uncontrollable stressor conditions. Moreover, it is difficult to apply this interpretation to studies in which subjects have control over an aspect of the situation but not directly over the stressor (e.g., choice of hand to be immersed in cold water, Mills & Krantz, 1979) and studies in which the subject actively copes or implements control (e.g., Glass et al., 1973).

Artifacts of the Experimental Situation

Most of the laboratory aftereffects research has been done with both the exposure task and aftereffects tasks conducted in the same laboratory setting and with the same experimenter. One likely explanation for these effects is that subjects exposed to the more aversive stress—that which is unpredictable and uncontrollable—develop a negative attitude about both the experimenter and the experimental setting. Once deciding that he or she does not like either the experimenter or experiments in general, a subject does not work as hard on subsequent tasks. Glass and Singer (1972) attempted to determine the subjects' attitudes about the experimenter by having them fill out an evaluation form following the experimental session. The form was presented in a way that guaranteed the subjects anonymity and suggested that negative evaluations would not be held against the experimenter. Although there were large mean differences (subjects with perceived control liked the experimenter more than

those without control), these differences did not reach statistical significance. Sherrod et al. (1977) also reported no differences between those with and those without control in either liking the experimenter or enjoying the experiment. Later studies that both separated the aftereffects task from the stress situation (e.g., Cohen & Spacapan, 1978; Sherrod & Downs, 1974) and assessed the effects of a naturalistically occurring stressor (e.g., Baum & Valins, 1977; Cohen et al., 1980; Rodin, 1976) are not subject to the artifactual explanation.

Discussion

What Do We Know?

The following is a list of the most striking contributions from the studies reviewed in this article:

1. The poststimulation effects of unpredictable, uncontrollable stress on performance have been replicated in a myriad of different laboratories and with a variety of subject populations. They occur as a consequence of a wide range of stressors including noise, electric shock, density, and cold pressor. Moreover, interventions that increase control and/or predictability are effective in reducing these effects. The bulk of the laboratory work, however, has used a limited number of aftereffects tasks whose common characteristics are not clear.

2. The aftereffects of stress can also be induced by high attentional demands. Thus these effects are not limited to a restricted range of stressful situations that involve a lack of predictability and control over a distracting and/or intense stimulus.

3. There are poststimulation effects on social behavior as well as on performance. These effects generally involve an insensitivity toward others following stress exposure.

4. Poststimulation effects of environmental stressors occur following prolonged exposure in naturalistic settings. These studies generally suggest that these effects are mediated by helplessness. It is, however, unclear whether the mechanisms involved in producing these effects are the same as those responsible for deficits in task performance

and in interpersonal response following short-term exposure.

5. There is increasing evidence that various forms of control have ameliorative effects similar to those of perceived control over the termination of the stressor. These include termination control in which one actually performs a coping response (implemented control) as well as initiation, choice, and information control. Moreover, some evidence suggests that combining more than one mode of control will further improve poststimulation performance. This improvement, however, seems to reach asymptote at the performance level reached by the no-stress control condition.

We have documented a wide range of stress aftereffects. Although it would be parsimonious to suggest that after further investigation of the problem, the mechanism responsible for these effects will be isolated, the assumption of a unitary explanation for such a wide range of behaviors may be unreasonable. It is likely that the reliability and generality of poststimulation effects occurs in part because of a multiplicity of causes. Thus the eventual goal of research in this area should be to determine the specific conditions that elicit each of a number of cognitive or motivational mechanisms and to determine specific kinds of tasks and behaviors affected by each.

The research reviewed in this article does not provide evidence from which to accept or reject the adaptive-cost hypothesis from which this literature was spawned. However, many of the proposed explanations for stressor aftereffects are, in fact, forms of that hypothesis. They suggest that poststimulation effects are either directly or indirectly caused by the process of coping with stress. The mechanisms proposed included cognitive fatigue that results from the coping effort, feelings of helplessness that result from a failure to cope, and the overlearning of a coping response. Thus 10 years of intensive research has led to the recognition of the costs of adapting to stress, and although this work has answered few specific theoretical questions, it has provided us with an appreciation of the impact of the adaptive process.

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Received June 12, 1979 ■

Handbook
of
Health Psychology



Andrew Baum
Tracey A. Revenson
Jerome E. Singer



2001

LAWRENCE ERLBAUM ASSOCIATES, PUBLISHERS
Mahwah, New Jersey London

SAL00018

Environmental Stress and Health



Gary W. Evans
Cornell University

Although environmental conditions play a prominent role in health and psychological processes, antecedent factors in these processes have largely been neglected within health psychology. Instead, the focus has been on various markers of health, with considerable attention to stress-related mechanisms, interceding between the environment and health. Another focus within health psychology that has directed attention away from environmental factors has been coping resources, with the examination of either social support, personality, or coping strategies that potentially alter the impact of environmental demands on health. But what characteristics of the environment itself are likely to impinge on health and psychological processes? When this question has been addressed within health psychology, environment has been operationalized primarily in social terms. Family and work social climates, as well as sociocultural and economic conditions, predominate in the few environmental studies in health psychology. This chapter intends to draw greater attention to the potential role of the physical environment in health and psychological processes.

Why might the physical environment be important to health psychology? For one reason, the physical environment clearly impacts health. Adverse physical conditions can cause toxicological reactions, challenge homeostatic balance, produce physical trauma, or function as vectors bearing pathogens. Physical factors can also be a source of environmental demands that pressure coping resources.

A second reason the physical environment is worthy of scrutiny within health psychology is because the environment can be modified and thus becomes a potential intervention target to improve health and well-being. Third, environmental conditions are objective and thus can be measured more readily

in reliable and valid ways. For example, researchers can systematically monitor density or noise levels in precise, accurate ways that can then be examined as possible causal factors in health. Fourth, physical environmental conditions tend to be stable. Increasingly, research suggests that chronic environmental demands are most likely to have negative impacts on health (Lepore, 1995). Finally, the concept of psychological stress that is central to several formulations of health, behavior, and disease (see chap. 17, this volume) has been utilized to broaden understanding of how physical features of the environment can influence human health and well-being.

There are at least three major ways in which the physical environment might operate as a psychological stressor, straining human adaptive capacities. First, this can occur when a stressor directly loads, or pressures, the system. Both crowding and noise, for example, create a surfeit of stimulation that can directly overload the system, causing discomfort, negative affect, and under some circumstances, the marshaling of adaptive resources. Both negative affect and adaptive responses to challenge or threat in turn directly affect neuroendocrine and cardiovascular functioning. Physical stressors can also interact with psychosocial conditions to exacerbate negative affect and/or psychophysiological mobilization. For example, noise plus high workload demands leads to more serious health outcomes than workload levels alone. Noise and crowding frequently covary with other psychosocial risk factors (e.g., poverty, inadequate working conditions), and thus have the potential to contribute to multiple risk situations.

A second manner in which the physical environment can contribute to stress is by damaging or ameliorating coping resources themselves. People rarely respond to suboptimal physical or psychosocial conditions passively; instead, they

invoke various coping strategies to reestablish some modicum of balance between environmental demands and personal resources. Evidence is presented herein, for example, that crowding interferes with the development and maintenance of socially supportive relationships in the residential environment. Both chronic noise and chronic crowding appear to contribute to learned helplessness, adversely affecting self-efficacy and related motivational processes.

The third way in which physical conditions can operate as stressors is to elicit coping strategies that in turn lead to poor health. Studies of noise, for example, reveal that increases in substance abuse occur under noisy working conditions.

Another aspect of research on psychological stress and health relevant to this chapter on environmental stressors are the concepts of vulnerability and resilience (Cohen, Kessler, & Gordon, 1995; Rutter, 1983). Just as certain personal or situational characteristics can render individuals more or less vulnerable to social stressors, there is evidence of vulnerable subgroups among the population who appear more adversely affected by noise and by crowding, respectively. Thus throughout both direct, main effects and associations between environmental stressors and health, as well as occasions with vulnerable subgroups, are noted.

The field of environmental stress (Cohen, Evans, Stokols, & Krantz, 1986; Evans, 1982; Evans & Cohen, 1987) is sufficiently developed such that exhaustive coverage is impossible. A small amount of environmental stress research has examined climatic conditions as potential psychological stressors influencing human stress responses (Bell & Greene, 1982; Evans, 1994). Research on housing conditions as a possible stressor have also been undertaken (Freeman, 1984). The focus of this chapter is on the two most studied environmental stressors, crowding and noise. Health outcomes include physical health and psychological health. Moreover, the chapter examines underlying psychosocial and psychophysiological processes that may help explain the linkages between noise and crowding and major physical and psychological health outcomes. Psychophysiological mechanisms, immune function, social resources, coping strategies, and motivational processes are examined.

CROWDING

The element of crowding that relates most strongly to physical and psychological health is people per room. Traffic congestion may also prove to be a potent stressor. Area measures of crowding, such as people per acre, generally have little or no relation to health. Although some studies of crowding separate group size effects from density effects, the vast majority of studies have confounded these two factors, manipulating or measuring density as it covaries with group size. Therefore, some of the effects attributed to crowding may be due to group size rather than the amount of space per person. At the same time, when attempts have been made to distinguish between these related concepts, density and group size, the impacts of density typically persist.

Physical Health

Early interest in crowding in the public health field emanated from concerns about the spread of disease among crowded populations (Cox, Paulus, McCain, & Karlovac, 1982). There is a large literature on this topic. Physical health has been operationalized in this literature as rates of illness based on archival data, visits to infirmary, physical development among children, and self-reports of somatic symptoms. Archival evidence for positive associations between crowding and ill health come from studies in prisons (McCain, Cox, & Paulus, 1976; Paulus, 1988), refugee camps (Arnow, Hierholzer, Higbee, & Harris, 1977), and schools (Essen, Fogelman, & Head, 1978; Koopman, 1978). The Arnow et al. (1977) study is noteworthy because they demonstrated good correlation over time between Vietnamese refugee camp population fluctuations with changes in a highly contagious disease (acute conjunctivitis). There is also evidence that crowded residential conditions are linked to disease both among children (Booth & Johnson, 1975; Jacobson, Chester, & Fraser, 1977) and among adults (Levy & Herzog, 1978; McGlashen, 1977; Menton & Meyers, 1977; Sims, Downham, McQuillin, & Gardner, 1976; Wyndham, Gonin, & Reid, 1978; Yarnell, 1979). Yodfat, Fidel, Cohen, and Eliakim (1979) found that linkages among residential crowding and asthma were due to number of children rather than density per se. Booth (1976) found that male adults, but not women, had greater levels of disease in crowded homes. Traffic congestion levels among commuters is also associated with illness-related absenteeism from work (Novaco, Stokols, & Milanesi, 1990).

Several studies of residential crowding find little or no correlates with disease (Brett & Benjamin, 1957; Collette & Webb, 1974; Mackintosh, 1934; McKinlay & Truelove, 1947; Quinn, Lowry, & Zwaag, 1978), and Winsborough (1965) uncovered an inverse relation between areal density and tuberculosis. Schmitt and colleagues also found no relation between residential density and disease rates, but found small, positive correlations with areal density (people per acre) measures (Schmitt, 1966; Schmitt, Zane, & Nishi, 1978). Similar trends have been uncovered by Levy and Herzog (1974). Kellett (1984) made the important point that certain diseases should be expected a priori to correlate with crowding more so than others. Kellett examined mortality patterns for specific diseases in London for a 5-year period. As in prior work, persons per room rather than people per acre appeared more useful in predicting mortality. Second, diseases wherein a major stress component is believed to be operative (e.g., hypertension, myocardial infarction, vascular disorders, asthma) were related to household crowding whereas many other diseases (e.g., various forms of cancer) were not.

Freedman and colleagues challenged many of these studies of crowding and disease, noting that poor or nonexistent controls for other variables such as socioeconomic status are common in the crowding and epidemiological literature. They found in a well-controlled epidemiological analysis that residential crowding was not a significant predictor of disease (Freedman, Heshka, & Levy, 1975). However, the prison

studies and a few of the residential studies (e.g., Menton & Meyers, 1977) do have good controls for SES. Furthermore, there are trends in the data indicating that when individual levels of exposure to density and individual indices of health are compared rather than aggregated population statistics, such as used by Freedman and colleagues, stronger results occur. Nonetheless, Freedman and colleagues' cautious perspective on crowding and disease is well taken. Overall findings are suggestive but not rigorously or consistently supportive of a crowding-disease link. It would be useful to include, in the same individual-based study, disease rates for disorders that ought to vary with stress exposure plus inclusion of immunological measures.

A handful of studies in institutional contexts have examined crowding and infirmary visits. These studies converge on positive associations between levels of crowding and infirmary visits among shipboard military personnel (Dean, Pugh, & Gunderson, 1975, 1978), college campus residents (Baron, Mandel, Adams, & Griffen, 1976; Stokols, Ohlig, & Resnik, 1978), and prisoners (Paulus, 1988). The prison effects were most noticeable among inmates forced to live under dormitory-like conditions rather than in single cells. Trends also indicated that the associations in prisons were somewhat stronger for men than women and for African American in comparison to Anglo prisoners (Paulus, 1988). Wener and Keys (1988) found that increases in density (doubling up cell mates) markedly elevated (nearly 50%) sick call rates among prison inmates.

A few studies have examined physical development among crowded children, uncovering evidence of negative associations between household density and physical stature (Booth, 1976; Essen et al., 1978; Goduka, Poole, & Aotaki-Phenice, 1992). Crowded children, particularly boys, are shorter. Shapiro (1974) also found that boys, but not girls, motoric development appeared to be inhibited in crowded homes. Moreover, this effect was amplified among children of less educated mothers. More recently, Widmayer and colleagues (1990) found delayed psychomotor development among infants as a function of household density, controlling for socioeconomic status (SES).

Self-reported levels of physical illness are positively associated with crowding in prisons (Cox, Paulus, & McCain, 1984; McCain et al., 1976), among college dormitory women but not men (Karlin, Epstein, & Aiello, 1978), and among crowded home settings (Gove & Hughes, 1983)—although Booth (1976) found this association among men, but not women, in crowded homes. Giel and Ormel (1977) and Baldassare (1979) failed to replicate the association between home crowding levels and self-reported illness. The validity of all the self-report data on illness and crowding is suspect given retrospective self-report indices. On the other hand, Cox et al. (1984) found a dose-response function between number of inmates per cell and self-reported illness levels among male prisoners. Of additional interest, Gove and Hughes (1983) provided some evidence that heightened illness levels associated with crowded residences are related to lack of sleep and lower resistance when exposed to other sick family members (all self-reported).

There is evidence that some of the association between crowded living conditions and self-reported health symptoms is mediated by loss of perceived control over the living environment. Ruback and associates found that both female and male prisoners' reports of ill health in association with crowding were also negatively related to perceived control (Ruback & Carr, 1984; Ruback, Carr, & Hopper, 1986). Another way in which environmental stressors like crowding can impinge on health is through injuries. Rhesus monkeys when crowded for example, show a 5-fold increase in incidents of injury (Boyce, O'Neill-Wagner, Price, Haines, & Suomi, 1998).

Psychophysiological

Several studies have examined the relation between crowding and blood pressure in people. Laboratory studies with random assignment to density levels have found small but significant elevations among crowded versus uncrowded participants (Epstein, Lehrer, & Woolfolk, 1978; Evans, 1979). Field studies of prisoners (D'Atri, 1975; Paulus, McCain, & Cox, 1978) and automobile commuters (Novaco, D. Stokols, Campbell, & J. Stokols, 1979; Schaeffer, Street, Singer, & Baum, 1987; Stokols et al., 1978) have also revealed correlational evidence for elevated blood pressure under more crowded or congested living or commuting conditions. The commuting studies have found that the effects are stronger for car poolers rather than solo drivers, for Type B rather than Type A drivers, among external versus internal locus of control drivers, and among drivers with less residential choice. One field study found no relations between chronic residential crowding and blood pressure or neuroendocrine indices among adults (Booth, 1976), although small, statistically significant elevations in serum cholesterol were noted among crowded men. No such correlation was noted among women. Booth's sample did not vary much in density, which may have weakened his findings. Evans, Lepore, Shejwal, and Palsane (1998) found elevated blood pressure among crowded boys, but not girls, among working-class families in India.

Another cardiovascular function, blood pressure reactivity, has been related to chronic crowding in adults. Residents of more crowded neighborhoods had higher reactivity (increase from baseline in blood pressure levels) and took longer to return to resting baseline levels (Fleming, Baum, Davidson, Rectanus, & McArdle, 1987). Both heightened reactivity and protracted recovery to baseline are potentially important precursors to the development of coronary heart disease.

Neuroendocrine markers of stress, typically urinary catecholamines and cortisol, have been noted in several studies of crowded commuters (Lundberg, 1976; Singer, Lundberg & Frankenhaeuser, 1978) and among bus drivers operating under more congested driving conditions (Evans & Carrere, 1991).

Pedestrian exposure to more crowded urban areas elevates neuroendocrine activity, at least for males (Heshka & Pylypuk, 1975), and residence in neighborhoods perceived as more crowded because of commercial establishments and more people on the street is associated with increased urinary catecholamine levels (Fleming, Baum, & Weiss, 1987). Dor-

itory crowding, however, had no apparent effects on neuroendocrine activity among college students (Karlin et al., 1978). A small sample size may have rendered low power. These authors did find, however, that uncrowded residents' neuroendocrine indices dropped over the course of the semester, whereas crowded residents' neuroendocrine levels increased over the same time period. Schaeffer, Baum, Paulus, and Gaes (1988) found that prisoners housed in more open, unpartitioned dormitories felt more crowded and experienced elevated chronic catecholamine levels in comparison to prisoners living in smaller groups.

The critical role of control has been implicated in some of these psychophysiological crowding studies. Lundberg (1976) and his colleagues found that passengers with greater choice over seating were less negatively impacted by congested commuting. Evans and Carrere (1991) found that the neuroendocrine effects of traffic congestion on bus drivers were largely mediated by perceived control on the job. On the other hand, perceived control did not mediate the positive relation between prison crowding and neuroendocrine elevations (Schaeffer, Baum, Paulus, & Gaes, 1988).

A few laboratory studies have also utilized skin conductance as an index of psychophysiological stress, generally finding elevations among more crowded participants (Aiello, Epstein, & Kalin, 1975; Aiello, Nicosia, & Thompson, 1979; Bergman, 1971; Nicosia, Hyman, Karlin, Epstein, & Aiello, 1979). Studies of crowding and skin conductance are evenly split on gender differences, with some studies finding more pronounced effects among males than females and other studies finding no sex differences. There is also evidence that skin conductance may be more strongly affected by crowding when physical touching occurs. McCallum, Rusbult, Hong, Walden, and Schopler (1979) found that acute crowding elevated palmar sweat but only when experimental subjects were motivated to maintain high levels of group performance. When performance was permitted to deteriorate under crowding, no physiological elevations were noted. Finally, in a field study, Cox, Paulus, McCain, and Schkade (1979) found a significant positive correlation between the palmar sweat index and crowding among prison inmates.

Although indirect, some findings by Hutt and Vaizey (1966) may shed some light on psychophysiological mechanisms associated with crowding and psychophysiological responses. Chronically overaroused children responded to high density laboratory conditions by extreme social and physical withdrawal; whereas chronically underaroused children and children without arousal disturbance reacted in the opposite direction, becoming more engaged and aggressive with other children.

Many animal studies have examined endocrine activity among crowded species both under laboratory and field conditions (see Evans, 1978, for a review). Generally, this research indicates support for a population regulation feedback mechanism whereby crowded animals' fertility declines. This occurs more markedly among subordinate rather than dominant animals and appears to be mediated by adrenal cortical activity. Attempts to link crowding with population regulation among human beings have proven futile.

Immune Function

Animal but not human work has examined immunological processes as a function of crowding, generally finding evidence of compromised immune functioning among more crowded animals (Christian, 1963; E. A. Edwards & Dean, 1977; Thiessen & Rodgers, 1961). These effects appear to be stronger among subordinate rather than dominant animals and among animals without a history of crowded living conditions (Cassel, 1971). Cassel (1974) pointed out, however, that compromised immune function alone cannot account for changes in morbidity among crowded animals because both infectious and noninfectious diseases are elevated among crowded animals.

Psychological Health

Ever since 1962 when Calhoun published his famous *Scientific American* study of pathology among overpopulated rats, researchers and policymakers alike have wondered about the potential role of crowded living conditions on mental health. The chapter first reviews research on linkages between density and psychological distress and then turns its attention to recent work examining possible underlying mechanisms for this linkage.

Many studies have uncovered positive relations between residential density and self-reported psychological distress (Edwards, Fuller, Sermisri, & Vorakitphokatorn, 1990; Evans, Palsane, Lepore, & Martin, 1989; Gabe & Williams, 1987; Gove & Hughes, 1983; Hassen, 1977; Jain, 1987; Lakey, 1989; Marsella, Escudero, & Gordon, 1970). Mitchell (1971) found greater worrying among crowded families but only if they were also poor. Crowding in Mitchell's study was unrelated, however, to more serious indices of psychiatric illness. Lepore, Evans, and Schneider (1991) found evidence that residential crowding causes psychological distress in a prospective, longitudinal study of crowding and mental health. Controlling for educational levels and income, they found that crowded residents did not differ from uncrowded residents in psychological distress symptoms during initial occupancy ($r = .12$), but after 2 months and 8 months the associations became significant ($r = .21$; $r = .27$). This is the only prospective study of crowding and health. Webb and Collette (1975) found an association between residential density and use of prescription hypnotics.

Booth (1976), Baldassare (1979), and Giel and Ormel (1977) failed to find a positive association between residential crowding and psychological distress. These studies had little variance in density. Moreover, Baldassare relied on mental health indices of questionable sensitivity (one dichotomous item in one case, and three dichotomous items in a second case). Two studies of neighborhood crowding levels have also found linkages to psychological distress (Collette & Webb, 1974; Fleming, Baum, & Weiss, 1987).

Studies utilizing archival indices such as psychiatric admissions or suicide rates generally find very weak or insignificant associations between crowding and pathology when measured in the aggregate (Freedman et al., 1975; Gove &

Hughes, 1980; Schmitt, 1966; Schmitt et al., 1978). In some studies negative associations between density and psychiatric admissions have been uncovered, probably created by the association of living alone and mental disorder (Galle, Gove, & McPherson, 1972; Levy & Herzog, 1974, 1978). One exception to these generally negative trends in archival indices of mental health and crowding is notable. Several prison studies have found clear, strong associations between the total population size of prison populations and indices of psychiatric illness (Paulus, 1988).

Quite a number of studies have examined psychological symptoms among children living in crowded homes. Plant (1937) described several case studies noting a pattern of low self-sufficiency and little idealism among children from crowded homes. He attributed these patterns to mental strain associated from always having to get along with others and to exposure to adults under close quarters that made it difficult to look up to or idealize grownups. Crowded children have increased levels of various symptoms of psychological distress (Booth, 1976; Gasparini, 1973; Murray, 1974; Saegert, 1982; Wachs, 1987). Parents in more crowded homes report relief when their children are outside (Gove & Hughes, 1983), have more difficulty supervising their children (Mitchell, 1971), and are generally less responsive and involved with their children (Bradley & Caldwell, 1984; Evans, Maxwell, & Hart, 1999; Wachs & Camli, 1991) in comparison to uncrowded parents of comparable social class. These trends appear to be exacerbated in the presence of other risk factors, particularly poverty (Baldassare, 1981; Bradley et al., 1994).

Psychosocial Resources

Some of the relation between high residential density and psychological distress in children may be linked to family interactions, which have been found to be more contentious under crowded living conditions (Booth, 1976; Gasparini, 1973; Saegert, 1982). There may also be greater incidence of physical punishment and open expression of anger between parents and children in crowded homes (Booth & Edwards, 1976; Light, 1973), although Gove and Hughes' (1983) study did not support this finding.

Another factor that may help explain the link between high residential crowding and symptoms of psychological distress in children is withdrawal. Aiello, Thompson, and Baum (1985) reviewed several field and laboratory studies documenting increased social withdrawal under crowded conditions among young children. Similar trends exist in the adult literature, indicating that crowded adults interact with housemates less (Baum & Valins, 1977, 1979; Proshansky, Ittelson, & Rivlin, 1970); are less friendly with their neighbors (McCarthy & Saegert, 1978), and have impaired social support with those they live with (Evans et al., 1989; Lakey, 1989; Lepore et al., 1991). Baldassare (1979) did not replicate linkages between residential crowding and neighboring. People under crowded conditions also tend to be less affiliative in their behaviors toward others (R. L. Munroe & R. H. Munroe, 1972) and view others in more negative or suspicious terms (Bickman et al., 1973; Griffitt & Veitch, 1971; McCarthy &

Saegert, 1978). There is also evidence that crowded working conditions lead to greater social withdrawal from coworkers (Oldham & Fried, 1987). Finally, as already noted, parents in crowded homes are less responsive to their children (Bradley & Caldwell, 1984; Wachs & Camli, 1991). Furthermore, this relative unresponsiveness partially accounts for less complex parent to child verbalizations to infants and toddlers (Evans, et al., 1999).

Evidence that social withdrawal and impaired social relationships are a primary mechanism accounting for the relation between crowding and psychological distress has been documented in some detail by two research programs. Baum and colleagues found that more crowded dorm residents report more unwanted social interaction in their dorms. These same crowded residents also evidence greater behavioral indices of withdrawal outside of the dorm. They sit farther away from other research participants and withdraw more in group interaction games (Baum & Valins, 1977, 1979). Residential exposure to high levels of street traffic is also associated with less neighboring (Appleyard & Lintell, 1972; Halpern, 1995). Evans and Lepore showed direct evidence for a similar pattern. They found both cross-sectionally (Evans et al., 1989) and in a prospective, longitudinal design (Lepore et al., 1991) that the negative effects of residential crowding on psychological distress (with controls for social class) are mediated by social support. Similar patterns also appear to occur among children in crowded residences (Evans, et al., 1998).

Evans and Lepore (1993a) also found that crowded relative to uncrowded residents were less likely to offer support to a confederate under stress in an uncrowded laboratory setting. Of additional interest, crowded residents in comparison to uncrowded residents were also less responsive to offers of social support during a stressful situation (see Fig. 20.1). *Ignored* meant that the subject did not look at or made no verbal acknowledgment of the confederate; *acknowledgment* meant some brief comment or a head nod was given in response to offers of support; and *accepted* meant the subject was very re-

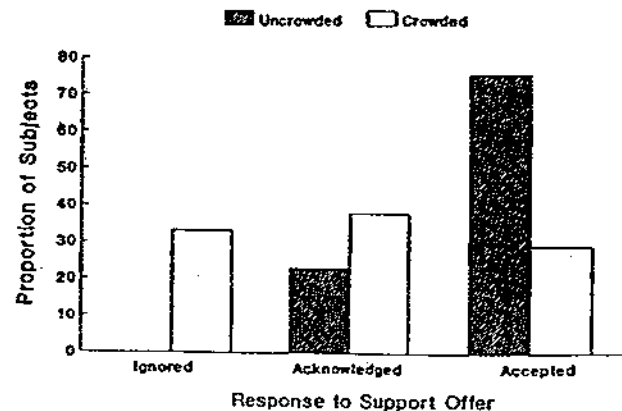


FIG. 20.1

sponsive to the confederate's offers of support, elaborating or embellishing on their offers of support.

Motivation

Many theorists have postulated that a prime reason why crowding can have negative impacts on psychological health is because of reduced behavioral options and greater difficulty in regulating social interaction (Altman, 1975; Baron & Rodin, 1978; Schmidt & Keating, 1979). An important psychological consequence of prolonged exposure to an aversive, uncontrollable stressor, such as crowding, may be learned helplessness. Persons chronically exposed to crowding report feeling a greater sense of powerlessness over their living environments than their less crowded counterparts (Baum & Valins, 1977, 1979; Baron et al., 1976; Carr, Hopper & Ruback, 1986; Saegert, 1978). Sherrod (1976), Aiello, DeRisi, Epstein, and Karlin (1977), Evans (1979), Nicosia et al. (1979), and Dooley (1978) all found negative aftereffects immediately following laboratory exposure to crowded conditions. Sherrod, Evans, and Nicosia and colleagues each utilized the Glass and Singer (1972) aftereffects paradigm that measures persistence on challenging puzzles. Giving up sooner in the face of challenge in an achievement context may be indicative of greater helplessness (Cohen, 1980; Glass & Singer, 1972). Dooley (1978) incorporated proofreading performance as her aftereffects measure. Saegert, Mackintosh, and West (1975) reported that crowded train stations produced negative aftereffects in women only. Nicosia's data also indicated more severe aftereffects of crowding among women.

Parallel trends to the laboratory work have been noted in studies of more chronic, crowded living conditions, finding less persistence on difficult puzzles among persons living in more crowded neighborhoods (Fleming, Baum, & Weiss, 1987). Moreover, perception of control over social interactions largely accounted for the main effect of neighborhood crowding on the helplessness indicator. Residents of crowded dorms feel less control over social interaction than their uncrowded counterparts (Baum & Valins, 1977, 1979) and exhibit behavioral strategies in a group prisoners' dilemma game consistent with helplessness (Baum, Aiello, & Calesnick, 1978; Baum, Gatchel, Aiello, & Thompson, 1981). Interestingly, the development of helplessness strategies in the game over the course of the initial semester under crowded conditions was mirrored by residents growing external attributions for problems in the dormitory over this same time period (Baum et al., 1981). Uncrowded residents generally felt self-efficacy over problems in their dormitory over the course of the semester and these internal attributions remained stable over time. Crowded dormitory residents are also less likely to seek clarification when given ambiguous instructions about an impending laboratory procedure than were uncrowded dormitory residents.

Traffic congestion also is related to motivational deficits. Greater traffic congestion levels have been related to decreased task motivation on challenging puzzles and proofreading (Novaco et al., 1979; Schaeffer et al., 1988; D. Stokols, et al., 1978).

The most direct evidence for helplessness induced by crowding comes from a pair of studies on residential crowding and children by Rodin (1976). Matched on socioeconomic indicators, elementary-aged schoolchildren living in more crowded public housing were less likely to control the administration of outcomes in an operant conditioning paradigm in comparison to their less crowded counterparts. In a second study, helplessness was induced in adolescents by a classic helplessness paradigm, pretreatment with an insoluble versus a soluble puzzle. Helplessness was monitored on a second challenging but solvable puzzle. The main effect of pretreatment solvability (the helplessness induction) was significantly moderated by residential crowding with heightened vulnerability to the induction of helplessness among the more crowded children. In their study of children in India, Evans, et al., (1998) replicated Rodin's effects (but for girls only). Saegert (1982), however, did not replicate these findings examining a sample of children from public housing projects in New York City.

Summary

Residential crowding has little impact on physical morbidity among the general population. Residential crowding may be linked, however, to ill health among vulnerable subgroups of the populations, particularly young children and extremely crowded, captive populations (e.g., prisons, refugee camps). Evidence linking high density exposure either under controlled conditions or in the field to elevated cardiovascular functioning is quite strong. Neuroendocrine functioning also appears elevated, although less data are available. The potential clinical implications of these two data patterns has not been explored in the crowding literature.

Psychological distress is increased by residential crowding. Individual but not aggregate level analyses continue to uncover a positive association between crowded living conditions and poorer psychological health. Several studies have excellent controls for sociodemographic factors and one is a prospective, longitudinal analysis. Psychological distress associated with residential crowding may be caused by a typical coping strategy for dealing with chronic high density living conditions—social withdrawal. An unintended consequence of this social withdrawal may be a breakdown in socially supportive relationships. There is not strong evidence, however, that human crowding is associated with more extreme forms of psychopathology characterized in some animal studies as a behavioral sink.

There is also evidence that crowding may lead to the development of motivational deficits, particularly among children in achievement-related contexts. There is indirect evidence suggesting that these motivational deficits are related to learned helplessness from diminished perceived control over the environment.

NOISE

Noise, which is defined as unwanted sound, is typically measured in decibels. Decibels is a logarithmic scale with a

change in 10 decibels perceived as approximately twice as loud. There is considerably more research on noise and health in comparison to research on crowding and health. The bulk of the noise and health research has occurred in industrial settings. More recently, studies of noise and health have also focused on people living in airport impact zones or near to road traffic noise. Prolonged exposure to high levels of noise is clearly linked to hearing damage (Kryter, 1994). Because the thrust of this chapter is on environmental stress, the noise-related hearing damage literature is not discussed.

Physical Health

Studies have examined exposure to either occupational noise or community noise and disease. Outside of cardiovascular problems, there appears to be little relation between noise exposure and physical disease. In industrial settings, noise has been associated with increased risk for myocardial infarction (Ising, Babisch, & Günther, 1999), reductions in cardiorespiratory efficiency (Semczuk & Gorny, 1971), difficulties in peripheral circulation and cardiac problems generally (Jansen, 1961), electrocardiogram abnormalities suggestive of coronary heart disease (Cuesdan et al., 1977), general sickness-related absenteeism (Cohen, 1973), and self-reported fatigue (Carlestam, Karlsson & Levi, 1973; Melamed & Bruhis, 1996). Several industrial studies have found no associations between occupational noise exposure and rates of coronary heart disease (Lees, Romeril, & Wetherall, 1980) or rates of total illness (Lees et al., 1980).

Community airport noise studies have shown that higher levels of noise exposure are associated with greater contact with physicians for coronary-related problems (Knipschild, 1977a) and, for women only, use of drugs to treat hypertension (Knipschild & Oudshoorn, 1977; Koszarny, Maziarka, & Szata, 1981). These studies also show an association with greater physician contact in general (Knipschild, 1977b), rates of colds (Ising et al., 1990), as well as total health symptoms (Pulles & Stewart, 1990), and higher levels of coronary heart disease symptoms among women but not men (Koszarny et al., 1981). Graeven (1974) and Hiramatsu, Tamamoto, Taira, Ito, and Nakasone (1993), however, found no differences in self-reported health symptoms between persons living in airport impact zones versus citizens in quiet neighborhoods.

Turning to road traffic noise, Cameron, Robertson, and Zaks (1972) found little relation between community noise levels (self-reported) and illness rates. Babisch, Elwood, Ising, and Kruppa (1993) found slight elevated risk (1.2 odds ratio) in noisier traffic areas in three different sites for men residing in areas above 65 dBA Leq. However, when comparing across different noise levels varying from > 50 dBA Leq to 70, they uncovered no linear relation.

Another area of physical health worthy of note in the noise literature is birth defects and other abnormalities during pregnancy. Not surprisingly, findings in this area are highly controversial and not at all definitive. Jones and Tauscher (1978) found higher rates of birth defects in high airport noise impact zones relative to quieter areas, but Edmonds, Layde, and

Erickson (1979) could not replicate the findings. Several rodent studies have found abnormal fetal development following noise exposure (Welch, 1973). There is evidence that women working under very noisy conditions, particularly if subjected to additional stressors like shiftwork, have more pregnancy complications such as vaginal bleeding and pregnancy-induced hypertension (Nurminen & Kurppa, 1989). Babies born in areas with high noise impact have lower birth weights (Ando & Hattori, 1977; Knipschild et al. (1981) with controls for socioeconomic status. Ando (1987) also found an increase in low birth weight babies following the opening of a new airport. Schell (1981) also noted that female infants, but not males, had significantly shorter gestation periods in high airport noise impact zones. Moreover, Ando and Hattori (1977) showed diminished levels of human placental lactogen levels in mothers living in high noise airport impact zones. Finally, Schell and Ando (1991) found a dose-response function relating airport noise levels and 3-year-olds' physical stature (but not weight) in a large epidemiological study. The data on possible linkages between noise and early development are sobering to consider in light of environmental surveys of neonatal, intensive care units that are often populated by premature babies. Levels of noise match or exceed recommended standards for ambient traffic exposure and health (Lawson, Daum, & Turkewitz, 1977).

Psychophysiological

Although previous reviews of noise indicate that cardiovascular responses (typically blood pressure or pulse) to noise under acute exposures rapidly habituate (Glass & Singer, 1972; Kryter, 1994), more careful scrutiny of this literature indicates important exceptions. Persons who are noise sensitive do not easily habituate (Conrad, 1973; Stansfeld & Shine, 1993), nor do individuals who are hypertensive (von Eiff, Friedrich, & Neus, 1982). Short-term habituation is blocked when people perform demanding cognitive tasks under noise (Carter & Beh, 1989; Conrad, 1973; Mosskov & Ettema, 1977). Evans et al. (1996) also showed that noise significantly increases blood pressure over a 20-minute period without habituation, if it follows exposure to a psychological stressor (i.e., giving a speech, taking a final examination).

Other psychophysiological indices examined under acute noise have included electrodermal activity, ECG, EEG, and neuroendocrine activity. Results parallel the cardiovascular data, indicating rapid habituation (Finkle & Poppen, 1948; Fruhstorfer & Hensel, 1980). Recent findings suggest, however, that when short-term exposure to loud noise is accompanied by demanding tasks, habituation may be blocked (Frankenhaeuser & Lundberg, 1977; Ising, Rebentisch, Poustka, & Curio, 1990; Lundberg & Frankenhaeuser, 1978). Work by Tafalla and Evans (1997) indicated a central role of effort in the performance/physiological activation tradeoff. Performance can be maintained, at least under many circumstances (e.g., short-term tasks that do not demand large amounts of attention or memory), by additional cognitive effort. Such maintenance of performance, however, appears to exact a cost of greater psychophysiological

activation. It is noteworthy that McCallum et al. (1979) found a very similar pattern for performance under crowded laboratory conditions.

There is also evidence indicating that habituation is interfered with by calling attention to the potential negative impacts of noise on the person (Vera, Vila, & Godoy, 1992). This latter finding might explain why noise sensitive persons apparently do not readily habituate to repeated exposures of acute noise in the laboratory. Perhaps they are more threatened or concerned about potential harmful effects of the noise.

Field research on noise and psychophysiological outcomes has occurred primarily in industrial settings. The occupational noise and psychophysiological literature is too large to review exhaustively herein. Several reviews of this literature (Kryter, 1994; Thompson, 1981, 1993; Welch, 1979) have characterized the findings similarly. Unfortunately, non-experimental designs have frequently been employed in the occupational noise and health literature with poor or nonexistent controls, and many studies have relied on poor estimates of noise exposure. Furthermore, blood pressure is often poorly measured. Many of the industrial studies have relied on one or two measures of blood pressure taken during a physical at work by medical personnel. Moreover, annual medical examinations or other medical screenings may seriously bias estimates since some workers become excluded.

Thompson concluded from her two reviews that workers with adequate hearing protection are unlikely to show much effect of noise on the cardiovascular system. Kryter (1994) reflected greater concern but also remained skeptical, noting the paucity of well-designed research studies; Welch (1979) sounded a considerably greater sense of alarm about cardiovascular health risks from chronic, occupational exposure to noise. Interestingly, Welch's review is based primarily on Eastern European literature that includes worksites with generally very high levels of occupational noise exposure, often coupled with a paucity of hearing protection programs. The bulk of the literature in the other major reviews is based on North American and Western European studies where occupational noise levels tend to be lower and hearing protection programs more common.

Difficulties in exposure estimation in industrial studies of noise and cardiovascular functioning are illustrated by one of the most thorough investigations (Talbot et al., 1985). Although these investigators found no significant differences in blood pressure readings that were carefully administered to men from noisy and from quiet manufacturing plants, they also uncovered a clear, consistent positive link between elevated diastolic blood pressure and severe hearing loss in the noisy plant. Moreover, looking at the subset of men who had worked for at least 15 years in the two respective manufacturing plants, occupational noise exposure did significantly relate to both systolic and diastolic blood pressure (Talbot et al., 1990). See Lercher (1996) for an in-depth discussion of noise exposure estimation and health outcomes.

It is also conceivable that subsets of workers may be particularly vulnerable to the chronic effects of noise exposure on their cardiovascular systems. For example, Tarter and Robins (1990) found that male, African American automobile plant

workers suffered increased blood pressure, whereas their Anglo counterparts, who were exposed to comparable levels of high noise at work, did not show this relation. Tarter and Robins speculated that perhaps racial differences in propensity for hypertension might explain these findings. Given the fact that individual differences in noise sensitivity interfere with habituation to acute noise exposure as reviewed earlier, it might be hypothesized that noise sensitivity creates vulnerable subgroups within occupationally noise-exposed groups. This idea has not been tested, although mixed support of such a pattern has been uncovered in community studies of aircraft noise (Neus, Ruddle, & Schulte, 1983; Stansfeld, 1993).

A few longitudinal studies of noise and cardiovascular functioning in industrial settings have been conducted. By comparing the same worker in quiet and noisy periods, some of the weaknesses most endemic to cross-sectional studies (e.g., selection bias) are reduced. The U.S. Raytheon (1975) study, for example, found a significant reduction in medical problems after the implementation of a hearing conservation program in the plant. No changes in similar health indices occurred over the same time period among workers in quiet plant areas. Moreover, the greater the level of compliance observed (e.g., wearing hearing protection), the greater the apparent health benefit. Hypertension and cardiovascular disease were included in the overall health records monitored but could not be singled out because of insufficient sample size. Antonova (1971) compared miners before and after their workshifts in either noisy or quiet areas of the mine. Noise significantly elevated mean arterial pressure with no changes in the quiet group pre and post work. Systolic blood pressure was significantly elevated among brewery workers when they did not wear ear plugs in comparison to days in which they did (Ising & Melchert, 1980). Cortisol fluctuations were also shown to be dependent on the use of earplugs in a similar design (Melamed & Bruhis, 1996).

Another more rigorous approach to studying industrial noise exposure and psychophysiological responses is to simulate occupational noise exposure under experimental conditions with random assignment to noise conditions. Three-hour exposure to jet turbines significantly elevated blood pressure over resting levels among workers in a jet assembly plant (Ortiz, Arguelles, Crespín, Sposari, & Villafane, 1974). Mosskov and Ettema (1977) and Rovekamp (1983) found elevations in blood pressure in 2- to 3-hour noise exposures but at much lower intensities of noise than employed by Ortiz and colleagues. Cartwright and Thompson (1975) found no effects, however, of a 1-hour exposure to loud noise, but Carter and Beh (1989) were able to significantly elevate cardiovascular parameters from 1 hour of exposure, as long as participants simultaneously worked at a difficult task.

This latter finding, along with other experimental findings reviewed earlier on the multiplicative effects of noise and task demands on cardiovascular and neuroendocrine functioning, is interesting to consider in light of a small number of occupational noise studies that have also incorporated additional measures of working conditions. A Russian industrial study reviewed by Welch (1979) found elevated cardiovascular functioning in a noisy manufacturing plant among workers

with higher levels of workload demands. Workers with low workloads did not reveal any cardiovascular correlates of occupational noise exposure. Parallel results were recently uncovered in a longitudinal study (Melamed, Boneh-Kristal, & Froom, 1999). Cottington, Matthews, Talbot, and Kuller (1983) also reported a significant interaction of job stress and noise on diastolic blood pressure. Job stress was associated with higher blood pressure in a noisy manufacturing plant but not a quiet one with good controls for SES and cardiovascular risk. Similarly, Lercher, Hortnagl, and Kofler (1993) found that annoyance with noise at work had a small positive association with diastolic blood pressure. This relation was significantly amplified, however, among workers who also reported job dissatisfaction and low levels of social support on the job. Occupational exposure to noise levels may also interact with shift work. Ottmann, Rutenfranz, Neidhart, and Boucsein (1987) and Cesana et al. (1982) both found elevated catecholamine levels related to noise levels at work but only among workers on rotating shifts. Nonshift workers in noisy work areas did not reveal these associations. Lercher et al. (1993) also found higher levels of blood pressure among workers annoyed by noise who also engaged in shiftwork relative to nonshiftwork employees.

There has been a small number of industrial studies or simulation studies with prolonged noise exposure that have examined neuroendocrine and other biochemical markers of stress rather than cardiovascular functioning. Mixed results have been uncovered with no relation between noise exposure and cholesterol (Brown, Thompson, & Folk, 1975), cortisol (Brandenberger, Follenius, & Tremolieres, 1977; Cavatorta et al., 1987; Slob, Wink, & Radder, 1973), and with one or more catecholamines (Carlestam et al., 1973; J. Osguthorpe, Mills, & N. Osguthorpe, 1983; Paulocci, 1975; Slob et al., 1973). Other studies have uncovered significant, although typically small, associations between noise levels on the job or from simulated exposures and various psychophysiological indicators, such as reduced urine volume and 17-ketosteroid levels (Gibbons, Lewis, & Lord, 1975), elevated fatty acids (Ortiz et al., 1974; Promiewska et al., 1972), higher levels of cholesterol (Cantrell, 1974; Ortiz et al., 1974; Rai, Singh, Upadkyay, Patil, & Nayer, 1981), increased epinephrine levels (Cavatorta et al., 1987; Ortiz et al., 1974; Slob et al., 1973), elevated cortisol (Cantrell, 1974; J. Osguthorpe et al., 1983; Rai et al., 1981), and increased levels of ACTH and oxytocin (Fruhstorfer & Hensel, 1980). Although there are more published positive findings, it is important to keep in mind that most of these noise and biochemical studies find small changes, and null results are more difficult to get published. On the other hand, there is also a large animal literature generally consistent with significant biochemical outcomes from acute noise exposure under controlled conditions (B. Welch & A. Welch, 1970).

Increasingly, researchers have turned their attention to community studies of noise and psychophysiological parameters, particularly blood pressure. Traffic noise levels appear to have no relation to blood pressure in community samples (Elwood, Ising, & Babisch, 1993; Lercher & Kofler, 1993; Knipschild & Salle, 1979) or show a small positive associa-

tion (von Eiff, Friedrich, & Neus, 1982; Neus, Ruedel, Schulte, & von Eiff, 1983; Wu, Chiang, Huang, & Chang, 1993). Regecova and Kellcrova (1995) found that traffic noise both at home and at school was associated with elevated blood pressure among 3- to 7-year-olds. Interestingly, there were multiplicative effects as well of school and home noise. The Neus study is noteworthy because it is longitudinal. The Wu study bears mention as well since they found that traffic noise elevated young children's blood pressure as a function of hearing status. Congenitally deaf children were unaffected by road noise, whereas their able-hearing counterparts suffered small elevations. Herbold, Hense, and Keil (1974) noted a small positive relation between traffic noise levels and hypertension prevalence among adults and Babisch, Fromme, Beyer, and Ising (1996) found elevated overnight neuroendocrine stress hormones. Simulated exposure to traffic noise under controlled conditions elevates both cardiovascular and neuroendocrine activity as a function of sound intensity (Ising, Dienel, & Markert, 1980; Osada, Ogawa, Hirokawa, & Haruta, 1973). Ising's study is particularly interesting because, as in several of the acute noise exposure studies noted earlier, he found that exposure to simulated traffic noise while working had significant effects on both cardiovascular and neuroendocrine levels, especially when mental loads were higher. In one of the more rigorous tests of ambient noise exposure and cardiovascular health, Peterson, J. S. Augenstein, Tanis, and D. G. Augenstein (1981) were able to produce sustained, elevated arterial blood pressure in monkeys exposed for long periods of time to simulated recordings of aircraft and traffic noise played at typical ambient levels ($L_{eq} = 78$). Their work also showed that these monkeys sustained no hearing damage.

Studies of airport noise, which is typically louder and less predictable than road traffic noise, generally find stronger associations between noise exposure and elevated cardiovascular functioning in comparison to the road traffic noise studies. Most studies have focused on children rather than adults, which might also explain the generally more consistent, positive results than those uncovered in the road traffic noise literature.

Knipschild (1977a) found a dose-response relation between community airport noise exposure and hypertension among adult residents in Amsterdam. Two studies of simulated, military aircraft flights at low altitude have shown significant increases in blood pressure among elderly residents (Michalak, Ising & Rebentisch, 1990) and in catecholamines among middle-aged adults (Maschke, Breinl, Grimm, & Ising, 1992). Several studies have found significant relations between exposure to aircraft noise and elevated blood pressure in children (Cohen, Evans, Krantz, & Stokols, 1980; Cohen et al., 1986; Evans, Hygge & Bullinger, 1995; Ising et al., 1990; Karagodina, Soldatkina, Vinokur, & Klimukhin, 1969; Karsdorf & Klappach, 1968; Schmeck & Poustka, 1993). Several of these studies have very thorough statistical controls for socioeconomic status. One study has found no relation between airport noise levels and blood pressure (Cohen, Evans, Krantz, Stokols, & Kelly, 1981), but these data were explained by selective attrition (persons in noisy areas with

the highest levels of blood pressure left the area). Roche, Chumlea, and Siervogel (1982) found no association between ambient noise exposure in suburban communities with no nearby airports or major highways. This study is flawed because of unreliable blood pressure measurement procedures and use of self-reports for noise exposure estimation.

Evans and colleagues (1995) also investigated reactivity to a noise source, as well as chronic neuroendocrine activity levels as a function of community airport noise exposure. As shown in Table 20.1, they found evidence of elevated catecholamine activity, but no shifts in cortisol among elementary schoolchildren living in the flight path of a major international airport. Of further interest, children chronically exposed to noise appeared less reactive to an acute noise source while reading.

Ising and his colleagues found parallel trends for epinephrine, but not norepinephrine, and also found elevated cortisol in two sets of studies with adults that simulated exposure to night-time aircraft operations (Maschke, Ising, & Arndt, 1995). Of additional interest, in one study they generated a dose-response function between elevated overnight hormonal levels and sound intensity levels. Finally, Evans, Bullinger, and Hygge (1998) replicated their cross-sectional aircraft noise and young children's health findings in a prospective, longitudinal study of children living in the vicinity of the new, Munich international airport.

Immune Function

A large number of animal studies have utilized noise as a stressor to investigate altered immune function. The results, like those of the few human studies are quite mixed (Bly, Goodard, & McLean, 1993). Sieber et al. (1992), for example, found that uncontrollable but not controllable noise significantly decreased natural killer cells among healthy male subjects; Weisse et al. (1990) found the opposite pattern with controllable noise causing lymphocyte resistance to mitogens to drop.

Coping Behaviors

An alternative pathway by which noise and other environmental stressors may impact physical health is the exacerbation of substance abuse. Cigarette smoking and alcohol consumption both increase under stress (Cohen et al., 1986). In the presence of loud noise, nicotine ingestion reduces muscle tension (Hutchinson & Emley, 1973) and accelerates habituation (Friedman, Horvath, & Meares, 1974). In a

particularly interesting study, Cherek (1985) demonstrated a dose-response function between cigarette smoking (objective, experimental measures) and controlled exposures to varying noise levels (60-90 dBA).

Psychological Health

Several different types of studies have examined chronic noise exposure and mental health. The first set of studies explored possible relations between psychiatric admissions and aircraft noise exposure with decidedly mixed results. Several studies have found positive correlations between admission rates and high noise exposure (Abey-Wickrama, A'Brook, Gattioni, & Herridge, 1969; Herridge & Chin, 1972; Jenkins, Tarnopolsky, & Hand, 1981; Meecham & Smith, 1977). Nonsignificant relations have been found by Gattioni and Tarnopolsky (1973), and Jenkins, Tarnopolsky, Hand, and Barker (1979) found an inverse relation between noise levels and psychiatric admissions in the same region (Heathrow, to the West of London) utilized by Abey-Wickrama and by Jenkins et al. (1981). Kryter (1990), in a further analysis of some of Jenkins' data, discovered large ethnic differences that might have explained Jenkins' puzzling findings. Many of these studies have poor controls for social class and all are cross-sectional.

Self-reports of psychological distress were unrelated to road traffic noise levels in two cross-sectional studies (Tarnopolsky & Morton-Williams, 1980; Tarnopolsky, Watkins, & Hand, 1980) and in a prospective, longitudinal study (Stansfeld, 1993). The absence of support for a link between road traffic noise exposure and psychological health could be due, in part, to noise measurement. Halpern (1995) found that peak noise levels predicted several indices of psychological health, controlling for socioeconomic status of residents. Mean levels of traffic noise had no mental health correlates. Physician treatment for psychological problems, as well as use of hypnotic drugs, was associated with aircraft noise around Amsterdam (Knipschild, 1977b). Koszarny et al. (1981) demonstrated a similar relation, but only among women. Knipschild and Oudshoorn (1977) also found a clear relation among prescription rates for tranquilizers and aircraft noise over a 7-year period. Moreover, these authors found longitudinal trends in use of hypnotic pharmaceuticals that tracked changes in noise levels in airport impact zones. At the same time, they noted lower and consistently similar utilization rates among quiet neighborhoods of comparable socioeconomic composition. Grandjean, Graf, Lauber, Meier, and Muller (1976) found a dose-response function linking airport noise exposure to self-reported use of sleeping pills and tranquilizers. Watkins, Tarnopolsky, and Jenkins (1981), however, could not replicate the linkages between drug usage and aircraft noise exposure. One study has also uncovered a coarse dose-response function between occupational noise exposure and psychological symptoms among blue-collar workers (McDonald, 1989). Interestingly, in light of earlier work on crowding, social support and psychological health, Mc Donald also noted that impaired interpersonal relationships at work appeared to play a role in the mental health-noise links.

TABLE 20.1
Twelve-Hour, Overnight Neuroendocrine Measures

Variable	Quiet	Noisy
Epinephrine	368.62 ng/hr	526.36 ng/hr
Norepinephrine	766.22 ng/hr	1,108.82 ng/hr
Cortisol	3.62 ug/hr	3.75 ug/hr

Motivation

Interestingly, the initial study of helplessness and human beings utilized inescapable noise as the induction stimulus. Hiroto (1974) demonstrated that short-term exposure to inescapable noise induces helplessness. Adults were exposed to noise or quiet during an initial phase of an experiment. Half of the noise subjects could avoid the noise by learning an avoidance response. For the other half of the noise subjects, the noise was inescapable. The groups were then tested in a similar situation where noise could easily be avoided by a simple manual response. A second series of experiments replicated Hiroto's findings and also demonstrated that the helplessness induced by inescapable noise generalized to persistence on subsequent task performance (Hiroto & Seligman, 1975). Subjects exposed to inescapable noise exhibited significantly greater helplessness in the second testing phase, regardless of the similarity of the helplessness induction and testing phase (Hiroto & Seligman, 1975). Furthermore, the helplessness effects of inescapable noise were greater for external locus of control individuals (Hiroto, 1974). Krantz, Gikass, and Snyder (1974) found similar results in two studies of inescapable versus escapable noise. One final detail of Hiroto and Seligman's work worthy of note is that the learned helplessness effects of inescapable noise were quite similar to the induction of helplessness produced by exposing subjects to insoluble concept formation problems.

A large number of studies, initiated by Glass and Singer's pioneering work on perceived control and stress (1972) have examined performance aftereffects, immediately following exposure to uncontrollable noise. The basic paradigm includes exposing participants to noise while working on a cognitive task for a period of about 30 minutes. The participant then leaves the room and is asked to do another, apparently unrelated task where noise is no longer present (see Cohen, 1980, for an overview of this paradigm). Uncontrollable noise causes deficits in task persistence on puzzles (Gardner, 1978; Glass & Singer, 1972; Glass, Singer, and Friedman, 1969; Percival & Loeb, 1980; Sherrod, Hage, Halpern, & Moore, 1977; Wohlwill, Nasar, DeJoy, & Foruzani, 1976). Work by Glass and Singer (1972) also showed that the controllability, and to a lesser extent the predictability, of the noise is a critical component of these aftereffects. In a test of the external validity of the initial Glass and Singer findings, Moran and Loeb (1977) utilized tape-recorded aircraft noise and found, unexpectedly, that such noise did not appear to induce aftereffects in the laboratory. Percival and Loeb (1980) reasoned that perhaps airport noise, because of its temporal qualities, is rather predictable. Thus, they replicated the original Moran and Loeb finding utilizing the same stimuli, but of particular interest, found that when the aircraft noise bursts were sudden rather than the typical slow onset pattern of an approaching aircraft, negative aftereffects could be reliably produced. Rotton, Olszewski, Charleton, and Soler (1978) also showed that meaningful speech rather than noise could induce the same negative aftereffect. Evans et al. (1996) indicated that these negative aftereffects are amplified if exposure to uncontrollable noise occurs among subjects already under psychological stress. Finally,

Glass and Singer (1972) found that uncontrollable noise interferes with subsequent proofreading accuracy.

A small number of studies has also examined possible relations between chronic noise exposure and susceptibility to helplessness. Evans et al. (1995) adapted the Glass and Singer aftereffects puzzle for young children. They found that children living in high airport noise zones were less likely to persist at solving line tracing puzzles than their quiet community counterparts. Cohen and colleagues (Cohen et al., 1980, 1981) found that aircraft noise-exposed children were significantly less likely to solve a difficult, challenging puzzle than quiet comparison groups. Of particular interest, noise-impacted children were also more likely to simply give up on the puzzle before the allotted 4 minutes had passed. Fifteen percent of children from noisy schools failed the puzzle by giving up in comparison to only 2% of children from quiet schools. It is worth noting that the puzzles were designed and pretested to be fun and engaging to elementary-aged schoolchildren. These effects were replicated by Cohen and colleagues and similar trends were also found for home noise levels (Cohen et al., 1986). Both the Evans and Cohen studies had well-matched SES comparison groups. Moch-Sibony (1984) found very similar results in kindergarten children exposed to higher levels of aircraft noise in Paris. Wachs (1987) also showed that infants exposed to more noise at home manifest less mastery-oriented play as indexed by a standardized observation instrument. Of additional interest, teachers in noisy schools frequently report more difficulties motivating students than do teachers from quiet schools (see Evans & Lepore, 1973b, for a review). Finally, Cohen et al. (1986) uncovered a relation between children's willingness to relinquish choice and chronic noise exposure. Children from noisy schools relative to quiet schools were significantly more likely to allow an experimenter to choose a reward at the conclusion of their experiments rather than make their own choice.

Summary

Both industrial and community studies find no clear, consistent pattern of data on noise and morbidity. Similarly, data on acute noise exposure and altered immune functions are mixed. Although not plentiful, there is a confluence of findings suggestive of noise impacts on in utero development that warrant followup. Several studies point to noise as a factor in elevated smoking.

Acute noise produces short-lived elevations in cardiovascular and neuroendocrine functioning. Recent research suggests, however, that individuals sensitive to noise as well as situations with high workload demands can diminish and perhaps even block such habituation. A plethora of methodologically weak, occupational noise and health studies reveal decidedly mixed findings on noise and blood pressure. Some longitudinal studies indicate small, positive associations between occupational noise exposure and blood pressure elevations. Road traffic noise appears to have no significant impact on blood pressure of community residents, but persons living in the proximity of airports, particularly children, are at risk

for elevated blood pressure. The clinical significance of these elevations is unknown at this time.

Data on noise and psychological health are unclear. The preponderance of poorly designed studies links community noise levels to rates of psychiatric illness. There are better studies indicating some link between community noise exposure and utilization of pharmaceutical hypnotics. Both laboratory and field studies reveal that noise, particularly uncontrollable noise, can contribute to diminished motivation related to learned helplessness. Children chronically exposed to noise may be particularly susceptible to this phenomenon.

DISCUSSION

Application of the construct of psychological stress to examine the role of the physical environment in human health has proven useful in the case of crowding and noise. The primary contributions to date have been the identification of stress-related outcome measures likely to be related to environmental stressors and the preliminary development of a conceptual model for thinking about how and under what conditions noise, crowding, and other environmental stressors might adversely impact human well-being.

Conceptual Issues

A central deficiency has been an inattention to the role of underlying psychophysiological processes or social resources in the environmental stressor-disease link. In searching for answers to the question, why does crowding or noise cause disease?, there are very little data that has tested mechanisms like elevated cardiovascular functioning or diminished self-efficacy. What the data generally show, as depicted in Fig. 20.2, is a broad set of outcome measures independently assessed.

More studies are needed that simultaneously investigate physical or psychological health outcomes and one or more underlying processes in the same sample of individuals. For example, Evans and Lepore (Evans et al., 1989; Evans & Lepore, 1993a; Lepore et al., 1991) showed evidence for the model shown in Fig. 20.3—namely, that high residential density causes deterioration in social support resources, which in turn accounts for the linkage between density and psychological ill health.

There are an unbelievably large number of studies of noise and cardiovascular functioning (principally blood pressure) that have not also looked at some disease endpoint. Similarly, no studies have examined crowding, immune function, and physical morbidity.

Several psychophysiological mechanisms are prime candidates for more in-depth scrutiny as intervening processes that could link environmental conditions to ill health. Alterations in neuroendocrine functioning affect cardiovascular activity, primarily via adrenomedullary action as well as alter immune functioning via adrenocortical pathways (Baum & Grunberg, 1995).

Cardiovascular reactivity is another process warranting analysis. Two viable, competing hypotheses exist. Sustained, chronic exposure to uncontrollable, environmental stressors

like crowding or noise may deplete the organism's ability to respond adequately to challenge with cardiovascular mobilization (Dienstbier, 1989). Alternatively, heightened sensitivity and vigilance from chronic stressor exposure might exacerbate reactivity (Krantz & Manuck, 1984).

Learned helplessness and other motivational processes related to chronic environmental stressor exposure have not been adequately developed. It seems clear that one of the potentially most injurious aspects of chronic environmental stressors is their intractability. Several aspects of motivation and chronic environmental stress warrant additional research. The role of attributional processes, which is well documented in the helplessness literature, has not been applied to environmental stress research. It is clear that attributional processes are salient to environmental stressors like noise and crowding. Noise annoyance is strongly affected by attributions about the origins of noise stimuli, as well as their perceived health impacts (Koelega, 1987). Feelings of arousal induced by personal space invasions (Worchel & Teddlie, 1976), expectancies (Schmidt & Keating, 1979), or informational cues (Langer & Saegert, 1977; Paulus & Matthews, 1980) can all be attributed to crowding or other environmental conditions with varying consequences. The potential interplay among environmental stressors and uncontrollability, helplessness, and negative health outcomes (such as depression) is an area ripe for further study. Motivation or effort to maintain task performance or productivity under suboptimal conditions may be a salient factor, as well, in determining the long-term health consequences of chronic exposure to adverse environmental conditions. Several noise studies both in the laboratory and the field, as well as one crowding study indicate that task performance can be sustained under adverse conditions but at a "cost" of psychophysiological activation. The long-term health consequences of people expending additional effort to do their job when the environment is not optimal is an important and unresearched topic.

Studies of underlying psychosocial processes, such as social support or control, also raise provocative conceptual issues about environment, stress, and coping. Social support and control have each traditionally been conceptualized as exogenous factors that moderate stressor-outcome relations. As can be seen herein, however, chronic exposure to crowding or to noise directly effects social support and control processes, respectively. These psychosocial processes mediate rather than moderate the impacts of these chronic environmental demands. Other chronic stressors may have similar effects on coping resources.

In considering hypothetical mechanisms, it is also prudent to carefully scrutinize the traditional practice of statistically controlling risk factors in environmental epidemiology. For example, several noise and coronary heart disease investigations control for smoking levels. However, what if noise exposure increases smoking as a coping device, as suggested by some studies already reviewed? By statistically partialling out a "risk" factor, a psychologically relevant process that may underlie the noise-health link has been eliminated.

At a more abstract level, the construct validity implications of statistical controls or the practice of random assign-

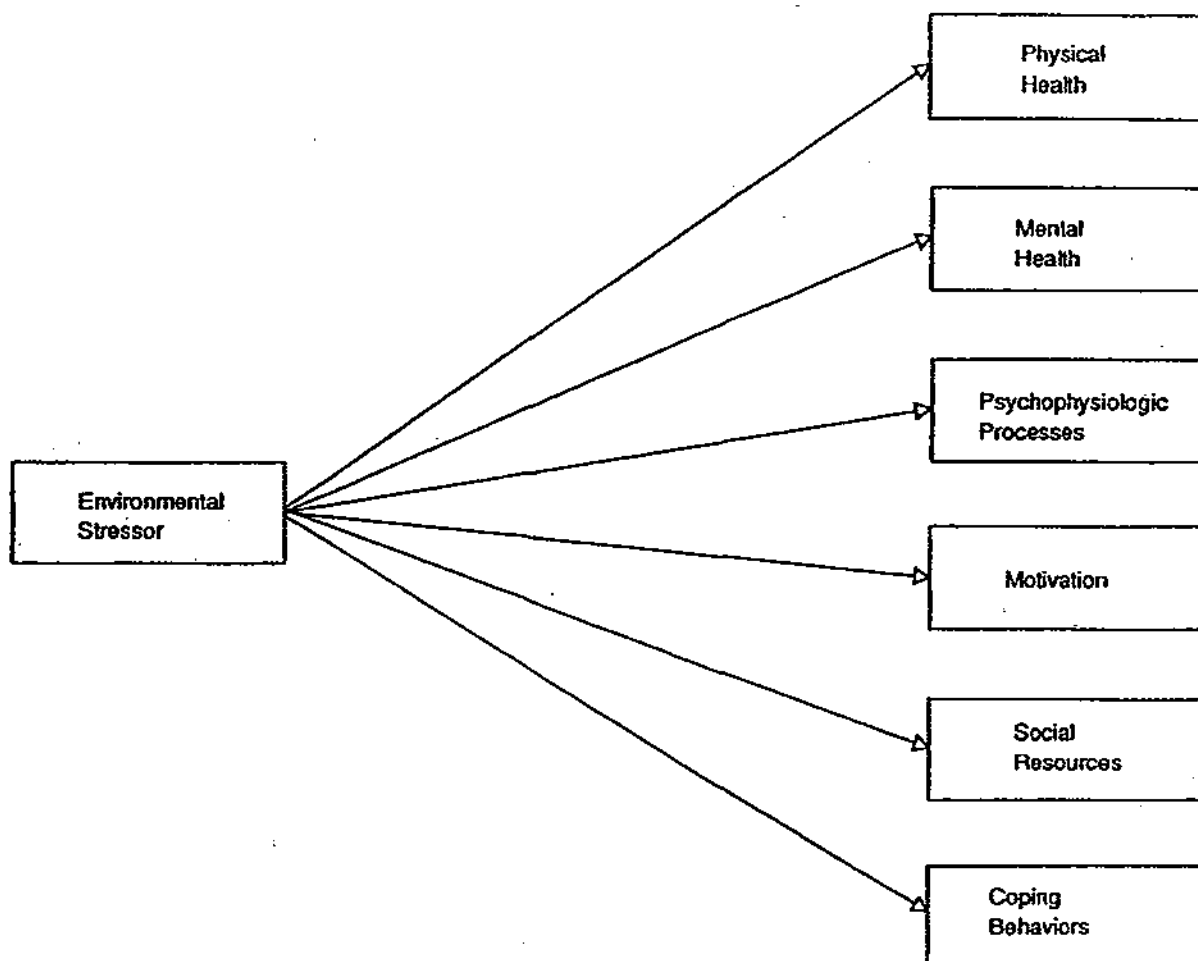


FIG. 20.2

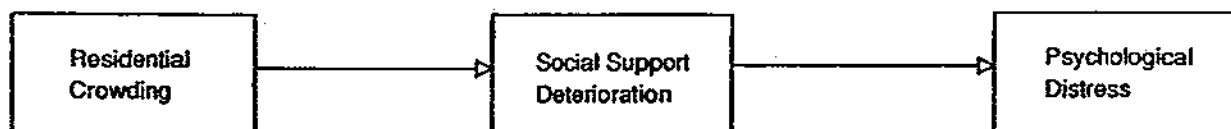


FIG. 20.3

ment in experimental studies of stress and health should be carefully considered. By removing environmental stressors from their natural context (i.e., poverty, other suboptimal environmental factors) for the purposes of study, ecological validity of the stressor–health relation may be distorted. Perhaps crowding and poverty together or noise and certain job requirements together, respectively, lead to pathology. By isolating one independent variable either through statistical or experimental design means for purposes of causal modeling, the actual incidence of adverse outcomes from suboptimal en-

vironmental conditions may be dramatically underestimated (Lepore & Evans, 1996).

It might also be valuable to conceptualize the physical environment not only as a source of stress but also as a source of coping resources (Becker, 1990). Research on coping, like stress, tends to overly focus on intrapsychic mechanisms, missing the potential role of the social and physical environment to promote or interfere with health. For example, research on crowding suggests that floorplan layouts that incorporate greater intervening, hierarchically arranged

spaces, buffer the negative effects of residential crowding on psychological distress (Evans, Lepore, & Schroeder, 1996). Similarly, children in crowded homes who have a place where they can spend some time by themselves appear to suffer fewer negative outcomes (Wachs & Gruen, 1982).

Although children exposed to multiple risk factors are more likely to suffer adverse physical and mental health outcomes, some children are more resilient than others (Rutter, 1987). Bradley and colleagues (1994) found that low residential density was a significant, independent, protective factor among poor, low birth weight babies tested 1 and 3 years later on a wide array of physical and psychological health measures.

Methodological Issues

In addition to some of the conceptual issues associated with statistically controlling for risk factors, statistical approaches that partial out variables in order to "control" for possible confounding effects are also fraught with analytic problems. Statistical models that partial or covary out variables are based on the assumption of no interaction between the independent variable and the potential control variable on the outcome. Controlling for social class, for example, presupposes that noise or crowding do not interact with social class to affect health or well-being. The same statistical problem may occur with controls for certain risk factors, such as family history of coronary heart disease, hypertension status, or age, to name some common examples. Utilization of analysis of covariance or its regression equivalents assumes that the slopes of the respective regression lines between the outcome variable and the independent variable and the covariate (partial b) are parallel (i.e., no statistical interaction). Researchers should not employ covariance or analogous regression procedures to control for risk factors or contextual factors, such as socioeconomic status, without first assessing this basic statistical assumption.

Another analytic issue concerns effect size considerations. When the correlation coefficient between noise exposure and blood pressure, for example, is squared, not a lot of variance is explained. But this is also true if the same is done for cigarette smoking and lung cancer. It is also true that the variance explained in mental health by crowding is on the same order of magnitude as the variance explained by income (Evans et al., 1998; Gove & Hughes, 1983). Critics of the apparently small role of the physical environment in health need to grapple with this issue more in comparative, rather than in absolute, terms.

There is critical need for prospective, longitudinal designs in the field. There is only one crowding study incorporating such a design (Lepore et al., 1991) and just a handful of industrial studies of noise and health that incorporate a longitudinal component. Self-selection into noisy or crowded environments, as well as possible spuriousness, loom as major threats to internal validity in most of the field studies reviewed herein. Too many cross-sectional field studies exist. Furthermore, not enough integrated research programs have examined the same environmental stressor and health in the lab and in the field. The value of integrating lab and field work is illustrated by Cohen and colleagues' work on aircraft noise and

children where laboratory-based concepts and measures were brought to bear on the study of chronic, community noise exposure (Cohen et al., 1986).

Caution is needed in generalizing from aggregate level, epidemiological studies to individual health responses to the physical environment. Several examples of this ecological fallacy were previously reviewed, particularly in crowding field studies, where people per room as indexed by census tract did not yield the same pattern of results as when individual health measures were assessed. Parallel trends were noted in the noise and health literature (Lercher, 1996). One reason aggregate-level comparisons can be misleading is related to exposure estimation. Large degrees of variance in exposure are truncated into a single estimate of exposure when aggregate level data are examined. Furthermore, the actual environment as experienced is even further removed from the exposure metric in comparison to individual residential or work environment assessments.

The problems of exposure estimation and adequate representation of physical stressors in studies are common in the environmental stress literature. Many studies have only gross estimates of actual exposure to the physical stressor. Crowding and noise are typically estimated indirectly and do not account for individual movement throughout the day across settings. One indication of the importance of this issue is found in the noise literature where several studies on industrial noise show that duration of exposure is a critical variable. Similarly, utilization of hearing protection affects noises and health findings in industrial settings. Residential room location can also impact noise exposure (Lercher, 1996). An interesting example of the importance of exposure estimation comes from a recent study by Maxwell (1996) of crowding in preschoolchildren. Children in more crowded day-care centers had greater behavioral and emotional problems only if they also lived in crowded homes.

Moreover, the range of environmental variables in many studies is often truncated and/or the distribution of environmental exposures is badly skewed. Both of these problems strain the general linear model that forms the underlying statistical basis employed in most studies of the physical environment, stress, and health. For example, many studies of crowding have hardly any people in homes with more than 1.5 persons per room. Most laboratory studies expose people to quiet or noise and several community noise studies transform continuous data into a noise/quiet dichotomy. Badly skewed data, as well as use of dichotomous categories, reduce statistical power.

Furthermore, there is some indication of threshold effects for noise and crowding health effects. Recall for example some recent evidence that traffic noise above 65 dBA Leq appears necessary before cardiovascular risk elevates. This nonlinearity also adversely affects statistical power. Studies of traffic congestion and health outcomes indicate that log transformations (Halpern, 1995), or use of indices such as percentage of time at high congestion levels (Evans & Carrere, 1991), predict outcomes significantly better than do mean levels of exposure. This nonlinearity can also appear at the opposite end of the environmental exposure spectrum. Living alone is associ-

ated with psychological impairment as well as low social support (Gabe & Williams, 1987; Galle et al., 1972). Crowding studies that calculate persons per room as the density metric that include people living alone distort the estimate of association between crowding and health outcomes.

Outcome measures are also wanting. Several studies of psychological health employed one item or scales of unknown psychometric properties. Studies of health sorely need standardized, sensitive indicators. Immune function would be a particularly valuable adjunct to environmental morbidity studies. Several studies of blood pressure incorporated one or two readings, often taken in a medical setting. Such data are unreliable and of questionable validity.

Health psychology has demonstrated that individual, biological, and personological characteristics are central to understanding health and disease. A smaller body of work within health psychology has also examined the potential role of sociocultural factors in human health. Hopefully, this chapter has directed attention to the potential direct, indirect, and interactive roles the physical environment can play in health and human behavior.

ACKNOWLEDGMENTS

Preparation of this chapter was partially supported by grants from the National Institutes of Health (1 RO1 HL47325-01) the National Science Foundation (BNS-8920483) and the U.S. Department of Agriculture (Hatch-NY 327407). I am grateful to Jana Cooperman and Tamir Ebbin for bibliographic assistance. I thank Steve Lepore, Paul Paulus, and Shirley Thompson for critical feedback on earlier drafts.

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**CHRONIC NOISE EXPOSURE AND PHYSIOLOGICAL RESPONSE:
A PROSPECTIVE STUDY OF CHILDREN LIVING
UNDER ENVIRONMENTAL STRESS**

Gary W. Evans,¹ Monika Bullinger,² and Staffan Hygge³

¹Cornell University; ²Universitätskrankenhaus Eppendorf, Hamburg, Germany; and ³Kungl Tekniska Högskolan, Gävle, Sweden

Abstract—Chronic exposure to aircraft noise elevated psychophysiological stress (resting blood pressure and overnight epinephrine and norepinephrine) and depressed quality-of-life indicators over a 2-year period among 9- to 11-year-old children. Data collected before and after the inauguration of a major new international airport in noise-impacted and comparison communities show that noise significantly elevates stress among children at ambient levels far below those necessary to produce hearing damage.

People typically characterize environmental issues as physical health or technological problems. But the physical environment may also have adverse psychological impacts. Suboptimal environmental conditions, such as noise and crowding (Cohen, Evans, Stokols, & Krantz, 1986; Evans & Cohen, 1987), air pollution (Evans, 1994), or disasters (Baum & Fleming, 1993), may elicit psychological coping reactions, including cardiovascular and psychoneuroendocrine activation (Baum, Grunberg, & Singer, 1982; Frankenhaeuser, 1986; Lundberg, 1984). In the present article, we provide prospective, longitudinal evidence that chronic noise elevates psychophysical stress and depresses perceived quality of life.

Although noise can cause hearing deficits (Kryter, 1994), nonauditory, stress effects of noise have not been demonstrated definitively because of methodological and conceptual limitations in prior research. Laboratory studies indicate that acute noise elevates psychophysiological stress (e.g., blood pressure, epinephrine), but these responses habituate rapidly (Evans, in press; Glass & Singer, 1972; Hygge, 1997).

Psychophysiological stress responses to chronic noise have been investigated in industrial settings and in communities proximate to highways and airports. These cross-sectional studies, unfortunately, are subject to an array of plausible alternative explanations, particularly self-selection bias. Although suggestive trends linking occupational noise exposure and hypertension exist, the designs of these studies are so weak that definitive conclusions cannot be drawn (Evans, in press; Thompson, 1993). Poor or nonexistent control groups, nonrigorous assessments of blood pressure (e.g., one reading while on the job), and insufficient estimation of noise exposure plague industrial studies of noise and cardiovascular parameters.

Community studies of aircraft noise reveal elevated psychophysiological stress among children (Evans, Hygge, & Bullinger, 1995; Evans & Lepore, 1993). All of these studies are cross-sectional and, with one exception (Evans et al., 1995), limited to blood pressure. Knipschild (1977) has also shown a dose-response function between noise exposure in the community and hypertension among adults around the Amsterdam airport. The most clear-cut evidence that noise causes ele-

vated psychophysiological stress comes from a primate laboratory study (Peterson, Augenstein, Tanis, & Augenstein, 1981). Simulated air- and road-traffic noise produced stable, elevated arterial blood pressure over a several-week period in the laboratory.

Many noise studies have obscured not only methodological issues, but also important conceptual issues. First, with few exceptions, investigators have not screened for hearing damage. One cannot presently say with any confidence whether stress correlates of community and occupational noise exposure are mediated by hearing loss. Second, nearly all the field studies have confounded acute and chronic noise exposure. Typically, testing has occurred in situ. If individuals are not tested under quiet, carefully controlled conditions, one cannot confidently attribute stress responses to chronic versus acute noise exposure.

The present study took advantage of a natural experiment created by the opening of a new international airport located in a rural area 35 km outside of Munich, Germany. Resting blood pressure, overnight levels of neuroendocrine hormones, and quality of life were measured over a 2-year period among elementary school children residing in the flight paths of this airport before and after its inauguration. Comparison groups of sociodemographically well-matched children from nearby rural communities were also assessed over the same time period.

METHOD

Subjects

Participants were 217 third- and fourth-grade children (mean age = 9.90 years at the study's onset) living either proximate to the new Munich International Airport or in nearby communities outside the noise impact zone of the new facility. The total of 217 participants reflects attrition of 10 and 14 children, respectively, from the noisy and quiet areas. Attrition was unrelated to the outcome variables.

The measures of noise were 24-hr dBA Leq, an unweighted mean of energy level expressed in decibels, and dBA L01, the dBA level exceeded 1% of the time over the sampling period (24 hr in the present case). The dBA scale is logarithmic, and the human observer experiences an increase in 10 dBA as approximately a doubling of loudness. Following inauguration of the new airport, dBA Leq equaled 62, with a dBA L01 of 73, in the noise-impacted communities. Among the quiet communities at the same time period, dBA Leq was 55, with a dBA L01 of 64. Prior to the opening of the new airport, dBA Leq was 53, with a dBA L01 of 63, in the airport communities, and noise levels were comparably low in the comparison areas (dBA Leq = 53, dBA L01 = 64).

Children in the quiet comparison communities were matched to the children in the noise-impacted communities according to socioeconomic status. Households did not differ in the type of occupation, $\chi^2(4, N = 197) = 8.91$; parental education, $t(214) < 1.0$; or family size, $t(214) < 1.0$. All of the children in the study were screened for normal hearing with an audiometric examination.

Address correspondence to Gary Evans, Department of Design and Environmental Analysis, Cornell University, Ithaca, NY 14853-4401; e-mail: gwel@cornell.edu.

Noise Exposure and Physiological Response

Procedure

Testing occurred in a sound-attenuated, climate-controlled mobile laboratory parked outside the child's elementary school. A microphone (6 m above ground) interfaced with a B&K Model 4426 Community Noise Level Analyzer monitored 24-hr outdoor noise levels at the trailer. Data were collected 6 months prior to the opening of the new airport (Wave 1), 6 months after the opening (Wave 2), and again 18 months after the opening (Wave 3), for a total of three assessment phases per participant.

Resting blood pressure was assessed with an automated monitor (A & D Digital, UA 751) while the child sat comfortably with his or her right arm supported at heart height on a table. Baseline readings were calculated by taking the average of six resting indices taken on 2 consecutive days. On each day, four readings were taken after an orientation to the automated monitor, and the first reading was discarded. Reliability estimates for the six readings exceeded an alpha of .85 for both diastolic and systolic blood pressure.

Twelve-hour overnight urine samples were collected between 20:00 on the evening of the initial testing day and 8:00 the following morning. The container was kept refrigerated and contained a preservative. Parents returned the urine specimen container the next day to the trailer. Total volume was measured, and small replicate samples of urine were extracted and deep frozen at -70°C until assayed. Half of the replicates were also pH adjusted to reduce oxidation further for the catecholamine assays. Epinephrine and norepinephrine were assayed by high-performance liquid chromatography with electrochemical detection (Riggin & Kissinger, 1977). Cortisol was determined by a radioimmuno assay (Baxter Travenol Diagnostics, Cambridge, Mass.). (For further information about procedures for the collection and assay of urinary neuroendocrine samples, see Baum & Grunberg, 1995, and Grunberg & Singer, 1990.)

Quality of life was assessed by the KINDL, a valid and reliable index of the principal domains of quality of life (physical, psychological, social, functional daily life; Bullinger, von Mackensen, & Kirchberger, 1994). These domains were combined for the present analysis ($\alpha = .92$).

RESULTS

The data analytic strategy was to conduct a 2×3 repeated measures multivariate analysis of variance (MANOVA). The principal statistic of interest is the exact F test for the interaction of group (noise impacted vs. quiet) and time (Wave 1 vs. Wave 2 vs. Wave 3).

As can be seen in Table 1, blood pressure increased in the noise-impacted communities after Wave 1, with the opening of the new airport; much smaller changes occurred among the quiet, comparison communities. The interaction of group and time was significant for systolic blood pressure, MANOVA exact $F(2, 214) = 4.50, p < .01$, and marginal for diastolic blood pressure, $F(2, 214) = 2.83, p < .06$.

The overnight urinary neuroendocrine results are shown in Table 1 as well. Consistent with the elevations in blood pressure, both epinephrine, $F(2, 200) = 36.86, p < .001$, and norepinephrine, $F(2, 200) = 22.31, p < .001$, increased sharply among children living in the flight paths of the new airport after it opened; smaller increases were seen over the same period among the children residing in quiet communities. Changes in urinary cortisol over time were not systematically related to noise conditions, $F(2, 200) = 1.73, n.s.$ Degrees of freedom vary because of missing data.

As indicated in Table 2, quality of life declined significantly in the noise-impacted communities 18 months after the opening of the new airport, but remained relatively stable in the quiet, comparison communities, $F(2, 202) = 3.07, p < .05$.

Table 1. Measures of psychophysiological stress in the noise-impacted and quiet communities

Measure and community	Wave		
	1	2	3
Systolic blood pressure (mm Hg)			
Noise	97.2 (11.6)	101.6 (9.9)	102.4 (10)
Quiet	100.8 (8.9)	102.2 (8.9)	102.6 (12)
Diastolic blood pressure (mm Hg)			
Noise	60.5 (7)	63.2 (6.1)	64.4 (6.2)
Quiet	62.6 (7.1)	63.6 (6.4)	64.8 (6.8)
Epinephrine (ng/hr)			
Noise	229.2 (153.4)	328.1 (130.4)	341.9 (168.1)
Quiet	251.8 (57)	280.9 (64.6)	246.2 (83.7)
Norepinephrine (ng/hr)			
Noise	610.7 (338.6)	1,228.5 (659.7)	1,556.3 (703.6)
Quiet	660.0 (506.9)	879.7 (457.7)	950.7 (525.5)
Cortisol ($\mu\text{g/hr}$)			
Noise	3.56 (1.89)	4.36 (5.39)	5.14 (6.89)
Quiet	3.31 (1.89)	2.37 (6.14)	3.78 (2.89)

Note. The data shown are means, with standard deviations in parentheses.

Table 2. Quality of life in the noise-impacted and quiet communities

Community	Wave		
	1	2	3
Noise	110.3 (13.8)	112.4 (13.9)	104.8 (16.0)
Quiet	112.5 (16.4)	112.1 (17.0)	109.6 (15.5)

Note. The scale for the quality-of-life measure ranges from 40 to 200, with greater values indicating higher perceived quality of life. The data shown are means, with standard deviations in parentheses.

DISCUSSION

Chronic exposure to ambient aircraft noise elevates psychological stress in human beings. Children living proximate to the new Munich International Airport experienced significant elevations in resting blood pressure after the airport opened. During this same time period, well-matched children in nearby, similar communities experienced stable levels of resting blood pressure. The catecholamine data, which are consistent with the blood pressure effects, underscore the value of conceptualizing noise and other suboptimal environmental conditions as stressors. Elevated urinary catecholamines have consistently been shown to reliably and sensitively mark chronic exposure to stressors (Baum et al., 1982; Frankenhaeuser, 1986; Lundberg, 1984). Urinary cortisol has proven less reliable as an index of chronic stress exposure (Frankenhaeuser, 1986; Lundberg, 1984).

The self-report data show the same pattern, but with a delayed time course. Childrens' perceived quality of life dropped more markedly in the noise-impacted communities than in the quiet communities, but this drop did not occur until 18 months after the new airport opened.

As in any field study, some questions remain. We cannot disentangle the apparent effects of chronic noise from the uncontrollability of that exposure. Although the primary environmental change near the new airport was dramatic increases in sound levels, the surrounding community also witnessed increased land development, more road traffic, and the like.

Our prospective data add evidence to previous cross-sectional results that have shown elevated stress among adults and children working and residing, respectively, in chronically noisy environments. In young children, chronic noise exposure appears to cause increased psychological stress, as measured by cardiovascular, neuroendocrine, and affective indicators. These effects occur among children who suffer no detectable hearing damage while living in the immediate vicinity of an airport.

Acknowledgments—We are grateful to the families who cooperated with this research. We thank Sylvia von Mackensen, Markus Meis, Gerhard Helm, Gunnar Söderqvist, Christian Wigren, Nils Antoni, and Pat O'Keeffe for their dedication to this project. This research was partially supported by the Society for the Psychological Study of Social Issues, the National Institutes of Health (R01 HL 4732 01A), the Nordic Scientific Group for Noise Effects, the Swedish Environmental Protection Agency, and the Gertman Research Foundation. The second author was also supported by the DFG Heisenberg Fellowship.

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(RECEIVED 3/15/97; ACCEPTED 5/9/97)

**DEVELOPMENT OF HEALTH
CRITERIA FOR SCHOOL
SITE RISK ASSESSMENT
PURSUANT TO HEALTH
AND SAFETY CODE
SECTION 901(g):**

**PROPOSED CHILD-SPECIFIC
REFERENCE DOSES (chRDs)
FOR SCHOOL SITE RISK
ASSESSMENT – Cadmium,
Chlordane,
Heptachlor/Heptachlor Epoxide,
Methoxychlor, and Nickel**

DRAFT REPORT

June 2003



**Integrated Risk Assessment Section
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency**

Draft Report

June 2003

**Development of Health Criteria for School Site
Risk Assessment Pursuant to Health and Safety
Code Section 901(g):**

**Proposed Child-Specific Reference Doses (chRDs)
for School Site Risk Assessment – Cadmium,
Chlordane, Heptachlor/Heptachlor Epoxide,
Methoxychlor, and Nickel**

Office of Environmental Health Hazard Assessment
California Environmental Protection Agency
1001 I Street, 12th Floor
P.O. Box 4010
Sacramento, California 95812-4010

LIST OF CONTRIBUTORS

Authors

David Chan, D.Env., Susan A. Knadle Ph.D., DABT and
Kathleen Stewart

Primary Reviewers

David Siegel, Ph.D., DABT., Chief, Integrated Risk Assessment Section
Jim Carlisle, DVM, Senior Toxicologist, Integrated Risk Assessment Section

Secondary Reviewers

Joseph Brown, Ph.D.
Jim Donald, Ph.D.
Mari Golub, Ph.D., DABT
Poorni Iyer, Ph.D.
Robert Howd, Ph.D.
Lubow Jowa, Ph.D.
Susan Klasing, Ph.D.
David Morry, Ph.D.
Tom Parker, M.S.
Karen Randles, M.S.

Library Support

Jerry McGovern

Website Posting

Laurie Monserrat

DRAFT FOR PUBLIC REVIEW
Proposed chRDs for School Site Risk Assessment

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**Development of Health Criteria for School Site Risk Assessment
Pursuant to Health and Safety Code Section 901(g):**

Proposed chRDs for School Site Risk Assessment

Executive Summary

As mandated by Part 2 of the Health and Safety Code, section 901(g), the Office of Environmental Health Hazard Assessment (OEHHA) reviewed five chemicals to consider the development of child-specific reference doses (chRDs). This report summarizes OEHHA's review of pertinent scientific studies in proposing these chRDs. Any chRDs established as a result are intended for use in the risk assessment of proposed or existing California school sites.

OEHHA completed Part 1 of that mandate, which called for the identification of chemical contaminants commonly found at school sites and determined to be of greatest concern to children. The report, "Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code, Section 901(g): Identification of Potential Chemical Contaminants of Concern at California School Sites," was posted on OEHHA's website in June, 2002. In summary, OEHHA identified seventy-eight chemicals that will likely be found as contaminants of California school sites and have the potential for causing adverse effects in children. This should be viewed as a living compilation – chemicals may be added or removed as new information becomes available.

OEHHA chose five chemicals from the compilation for an in-depth evaluation of non-carcinogenic effects: cadmium, chlordane, heptachlor and its metabolite heptachlor epoxide, methoxychlor, and nickel. The criteria used to select these chemicals for the first round of reviews are discussed in Chapter 1.

In reviewing the applicable scientific literature, OEHHA identified relevant quantitative studies from which to propose a chRD for each chemical. The chRD for the non-carcinogenic effects of cadmium is based on a 1999 study by Buchet et al. The authors reported a strong relationship between cadmium body burden and renal tubular dysfunction in adult humans. This study identified a lowest observed adverse effect level (LOAEL) of 1×10^{-3} mg/kg-day. From this LOAEL, OEHHA calculated a chRD of 1×10^{-5} mg/kg-day using an uncertainty factor of 30 (10 to account for human variability and 3 to extrapolate from the LOAEL to the no observed adverse effect level (NOAEL). A factor of 3 (rather than the usual default of 10) was used for extrapolating from a LOAEL to a NOAEL because the LOAEL was based on the minimal adverse effect observed. A child protective modifying factor of 3 was used to account for the child/adult difference in gastrointestinal absorption of cadmium for a combined uncertainty and modifying factors of 90.

The chRD for the non-carcinogenic effects of chlordane is based on a 1994 study by Cassidy et al. The authors demonstrated changes in sex-steroid mediated behaviors, including increased male-typical spatial abilities in female rats and increased male-typical mating behaviors in male rats, following pre- and postnatal exposure. This study identified a LOAEL of 0.1 mg/kg-day, from which OEHHA calculated a chRD of 3.33×10^{-5} mg/kg-day using an uncertainty factor of 3000 (10 for interspecies variability, 10 for human variability, 10 to extrapolate to the LOAEL from the NOAEL, and a modifying factor of 3 to account for an inadequate hematotoxicity/immunotoxicity and neurotoxicity database—toxicities to which children may be particularly sensitive).

The chRD for the non-carcinogenic effects of heptachlor is based on two studies. One is a 2001 study by Moser et al., which shows decreased performance on measures of cognitive function in male rats following pre- and postnatal exposure, through postnatal day 21. The other is a 2001 study by Smiałowicz et al., which shows suppression of the primary IgM and secondary IgG antibody responses following exposure during the last half of gestation through puberty. Both studies identified a LOAEL of 0.03 mg/kg-day. OEHHA calculated a chRD of 3×10^{-5} mg/kg-day using an uncertainty factor of 1000 (10 each for interspecies variability, human variability, and extrapolation from LOAEL to NOAEL). The chRD for the non-carcinogenic effects of heptachlor epoxide utilizes the same study selected by U.S. EPA for its reference dose (RfD) and OEHHA for its Public Health Goal (PHG.) A LOAEL of 0.0125 mg/kg-day for liver-to-body weight ratio was reported when adolescent dogs were fed heptachlor epoxide for 60 weeks (Dow Chemical Co., 1958). Since exposure was to adolescent animals, OEHHA utilized the U.S. EPA RfD for its chRD of 1.3×10^{-5} mg/kg-day and utilized the same uncertainty factor of 1000 (10 each for interspecies variability, human variability, and extrapolation from LOAEL to NOAEL).

The chRD for the non-carcinogenic effects of methoxychlor is based on two studies as well. One is a 1995 study by vom Saal et al., which demonstrates increased urine marking in male mice, an index of territorial behavior, subsequent to prenatal exposure. The other is a 1999 study by Welshons et al., which shows an increase in adult prostate size following prenatal exposure. The LOAEL identified from these studies is 0.02 mg/kg-day. OEHHA calculated a chRD of 2×10^{-5} mg/kg-day using an uncertainty factor of 1000 (10 each for interspecies variability, human variability, and extrapolation from LOAEL to NOAEL).

The chRD for the non-carcinogenic effects of nickel is based on the observed pup mortality in three reproductive studies – Smith et al., 1993, and Springborn Laboratories, 2000 a and b. In reviewing these three studies in totality, OEHHA concludes that the 1.1 mg nickel/kg-day (5 mg nickel sulfate hexahydrate/kg-day) dose constitutes the appropriate NOAEL. From this NOAEL, OEHHA calculated a chRD of 3.7×10^{-3} mg/kg-day, using an uncertainty factor of 300: 10 each for interspecies extrapolation and human variability) and a child protective modifying factor of 3 to account for the child/adult difference in gastrointestinal absorption of nickel.

Table ES 1 below compares the chRDs and U.S. EPA's RfD, which are based on studies in adult animals.

Table ES 1 OEHHA's chRD and U.S. EPA's RfD

	OEHHA's Proposed chRD (mg/kg-day)	U.S. EPA's RfD (mg/kg-day)
Cadmium	1×10^{-5}	5×10^{-4}
Chlordane	3.3×10^{-5}	5×10^{-4}
Heptachlor	3×10^{-5}	5×10^{-4}
Heptachlor epoxide	1.3×10^{-5}	1.3×10^{-5}
Methoxychlor	2×10^{-5}	5×10^{-3}
Nickel	3.7×10^{-3}	2×10^{-2}

These proposed chRDs were reviewed internally. OEHHA is currently releasing this draft report for external peer review and public comment. Any chRDs established by this process are intended for use in risk assessment of proposed or existing school sites in California.

1. Introduction

This report summarizes the first-year effort of the Office of Environmental Health Hazard Assessment (OEHHA) in developing health criteria for five selected chemicals for use in school-site risk assessment. The following provides the context for this effort.

1.1 Mandate

As part of a series of legislative provisions in California to protect children from exposure to environmental contaminants, OEHHA has been tasked under Health and Safety Code, Section 901(g), to fulfill the following directives:

1. On or before January 1, 2002, OEHHA, in consultation with the appropriate entities within the California Environmental Protection Agency (Cal/EPA), shall identify those chemical contaminants commonly found at school sites and determined by OEHHA to be of greatest concern based on criteria that identify child-specific exposure and child-specific physiological sensitivities.
2. On or before December 31, 2002, and annually thereafter, OEHHA shall publish and make available to the public and other state and local environmental and public health agencies and school districts, numerical health guidance values for five of those chemical contaminants identified until the contaminants identified have been exhausted.

1.2 Identification of Chemicals

The first part of the mandate, identifying those chemical contaminants commonly found at school sites and determined to be of greatest concern based on criteria that identify child-specific exposures and physiological sensitivities, was completed earlier. Available data did not permit us to definitively identify those chemicals that are commonly found at school sites and for which children have unique physiological sensitivities. However, we have identified a group of candidate chemicals that will likely be found as contaminants at school sites (200 chemicals), and another group where evaluation of review literature provided some indication the chemicals may have the potential for causing adverse effects on school-age children (198 chemicals). The methods used to implement the first part of the mandate are summarized below; a detailed description can be found in the OEHHA June 2002 report, "Development of Health Criteria for School Site Risk Assessment Pursuant to Health and Safety Code, Section 901(g): Identification of Potential Chemical Contaminants of Concern at California School Sites," which can be downloaded at:

http://www.oehha.ca.gov/public_info/public/kids/pdf/ChildHealthreport60702.pdf.

In identifying contaminants likely to be found at California school sites, OEHHA considered chemicals that have been targeted by federal and state agencies as being pervasive in pertinent environmental media, in addition to contaminants that have been found at school sites or were on the list of analytes for monitoring studies at California school sites. Using these criteria, OEHHA considered the following as candidate contaminants that are likely to be found at school sites:

- Ninety-four soil contaminants that have been reported in school site Preliminary Endangerment Assessments (PEA) and reviewed by the Department of Toxic Substances Control (DTSC).
- Ninety Toxic Air Contaminants that were emitted to, or detected in, California's ambient air.
- Sixty potential classroom contaminants targeted for monitoring by the Department of Health Services (DHS) and the Air Resources Board (ARB), as part of their Portable Classroom Program.
- Forty-seven toxic chemicals targeted by U.S. EPA in its National Human Exposure Assessment Survey (NHEXAS).
- Twenty-six contaminants targeted by U.S. EPA in its Total Exposure Assessment Methodology (TEAM) studies.

Because of overlap among the chemicals reported or targeted by the above federal and state agencies, the final compilation consists of 200 chemical contaminants likely to be found at school sites.

In identifying chemicals with potential child-specific sensitivities, OEHHA considered the following:

- Chemicals with one or more citations in review articles from the scientific literature indicating the potential for adverse effects on the development of the nervous, respiratory, reproductive, endocrine, or immune system.
- Chemicals that initiated cancer following exposure during the perinatal period or childhood.
- Chemicals identified as Proposition 65 Developmental and Reproductive Toxicants by OEHHA, excluding chemicals not likely to be found at school sites, such as pharmaceuticals. While Prop 65 deals with chemical exposures that occur during pregnancy, the inclusion of these Prop 65 chemicals are useful for screening chemicals that may also impact developing organ systems postnatally.

The final compilation consists of 198 chemicals to which children are potentially more sensitive, 87 of which are from the Proposition 65 list.

To aid in implementing the second part of the mandate, the two compilations were merged into one comprehensive list of 78 chemicals that met both criteria. This list is given in table ES 1 in OEHHA's June 2002 report (page 5) and will be updated as new data become available. The information obtained to produce this compilation is not

sufficient to conclude that the compiled chemicals are found in most schools or that children have a greater sensitivity compared to adults. The compilation has been prepared to assist OEHHA scientists in selecting chemicals for further in-depth review to determine if sufficient studies on toxicity to developing organ systems in the young exist to create a health guidance value specific for children. The list has no regulatory status.

1.3 Numerical Health Guidance Values

The second part of the mandate, which is the subject of this report, requires OEHHA to annually publish numerical health guidance values for five of those chemical contaminants identified in the June 2002 report until the contaminants identified have been exhausted. In order to prioritize chemicals from the compilations generated in Phase I for in-depth review, OEHHA outlined the following criteria, which was also described in the June 2002 report, for selecting chemicals for in-depth reviews. It should be emphasized that these four criteria are not permanent, but are being used to help us prioritize which chemicals to evaluate first. The compilation of chemicals will continue to be updated and reviewed.

1. Chemicals having a strong indication of their presence at school sites according to monitoring studies or other reliable sources.
2. Chemicals cited to have possible adverse effects in three or more of the systems that are undergoing critical development during childhood: the neurological, immunological, respiratory, reproductive, or endocrine systems.
3. Where applicable, chemical carcinogens with existing reference toxicity levels based on studies in adult animals that approximate the dose associated with a 10^{-4} (one in ten thousand) to 10^{-6} (one in a million) lifetime cancer risk.
4. Chemicals that other OEHHA programs have identified as a public health concern based on studies pertinent to children.

The first criterion addresses the possibility that children will be exposed to a given chemical while at school, since a chemical must have some probability of being found at a school site in order to warrant consideration under this mandate. The compilation of chemicals potentially found at school sites (OEHHA, 2002) was used to gauge the likelihood of a chemical being present at California school sites.

The second criterion helps select those chemicals that appear to have multiple effects on organ systems that are still undergoing development and maturation after birth. The nervous, immune, respiratory, reproductive and endocrine systems are being targeted because chemical insults at relatively low doses to any of these organ systems could

produce adverse effects, many of which may not be recognized until maturity (OEHHA, 2002).

In focusing on these critical organ effects, we have targeted non-cancer endpoints. In a separate task, OEHHA is developing a cancer evaluation methodology for children pursuant to HSC Section 901(e). Because that methodology will not be available until 2004, we are focusing on identifying and evaluating the non-cancer effects of chemicals. We will assess the cancer endpoint when the children's cancer methodology is developed.

The criteria for selecting chemicals identified in review articles as having effects on multiple developing organ systems was intended to increase the probability of identifying relevant literature during the in-depth search and review phase. Targeting chemicals with evidence of effects in three or more systems may miss an important developmental toxicant for which either only one system is affected or only one system has been adequately researched. However, given time and budget constraints, we felt this was an effective way to prioritize the chemicals on the list this year.

The third criterion helps target those chemicals that could conceivably be non-cancer risk drivers when new child-specific data were considered. If current data suggest that both carcinogenic and non-carcinogenic effects of concern occur at similar dose levels in adults, and studies on developing organ systems show that exposure may produce irreversible non-carcinogenic effects in children at dosages lower than those that are toxic to adults, then the chemical should have a high priority for further evaluation.

The fourth criterion allows us to build on related work done by other OEHHA programs. This year we utilized the peer-reviewed PHGs for drinking water contaminants developed by OEHHA. More information on the PHG process can be found at the web address <http://www.oehha.ca.gov/water/phg/allphgs.html>. The PHG effort provides an excellent springboard from which to conduct our current review for developing child-specific chRDs because the Pesticide and Environmental Toxicology Section's (PETS') reviews are recent and they cover the chemicals of interest.

Using the above criteria OEHHA selected cadmium, chlordane, heptachlor and its metabolite heptachlor epoxide, methoxychlor, and nickel as the first five chemicals for in depth review. Under contract with OEHHA, the Public Health Library at the University of California at Berkeley searched the following databases: PubMed, Toxline/DART, Excerpta Medicus (EMBASE), Chemical Abstracts, BIOSIS, International Pharmaceutical Abstracts (IPA), and ISI Web of Science. We searched by keywords that describe specific effects on developing organ systems. The keywords used in searching these databases are listed in Appendix A.

OEHHA evaluated the citations returned by the literature search (105 citations for cadmium, 65 for chlordane and heptachlor/heptachlor epoxide combined, 82 for methoxychlor, and 18 for nickel), and reviewed relevant qualitative background papers and quantitative studies. In addition, OEHHA reviewed pertinent studies cited in papers

obtained via the literature search. Because so few citations were returned for nickel, an alternate, very inclusive approach (discussed in Section 2.5) was used to ensure that we were not missing important studies.

1.4 Child-Specific Reference Dose (chRD)

U.S. EPA and the March of Dimes sponsored a workshop -- Identifying Critical Windows of Exposure for Children's Health -- in September 1999 to systematically review the state of knowledge on prenatal and postnatal exposures and subsequent outcomes (Environmental Health Perspectives Volume 108, Supplement 3, June 2000). In reviewing data on organ systems that are still undergoing development and maturation in children, workshop participants noted that data pertaining to children's sensitivities to environmental contaminants during various critical developmental periods are limited. In particular, very little attention has been given to peripubertal/adolescent exposures or adult consequences from childhood exposure. However, these limited data do suggest that children could be more sensitive than adults when their developing organ systems were exposed to harmful chemicals. For example, several developmental immunotoxicants (chlordane, dioxin, lead, and benzo[a]pyrene) demonstrate that perinatal exposures can produce toxicity at doses that do not affect adults and/or they produce irreversible changes which do not occur with adult exposure.

Endocrine disruptors, a group of chemicals that may produce differential toxicity to the young, have been the subject of much recent scientific and regulatory debate (Cranmer et al., 1984; Colborn et al., 1993; U.S. EPA, 1998). While not all chemicals reviewed in this first year are endocrine disruptors, the endocrine disruptors do pose a great concern because they could interfere with the proper hormonal signaling that is essential for growth and development of school children. An endocrine disruptor may be defined as an exogenous agent that interferes with the synthesis, secretion, transport, binding, action, or elimination of natural hormones in the body (U.S. EPA, 1997). Exposure to endocrine disruptors during critical "programming" periods in development, in contrast to exposure during adulthood, may produce irreversible effects on the reproductive, nervous, and/or immune system (Bigsby, 1999). In adulthood, these endocrine disruptors might only produce reversible effects by participating in the "seesaw" process of stimulation and feedback inhibition.

The effects of endocrine disruptors are more difficult to evaluate than chemicals which have a direct toxic effect on an organ system. Endocrine disruptors can act directly on hormone receptors of developing target organs, or they can act indirectly by interfering with the synthesis or metabolism of natural hormones. An endocrine disruptor having a direct interaction with either intracellular receptors or membrane-bound receptors can mimic a natural ligand by acting as an agonist, or if it inhibits binding, as an antagonist. The best known examples are methoxychlor, chlordecone (Kepone), DDT, some PCBs, and alkylphenols (Mueller and Kim, 1978; White et al., 1994; U.S. EPA, 1997). The antiandrogenic action of vinclozolin is the result of the affinity of its metabolites for the

androgen receptor (van Ravenzwaay, 1992; Kelce et al., 1994). O,p-DDT and chlordane inhibit binding to both estrogen and progesterone receptors (Laws, 2000).

An endocrine disruptor can have an indirect effect on a target organ if it changes the quantity of a hormone or the ratio of several hormones at target organs by altering hormonal storage and/or release, transport in the blood and clearance, or post-receptor activation. Many different mechanisms can produce these changes.

Disruption of normal signaling, whether it causes a direct effect on a target organ, or whether it alters hormone ratios or levels, can produce an adverse effect on a single organ system -- the reproductive, immune or nervous system -- if the disruption occurs during a critical period in development (Kavlock et al., 1996). Disruption of normal signaling can also produce adverse effects on multiple organ systems. For example, estrogen receptors can be found in the gonads, thymus, and brain; and the disruption of estrogen signaling could simultaneously affect the reproductive, immune, and nervous systems (Colborn et al., 1993; Diel, 2002). To complicate the matter further, one endocrine axis can impact another in a "cross-talk" (WHO, 2002). For example, in humans and some other mammals, most of the testosterone and estradiol circulating in the bloodstream are not bioavailable because of their binding to sex hormone binding globulins (SHBG). Not surprisingly, SHBG production is regulated by testosterone and estradiol (Prinsloo and Van Aswegen, 2000; Pugeat et al., 1996). However, via cross-talk, SHBG is also regulated by insulin. Thus, an insulin disruptor that causes an elevated insulin level would suppress SHBG production, leading to an increase in testosterone and estradiol bioavailability (Pugeat et al., 1996).

Given the complexity of hormonal signaling processes, it is also not surprising to find the relationship between dose and response to be another controversial issue. Endocrine disruptors often act by mimicking or antagonizing the actions of naturally occurring hormones that may be already at physiologically functional concentrations (WHO, 2002). The National Toxicology Program's Report of the Endocrine Disruptors Low Dose Peer Review concluded that biological changes occurred in the range of human exposures or at doses that are lower than those typically used in the EPA's standard testing paradigm for evaluating reproductive and developmental toxicity for endocrine active agents (<http://ntp-server.niehs.nih.gov/htdocs/liason/LowDosePeerFinalrpt.pdf>). Too little is known about the dose-response curves for immunotoxicity, neurotoxicity, or endocrine effects to decipher the independent or interactive effects of endocrine disruptors on these systems. The shape of the dose response curve varies with the endpoint and dosing regimen and it may be low-dose linear, threshold-appearing, or it may be shaped like an upright U or an inverted U (<http://ntp-server.niehs.nih.gov/htdocs/liason/LowDosePeerFinalrpt.pdf>; Markowski et al., 2001; vom Saal et al., 1997).

The above observations underscore some of OEHHA's challenges in implementing HSC Section 901(g) pertaining to the development of health criteria based on children's sensitivities. As discussed by Ginsberg et al. (2002) and Miller et al. (2002), the risks

that children incur from exposure to environmental contaminants could differ from adult risks as a result of the following factors:

- Greater exposure in young children from a higher inhalation and food ingestion rate per body weight; and greater contact with soil, house dust and other media that may contain contaminants.
- Pharmacokinetics differences between children and adults with respect to absorption, metabolism, clearance, protein binding, and volume of distribution, once exposure has occurred.
- Pharmacodynamic differences between children and adults; that is, the sensitivity of rapidly developing tissues/organs in children may differ from that in adults.

The exposure differences will be addressed under a separate task -- developing the school exposure assessment guidelines -- pursuant to HSC Section 901(f). Based on available pharmacokinetic and pharmacodynamic data, we will evaluate if existing U.S. EPA RfDs or OEHHA toxicity criteria are appropriate, or if child-specific ones should be proposed, for school-site risk assessment in California.

From a public health protection standpoint, OEHHA has adopted two policies in developing chRDs. First, in order to protect children from conception through the time they leave school, chRDs must consider school-aged children up to age 18; and infants and toddlers in daycare facilities located at school sites. Second, OEHHA opts to consider the most sensitive species and endpoints in our evaluations, meaning that the lowest LOAEL or NOAEL from available literature would be selected. Moreover, the paucity of data has underscored the reality that the databases for sensitive endpoints may be incomplete. An uncertainty factor for database deficiency will be considered as appropriate.

Our mandate, which is driven by environmental health policies, has charted OEHHA's course of action. We view this approach as an iterative process. Any chRD established will be subject to review and refinement as the state-of-the-science progresses.

2. Evaluation of Five Chemicals

This chapter is divided into five sections, one for each chemical reviewed in 2002. Each section provides information specific to the particular chemical, including background and exposure information; how the chemical meets our criteria for evaluation; existing pertinent health guidance values; findings from our literature review; and OEHHA's recommendation. The recommendation includes a discussion of the study (or studies) used in developing the chRD, the uncertainty and modifying factors used, the calculation, and the proposed chRD.

2.1 Cadmium

Cadmium is an important industrial chemical with diverse applications. It is used for the production of nickel-cadmium batteries, pigments, alloys, plastics, and synthetics. It is also used in metal plating. The Toxic Chemical Release Inventory of 2000 shows that 2,292 pounds of cadmium were emitted into the air, 792 pounds were discharged into surface water, 69,000 pounds were injected underground, and 663,895 pounds were released to land in the U.S. In comparison, 16 pounds of cadmium entered the air and 36,104 pounds were disposed of on land in California during 2000 (U.S. EPA, TRI2000).

Given its indestructible nature, cadmium persists in the environment, and can enter the food chain. OEHHA identified air, drinking water, soil, and food as the primary pathways for human exposure to cadmium (OEHHA, 1999a). U.S. EPA and ARB/DHS have deemed cadmium as a chemical of interest in their NHEXAS and Portable Classroom Study, respectively (OEHHA, 2002). ARB reported the occurrence of cadmium in California air and DTSC reported the presence of cadmium at 10 percent of the potential school sites reviewed by the Department, making it a relatively frequently observed contaminant.

In reviewing literature for the purpose of establishing a Public Health Goal (PHG) for cadmium in drinking water (OEHHA, 1999a), OEHHA found some evidence that cadmium may elevate blood pressure in both animals and humans. Renal toxicity of cadmium is well known. Cadmium tested positive in several mutagenic assays and in an epidemiological study; it was observed that individuals with higher levels of cadmium in their urine ($>3 \mu\text{g/L}$) had more frequent chromosomal aberrations in their lymphocytes. A number of studies in rats and mice indicated the developmental and reproductive toxicity of cadmium. Neurological and immune effects were also reported. Finally, tumors of the prostate, testes and hematopoietic system in the rat were associated with oral cadmium exposure; and human lung and prostate cancers had been associated with inhalation exposure. Thus, it is regarded as a potential human carcinogen by the oral route and a human carcinogen by the inhalation route.

OEHHA selected cadmium for an in-depth review in this first cycle not only from the standpoint of its exposure potential at school sites, but also because of its adverse effects

on various organ systems; some of which are still undergoing development in school children.

Pertinent Guidance Values

U.S. EPA RfD: 0.5 µg/kg-day (water) and 1.0 µg/kg-day (food)

U.S. EPA's RfD is based on cadmium's effect on the kidney. A concentration of 200 µg cadmium (Cd)/g wet human renal cortex is the highest renal level not associated with significant proteinuria (U.S. EPA, 1985). A toxicokinetic model is available to determine the level of chronic human oral exposure (NOAEL) which results in 200 µg Cd/g wet human renal cortex; the model assumes that 0.01 percent day of the Cd body burden is eliminated per day (U.S. EPA, 1985). Assuming 2.5 percent absorption of Cd from food or 5 percent from water, the toxicokinetic model predicts that the NOAEL for chronic Cd exposure is 0.005 and 0.01 mg Cd/kg-day from water and food, respectively (i.e., levels which would result in 200 µg Cd/g wet weight human renal cortex). Thus, based on an estimated NOAEL of 0.005 mg Cd/kg-day for Cd in drinking water and an uncertainty factor (UF) of 10 that accounts for intra-human variability, an RfD of 0.0005 mg Cd/kg-day (water) was calculated; an equivalent RfD for Cd in food is 0.001 mg Cd/kg-day.

U.S. EPA gives a high confidence to its cadmium RfD. The choice of NOAEL does not reflect the information from any single study. Rather, it reflects the data obtained from many studies on the toxicity of cadmium in both humans and laboratory animals. These data also permit calculation of pharmacokinetic parameters of cadmium absorption, distribution, metabolism and elimination.

OEHHA PHG: 0.07 µg/L (a safe dose of 1×10^{-5} mg/kg-day)

OEHHA deemed the Buchet investigation (Buchet et al., 1990) as the best study for use in developing a Public Health Goal (PHG) for cadmium in drinking water. The study avoided the healthy worker effect by performing a cross-sectional examination on 1699 Belgian subjects between the ages of 20 and 80 years. The investigators found a strong relationship between cadmium body burden and renal tubular dysfunction. They observed a risk of renal effects at or above the urinary excretion rate of 2 µg cadmium/24 hours. Assuming an oral absorption rate of 5 percent and a daily excretion rate of 0.005 percent of body burden, Buchet estimated that this excretion rate corresponded to a mean renal cortex concentration of about 50 ppm or 50 µg/g (wet weight). In non-smokers (investigators' design to subtract a major source of cadmium from tobacco smoke), this level is reached after 50 years of an oral daily intake of 1.0 µg/kg body weight. As such, a LOAEL of 1.0 µg/kg-day was established.

OEHHA (1999a) applied this LOAEL in conjunction with an aggregated uncertainty factor (UF) of 100 (10 for intra-human variability, 3 for LOAEL to NOAEL extrapolation, and 3 for uncertainty in applying adult biokinetics to the entire age range from infancy to adulthood) for calculating a safe dose of 0.01 µg/kg-day. A factor of 3

(rather than the usual default of 10) was used for extrapolating from a LOAEL to a NOAEL because the LOAEL was based on the minimal adverse effect observed. The safe dose in turn was used to derive the PHG.

Current Evaluation Results

Because the cadmium data have recently been reviewed under the PHG process, we used the PHG review as a baseline for the current evaluation. Accordingly, we focused our literature search and review on the information that was not covered by the PHG evaluation. An attempt was also made to target literature pertaining to cadmium's effect on sensitive organ systems that are still undergoing postnatal development.

Based on the above search criteria, we compiled a list of references. From that list, we identified a number of papers relevant to cadmium's effects on testes and semen of rabbits exposed before and after puberty (Foote, 1999); pubertal and postpubertal cadmium exposure on the hypothalamic-pituitary-testicular axis function in rat (Lafuente et al., 2000); cadmium induction of apoptosis in the immune system (Tsangaris et al., 1998); postnatal cadmium exposure and long-term behavioral changes in rat (Smith et al., 1982); effects of cadmium and lead on cognitive functioning in children (Thatcher et al., 1982); and neurotoxic effects of cadmium in young rats (Wong et al., 1982). However, these were either qualitative/mechanistic, semi-quantitative, or quantitative studies with a LOAEL higher than that on which the PHG was based.

Recommendation

The renal effect of cadmium seems to be the most sensitive endpoint (with the lowest LOAEL), even when it is compared with developmental and reproductive study endpoints identified in the OEHHA PHG document or those identified by OEHHA's current evaluation. The rate of cadmium absorption affects its rate of accumulation in the kidney, and in turn its toxicity. Thus, available data suggest the PHG LOAEL should be retained for our current consideration. This LOAEL is lower than the NOAEL used by U.S. EPA in developing its RfD. Both the safe dose from which the PHG was derived and U.S. EPA's RfD are based on cadmium's effect on renal function. In developing these two health criteria, long-term cumulative exposure data were used. Both U.S. EPA and Buchet et al. applied a 5 percent absorption in their respective biokinetic modeling, based on adult human absorption of 4.7 to 7 percent of the cadmium intake (Rahola et al., 1972, cited in Mahaffey, 1983). In proposing the PHG, OEHHA applied a factor of 3 to account for the uncertainty associated with Buchet's modeling in which he applied adult biokinetics to the entire age range from infancy to adulthood. According to Alexander et al. (1974), the absorption of cadmium by children, from early infancy through 8 years of age, averages 55 percent.

To illustrate the appropriateness for applying the factor of three for developing the chRD, OEHHA ran a model similar to Buchet, using his modeling assumptions. Using a daily dose of 1 µg/kg, an absorption rate of 5 percent, and a daily clearance rate of 0.005

percent of body burden, OEHHA estimated that the urine excretion of 2 µg cadmium /24 hour (LOAEL biomarker) would be reached by age 53, which was in good agreement with Buchet's study. However, by changing the absorption rate to 55 percent through age 8, then decreasing it linearly to 5 percent at age 21, while keeping the other parameters the same, a daily dose of 0.51 µg/kg would be required to produce an urine excretion of 2 µg cadmium /24 hour by age 53. Thus, using child-specific absorption results in a difference of about 2-fold in the daily dose to produce the LOAEL effect. To be public health protective, OEHHA proposes to apply a child-protective factor of 3 to account for childhood absorption differences.

Calculation of the non-cancer chRD for cadmium is based on the following equation:

$$\text{chRD} = \frac{\text{LOAEL}}{\text{UF} \times \text{CP}} = \frac{1 \text{ } \mu\text{g/kg-day}}{30 \times 3} = 0.01 \text{ } \mu\text{g/kg-day}$$

Where,

LOAEL = Lowest-observed-adverse-effect-level from Buchet et al., 1990.

UF = Uncertainty factor of 30 (10 for intra-human variability, 3 for LOAEL to NOAEL extrapolation because the LOAEL is based on the minimal effect observed and this is consistent with that applied to calculate the PHG).

CP = Child protective factor of 3 to account for the GI absorption difference between children and adults.

Accordingly, OEHHA is proposing a chRD of 0.01 µg/kg-day for cadmium's non-cancer effect to be used in school-site risk assessment instead of the U.S. EPA's RfD that did not account for a greater GI absorption of cadmium by children.

2.2 Chlordane

Chlordane is a cyclodiene pesticide, one of many organochlorine insecticides. Chlordane was used in large quantities until the U.S. EPA issued a notice of suspension except for use on subterranean structural termite control in 1976 (McConnachie and Zahalsky, 1992). It was banned for all uses in the United States in 1988, but it is still manufactured for export. Like DDT, it persists in the environment, and it is considered a priority persistent, bioaccumulative toxic (PBT) chemical by U.S. EPA (U.S. EPA, 2002).

Chlordane is not a pure chemical pesticide, and all studies investigating its toxicity or mechanism of action have used technical grade chlordane, which is a mixture. Infante et al. (1978) analyzed technical chlordane and reported that it contained 38-48 percent cis- and trans-chlordane, 3-13 percent heptachlor, 5-11 percent nonachlor, 17-25 percent other chlordane isomers, and a small amount of other compounds. Dearth and Hites (1991) identified 147 different compounds in a preparation of technical chlordane that included cis-chlordane (15 percent), trans-chlordane (15 percent), trans-nonachlor (15 percent), and heptachlor (3.8 percent).

OEHHA included chlordane in the "Compilation of Chemicals Potentially Found at School Sites" because it has been targeted by federal and state agencies as a chemical that may present environmental health risks. Chlordane appears on all but one of the chemical compilations that OEHHA has selected to identify chemicals that may be found at school sites. These compilations include:

- Soil contaminants identified at potential school sites in environmental investigations reviewed by the Department of Toxic Substances Control
- Toxic Air Contaminants (TACs) in California identified by OEHHA
- Analytes in the Department of Health Services/Air Resources Board (DHS/ARB) Portable Classroom monitoring study
- Analytes in the U.S. EPA National Health Exposure Assessment Study (NHEXAS)

Chlordane was placed by OEHHA in the compilation of "Candidate Chemicals Based on Critical Health Effects" because 1) it is on the Proposition 65 Developmental and Reproductive Toxin List and 2) a survey of recent scientific literature indicated that it possesses toxicity to organ systems that are developing in children, including the immune system, neuroendocrine and female reproductive systems (Ahmed, 2000; Barone et al., 2000; Barnett et al., 1990; Blyler et al., 1994; Brucker-Davis, 1998; DeRosa et al., 1998; Holladay et al., 2000; Holladay, 1999; Luster et al., 1990; Olea et al., 1998; Reigart, 1995; Spyker-Cranmer et al., 1982; Theus et al., 1992a and 1992b; Voccia et al., 1999). Chlordane exposure has also been associated with childhood cancer (Zahm et al., 1998.)

OEHHA staff prepared a PHG for chlordane in 1997 (OEHHA, 1997). The study on which the PHG is based showed that chlordane acted as an endocrine disruptor and

altered sex steroid-mediated behaviors when exposure occurred during gestation and lactation (Cassidy et al., 1994).

Endocrine disruptors, such as chlordane, are the subject of recent scientific and regulatory concern (U.S. EPA, 1998). They mimic or antagonize estrogens, androgens, and thyroid hormones, as well as their antagonistic analogs, and consequently disrupt the processes or tissues these hormones affect. Organ systems responsive to the sex steroids include the male and female reproductive organs, the central nervous system, and the immune system. The thyroid hormones affect most tissues (Bigsby, 1999). They are of particular concern in regard to children's health because they may disrupt the action of estrogen, androgen and thyroid hormones during critical periods of development and lead to permanent alterations in the reproductive, nervous, and immune systems that are developing during prenatal growth and childhood (Bigsby, 1999).

Existing Health Guidance Values

U.S. EPA Carcinogen Slope Factor: 3.5×10^{-1} per mg/kg-day

Chlordane is classified as B2; probable human carcinogen, using the 1986 Guidelines for Carcinogen Risk Assessment (Integrated Risk Information System (IRIS), 2003, <http://www.epa.gov/iris/subst/0142.htm#carc>). IRIS also reports that "under the 1996 Proposed Guidelines, it would be characterized as a likely carcinogen by all routes of exposure. These characterizations are based on the following summaries of the evidence available: (1) human epidemiology studies showing non-Hodgkin's lymphoma in farmers exposed to chlordane and case reports of aplastic anemia; chlordane associated with home use are inadequate to demonstrate carcinogenicity; (2) animal studies in which benign and malignant liver tumors were induced in both sexes of four strains of mice and occurred with an elevated, but not statistically significant, incidence in a fifth strain, as well as liver toxicity but no tumors in rats of two strains; and (3) structural similarity to other rodent liver carcinogens." The U.S. EPA oral slope factor is 3.5×10^{-1} per mg/kg-day. This value represents the geometric mean for five data sets with a range from individual data sets of 1.1×10^{-1} to 8.6×10^{-1} using the linearized multistage model (<http://toxnet.nlm.nih.gov/>). The EPA IRIS data base reported that the studies are of good quality and "the confidence is high that chlordane is a mouse liver carcinogen at dietary concentrations above 10 ppm. Although there is indication that the dose-response curve is sublinear in the dose region between 5 and 60 ppm, linearity at low doses cannot be ruled out on theoretical grounds. The tentative evidence is that the hematopoietic system, rather than the liver, is the target organ in humans."

U.S. EPA RfD: 5×10^{-4} mg/kg-day

The oral RfD established by U.S. EPA is 5×10^{-4} mg/kg-day based on a NOAEL of 0.15 mg/kg-day and LOAEL of 0.75 mg/kg-day in a mouse study (Khasawinah and Grutsch, 1989). The critical effect for the LOAEL was liver necrosis, with an uncertainty factor of 300 (10 for interspecies extrapolation, 10 for human variability, and 3 for deficiencies in

the database). The overall confidence given this RfD assessment is medium, both for the quality of the principal study and the sufficiency of the database. The principal study, assigned a confidence of medium, is a rat chronic oral study performed with relatively large group sizes, in which histopathological analyses on the known animal target tissue, the liver, were thoroughly performed. However, the discussion in IRIS stated that "available occupational studies, although limited, give no indication that the liver is a target organ in humans as a consequence of chronic exposure to low levels of chlordane" (<http://www.epa.gov/iris/subst/0142.htm#umfinhal>).

IRIS also reports that "recent evidence indicates that neurotoxicity, a known human endpoint in acute exposures, may be a relevant endpoint in chronic human exposures, and no chronic animals studies have examined neurotoxicity. Studies on pre-and postnatal animals indicating chlordane mimicry of sex-steroids raise reproductive concerns and no multigenerational reproductive studies, by any route, exist. Thus, there is some concern that the appropriate endpoints have not been examined adequately in the existing database." IRIS further states that "an area of scientific uncertainty in this assessment concerns the role of neurotoxicity, and possibly hematotoxicity, in chronic chlordane toxicity in humans." IRIS also notes that "another area of scientific uncertainty in this assessment concerns the toxicological significance of endocrine mimicry effects of chlordane. Toxicity data for this chemical include a study demonstrating biochemical and behavioral alterations consistent with technical chlordane (or its metabolites) mimicking male sex-steroids (Cassidy et al., 1994). That these effects could include reproductive behaviors is suggested in this study" (<http://www.epa.gov/iris/subst/0142.htm#quaoral>).

Studies on these endpoints would be of concern for children's health because accidental poisoning studies by chlordane in children have reported neuropsychiatric symptoms, which included learning disabilities, at an incidence four times that found in the general population according to the National Center for Health Statistics (Sherman, 1999). In 20 poisoned children, 20 percent had hematological problems and an additional 15 percent had hematological dyscrasias which may be early indicators of leukemia and aplastic anemia (Sherman, 1999).

OEHHA PHG: 0.02 ppb (a safe dose of 1×10^{-5} mg/kg-day)

The PHG developed by OEHHA is 1×10^{-5} mg/kg-day, or 0.02 ppb in drinking water, based on a LOAEL of 0.1 mg/kg-day because of disruption of sex steroid-mediated behaviors in rat identified by Cassidy et al., 1994. The health-protective drinking water concentration for carcinogenic endpoints is calculated to be 0.03 ppb. The U.S. EPA drinking water unit risk is 1×10^{-5} per ($\mu\text{g/L}$) which translates into risk levels of 10^{-4} to 10^{-6} at concentrations of 3 ppb and 0.03 ppb, respectively (U.S. EPA, 1996).

Current Evaluation Results

Chlordane has been shown to have critical effects on two developing systems due to endocrine disruption. It adversely affects the developing immune system of mice (Spyker-Cranmer et al., 1982; Barnett et al., 1985a; Barnett et al., 1985b; Barnett et al.,

1990; Theus et al., 1992a; Theus et al., 1992b; Blyler et al., 1994), and it alters sex-mediated neurobehavioral endpoints (Cassidy et al., 1994). These effects on the developing endocrine and immune systems show an age-related susceptibility to chlordane. Adult animals exposed to similar or higher doses of chlordane did not show similar effects (Johnson et al., 1986; Barnett et al., 1990; Barnett, 1997).

An endocrine disruptor such as chlordane can act at the level of the hypothalamic-pituitary-adrenal (HPA) axis, disrupting the negative feedback loop between the brain and the immune system. Under normal physiological conditions, activation of the immune system stimulates the release of cytokines, which can then act on the HPA axis to trigger the release of corticosterone. However, if increased levels of corticosterone are released, due to the presence of endocrine disruptors, these high corticosterone levels produce immuno-suppression on virtually all levels of the immune system (Gaillard and Spinedi, 1998; Morale et al., 1995), including depression of the delayed-type hypersensitivity response (Okimura et al., 1986), suppression of granulocyte and macrophage migration (Mizobe et al., 1997), and inhibition of hematopoietic cytokines such as IL-3 and CFU-GM (Gaspar Elsas et al., 2000 and Mucha et al., 2000).

In addition, high levels of glucocorticoids can disrupt all aspects of the hypothalamic-pituitary-gonadal (HPG) axis, including reproductive behavior and the synthesis and release of sex steroids (Viau, 2002) and can interfere with the functioning of the hippocampus, the part of the brain responsible for learning and memory (Kim and Diamond, 2002). It has been shown that the release of adrenocorticotrophic hormone (a hormone that stimulates the release of corticosterone) is associated with increased sexual excitation in male rats (Szechtman et al., 1974), and Bowman and colleagues (2001) demonstrated that female rats exposed to stress-induced increases in corticosterone levels showed altered spatial memory performance.

A key finding, suggesting that chlordane disrupts the HPA and HPG axis, was the observation that exposure of the dihybrid mice dams to 0.16 mg/kg-day of analytical reference standard chlordane (which has the same products as technical grade chlordane) from 0-18 days of gestation (Table 2.2.1) produced significantly elevated corticosterone in male and female offspring when they were assayed as adults at 100 and 400 days of age (Cranmer et al., 1984). This indicated a permanent (or long-lasting) effect on the offspring. This dose of technical grade chlordane also reduced metabolism of corticosterone in female BALBc mice and elevated resting plasma corticosterone in male mice at 100 days of age (Spyker-Cranmer et al., 1982). Corticosterone, like cortisol, is synthesized from progesterone by a series of hydroxylations. Testosterone is also synthesized from progesterone, and estradiol is synthesized from testosterone (Stryer, 1981). Chlordane can alter corticosterone levels, and corticosterone is an intermediate in the synthesis of steroids. By this mechanism, chlordane can affect the developing immune system, and it could permanently alter characteristic differences between males and females in non-reproductive and reproductive measures (such as body weight, development of sexual organs, circulating steroid levels, mating behavior, spatial abilities, activity level, or mixed function oxidase levels (Weiss, 2002). The endocrine

disruptive effect of chlordane appears to be corroborated by the study of Cassidy and colleagues (Cassidy et al., 1994) in which a dose of 0.1 mg/kg-day chlordane to the dam and then to the pups until postnatal day 80 caused sex steroid-mediated changes in gender-specific behaviors and functions (Cassidy et al., 1994). There was a dose-responsive decrease in plasma testosterone, which was significant at 5 and 0.5 mg/kg-day, but not significant at 0.1 mg/kg-day.

Table 2.2.1 Summary of Significant Studies on Chlordane

Reference	Protocol	Doses	Critical Effects
Spyker-Cranmer et al., 1982	Pregnant BALB/C mice were dosed until day 18 of gestation and pups nursed on their natural mothers until 21 days of age	0.16 and 8 mg/kg maternal body weight	Delayed Type Hypersensitivity (DTH) was significantly depressed at 8 mg/kg; and depressed but not significantly at 0.16 mg/kg
Cranmer et al., 1984	Pregnant F2 Dihybrid mice were dosed until day 18 of gestation and pups nursed on their natural mothers until 21 days of age.	0.16 and 8 mg/kg maternal body weight	Plasma corticosterone was significantly elevated at 101 days and 400 days in male mice whose mothers were dosed with 0.16 mg/kg-day. It was elevated in female mice at 400 days of age
Barnett et al., 1990	Pregnant BALB/C mice were dosed until day 18 of gestation and pups nursed on their natural mothers until 21 days of age	4 and 8 mg/kg maternal body weight	Hematopoietic stem cells (CFU-GM and CFU-S) in offspring were significantly decreased at 100 and 200 days of age. Adult animals treated with 8 mg/kg chlordane did not have any decrease or differ from controls.
Cassidy et al., 1994	Sprague-Dawley CD rats were dosed from Day 4 of gestation until Day 21 of lactation. Pups were dosed individually from post natal day (PND) 22 until PND 80.	0.1, 0.5, and 5 mg/kg maternal body weight	Females had significant improvements in spatial abilities in the Cincinnati Water Maze test at all doses, males exhibited dose-dependent increases in male-typical mating behavior, and both exhibited maximum response to auditory startle at 0.1 mg/kg when tested at 80 days.

The effects of chlordane on the developing immune system, and their persistence into adulthood, were demonstrated in a series of related studies using prenatal and postnatal exposure to chlordane (Spyker-Cranmer et al., 1982; Barnett et al., 1985a; Barnett et al., 1985b; Barnett et al., 1990; Blyler et al., 1994; Theus et al., 1992a; Theus et al., 1992b). The experimental protocol common to all the studies was to feed pregnant mice 0.3 mg of peanut butter which was spiked with technical chlordane to provide a maternal dose of 0.16 mg/kg, 4 mg/kg, 8 mg/kg or 16 mg/kg maternal body weight, although not all doses were used in the assay of each immune system parameter. The pups were allowed to

nurse through day 21. Assays of immune system parameters were performed at various postnatal days, ranging from day 42 to day 200, although not each immune system parameter was assayed at each postnatal time point. Chlordane is fat-soluble, having a log K_{ow} (octanol-water coefficient) of 5.16, so it should be readily transferred from plasma to milk. The total amount of chlordane reaching the pups was determined to be 3.5 mg/kg by analyzing chlordane and its metabolites in the conceptus and in pups at intervals during gestation and through the end of lactation (Theus et al., 1992)

Immune responses, such as delayed type hypersensitivity (DTH), were significantly depressed in offspring at 100 days of age after exposure in utero to a maternal dose of 8 mg/kg-day body weight. A maternal dose of 0.16 mg/kg-day also depressed DTH, although not significantly (Spyker-Cranmer et al., 1982). Pups received chlordane from 0-18 days of gestation, when the mother was dosed, and through 21 days of nursing, when dosing of the mother had ceased. Thus, the pup's exposure dose was actually lower than either 8 mg/kg-day or 0.16 mg/kg-day for its exposure duration.

A decreased DTH response occurs due to functional abnormalities in T lymphocytes, specifically the CD4 T_H1 helper cells. There are three kinds of effector T cells: cytotoxic CD8 T cells, which kill infected cells, and two kinds of CD4 T cells (T_H1 , or T helper 1, and T_H2) with different functions (Parham, 2000). It is noteworthy that a decrease in the number of helper/inducer T cells is found in acquired immune deficiency (AIDS) disease, and this decrease is thought to allow infections such as Kaposi's sarcoma, Pneumocystis carinii pneumonia, and cytomegalovirus (CMV) retinitis (Lane and Fauci, 1985).

A critical effect on the developing immune system was a significant reduction in the number of granulocyte-monocyte committed stem cells (CFU-GM) and multipotential stem cells (CFU-S) in adult offspring (100 and 200 days of age) of pregnant mice exposed to 4 mg/kg and 8 mg/kg chlordane (Barnett et al., 1990). The bone marrow of offspring exposed to 4 or 8 mg/kg-day chlordane had 63 percent and 75 percent of control CFU-GM at 100 days of age, and at 50 percent and 77 percent at 200 days of age in offspring exposed to 4 mg/kg-day. The multipotential stem cells (CFU-S) were similarly depressed. Female and male offspring exposed prenatally to 8 mg/kg chlordane had 67 percent and 64 percent respectively of control CFU-S, while those exposed to 4 mg/kg-day chlordane had 78 percent and 87 percent of control CFU-S. At 200 days of age the bone marrow CFU-S in female offspring was almost unchanged, and that in males was still significantly reduced. This significant reduction in stem cells which could divide and differentiate into mature functional blood cells could produce life-threatening consequences. This decrease, as well a decrease in Interleukin-3 (IL-3) stem cells, was confirmed to be present at 42-49 postnatal days when specific recombinant growth factors were utilized (Blyler et al., 1994). IL-3 is a cytokine produced by T helper (T_H1 and T_H2) cells and it is a growth factor for multipotential progenitor hematopoietic cells (Parham, 2000). This toxicity endpoint is significant for humans because blood dyscrasias and bone marrow failures have been reported in people following accidental dermal or inhalation exposure to chlordane at unspecified dose levels (Infante et al., 1978; Klemmer et al., 1977; Furie and Trubowitz, 1976).

Clonogenic assays for hematopoietic progenitors have been used in clinical hematology for 30 years (Parent-Massin, 2001) and in research to predict adverse effects of drugs or toxicants, as the rapid rate of cell renewal and differentiation makes the hematopoietic system a susceptible target for xenobiotic toxicity. Xenobiotics that interfere with cell proliferation and differentiation can lead to “bone marrow failure.” The two major groups of bone marrow failure are aplastic anemia, where the failure lies in the pluripotent stem cell (colony forming unit – stem cell or CFU-S), and single cytopenia, where the failure lies in the stem cell for one of the committed cell lines, such as the granulocyte/monocyte cell line, the CFU-GM (Parent-Massin, 2001). Most bone marrow failures are characterized by inadequate production of blood cells and, if severe, death of the organism results because existing numbers of stem cells have an inadequate ability to produce mature cells to provide oxygen (anemia), clot blood (thrombocytopenia), or to protect the organism from infection.

Endocrine disruptors such as chlordane can affect neuroendocrine/neurobehavioral endpoints, as well as immune endpoints. The studies of Cassidy and colleagues (Cassidy et al., 1994) confirmed that perinatal chlordane could mimic sex steroids and /or change their levels to masculinize sexually dimorphic functions and behaviors. They dosed pregnant rats with technical chlordane at 0.1 mg/kg, 0.5 mg/kg, and 5 mg/kg during gestation, and they dosed the offspring during 21 days of lactation and from postnatal day 22 to postnatal day 80. Female offspring committed fewer errors than controls in three assays of cognitive and spatial ability in the Cincinnati Water Maze test, appearing to behave more like males, and male offspring exhibited dose-dependent increases in male-typical mating behaviors. The differences in behavior compared to unexposed animals demonstrate that sexual differentiation of the neuroendocrine system has been altered by early life exposure to chlordane. The neuroendocrine-gonadal axis regulates the developmental organization and adult expression of behaviors critical for mammalian survival and reproduction (competitive aggression, exploration, and sexual and parental behaviors), so neurobehavioral alterations induced by endocrine disruptors may impact the survival and fitness of an individual in its environment (Palanza et al., 2002)

Recommendation

Based on studies that describe endocrine disruption and effects on the developing hematopoietic, immune and neuroendocrine systems in young animals, OEHHA recommends that a chRD be developed. The critical effects are alterations in characteristic behavior differences between males and female at doses of 0.1 mg/kg-day maternal body weight and 0.1 mg/kg-day pup weight (Cassidy et al., 1994), and disruption of the hematopoietic and immune systems at a maternal dose as low as 0.16 mg/kg-day maternal body weight (Cranmer et al., 1984).

OEHHA recommends that a non-cancer child-specific RD be calculated on the study by Cassidy and colleagues (Cassidy et al., 1994) that showed that a chlordane dosage of 0.1 mg/kg-day (to the pups, as well as the mother) disrupted sex hormone mediated

behaviors. Differences from control were significant at the lowest dose, indicating that 0.1 mg/kg dose is a LOAEL. Because these effects are indicative of endocrine disruption, it is possible that the hematopoietic/immune effects described in the other studies may also occur at this low dose.

Calculation of the non-cancer child-specific RD for chlordane is based on the following equation:

$$\text{chRD} = \frac{\text{LOAEL}}{\text{UF}} = \frac{0.1 \text{ mg/kg-day}}{3000} = 3.33 \times 10^{-5} \text{ mg/kg-day}$$

Where,

LOAEL = Lowest Observed Adverse Effect Level (Cassidy et al, 1994)

UF = Uncertainty factors of 3000 (10 for LOAEL to NOAEL, 10 for interspecies extrapolation, 10 for human variability, and 3 for inadequate database for hematotoxicity, immunotoxicity, neurotoxicity, and the lack of a valid developmental study).

Accordingly, OEHHA is proposing a non-cancer chRD of 3.3×10^{-5} mg/kg-day for chlordane.

Uncertainty and Modifying Factors

OEHHA has applied the additional uncertainty factor 3 for inadequacies in the database for each of three endpoints, hematotoxicity, neurotoxicity, and reproductive toxicity that data suggest may be of concern to human children. This uncertainty factor has been applied in accordance with U.S. EPA (1994) and Renwick et al., (2000), that it is appropriate "if a valid developmental toxicity study was not performed", or "if the study did not examine all developmental endpoints". In the discussion of chlordane on the IRIS database, U.S. EPA noted that "studies on pre- and postnatal animals indicating chlordane mimicry of sex steroids raise reproductive concerns and no multigenerational reproductive studies, by any route, exist. Thus, there is some concern that the appropriate endpoints have not been examined adequately in the existing database" (<http://www.epa.gov/iris/subst/0142.htm#umfinhal>).

The U.S. EPA RfD was based on hepatic necrosis in mice, even though the discussion on the IRIS database noted that "occupational studies, although limited, give no indication that the liver is a target organ in humans as a consequence of chronic exposure to low levels of chlordane." U.S. EPA reduced confidence in their RfD noting that "an area of scientific uncertainty concerns the role of neurotoxicity and possibly hematotoxicity in chronic chlordane toxicity in humans" (<http://www.epa.gov/iris/subst/0142.htm#umfinhal>). Neurotoxicity and hematotoxicity

have been reported as principal endpoints of acute chlordane toxicity in both experimentally poisoned animals and accidentally poisoned humans (Grutsch and Khasawinah, 1991; Fleming and Timmeny, 1993). The uncertainty increases when considering exposure of children, rather than adults, because these organ systems are undergoing critical development during childhood.

The reduced numbers of hematopoietic stem cells in offspring, after they had reached maturity, from exposure to a 4 mg/kg-day maternal dose (Barnett et al., 1990a), provides low confidence that a LOAEL which produced minimally significant adverse hematological effects was identified. Immune system toxicity from chlordane is a concern because a report of outcomes from exposure of 20 children to chlordane from pesticide applications noted that 20 percent had hematological problems and an additional 15 percent had hematological dyscrasias (Sherman, 1999). Blood cell dyscrasias are a concern to clinicians because they may later manifest themselves as leukemias and aplastic anemias. The outcome of reduced numbers of stem cells can be bone marrow failure.

The database on chlordane toxicity to children is also considered inadequate because no animal studies have adequately assayed neurotoxicity due to low chlordane exposure concentrations, and there are case reports of human neurotoxicity (Kilburn and Thornton, 1995; Kilburn, 1997). Al-Hachim and Al-Baker (1973) reported that when pregnant mice were exposed to 1 mg/kg-day technical chlordane for only seven consecutive days the pups had poor learning ability or altered motivation in the assay for conditioned avoidance response, raised seizure threshold, and increased exploratory activity. Reports of accidental human exposure to termiticides have resulted in neurobehavioral impairments in adults (Kilburn and Thornton, 1995; Kilburn, 1997) and 70 percent of 20 child patients exposed to chlordane had neuropsychiatric symptoms, which included learning disabilities at an incidence four times that found in the general population, according to the National Center for Health Statistics (Sherman, 1999). School-age children were reported to develop new problems: headaches, visual difficulties, hyperactivity, learning disabilities, frequent ear-nose-throat and chest problems, and gastrointestinal disturbances (Sherman, 1999).

The Food Quality Protection Act required a 10 fold safety factor be applied "for infants and children" for pesticide risk assessments "to take into account...completeness of the data with respect to ... toxicity" and OEHHA utilized the 10 fold factor in creating a public health goal (PHG) for chlordane. However, U.S. EPA has been limiting the composite factor to 3,000 when human-equivalent doses are used (U.S. EPA, 1994). As the low dose in the Cassidy et al. (1994) study, which forms the basis for the child-specific RfD, was based on serum levels found in the United States at the 99th percentile (i.e. 1% of the U.S. values are higher), OEHHA decided to utilize only a 3-fold modifying factor to account for the inadequacies in the database.

Additional Comments/Studies:

The experiments from Barnett and colleagues (Spyker-Cranmer et al., 1982; Barnett et al., 1985a; Barnett et al., 1985b; Barnett et al., 1990; Theus et al., 1992a; Theus et al., 1992b; Blyler et al., 1994) support an equivalent or lower dose than the one derived from the Cassidy et al., 1994 study. The experimental protocol of Barnett and colleagues differed from that of Cassidy et al., 1994, in that the pup was not individually dosed. A maternal dose of 8 mg/kg-day was reported to produce a *total* dose of 3.5 mg/kg of chlordane in the pup (Theus et al., 1992). If an equal fraction of 3.5 mg/kg dose were delivered each day of the 18 days of gestation, when the mother was dosed, and the 21 days of lactation, when the mother was not dosed, the pup would receive 0.09 mg/kg-day over the 39 day period. This estimated pup dose is very close to the 0.1 mg/kg-day dose that Cassidy et al. (1994) gave to dams, *and* to pups following weaning and until sacrifice on day 80.

The experiment of Cranmer et al. (1984) suggests that the LOAEL could be lower than 0.1 mg/kg-day. In this study, the dams were dosed with either 0.16 mg/kg-day or 8 mg/kg-day chlordane during gestation. As noted above, the maternal dose of 8/mg/kg-day was shown to produce a total dose of 3.5 mg/kg in the pups when the concentration of chlordane metabolites analyzed on successive days during the 39 days of gestation and lactation were totaled. The average daily dose to the pup was 0.09 mg/kg-day. If the toxicokinetics from the 0.16 mg/kg-day maternal dose is proportional to that from the 8 mg/kg-day maternal dose, then the pups of a dam dosed with 0.16 mg/kg-day (Cranmer et al., 1984) would receive 0.0018 mg/kg-day. Emerging understanding of the hypothalamic-pituitary-adrenal (HPA) axis substantiates the possibility that a low dose may impair the developing immune system.

2.3 Heptachlor/Heptachlor Epoxide

Heptachlor (heptachlorodicyclopentadiene) was used primarily as an agricultural insecticide from 1952 to 1976, as a narcissus bulb and seed treatment and insecticide for fire ant control on pineapple crops until 1976, and as a treatment for subterranean termites until 1987 (Fendick et al., 1990). In 1985, heptachlor alone or in combination with chlordane, accounted for 60-65 percent of the termiticides used in the U.S. (EPA 1987 – see Fendick et al.). In 1987, the EPA and the Agency for Toxic Substances and Disease Registry (ATSDR) classified heptachlor as a priority Group 1 Hazardous Substance, making Superfund money available for cleanup of heptachlor-contaminated sites.

Technical heptachlor contains heptachlor plus related reaction products in approximately a 5:2 ratio (Fendick et al., 1990). Heptachlor is a moderately persistent compound (Ware et al., 1990). In the soil it undergoes multiple transformation and degradation reactions by at least three pathways: epoxidation, hydrolysis, and dechlorination. Epoxidation generates the more persistent and bioaccumulative metabolite, heptachlor epoxide, while hydrolysis is a detoxification reaction (Fendick et al., 1990). U.S. EPA has considered heptachlor and heptachlor epoxide two separate chemicals, and it has established separate RfDs, probably because heptachlor epoxide absorbs strongly to soil and is extremely resistant to biodegradation (Hazardous Substances Databank, <http://toxnet.nlm.gov>), persisting in soils for a long time (Ware, 1988).

OEHHA included heptachlor/heptachlor epoxide in the “Compilation of Chemicals Potentially Found at School Sites” because it has been targeted by federal and state agencies as a chemical that may present environmental health risks. Heptachlor appears on all but two of the chemical compilations that OEHHA has selected to identify chemicals that may be found at school sites. These compilations include:

- Soil contaminants identified at potential school sites in environmental investigations reviewed by the Department of Toxic Substances Control
- Toxic Air Contaminants (TACs) in California identified by OEHHA
- Analytes in the U.S. EPA National Health Exposure Assessment Study (NHEXAS)

OEHHA also included heptachlor/heptachlor epoxide in the compilation of “Candidate Chemicals Based on Critical Health Effects” because heptachlor epoxide is on the Proposition 65 Developmental and Reproductive Toxicant List, and a survey of recent scientific literature indicated that heptachlor and heptachlor epoxide are toxic to organ systems that are developing in children. These organ systems are the immune, nervous, endocrine, and male and female reproductive systems (Brucker-Davis, 1998; DeRosa et al., 1998; Moser et al., 2001; Nicolopoulou-Stamati et al., 2001; Rani et al., 1995; Smialowicz et al., 2001; Voccia et al., 1999). Heptachlor and heptachlor epoxide were also reported to produce cancer (Zahm et al., 1998 and <http://toxnet.nlm.nih.gov>).

Existing Health Guidance Values

U.S. EPA Carcinogen Slope Factor: 4.5 per mg/kg-day

Heptachlor is classified by EPA as a B2, probable human carcinogen, based on several studies. Davis (1965) fed groups of 100 male and 100 female C3H mice diets with 0 or 10 ppm heptachlor (purity not specified) for 2 years. Survival was low, with 50 percent of the controls and 30 percent of the treated mice surviving until the end of the experiment. A two-fold increase in benign liver lesions over the controls was reported. After a histologic reevaluation, Reuber (as cited in Epstein, 1976), as well as four other pathologists, remarked a statistically significant increase in liver carcinomas in the treated male (64/87) and female (57/78) groups by comparison to controls (22/73 and 2/53 for males and females, respectively). The NCI (1977) reported a significant dose-related increase of hepatocellular carcinomas in male and female B6C3F1 mice.

U.S. EPA RfD: 5×10^{-4} mg/kg-day

The current oral RfD for heptachlor given by U.S. EPA in 1991 is 5×10^{-4} mg/kg-day (<http://toxnet.nlm.nih.gov>). This value was derived from a three ppm dietary NOAEL in a two-year rat feeding study where the critical effect was liver weight increase (Velsicol Chemical, 1955, cited by U.S. EPA <http://toxnet.nlm.nih.gov/>). The LOAEL in this study was 5 ppm or 0.25 mg/kg-day and an uncertainty factor of 300 was employed. EPA reports that there is low confidence that this RfD is accurate because the principal study is of low quality; the database on chronic toxicity is incomplete. There are no teratology, reproductive, or studies in young animals.

An RfD for heptachlor epoxide was based on a study in which adolescent dogs were fed heptachlor epoxide for 60 weeks (Dow Chemical Company, 1954). The LOAEL of 0.5 ppm (0.0125 mg/kg-day) was based on an increased liver-to-body weight ratio in both males and females as a critical effect (Dow Chemical Co., 1958, cited in U.S. EPA IRIS online file, <http://toxnet.nlm.nih.gov/>). An uncertainty factor of 1000 was employed. EPA indicates there is low confidence that the RfD is accurate because the principal study is of low quality, and the chronic toxicity studies are of low quality. There were no rat or rabbit teratology studies.

OEHHA PHG: 8 ppt (a safe dose of 1×10^{-4} mg/kg-day)

OEHHA staff prepared a Public Health Goal (PHG) for heptachlor of 8×10^{-6} mg/L drinking water, based on a cancer slope factor of $4.1 \text{ mg/kg-day}^{-1}$ and a 1×10^{-6} cancer risk (OEHHA, 1999b). Heptachlor exposure produced a dose-related increase in the incidence of hepatocellular carcinoma in male and female B6C3F1 mice (NCI, 1977) and hepatocellular carcinoma in male and female C3H mice (Davis, 1965).

OEHHA (1999) considered two studies when non-cancer effects were reviewed. The first was the two-year rat feeding study where the critical effect was liver weight increase that was used by EPA when it last revised the heptachlor RfD (Velsicol Chemical, 1955, cited by U.S. EPA, <http://toxnet.nlm.nih.gov>). Uncertainty factors of 10 for interspecies variability and 10 for interindividual variability were used. The second study (Cassidy et al., 1994) reflected the recent concern about the endocrine disruption effects of chlorinated cyclodiene and other chlorinated pesticides. The critical effect in this study was the alteration of sex steroid-mediated behaviors by prenatal and early-in-life exposure to 0.1mg/kg/day technical chlordane which contains 10percent heptachlor. In this calculation, the uncertainty factors are: LOAEL to NOAEL extrapolation (10), interspecies variability (10), and interindividual variability (10), resulting in a "safe" non-cancer human dose of 1×10^{-4} mg/kg/day

Current Evaluation Results

The effects of heptachlor that are specific for children are its disturbance of the development of the endocrine system and of the organs that respond to endocrine signals when exposure occurs during prenatal and/or early postnatal life (Colborn, 1993). These effects are permanent.

Contamination of the commercial milk supply of Oahu, Hawaii, with heptachlor for 15 months, from 1981 to 1982, and the subsequent finding of heptachlor epoxide in human milk, prompted new studies on rats to look for possible effects of heptachlor and its persistent primary metabolite at the concentrations to which children were exposed. The Hawaii Heptachlor Research and Education Foundation (HHREF) cosponsored these studies with the U.S. EPA and NIEHS in order to evaluate many aspects of the impact of heptachlor exposure during the perinatal/juvenile period of development, using a broad battery of tests of immune and reproductive system function.

The doses (0, 0.3, 3, or 30 mg/kg-day of 99% pure heptachlor) employed were adjusted so that the low dose gave milk values of heptachlor epoxide that approximated the 95th percentile of human milk heptachlor and heptachlor epoxide values in Oahu, Hawaii in 1981 (Baker et al., 1991; Siegel, 1988 in Smialowicz et al., 2001). The period of exposure was designed to approximate the last trimester of pregnancy through 18 years of age in humans. The experimental design for the studies of endocrine disrupting effects on immune, neurobehavioral, and reproductive is given in Figure 2.3.1.

Figure 2.3.1 Experimental Design

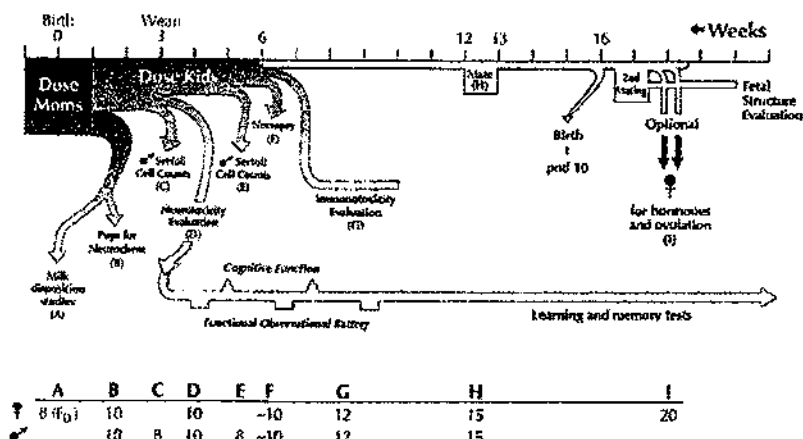


Figure taken from Moser et al., 2001 and Smialowicz et al., 2001)

The results of one subset of this study (Smialowicz et al., 2001) indicated that exposure of rats to heptachlor during the last trimester of gestation through puberty adversely affects adult functioning of the immune system by suppressing the primary IgM and secondary IgG antibody response in male offspring. Rats were exposed to 0, 0.3, 3, or 30 mg/kg-day from gestation day 12 to postnatal day 7, followed by direct dosing through postnatal day 42. The LOAEL was identified as 0.3 mg/kg-day because the primary IgM antibody response to Sheep Red Blood Cells (SRBCs), as measured by enzyme linked immunosorbent assay (ELISA) was suppressed at 8 weeks of age and at 21 weeks of age. At the same dose, the secondary IgG response was also suppressed at 25 weeks of age. These responses require three major immune cell types: macrophages, the CD4+ T-helper cells, and B cells. Alterations in or dysfunction of any of these cells and cell interactions can result in aberrant antibody production (Luster et al., 1988 in Smialowicz, 2001). The suppression of these T cell-dependent antibody responses persisted through the first six months of life at all doses employed, including the lowest dose, 0.3 mg/kg-day, which was administered through 6 weeks of age.

The response to SRBC is one of the most sensitive functional parameters in animals exposed to immunosuppressants (Luster et al., 1992). Consequently, it is included in the battery of tests required by the Federal Insecticide, Fungicide, and Rodenticide (FIFRA) guidelines for detection of immunosuppressants (Smialowicz, 2001). In both animals and humans, T-cell dependent responses are involved in protection against viral, bacterial, and parasitic infections (Blanden, 1974 in Smialowicz, 2001). Consequently, the suppression of the primary IgM and secondary IgG antibody responses suggests potential increased susceptibility to infectious diseases.

In another subset of rats from the same large study, heptachlor produced significant differences in tests for cognitive abilities that are associated with the development of neuroendocrine pathways (Moser et al., 2001). Rats were evaluated for neurological and behavioral alterations using a functional observational battery (FOB), an automated measure of motor activity, passive avoidance, and a Morris water maze test (Moser et al., 2001). Rats dosed prenatally and postnatally until day 21 had changes in activity measures, but those in which dosing continued until day 42 had alterations in autonomic, neuromuscular, and excitability measures. The most pronounced effects of heptachlor occurred in rats treated until day 42 and tested with the Morris water maze test. The Morris water maze test (Morris, 1984) was devised to resolve theoretical controversies about the basis of spatial and working memory. Normal rats learn very quickly to swim directly towards a platform from any starting position at the circumference of a pool. The accurate directionality of their escape behavior provide evidence that the rats escape by learning the position of the platform relative to distal cues. Thus, their performance can be compared to those of animals exposed to potential neurotoxins to assay spatial learning and memory (Morris, 1984).

Heptachlor exposure slowed acquisition of the spatial task and impaired recall during probe trials: the treated male rats at all dose levels did random searching for the platform, rather than developing an efficient search strategy. Working memory, which was assayed by requiring the rats to learn a new position for the platform each day, was significantly decreased in the low dose (0.03 mg/kg-day) male rats which had been dosed with heptachlor prenatally and postnatally until Day 21. The escape latency (mean time to find the new location) was 27.9 seconds compared to 20.5 seconds in control (Smialowicz, et al., 2001).

Cyclodiene pesticides bind to the chloride channel portion of the receptor for the neurotransmitter gamma aminobutyric acid (GABA)_A, block the inhibitory actions of and thus affect a variety of neurological functions in both adult and young animals (Abalis et al., 1986; Cole and Casida, 1986; Gant et al., 1987 in Moser, 2001). Acute actions of cyclodiene pesticides include excitation, hyperstimulation, and convulsions (Cole and Casida, 1986; Fendick et al., 1990). In young mammals, the development of the nervous system is quite protracted, and specific processes of migration, proliferation, and differentiation occur from gestation throughout childhood and into adolescence. These processes occur in sequence, so disturbance of earlier processes can disrupt later developmental events. Cyclodiene insecticides alter expression of the GABA_A receptor. Since the neurotransmitter, GABA, influences development of serotonergic, dopaminergic, and cholinergic neurotransmitter systems, cyclodiene pesticides may produce long-lasting alterations in brain function (Lauder et al., 1998 in Smialowicz et al., 2001).

Recommendation

Heptachlor:

The experiments of Smialowicz et al. (2001) and Moser et al. (2001) describe several critical effects in young male rats at a LOAEL of 0.03 mg/kg-day heptachlor during the last half of gestation and the first 21 or 42 postnatal days. The most significant effects include suppression of the primary IgM and secondary IgG antibody response (Smialowicz et al., 2001), and decreased performance on measures of cognitive function, such as impaired recall (Moser et al., 2001).

Technical grade heptachlor and chlordane are mixtures of pure compound plus related reaction products (Ware, 1990). The PHG developed by OEHHA in 1999 utilized a study (Cassidy et al., 1994) that described a disruption of sex-steroid mediated behaviors in female mice at a dose of 0.01 mg/kg-day of technical grade chlordane, which contains 10 percent heptachlor. More recent studies (Smialowicz et al., 2001, Moser et al., 2001), which used heptachlor of 99 percent purity, have allowed OEHHA staff to develop the chRD for heptachlor without the ambiguity associated with testing a mixture.

Calculation of the non-cancer chRD is based on the following equation:

$$\text{chRD} = \frac{\text{LOAEL}}{\text{UF}} = \frac{0.03 \text{ mg/kg-day}}{1000} = 3.0 \times 10^{-5} \text{ mg/kg-day}$$

Where,

LOAEL = Lowest Observed Adverse Effect Level from Smialowicz et al., 2001 and Moser et al., 2001

UF = Uncertainty factor of 1000 (10 for LOAEL to NOAEL, 10 for inter-species extrapolation, 10 for human variability)

Accordingly, OEHHA is proposing a non-cancer chRD of 3.0×10^{-5} mg/kg-day for heptachlor.

Heptachlor Epoxide:

Heptachlor has not been used since 1987 when its use was restricted. Heptachlor in the soil undergoes multiple transformation and degradation reactions, and epoxidation generates the more persistent and bioaccumulative metabolite, heptachlor epoxide (Fendick et al., 1990), so children at school sites may be exposed to heptachlor epoxide.

The principal study used by U.S. EPA to calculate an RfD (<http://toxnet.nlm.nih.gov>) was a 60-week dog feeding study (Dow Chemical Co., 1958) in which the LOAEL was an increased liver-to-body weight ratio. Although liver-to-body weight ratio is not a child-

specific endpoint, the exposure period began in adolescence and continued into young adulthood.

Since adolescent animals were exposed, OEHHA has decided to utilize the same study and the same uncertainty factors to calculate a non-cancer child-specific RD as the U.S. EPA RfD:

$$\text{chRD} = \frac{\text{LOAEL}}{\text{UF}} = \frac{0.0125 \text{ mg/kg-day}}{1000} = 1.3 \times 10^{-5} \text{ mg/kg-day}$$

Where,

LOAEL = Lowest Observed Adverse Effect Level from Dow Chemical Co, 1958

UF = Uncertainty factor of 1000 (10 for LOAEL to NOAEL, 10 for inter-species extrapolation, 10 for human variability)

Accordingly, OEHHA is proposing a non-cancer chRD of 1.3×10^{-5} mg/kg-day for heptachlor epoxide.

2.4 Methoxychlor

Methoxychlor, 2,2-bis(p-methoxyphenyl)-1,1,1-trichloroethane, is structurally related to DDT. Because of its lower toxicity and bioaccumulation potential, methoxychlor became an attractive replacement of DDT (ATSDR, 1994). It was registered as an insecticide against a wide range of pests, including houseflies, mosquitoes, cockroaches, and various arthropods commonly found on fields crops, vegetables, fruits, stored grain, livestock, and domestic pets.

While DTSC's school site review efforts continue, methoxychlor has already been detected at a school site. Recent studies show that demethylated metabolites of methoxychlor are an endocrine disruptor. Accordingly, OEHHA believes it is important to further review methoxychlor pursuant to Health and Safety Code Section 901(g). As endocrine disruptors, methoxychlor metabolites may have adverse effects on different developing organ systems. These chemicals may disrupt the development and functioning of the female reproductive system, and the brain, and the male reproductive system (vom Saal et al., 1983, 1997; Nonneman et al., 1992; Hess et al., 1997). As such, the effect of methoxychlor or its metabolites could affect the development of school children. Moreover, earlier studies may have inadequately characterized the dose-response relationship of methoxychlor (NTP, 2001). In reviewing environmental estrogens, the NTP Peer Review Subpanel found that overall the classic estrogenic activity of methoxychlor was limited to doses greater than 5 mg/kg-day because testing at lower doses had not been incorporated into the experimental design. An updated review of the pertinent literature is necessary to ensure that the appropriate LOAEL or NOAEL will be considered in setting a child-specific guidance value.

Pertinent Guidance Values

U.S. EPA RfD: 0.005 mg/kg-day

U.S. EPA used the 1986 Kincaid Enterprises, Inc. study to establish its RfD. Young adult female New Zealand White rabbits were assigned into 3 dose groups of 17 animals each, 5.01, 35.5, and 251.0 mg/kg-day, and a control group (a total of 68 animals). The females were artificially inseminated and the day of insemination considered as gestation day 0. All animals were dosed from days 7 through 19 of gestation. All surviving dams were sacrificed on gestation day 29.

Maternal toxicity was observed as excessive loss of litters (abortions) and statistically significant decreases in body weight in the mid- and high-dose groups, and the deaths in the high dose group. No specific toxicity was noted in the low dose (5.01 mg/kg-day), which was deemed to be the NOAEL.

An uncertainty factor of 1000 was applied to the NOAEL in developing the RfD; of which 100 was used to account for the inter- and intra-species differences and an

additional 10 was used to account for the poor quality of the critical study and for the incomplete database on chronic toxicity.

OEHHA PHG: 0.03 mg/L (a safe dose of 0.005 mg/kg-day)

In reviewing literature for the purpose of establishing a Public Health Goal (PHG) for methoxychlor in drinking water (OEHHA, 1999c), OEHHA found the chemical to be negative in several mutagenicity tests. However, a positive test was reported for the induction of forward mutations in the mouse lymphoma assay. Large doses of methoxychlor decreased locomotor activity and caused tremors. Reproductive effects have been caused by the estrogenic activity of the o-demethylated metabolites of methoxychlor. These metabolites also bind estrogen receptors in animal and human tissues.

OEHHA identified the investigation by Chapin et al. (1997) as the most relevant study for use in developing a PHG for methoxychlor in drinking water. The investigation focused on effects of perinatal methoxychlor exposure on adult rats' nervous, immune, and reproductive system function. Dams were dosed orally at gestation day 14 through postnatal day (pnd) 7 and then pups were directly dosed at pnd 7 through pnd 42 at dosages of 0, 5, 50, and 150 mg/kg-day. Critical effects included a reduction in serum FSH, ovary weight and uterine weight at all dosages. The findings suggested that methoxychlor, as an exogenous estrogenic agent, had interfered with the normal programming of the ovarian-pituitary axis.

Applying the LOAEL of 5 mg/kg/day and an uncertainty factor of 1000 (10 each for inter-species extrapolation, intra-human variability, and LOAEL to NOAEL extrapolation), OEHHA calculated a safe dose of 0.005 mg/kg-day. This in turn was used to derive a PHG of 0.03 mg/L.

Current Evaluation Results

Stoker et al. (1999) investigated the effect of perinatal exposure of methoxychlor on the prostate of adult rat. The study showed that a perinatal dose of 50 mg/kg methoxychlor to the dam only from gestation day 18 to postnatal day 5 resulted in offspring with increased lateral prostate weight and inflammation at 90 days of age.

Welshons et al. (1999) reported increases in adult prostate size in mice from fetal exposure to methoxychlor. Females were dosed from day 11 to day 17 of pregnancy at 20 or 2000 µg/kg maternal body weight per day. Pups were weaned on postnatal day 23. When males reached 8.5 months old (adult), a randomly selected male from each litter was individually housed for 4 weeks to eliminate any effects of having been housed with other males before the selected male was sacrificed for various examinations. Prostatic weights were significantly increased in the 20 and 2000 µg/kg groups.

Table 2.4.1 Effects of Methoxychlor on Prostate Weight

	Prostate (mg)
Control	40.0+3.0
Methoxychlor (20 µg/kg)	64.5+3.7
Methoxychlor (2000 µg/kg)	60.3+4.1

The finding is not surprising as the prostate contains both androgen and estrogen receptors (Kumar et al., 1995) and it has been observed that estrogen can stimulate the growth of the stromal compartment of the prostate (Ekman, 2000). The study also illustrates the irreversible impact of endocrine disruptors during development.

vom Saal et al. (1995) discussed evidence that during fetal life, hormones have marked effects on subsequent behaviors. Male mice are particularly active in urine-marking behavior to indicate their social status. Urine marking was used as the end point to measure the effect of methoxychlor. Females received 0, 1, 10, 100, 1000, or 5000 µg/d from day 11 to day 17 of pregnancy. Two males from each litter were randomly selected when they were 60 days old and housed individually for four weeks to eliminate any effects of having been housed with other males. Urine-marking tests were conducted for one hour in clean cages with the floor lined by a sheet of Whatman No. 2 filter paper. The filter paper was then removed and discrete urine marks (which fluoresce under UV light) deposited on it were counted. The lowest dose (1 µg/day or 20 µg/kg-day based on 0.05 kg maternal weight) of methoxychlor significantly increased urine-marking behavior in male offspring.

Recommendation

OEHHA recommends that a chRD for methoxychlor be developed based on the data from Welshons et al. (1999) and vom Saal et al. (1995). While the exposure period used to demonstrate the significant effect on the prostate or neurobehavior was in the fetal period, OEHHA feels that both the prostate and neurobehavioral data (territorial marking) are applicable for school age children. The human prostate development is biphasic, with much of the growth occurring at puberty. It is small (weighs about 2 g) in childhood and undergoes exponential growth to about 20 g at puberty (Hayward et al., 2000). On the other hand, the process of brain development and maturation continues into adolescence (Rice et al., 2000). These systems remain vulnerable during the K-12 schooling period. Therefore, the Welshons and vom Saal data are an appropriate basis for evaluating hazards at schools.

OEHHA has also considered the appropriateness of using the maternal dose to calculate the chRD. OEHHA finds that methoxychlor crosses the placenta and partitions into the

lipids of milk (OEHHA, 1999). It is likely that the corresponding pup dose is higher on a per kilogram body weight basis. However, the demethylated (phenolic) metabolites rather than methoxychlor were shown to be the active species that displayed the endocrine disruption potential. The polar metabolites would not cross the placenta effectively. Additionally, methoxychlor that crosses the placenta would not be metabolized effectively by the pup whose P-450 enzymes are not fully developed. Thus, it would not be too conservative to use the maternal dose in this case to calculate the chRD.

Calculation of the non-cancer chRD for methoxychlor is based on the following equation:

$$\text{chRD} = \frac{\text{LOAEL}}{\text{UF}} = \frac{20 \mu\text{g/kg-day}}{1000} = 0.02 \mu\text{g/kg-day}$$

Where,

LOAEL= Lowest-observed-adverse-effect-level based on Welshons et al. (1999) and vom Saal et al. (1995)

UF= Uncertainty factor of 1000 (10 for inter-species extrapolation, 10 for intra-human variability, and 10 for LOAEL to NOAEL extrapolation)

Accordingly, OEHHA is proposing a non-cancer chRD of 0.02 $\mu\text{g/kg-day}$ for methoxychlor to be used in school-site risk assessment.

2.5 Nickel

Nickel, an important industrial metal, comprises 0.008 percent of the earth's crust (Duke, 1980 as cited in ATSDR, 1997). The production, use, and disposal of nickel have led to its mobilization in the environment and human exposure. Nickel is used in aircraft frames, jet engines, gas turbines, and turbosuperchargers, boats, hulls, propellers, and pumps (OEHHA, 2001). Nickel alloys are used in pumps and pipes to resist corrosion in petro-chemical industries. In addition, nickel is used in making coins and jewelry; as catalysts; and in magnets, batteries, and color pigment. Nationwide in 2000, 651,000 pounds of nickel were emitted into the air (with nickel plating operations as a major source of emission), 30,000 pounds were discharged into surface water, 17,000 pounds were injected underground, 2,032,000 pounds were disposed of onsite, and 8,700,000 pounds were disposed of offsite (U.S. EPA, TRI2000).

Nickel was selected for further evaluation pursuant to Health and Safety Code Section 901(g) because it meets both criteria for selection identified in OEHHA's 2002 report (OEHHA, 2002):

- DTSC reported the presence of nickel at two percent of the potential school sites evaluated to date. ARB reported its occurrence in California air (OEHHA, 2002). In addition, U.S. EPA and ARB/DHS have deemed nickel as a chemical of interest in their NHEXAS and Portable Classroom Study, respectively.
- OEHHA (2001) found a number of studies concerning the reproductive effects of nickel compounds. Nickel also adversely affected the immune functions in animals. The administration of nickel to rats increased the concentration of the metal in the hypothalamus and pituitary and inhibited prolactin secretion.

Pertinent Guidance Values

U.S. EPA RfD: 0.02 mg/kg-day

U.S. EPA's RfD is based primarily on the results of a two-year feeding study using rats given 0, 100, 1000 or 2500 ppm nickel (estimated as 0, 5, 50 and 125 mg Ni/kg bw) in the diet (Ambrose et al. 1976). In the 1000 and 2500 ppm groups (50 and 125 mg Ni/kg bw, respectively) body weights were significantly decreased compared with controls and the females had significantly higher heart-to-body weight ratios and lower liver-to-body weight ratios than controls. Since no significant effects were reported at 100 ppm (5 mg Ni/kg bw), this dose was a NOAEL. In this study, two-year survival was poor, particularly in control rats of both sexes (44 of 50 died), raising some concern about the interpretation of the results of this study. A subchronic study conducted by American Biogenics Corp. (ABC, 1986) also found 5 mg/kg-day to be a NOAEL, which supported the Ambrose et al. (1976) chronic NOAEL of 5 mg/kg-day.

An uncertainty factor (UF) of 300 (10 for interspecies extrapolation, 10 to protect sensitive populations, and 3 to account for inadequacies in the reproductive studies) was applied to the NOAEL of 5 mg/kg-day to compute an RfD of 0.02 mg/kg-day.

OEHHA PHG: 11.8 µg/L (a safe dose of 1.1×10^{-3} mg/kg-day)

OEHHA (2001) established a Public Health Goal (PHG) for nickel in drinking water that is based on three reproductive studies in rats (Smith et al., 1993; Springborn Laboratories, 2000a, b). In the Smith study 61-64 day old female rats (at puberty) were dosed at 0, 1.3, 6.8, or 31.6 mg/kg-day for 11 weeks prior to mating and then continuously during two sequential gestation and lactation periods. Breeder males were unexposed. The proportion of dead pups per litter was significantly increased in the 31.6 mg/kg-day group in both breedings and also in the 1.3 mg/kg-day group in the second breeding. Thus, 1.3 mg/kg-day was considered the LOAEL for this study.

The first Springborn report (Springborn Laboratories, 2000a) summarized a one-generation reproduction range-finding study in rats. 102 day-old animals (at sexual maturity) were dosed at 0, 10, 20, 30, 50, or 75 mg nickel sulfate hexahydrate/kg-day for two weeks prior to mating. OEHHA observed significant pup mortality at the lowest dose (10 mg nickel sulfate hexahydrate/kg-day or equivalent to 2.2 mg nickel/kg-day) and deemed it as the LOAEL for this study.

Following the range-finding study, Springborn Laboratories (2000b) conducted a two-generation reproduction study. Nickel sulfate hexahydrate was administered at 0, 1, 2.5, 5, or 10 mg/kg-day. Dosing of the F₀ animals began at 10 weeks prior to mating and dosing of the F₁ rats began on postpartum day 22 (just after weaning, at a young age). For both generations, daily dosing of the dams was continued until lactation day 21. In this two-generation study, no adverse effects were observed even at the highest dose, 10 mg/kg-day (2.2 mg nickel/kg-day).

In reviewing these three studies in totality, OEHHA concluded that the 1.1 mg nickel/kg-day (5 mg nickel sulfate hexahydrate/kg-day) dose in the two-generation study was the appropriate NOAEL for use in calculating the PHG. It represents the highest NOAEL that is lower than the LOAEL from either the Smith, or Springborn range-finding, study.

OEHHA applied this NOAEL in conjunction with an uncertainty factor of 1000 (10 for inter-species extrapolation, 10 to account for human variability, and 10 for database deficiencies for carcinogenic effect via oral route) for calculating a safe dose of 1.1 µg/kg-day. The safe dose was in turn used to derive the PHG.

Current Evaluation Results

Nickel has been cited in the PHG report as having adverse effects on several sensitive organ systems that are undergoing development in school children (OEHHA, 2001). For

example, it affected the hypothalamus-pituitary axis and inhibited prolactin secretion; it reduced a variety of T-lymphocytes and natural killer cell-mediated immune functions; and it impacted the reproductive system and viability of offspring. Against this background, OEHHA targeted the literature search using the criteria outlined in the Introduction Section. We came up with a list of 18 references; all of which were qualitative studies and thus not usable in the context of the current task.

OEHHA modified its strategy, which stipulated a broad-based literature search. A total of 18,410 references were compiled. These references and their abstracts were put into a Procite database. The database, in turn, was queried in an attempt to identify quantitative studies with nickel doses in the range, or below that, of 1.1 mg/kg-day. The purpose is to run another check that we have identified the "lowest" LOAEL or NOAEL during the PHG review. The results support that conclusion.

Recommendation

The current broad-based literature search has not identified data to suggest that the NOAEL should be changed from that used as the basis for the PHG. The PHG NOAEL addresses the reproductive end point that is one of the targeted organ systems for this review, and the exposure time and duration of rats stipulated in the Smith and Springborn studies covers the critical windows for exposure of pre-school and school children. As such, the PHG NOAEL should be used to develop a child-specific RD for use in school-site risk assessment.

OEHHA has considered the appropriateness of using an oral absorption factor for calculating the chRD for nickel. OEHHA noted that human absorption of nickel depends on the dietary matrix (OEHHA 2001). Absorption is significantly higher when water is used as the administration vehicle, compared to when food is used. Alexander et al. (1974) estimated a 40 percent absorption for healthy children on a balanced diet that consisted of milk, cereal, and other food. McNeely et al. (1972), on the other hand, estimated a 1.6 percent absorption for adults on a regular diet (water and food). These data suggest the appropriateness of applying a child protective factor of three to account for the absorption difference between children and adults.

Because a PHG can be based on a cancer or non-cancer endpoint, OEHHA applied a factor of 10 to account for database deficiencies for carcinogenic effect via oral route in deriving a PHG safe dose for nickel. Since a non-cancer chRD by definition addresses the non-cancer endpoint only, OEHHA in this situation has not applied that database deficiency factor in calculating the chRD for nickel.

Calculation of the chRD for nickel is based on the following equation:

$$\text{chRD} = \frac{\text{NOAEL}}{\text{UF} \times \text{CP}} = \frac{1.1 \text{ mg/kg-day}}{100 \times 3} = 3.7 \text{ } \mu\text{g/kg-day}$$

Where,

- NOAEL = No-observed-adverse-effect-level from Smith et al., 1993; Springborn Laboratories, 2000a, b.
- UF = Uncertainty factor of 100 (10 for inter-species extrapolation, 10 for human variability).
- CP = Child protective factor of 3 to account for the GI absorption difference between children and adults.

Accordingly, OEHHA is proposing a non-cancer chRD of 3.7 $\mu\text{g}/\text{kg}\text{-day}$ for nickel to be used in school-site risk assessment.

3. Conclusion

This report summarizes OEHHA's evaluation of cadmium, chlordane, heptachlor (and its metabolite heptachlor epoxide), methoxychlor, and nickel. Based on the evaluation, OEHHA proposes to establish a chRD for each of these chemicals pursuant to the second part of Health and Safety Code Section 901(g). They are listed in Table 3.1 along with other pertinent numerical health criteria.

Table 3.1 Numerical Non-cancer Health Criteria

	OEHHA's Proposed chRD (mg/kg-day)	OEHHA's PHG Safe Dose (mg/kg-day)	U.S. EPA's RfD (mg/kg-day)
Cadmium	1×10^{-5}	1×10^{-5}	5×10^{-4}
Chlordane	3.3×10^{-5}	1×10^{-5}	5×10^{-4}
Heptachlor	3×10^{-5}	1×10^{-4}	5×10^{-4}
Heptachlor epoxide	1.3×10^{-5}	1.3×10^{-5}	1.3×10^{-5}
Methoxychlor	2×10^{-5}	5×10^{-3}	5×10^{-3}
Nickel	3.7×10^{-3}	1.1×10^{-3}	2×10^{-2}

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APPENDIX A

Keywords Used in Literature Search

gestation*	utero	vagina
infant	early postnatal exposure	clitoris
neonatal	synaptogenesis	testes
neonate*	cell physiology	seminal vesicles
newborn	myelination	prostate seminal ducts
perinate	myelin sheath	penis
perinatal	apoptosis	breast/gd
perinatally	locomotor skill	mammae
lactation	motor activity	udder
puberty	learning	sperm count
adolescent	Psychological	sperm motility
adolescence	Phenomena and	sex maturation
kids	Processes	vaginal opening
young	memory	preputial separation
youth	pseudoglandular	litter size
children	canalicular	Estrogens
child	saccular	androgens
juvenile	morphogenesis	Leydig Cell Tumor
school	Respiratory Tract	Leydig Cells
pediatric	Diseases	Sertoli Leydig Cell
prepubertal	Splenic diseases	Tumor
peripubertal	spleen	Sertoli Cell Tumor
age	hematopoiesis	Sertoli Cells
sacrificed	extramedullary	maze learning
lactation	thymus gland	sex hormones
pup	autoimmunity	steroid
pups	endocrine glands	receptors
postnatal*	brain	GABA
preweanling	gonads	body weight
weanling*	ovary	cincinnati maze
early postnatal exposure	testis	navigation times
offspring	urogenital system	escape reaction
immature	kidney	Startle reaction
childhood	ureters	startle
developmental	bladder	spatial behavior
growth	urethra	crowding
developing	ovaries	personal space
development	uterus	territoriality
rotarod	fallopian tubes	mating behavior

sex behavior
motor activity
chloride channels
gaba receptors
auditory startle
Neuropsychological
Tests
Reaction Time
Psychomotor
Performance
Battery
Physiology
Nervous System
Psychological
Phenomena and
Processes
Behavior and Behavior
Mechanisms
Psychological Tests
Behavioral Disciplines
and Activities
Ovarian Function Tests
Pain Measurement

placental Function Tests
Pulmonary Ventilation
Respiratory Function
Tests
Speech Articulation
Tests
Speech Discrimination
Tests
Thyroid Function Tests
Pancreatic Function
Tests
Ethology
hearing tests
vision
visual perception
ethological
photic stimulation
uterotrophic
Immune system
immunity
immunotox*
Nervous system
nervous system diseases

Neurologic
Manifestations
neurotox*
Respiration system
Respiratory Tract
Diseases
respirat*
lung
lungs
nasal
airway
Neurosecretory Systems
neuroendocrin*
Psychomotor Agitation
Neurobehavioral
Manifestations
Psychomotor
Performance
Psychophysiology
behavior
neurobehav*
reproduction



County of Los Angeles
CHIEF ADMINISTRATIVE OFFICE

713 KENNETH HAHN HALL OF ADMINISTRATION • LOS ANGELES, CALIFORNIA 90012
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DAVID E. JANSSEN
Chief Administrative Officer

Board of Supervisors
GLORIA MOLINA
First District
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Second District
ZEV YAROSLAVSKY
Third District
DON KNABE
Fourth District
MICHAEL D. ANTONOVICH
Fifth District

November 3, 2003

Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Dear Mr. Ritchie:

**COUNTY OF LOS ANGELES BOARD OF SUPERVISORS
FINAL COMMENTS ON LAX MASTER PLAN DRAFT SUPPLEMENTAL EIS/EIR**

On behalf of the Los Angeles County Board of Supervisors, I am submitting final comments on the Supplement to the Draft Environmental Impact Statement/Environmental Impact Report (Supplemental Draft EIS/EIR) for the Los Angeles International Airport Master Plan. The Board of Supervisors approved these comments for submission at their meeting of October 28, 2003.

The Board of Supervisors looks forward to receiving a written response to the comments.

Sincerely,

DAVID E. JANSSEN
Chief Administrative Officer

DEJ:LS
MKZ:JR:os

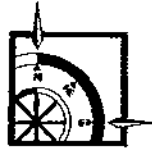
Enclosures

- c: David B. Kessler, Federal Aviation Administration
- Each Supervisors
- Executive Officer, Board of Supervisors
- County Counsel
- Director of Public Works
- Director of Planning
- A.C. Lazzaretto and Associates

County of Los Angeles

**Final Comments on the LAX Master Plan
Supplement to the Draft EIS/EIR**

Prepared By:



A.C. Lazzaretto & Associates

P.O. Box 3073

Burbank, CA 91504

Tel: (818) 569-4526

Fax: (818) 558-7088

Project Manager:

Andrew C. Lazzaretto

15 OCTOBER 2003

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County of Los Angeles
Final Comments on the Supplement to the
Draft EIS/EIR for Proposed Master Plan Improvements at LAX
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1.0 BACKGROUND AND EXECUTIVE SUMMARY

1.1 BACKGROUND

During 2001, A.C. Lazzaretto & Associates was retained by the Los Angeles County Chief Administrative Office to review and comment on the Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) prepared for Los Angeles World Airport's (LAWA) Proposed Los Angeles International Airport (LAX) Master Plan. The 2001 Draft EIS/EIR addressed three build alternatives, a no-build alternative, and the existing setting for the Los Angeles International Airport (LAX) Master Plan.

A.C. Lazzaretto & Associates assembled a team of environmental review experts to review the document for consistency and accuracy. Working in collaboration with County staff, a detailed comment letter was prepared and submitted to LAWA on 28 June 2001. Thereafter, in response to considerable public comment and the terrorist attacks that occurred on September 11, 2001, LAWA suspended work on the earlier EIS/EIR to develop a fourth alternative -- Alternative D, the Enhanced Safety and Security Plan. LAWA made a Supplement to the Draft EIS/EIR (SDEIS/EIR) available for public comment in July of 2003 to update information presented in the Draft EIS/EIR and to integrate Alternative D into the environmental review process. The Supplement offered no response to comments submitted on the 2001 DEIS/EIR.

Alternative D includes a number of airfield facility modifications. Although LAX would continue to operate with 4 runways, 2 of the existing runways would be moved, two would be lengthened, and all would be further separated from one another. New centralized passenger terminals would replace the existing parking structures. The existing Terminals 1 through 7 would be reconfigured, including a new north/south linear concourse at the Tom Bradley International Terminal, flanked on the west by a new satellite concourse. A new ground transportation center and intermodal transportation center to be built east of Aviation Blvd. would serve as the primary access for all passenger drop-off and pick-up and vehicle parking. Some cargo facilities would be modified, although overall square footage would be equivalent to the No Action/No Project Alternative.

Following publication of the SDEIS/EIR, the Los Angeles County Chief Administrative Office again retained A.C. Lazzaretto & Associates to review and comment on the revised document. A.C. Lazzaretto & Associates in turn assembled the team of environmental review experts that had reviewed the 2001 document, in order to assess the 2003 Supplement for consistency, accuracy, and changes since the original Draft EIS/EIR was prepared. The information has been evaluated using the following criteria: reasonableness of input data and assumptions, appropriateness and accuracy of analyses and mitigation measures, and conformity with requirements of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

Results of the current review indicate that many of the concerns expressed in our earlier comment letter still remain, including one that was central to County comments on the earlier LAX Master Plan review: although LAWA indicates that its goal is to limit growth, improvements proposed as part of Alternative D would in reality serve to reinforce LAX as the preeminent airport of the southern California region, and may undermine attempts to strengthen the role of outlying airports. There are a number of points, in addition to this thematic concern, that merit further consideration and discussion before LAWA considers certification of the Supplement to the EIS/EIR and approval of the preferred alternative.

To facilitate LAWA's review and response, the County has revised and updated the comment letter originally submitted in June of 2001. The current comment letter incorporates all issues for which a response is sought from LAWA. As before, the review team has paid special attention to the major issues of noise, traffic, environmental justice, and air quality, and the team has again made every attempt to offer objective, constructive comments concerning the major elements of the Supplement to the DEIS/EIR.

1.2 EXECUTIVE SUMMARY

A.C. Lazzaretto & Associates has been retained by the Los Angeles County Chief Administrative Office to review and update comments on the 2001 Draft DEIS/EIR prepared for LAWA's Proposed LAX Master Plan, consistent with changes in the current 2003 Supplement to the Draft EIS/EIR. The 2001 Draft EIS/EIR addressed three build alternatives, a no-build alternative, and the existing setting for the Los Angeles International Airport (LAX) Master Plan. The 2003 Supplement incorporates a new Alternative D (the "enhanced safety and security plan") that LAWA has designated as the preferred project option. To address safety issues, the review team has been expanded to include participation by BoydForbes, Inc., a renowned airport safety consulting firm based in Denver.

The County has a special responsibility in this process, since it represents the unincorporated communities that are most directly impacted by LAX operations. It is for this reason that the County has taken a highly active stance during 2001 and 2003, and in both instances we have focused on issues of greatest concern to our constituents. During 2001, we submitted comments to LAWA in which we expressed a number of serious concerns. With publication of the 2003 Supplement we find that most of our earlier concerns remain unaddressed and new issues have been identified that are of even greater potential concern for Los Angeles County constituents. The County has twice sought to meet with LAWA's consulting team to discuss these issues, and on both occasions has been rebuffed. In so doing, LAWA has bypassed an opportunity for identification of joint solutions that could facilitate improvements at LAX while minimizing impacts on LAX's neighbors living in Manchester Square, Lennox, Westchester and other adjoining communities. Manchester Square is that area bounded by La Cienega Blvd. on the east, Century Blvd. on the south, Aviation Blvd. on the west, and Arbor Vitae Street on the north.

Fundamentally, the County of Los Angeles believes that LAWA is proposing to implement a flawed project, and that LAWA has developed an inadequate environmental document to review the project. The following report covers a wide range of issues, many in considerable detail. While all of these issues are important, we would like to call special attention to the following key points:

- ▶ Contrary to statements made throughout the SDEIS/EIR, our review clearly shows that Alternative D will not constrain growth at LAX. LAWA has misrepresented this alternative, to the jeopardy of the environmental analysis.
- ▶ Alternative D will also not serve the security goals for which it was formulated. The Plan focuses on hardening security for the east-side entry to LAX but largely ignores the perimeter, maintenance/fuel farm, and cargo areas -- leaving the back door wide open.
- ▶ The separation concept is diminished in value by the expensive and vulnerable mass transit link proposed between the Central Terminal Area and remote landside ground facilities. It is further diminished by the lack of Flow Process Mapping data; the consequential risk of task

overload and failure to achieve target reduction; and by the potential alienation of a public that may perceive screening requirements as excessive.

- ▶ The Security plan relies heavily on technologies, some of which have been discredited (e.g., facial recognition surveillance). Additionally, greater thought must be given to the risk of data saturation. Over-dependence on security technology may lead to higher risk of error and, ironically, diminished protection.
- ▶ There are a number of existing, unexplained security exposures at LAX, including several areas characterized by extreme weakness in access control, that should be remedied as soon as possible; it is recommended that LAWA take steps to close Pershing Drive to public traffic as soon as practicable.
- ▶ Use of a Supplement to the 2001 Draft EIS/EIR was improper under guidelines for CEQA. LAWA should have addressed Alternative D in a comprehensive revised draft EIS/EIR in which the full record of information was available for public review and agency decision-making.
- ▶ The Purpose & Need statement emphasizes LAX's role in meeting regional growth, investment return, and international trade, and claims that Alternative D will fill these objectives. Yet the EIS/EIR asserts that Alternative D has the same socioeconomic characteristics as No Action, but for construction jobs, and finds that No Action would fail to meet project purpose and need. Either Alternative D fails to meet the stated goals, or Alternative D has not been described in accordance with full disclosure requirements.
- ▶ The environmental assessment does not offer a reasonable range of Alternatives that would feasibly meet most objectives, but would avoid or lessen significant effects of the project, and thus the SDEIS/EIR fails to fulfill the "Rule of Reason."
- ▶ Scoping Outreach did not include input from Los Angeles County Government or the public at large regarding either Alternative C (the 2001 preferred project) or Alternative D (the 2003 preferred project) and thus fails to meet basic NEPA requirements.
- ▶ The SDEIS/EIR offers a baseline now 7 years old: conditions in 1996 do not represent the baseline of 2003. The events of 9/11 changed the baseline so fundamentally that LAWA withdrew its 2001 documents to formulate an entirely new preferred project. The 1996 baseline does not offer a reasonable yardstick against which to measure the impacts of Alternative D or any other project alternative (including No Action).
- ▶ Piecemeal efforts to remedy the outdated baseline have further obscured understanding. The frequent shifting from one baseline nomenclature and timeframe to another is, at best, confusing. At worst, it conceals the underlying impacts that this 2003 Supplemental Draft EIS/EIR is intended to illuminate.
- ▶ The most pressing problems at LAX are lack of adequate runway length on the north complex, the security threat of private autos near the terminals, and lack of international gates. Yet the Phase One construction plan addresses none of these for many years and instead concentrates on the airport fringes (the GTC and ITC) and on demolishing and rebuilding perfectly useable terminals to accommodate New Large Aircraft. This sequence does not match the environmental and congestion priorities evident at LAX.
- ▶ The SDEIS/EIR contains numerous comments and statements that create an appearance of project advocacy. Even the appearance of advocacy is inappropriate given the policy guidelines contained in CEQA and NEPA and it seriously undermines confidence in the objectivity of the Draft EIS/EIR and its commitment to full disclosure.
- ▶ The 2001 DEIS/EIR was found to lack even the most elementary NEPA requirements for Environmental Justice; many deficiencies remain in the 2003 SDEIS/EIR. In particular, Alternative D shifts many impacts toward the more economically disadvantaged

communities east and northeast of LAX, and appears to protect biological resources at the expense of residents in Lennox, Inglewood & Manchester Square.

- ▶ The document fails to disclose issues and concerns raised in Environmental Justice (EJ) workshops, defers evaluation of critical environmental justice impacts (including Air Quality and Health Effects) due to lack of data, offers ill-defined mitigations, and offers a preferred project that protects butterflies at the expense of residents and schoolchildren.
- ▶ The noise assessment contains significant discrepancies in the number of dwelling units and population impacted between the baseline year and the data published by LAWA. Additionally, there is an unexplained discrepancy in the year 2000 noise contours shown in the 2001 and the 2003 documents.
- ▶ The 2001 EIS/EIR acknowledged that it omitted quantitative assessment of toxic air pollutant exposure due to lack of time; the 2003 document also omitted this assessment, but did not so note. Completion of such studies independent of the environmental review, as proposed, would preclude establishment of baseline conditions. LAWA decision-makers will be unable to make an informed project determination until this data is developed and disclosed. The noise modeling results were based on inadequate flight track data.
- ▶ Nitrogen oxides were determined to have significant impacts before and after mitigation, but would be reduced the least under the proposed mitigation measures. The proposed mitigation measures do not appear to successfully address nitrogen oxides.
- ▶ The 'ratioing' technique used to update the analyses of airport pollutant sources for Alternatives A, B and C, and No Action, makes it difficult to fairly compare the alternatives.
- ▶ LAWA Decision-Makers will not be adequately informed until the environmental documentation provides thorough review of the following alternatives:
 - ▣ Relocation of New Large Aircraft Facilities to Another Airport
 - ▣ Major Shift of Airport Facility Improvements from East (Human Habitat) to West (Butterfly Habitat)
 - ▣ Development of a Minimum Airport Improvement Plan incorporating only High Priority elements

The County looks forward to reviewing LAWA's responses, particularly with respect to the additional commitments requested throughout this comment letter. At the same time, the County believes that LAWA's interests would be best served through preparation of a *comprehensive revised Draft EIS/EIR* in which *the full record* of information is consolidated in a manner that facilitates public review and agency decision-making.

2.0 INTRODUCTION TO THE COMMENT LETTER AND REPORT ORGANIZATION

A.C. Lazzaretto & Associates has again been retained by the Los Angeles County Chief Administrative Office to review and comment on a Supplement to the Draft Environmental Impact Statement/Environmental Impact Report (SDEIS/EIR) prepared by Los Angeles World Airport (LAWA) to address the impacts of a proposed Master Plan for Los Angeles International Airport (LAX). The SDEIS/EIS was issued in response to considerable public comment on the Draft EIS/EIR and Master Plan presented during 2001 and in response to the terrorist attacks that occurred on September 11th of that year. The SDEIS/EIR introduces a new preferred alternative -- Alternative D, the Enhanced Safety and Security Plan. In reviewing the Supplement, we have again noted the high quality of writing, and the thoughtful organization and presentation of materials that is evident in many of the technical reports. We again conclude, however, that the documents are substantially compromised by significant errors, omissions, and biases. We submit

that LAWA has used improper procedures -- under CEQA and NEPA -- to introduce the new preferred Alternative D, and we conclude that LAWA has offered misleading statements concerning the potential for further growth at LAX.

The review team assembled by A.C. Lazzaretto & Associates includes all firms who contributed to the 2001 review, as well as a new firm – BoydForbes, Inc. – that was brought in to review the highly technical, and critically important issues pertaining to airport safety and security. Based in Colorado, BoydForbes, Inc. is one of a handful of firms that specialize in airport security and have the ability to critically review the environmental documentation pertaining to this topical issue. Team members who also participated in the earlier effort include Michael Brandman Associates, Bauer Environmental Services, Austin-Foust Associates, and Mestre Greve Associates. Each of these firms is a leader in the field of environmental review and key members have extensive experience working with the environmental review of airport projects.

In performing the task of reviewing the Draft EIS/EIR, the County has made every attempt to offer objective, constructive comments concerning the major elements of the Draft EIS/EIR. We have made note as appropriate where issues may involve diverse views among experts.

The following report is organized to facilitate LAWA's review and response to the issues raised. As such, the general flow of this review document follows the topic pattern of the Supplement to the DEIS/EIR; however, there are many sections that have been rearranged in order to emphasize a particular point or to clarify the issue at hand. This is particularly true in the following discussion (§3.0 below) which deals with general issues that are evident throughout the SDEIS/EIR document and are not specific to any single section.

This document focuses only on issues of concern to the County from a legal standpoint, and does not attempt to identify or discuss those sections in the SDEIS/EIR that appear to meet State or Federal guidelines. This is not to say that sections not mentioned in this document can be assumed adequate; rather, the sections are omitted from this document in order to focus on areas of greatest concern to the Los Angeles County Board of Supervisors.

3.0 GENERAL ISSUES

This section identifies issues that are evident throughout the entire Supplement to the DEIS/EIR document. Typically, the issues raised in this section deal with the backbone of the SDEIS/EIR and, therefore, the errors, omissions, and faulty conclusions identified herein are those that compromise the validity of the Supplement to the Draft EIS/EIR as a whole.

3.1 ALTERNATIVE "D" DOES NOT CONSTRAIN GROWTH AT LAX

3.1.1 Airside Gate Frontage Far Exceeds Stated Levels

The SDEIS/EIR claims that Alternative D would serve, in the year 2015, no more passengers than would be expected with current airport facilities (approximately 78 Million Annual Passengers [MAP]). Despite massive improvements to the capacity of the runways and terminals, the SDEIS/EIR also claims that passenger limits will be assured by limiting "airside gate frontage." These assertions do not hold up to scrutiny. In fact, Alternative D increases "airside gate frontage".

increases the number of aircraft gates, and increases aircraft gate efficiency beyond the levels contained in the No Project Alternative. The Master Plan states that:

“Alternative D is described as constrained because...facilities would not be designed to accommodate the unconstrained aviation demand forecast profile. Specifically, the terminal frontage available in Alternative D to park aircraft side-by-side is less than the equivalent terminal frontage available in the No Action/No Project Alternative.” (emphasis added)

Further, the Supplement to the EIS/EIR states:

“The net effect of these terminal changes would be a reduction in the total airside gate frontage available for aircraft gates and in the number of available aircraft gates to match the peak gate requirements identified in the Alternative D design day schedule.”

Neither the Supplement to the Master Plan nor the Supplement to the Draft EIS/EIR provides any further explanation, data or calculations to substantiate those statements. On the contrary, as shown on the attached table, Aircraft Gate Comparison, various graphics in the Master Plan provide evidence directly contravening those statements.

**Table 1
AIRCRAFT GATE COMPARISON
EXISTING, NO PROJECT & ALTERNATIVE ‘D’¹**

Terminal	1996 Existing			2015 No Project		Alternative D		
	Air Carrier Contact Gates	Commuter Parking	Frontage Length (ft.)	Air Carrier Contact Gates	Commuter Parking	Air Carrier Contact Gates	Commuter Parking	Frontage Length (ft.)
1	14	6	1,740	16	0	0	0	0
2	10	0	1,201	10	0	0	0	0
3	12	3	2,104	12	0	0	0	0
4	10	10	n/a	13	0	16	0	n/a
5	16	0	n/a	16	0	16	0	n/a
6	10	14	n/a	13	0	13	0	n/a
7	12	0	n/a	12	0	15	0	n/a
8	8	0	n/a	8	0	0	19	n/a
TBIT	12	0	2,111	12	0	19	0	3,184
Remote	0	0	0	19	33	0	0	0
New West	0	0	0	0	0	27	13	4,148
New North	0	0	0	0	0	15	0	3,416
TOTAL	104	33	7,156	131	33	121	32	10,748

The amount of “airside gate frontage available for aircraft gates” is easily calculated using scaled drawings contained in the Master Plan. As shown on the attached Table 1, Alternative D includes an increase of nearly 3,600 linear feet of terminal frontage: Terminals 1, 2 and 3 will be replaced by the New North Terminal; Tom Bradley International Terminal will be reconfigured; and a New West Terminal will be built. No changes will be made to Terminals 4 thru 8. The total *existing*

¹‘1996 Existing’ data obtained from Master Plan Figure II-3.2; ‘2015 No Project’ data obtained from Figure ES-1; ‘Alternative D’ data obtained from Figure 2.2-4.

frontage of the terminals being modified is thus 7,156 feet; following proposed modifications, the terminals will encompass 10,748 feet — an increase of 3,592 feet. To substantiate its claim concerning existing conditions, the Master Plan must be including the “remote gates” that are little more than apron area where aircraft are parked. These areas with their low efficiency are not a suitable comparison to actual aircraft gates with jetways linked to a terminal. To suggest differently is to ignore well-established planning factors for passenger processing.

The number of aircraft gates also increases with Alternative D. The Master Plan Supplement uses figures in its summary tables to indicate that the No Project Alternative has 163 gates and that Alternative D has 153 gates -- indicating a reduction. However, these figures do not correspond to other figures in the Master Plan. For example, Table ES-2 in the Master Plan Supplement indicates 115 contact gates² and 48 remote gates for an existing total of 163. However, Figure II-3.2 of the Existing Conditions Working Paper (Chapter 2 of the Draft Master Plan), provides a detailed accounting of all existing gates and aircraft parking spaces, and it shows quite clearly that there are only 104 contact air carrier gates at present. Additionally, it shows 33 parking places for commuter aircraft located adjacent to terminals 1, 3, 4 and 6 and accessed via stairways. Except for one passing reference to 36 Narrow Body Equivalent Gates with access to the Bradley Terminal, Chapter Two makes no mention of the 19 remote gates in the northwest corner.

In the No Project Alternative, some of the parking spaces used for commuter flights have been converted to parking spaces for air carriers, and those spaces are now counted among the air carrier gates in the No Project Alternative. Furthermore, the 19 remote aircraft parking spaces have become prominent in the SDEIS/EIR No Project Alternative, implying that there are now 131 “gates” for air carriers and 32 “gates” for commuters. In reality, there are no more true contact gates today than there were in 1997. It is only that some existing concrete apron space formerly used for maintenance and other uses is now being used on a regular basis to park scheduled aircraft. This practice requires that passengers are bussed to the terminals, in a manner that the Master Plan admits is costly and inefficient. In simpler terms, there are now 112 air carrier parking spaces adjacent to the terminals, 19 remote air carrier parking spaces in the northwest corner, and areas for parking approximately 32 commuter aircraft at two remote locations.

Aircraft gates for Alternative D are depicted very clearly on Figure 2.2-4 Gate Layout and Utilization in the Supplement to the Master Plan. This Figure shows 121 air carrier contact gates and 32 parking spaces for commuter aircraft and/or regional jets. Alternative D also includes the conversion of 8 existing air carrier contact gates in Terminal 8 to spaces to park 19 commuter turbo props/regional jets.

The evidence is quite clear that Alternative D provides 8 more air carrier contact gates than the No Project Alternative, and in a configuration that is more efficient.³ Additionally, under Alternative D LAWA retains the flexibility to create remote gates on available apron space. As the historical evidence shows, LAWA has not prepared environmental documentation for similar operational modifications at LAX in past years. Furthermore, LAWA could easily retain the eight contact gates in Terminal 8, thereby boosting the total for Alternative D to 129 contact gates – 15% more than the existing LAX layout. Accordingly, under Alternative D LAWA has the potential to

² A “contact gate” includes traditional numbered gates in the terminal and a jet way to a waiting aircraft.

³ Linear configurations offer more flexibility than the current cul-de-sac design; the Construction Phasing Plan notes that the reconstruction of terminals 1, 2, & 3 into a linear configuration will create a “continuous Group VI flightline.”

increase the number aircraft gates, increase airside terminal front footage, replace inefficient aircraft gates with more efficient ones and create additional remote gates.

3.1.2 Runway Design Capacity is Understated

The preferred alternative will also serve future growth through the proposed runway design: the runway configuration for Alternative D has the same or higher capacity as Alternative C -- 90 MAP. Alternative D, in the same manner as Alternative C, addresses existing runway constraints by lengthening both of the north complex runways and by increasing the separation distance between them. The fact that the new four runway system can handle more than 78 MAP is stated very clearly in the Master Plan addendum on page 3-4: *“Alternative C’s projected annual passenger activity level served is limited by the capacity of the four-runway system and is forecast to be approximately 89.6 million (air passengers.)”* Given that Alternative D uses the same 4-runway configuration as Alternative C, and Alternative D extends RW 6L/24R an additional 1,000 feet farther than does Alternative C, it can be concluded that the capacity of the runways under Alternative D is the same or more than Alternative C -- approximately 90 MAP.

3.1.3 Passenger Levels will be Much Higher than Forecast for Alternative D

Alternative D will allow unconstrained growth through the year 2015. Unlike the most recent FAA forecasts, the “unconstrained forecast” of 98 MAP in the Master Plan has not been updated to reflect changes in the air industry that have occurred following the events of 9/11. The most recent FAA Terminal Area Forecasts for LAX indicate that service levels at LAX will not reach the year 2000 levels (64 MAP) until the year 2008 and that service levels in 2015 will be approximately 81.6 MAP. Using those figures, Alternative D provides little if any constraint on growth.

Alternative D understates the passengers per operation. Alternative D accommodates the new Super Jumbo A380 (referred to in the Master Plan as the New Large Aircraft by creating a separation of 1040 feet between the two northern runways and by demolishing terminals 1, 2 and 3 and reconstructing a “continuous Group VI flightline.”⁴ The arrival of the New Large Aircraft, with almost 600 seats, will increase the passenger handling capacity of the runways and airspace by increasing the number of passengers per aircraft operation. Nevertheless, the Master Plan forecasts that Alternative D will have a lower number of passengers per operation than Alternative C and in fact forecasts a lower number than currently exists. As indicated on Table 3.3-1 of the Master Plan Addendum, Alternative D is forecast to have only 121.06 passengers per air carrier operation, while Alternative C is forecast to have 124.95. The table fails to include the actual numbers for the years 1996 and 2000. However, information from the LAWA web site indicates that passengers per air carrier operation totaled 109.5 in 1996, 119.65 in 2000, 116.62 in 2001, 123.18 in 2002, and 125.4 thru July of 2003. The number of passengers per operation is expected to continue to increase as airlines increase the size of aircraft and increase their load factors (percentage of sold seats.) Furthermore, there is a large and unexplained increase in the number of commuter flights (from 109,000 in Alternative C to 183,000 in Alternative D). Commuter flights average only about 20 passengers per aircraft. If some of the capacity used for commuter operations was used instead for air carrier operations, the number of passengers would again increase. There is thus abundant evidence that the runway capacity proposed under Alternative D is much greater than 78 MAP.

⁴ In contrast, the south runways will be separated only by 795 feet which is sufficient for aircraft such as the B747.

3.1.4 Terminal Space in Alternative D is Equivalent to Alternative C

Alternative D increases terminal space by 70%. The proposed increase in terminal space from 4 million square feet (msf) to 6.8 msf represents a considerable increase -- 70% higher than existing. The resulting capacity is only 8% less than Alternative C, again indicating an ability to handle many more than 78 MAP.

3.1.5 The No Project Alternative Cannot be used to Evaluate Alternative D.

Comparison with the No Project Alternative does not provide a reasonable basis to conclude there will be no additional growth. As discussed below in §3.4.2, the origins of the service levels used in the No Project Alternative are obscure and undocumented, thus casting some doubt upon their validity. If the No Project service levels are inflated, as we anticipate, then Alternative D would surely be promoting growth as the service levels increased from the current 55 MAP to 78 MAP.

3.2 IMPROPER USE OF A SUPPLEMENT TO THE DRAFT EIS/EIR

The CEQA Guidelines state that a Supplement to an EIR may be prepared if changes to a project are not considered major (§15162(a)). Where the changes necessitate major revision to a previous EIR, CEQA requires preparation of a Subsequent EIR. Both types of documents must receive the same notice and public review requirements as the original EIR. However, in a Subsequent EIR, *all information* must be presented, whereas in a Supplemental EIR only *new or revised information* need be presented. Discussion provided in Public Resources Code §21166 (and CEQA Guidelines §15162 and §15163) indicate that both types of review are intended for use in connection with *previously certified or approved* environmental documents. For documents that have not yet been certified, CEQA outlines a procedure for recirculation. Discussion provided with the CEQA Guidelines states specifically that, "*Circulating a subsequent EIR or supplement to an EIR is not "recirculation" as described under §15088.5.*"

In the present case, there is no previously certified or approved document. Furthermore, review of the Supplement to the Draft EIS/EIR provides incontrovertible evidence that changes to the proposed project are major and affect the entire environmental assessment: LAWA has presented an *entirely new alternative* as the preferred project, and the alternative was *created to meet safety and security challenges that did not exist in 2001*. In effect, the entire framework for this project -- from the baseline conditions, to the project purpose and need, to the very project itself -- changed following September of 2001, and yet LAWA used a CEQA format intended for minor changes to a certified EIR.

Finally, the format used by LAWA serves to obfuscate rather than facilitate understanding of this complex project.⁵ Every reasonable interpretation of CEQA would indicate that LAWA should have addressed the project through preparation of a comprehensive revised Draft EIS/EIR, in which

⁵ At a minimum, the SDEIS/EIR Index (§7.7) could have provided the reader with a more listing of topical issues and where they can be found, along with a cross reference to text discussions in the 2001 and 2001 documents. Instead, the Index offers only a cursory guide to topical discussions (for example, the Index contains no references for "cumulative impacts") and provides no useful tools for locating or accessing analyses from the 2001 Draft EIS/EIR.

the *full record* of information was consolidated in an effort to facilitate public review and agency decision-making.

Public review and lead agency decision-making would also have been far better served by providing copies of the comment letters submitted during public review of the original EIS/EIR. During 2001, the County of Los Angeles devoted considerable time, public funds and staff effort to review and submit comments on the extensive Draft EIS/EIR and Master Plan documentation released by LAWA at that time. Surely a similar effort was spent by many other agencies, organizations and individuals, and it is probable that the collective comments contained a wide range of information that would have been relevant to the current review. Despite this fact, the Supplement to the Draft EIS/EIR makes no effort to present *or even summarize* the earlier comment letters. This approach creates a process that is confusing and cumbersome for reviewing agencies and organizations, and thwarts an opportunity to advance public participation. A response to the earlier comments would have served to advance public discourse, strengthen the opportunity for environmental protection, and facilitate an understanding of the Lead Agency's thinking on a wide range of key issues. We acknowledge that LAWA was under no obligation to respond or acknowledge the earlier comment letters. However, the failure to have done so belies a continuing pattern of disinterest in public views that was established in 2001.

3.3 INCONSISTENT PURPOSE & NEED STATEMENT

The apparent contradiction between SDEIS/EIR statements and actual intent is also evident in the discussion of project purpose and need. The SDEIS/EIR states, on page ES-1, that the purpose and need for the project have not changed:

"The purpose and need for the LAX Master Plan has not changed since the publication of the Draft EIS/EIR...In particular, the Master Plan project objectives are to:

- ▶ *Respond to local and regional demand for air transportation during the period 2000-2015, taking into consideration the amount, type, location, and timing of such demand.*
- ▶ *Ensure that new investments in airport capacity are efficient and cost-effective, maximizing the return on existing infrastructure capital.*
- ▶ *Sustain and advance the international trade component of the regional economy and the international commercial gateway role of the City of Los Angeles."*

In a number of text discussions, the SDEIS/EIR affirms that Alternative D responds to the stated purpose and need for this Master Plan, as shown in the excerpts below from pages 2-1 and 3-25:

"Alternative D, the "Enhanced Safety and Security" alternative, offers a well-planned and rational 'regional approach' alternative for improvement of LAX. Alternative D would respond to future demand for air transportation by encouraging, but not requiring, other airports in the Los Angeles area to increase capacity to make up for the limitations of LAX. It would allow airlines to accommodate the demand for international aviation at LAX to the greatest extent possible without otherwise increasing capacity of the airport generally. It would also maintain the return on existing capital investments at LAX. Thus, Alternative D would allow the Los Angeles region to realize some of the important economic benefits outlined in the Draft EIS/EIR, while at the same time enhancing security and safety at the airport and significantly reducing environmental impacts from airport operations to the surrounding communities."

“Alternative D, as stated previously in § 3.1, Formulation and Refinement of Alternatives, of this document, is a direct response to the strongly expressed desire of many citizens, as indicated in comments received on the Draft EIS/EIR, for a regional approach to airport planning in Southern California that is more aggressive than demonstrated by the previously considered Master Plan build alternatives. The Mayor of Los Angeles, noting the need to fully examine a regional approach to satisfy air transportation demand, directed LAWA to develop a new Master Plan alternative for the improvement of LAX. Responding to the Mayor's direction, the new alternative is designed to:

- ▶ *Enhance safety and security at LAX for users and to protect the airport infrastructure*
- ▶ *Encourage the development and use of regional airports to serve local demand by constraining the facility capacity at LAX to approximately the same aviation activity levels identified in the No Action/No Project Alternative;*
- ▶ *Maintain LAX as the International Gateway to Southern California; and*
- ▶ *Mitigate the impacts of LAX's continued operation.”*

At the same time, the SDEIS/EIR emphasizes that Alternative D is equivalent in many ways to the No Action /No Project Alternative. For example, SDEIS/EIR page ES-17 includes the following statement:

“Alternative D would encourage a long-term regional approach to serving air traffic demand in the Los Angeles basin by designing facilities at LAX to accommodate passenger and cargo activity levels equivalent to the No Action/No Project Alternative activity level, but would be designed to allow air carriers to emphasize international routes at LAX.”

The Project Description (page 3-25) expands on this theme, including the statement below:

“LAWA determined that constraining the aircraft gate frontage at the terminals is a component of the airport system that is fully within its control. LAWA can constrain the development of this frontage and believes that this will, in turn, place an effective constraint on total passenger activity at LAX. LAWA can also control the amount of available cargo warehouse and processing space at LAX. By constraining the development of these cargo facilities, total cargo activity at LAX would be constrained.”

Further, the SDEIS/EIR provides quantitative data to support these statements, as shown below with information excerpted from SDEIS/EIR Tables ES-1 and ES-2.

**Table 2
COMPARISON OF NO PROJECT WITH ALTERNATIVES ‘C’ AND ‘D’⁶**

Facility	No Action/No Project Alternative	Previously-Preferred Alternative C	Currently Preferred Alternative D
Cargo-Annual Tons	3,120,000	4,172,000	3,120,000
Total # Nominal Gates	163	168	153
Million Air Passengers	78.7	89.6	78.9

⁶ Note again that the 163 gates shown for the No Project alternative includes 52 remote parking spaces.

And yet the SDEIS/EIR claims that the No Action/No Project Alternative is seriously deficient. For example, discussion on page ES-7 states that the No Action/No Project Alternative “*would fall far short of meeting the projected demand for aviation services at LAX by accommodating approximately 78.7 million passengers (a shortfall of approximately 19.2 million) and 3.1 million tons of cargo (a shortfall of approximately 1 million tons) in 2015.*”

The SDEIS/EIR also portrays the No Action alternative as *de minimis* in the scope of its improvements, but allowing for increased passenger and cargo volumes, as shown in discussion from page 3-6:

“This [No Project] alternative includes only minor airport improvements approved as of the publication of the Draft EIS/EIR in January 2001 or that were in the planning stages at that time. The improvements include minor taxiway improvements, new cargo building space, construction of at least one off-airport parking structure, and reconstruction of an on-airport parking structure. Passenger and cargo volumes would continue to increase in response to projected demand, reaching activity levels in 2015 of approximately 78.7 MAP and 3.12 MAT, respectively.”

In essence, the Supplement to the DEIS/EIR offers the following unsupportable syllogism: Alternative D meets project goals, Alternative D is substantially the same as No Action, and No Action fails to meet project goals. As discussed more fully below (and in previous sections), we believe that this inconsistency arises from the fact that the EIS/EIR is misleading in its description of alternatives.

3.4 INADEQUATE ASSESSMENT OF ALTERNATIVES

3.4.1 Inadequate Definition and Evaluation of Project Alternatives

The SDEIS/EIR fails to comply with two cornerstone elements of CEQA – that an EIR must describe a reasonable range of Alternatives that would feasibly meet most objectives, but would avoid or lessen significant effects of the project,⁷ and that preparation of an EIR should be guided by a good faith effort at full disclosure.

The Supplement to the Draft EIS/EIR carries forward the project goals that were previously established in the 2001 DEIS/EIR. These goals included: (a) to respond to local and regional demand for air transportation during the period 2000-2015; (b) to ensure that the investment in airport capacity maximizes the return on existing infrastructure capital; and (c) to advance the role of LAX as the international commercial gateway to the region. Alternative D is presented as an option that would fulfill key aspects of the project purpose and need.

The SDEIS/EIR also emphasizes, repeatedly, that Alternative D is substantially the same as the No Action Alternative in terms of meeting transportation demand -- as measured by number of gates, number of passengers, number of aircraft operations, and cargo tonnage. Yet the No Action Alternative as presented is clearly deficient in terms of meeting demand for aviation and cargo services.

⁷ CEQA §15126.6(f) states, “Alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.”

If this inconsistency has a sound explanation, it is the job of the SDEIS/EIR to provide that explanation. Instead, the SDEIS/EIR is permeated with unexplained inconsistencies. Similar incongruities were apparent in the 2001 document. The 2001 Draft EIS/EIR presented Alternative C as the preferred action, yet concluded that Alternative C would have more significant unavoidable adverse effects than either of the other two build Alternatives (25 for C; 23 for A; 22 for B), and would fail to meet projected demand.

In this regard, both the Draft and the Supplement to the Draft EIS/EIR fall short of the requirement that environmental documents must provide a *clear definition of project goals* in association with the selected range of alternatives. As now presented, the data suggest either that Alternative D fails to meet essential aspects of the stated goals, or that Alternative D has not been described in accordance with full disclosure requirements.

3.4.2 Alternatives are Inconsistent with Baseline Data

On close review, the numbers provided in the Tables entitled “Summary of Activity, Comparison of Alternatives and Summary of Features, Comparison of Alternatives”⁸ do not present a cohesive picture. When compared with data provided throughout the baseline and impact analyses, information contained in this summary statement appears to be fundamentally lacking in logical internal consistency. For example, in describing assumptions made for the No Project Alternative, the Socioeconomic Technical Report⁹ indicates, “The schedule of operations would still show variations throughout the day but the peak period would be at or exceed the airfield’s capacity. Congestion, delays and passenger inconvenience would be common all year, not just during peak holiday periods.” However, the “Summary of Features, Comparison of Alternatives” contradicts these claims. The Summary indicates that the No Project Alternative would have: (a) fewer all-weather delays than Alternative C (13.2 vs.13.6); (b) fewer annual cancellations than Alternatives A and C (9,969 vs. 15,477 and 15,814); (c) more public parking stalls than Alternative B; and (d) the same number of all-weather peak operations and 3-hour average operations.

Similar inconsistencies occur with the addition of Alternative D. Most notably, the Design Day activity levels should approximate those for Alternative C given that the runway improvements are nearly identical. Further, public parking stalls and employee parking stalls are equal to or greater than other build alternatives, and rental car acreage is doubled over other alternatives. Passenger terminal square footage is 93% of Alternative C, but the passengers are 88%. This indicates faulty project design without consistent use of planning factors.

3.4.3 Alternative D may Exceed the Stated Growth Levels

The SDEIS/EIR states that Alternative D evolved from a decision on the part of LAWA and the City of Los Angeles to limit growth. Alternative D does limit growth below that of Alternative A and B. However, as discussed in § 3.1, this alternative would not limit LAX to 78.7 MAP as claimed. Considering the extensive improvements to the airfield, passenger terminals, roadways and other facilities, it is more reasonable to assume that Alternative D will achieve service levels equaling or exceeding those of Alternative C (90 MAP). Furthermore, many elements of Alternative D resemble the Phase I construction of other alternatives: in future years, land area in

⁸ Pages ES-9 through ES-11.

⁹ Section 5.1.1.

the western part of the airport can be used for additional terminal space, and available apron space can be readily converted to remote terminal space. These possibilities merit evaluation in the SDEIS/EIR.

The SDEIS/EIR makes certain assumptions that require further explanation or verification. Why for example do commuter flights increase from 109,000 in Alternative C to 183,000 in Alternative D? If commuters fail to materialize, will the excess capacity be used for air carrier aircraft? Similarly, as discussed earlier in regard to the No Project Alternative, air cargo growth may also not be constrained.

Many of the more capital-intensive improvements in Alternative D seem to contravene the intended purposes. For example, Alternative D would require that significant resources be devoted to separating runways and demolishing existing terminals to provide for the New Large Aircraft. In fact, many major airports in the USA have already taken a position that they will not underwrite these costs. Yet easing the way for the New Large Aircraft at LAX will surely enhance the concentration of air service at LAX to the detriment of the other regional airports. If provisions for the new 600-seat New Large Aircraft were instead placed at Ontario International Airport, it would provide a powerful incentive for the airlines to increase service there. It takes many connecting flights to fill a 600 seat aircraft; if LAX is designed to accommodate these aircraft, one outcome will be to strongly reinforce the ability of LAX to attract the bulk of the region's air service.

The stated security enhancement goals can be achieved without the expense and vulnerabilities of an Automated People Mover by building the three principal ground processing landside facilities in a strategic configuration closer to the Central Terminal Area.

3.4.4 Regional Alternatives would be Best Served by Relocating New Large Aircraft Inland

The Master Plan is at odds with itself in regards to constraining or expanding LAX. As set forth in the Draft Master Plan and SDEIS/EIR, serious economic consequences will befall the region if LAX is not expanded to accommodate the unconstrained demand, and then the Supplement presents a Preferred Alternative that purports to do just that. The recent growth spurts at Long Beach and John Wayne will soon peak out. LAX will continue to attract cargo and international flights because the carriers continue to resist using other regional airports, particularly those in the inland empire. The proposed expansion of LAX and particularly the provisions for the New Large Aircraft are simply another chapter in the long history of incremental growth. As soon as these improvements are completed in twenty years or so, there is every indication that there will be another round of master planning to continue that pattern. As stated above, this master plan claims to support a regional approach to air transportation, but does not incorporate the one feature that would most secure it – i.e., relocation of the New Large Aircraft improvements to Ontario or Palmdale International Airports.

3.4.5 Additional Alternatives to Evaluate

Under CEQA, the range of alternatives addressed in an EIR should be governed by the 'Rule of Reason' which states that an EIR need only address those alternatives necessary to provide decision makers with a reasoned choice. Under this Rule, the selection of alternatives is guided by feasibility, efficacy in reducing or avoiding impacts, and ability to foster public participation and informed decision-making. 'Feasibility' includes site suitability, economic viability, availability of

infrastructure, compatibility with relevant planning documents and jurisdictional controls, and proponent access in cases where the alternative involves another location. In considering alternate locations, the “key question” to be asked is whether any of the significant project impacts could be lessened or avoided by relocating the project to another site.

Relocation of New Large Aircraft Facilities to another Airport: The Rule of Reason applies to the LAX Master Plan SDEIS/EIR, and this document will not meet the standards of adequacy until it evaluates relocation of all or part of the project to another site. The County of Los Angeles requests that LAWA provide such analysis for the following alternative: relocation of facilities oriented to the New Larger Aircraft to Ontario International and/or Palmdale International, both of which *were designed to accommodate international travel, are underutilized, and are owned and operated by LAWA.* Such an alternative would almost certainly enable LAWA to reduce project impacts around LAX substantially, without concomitant impacts at the relocation sites.

Shift Airport Improvements from the East to the West: The County also requests that LAWA evaluate an alternative in which improvements are shifted away from human habitat on the north and east and into the butterfly habitat on the west. We understand why LAWA may have wished to avoid this assessment in light of the complex background and history surrounding the El Segundo Blue Butterfly Habitat Restoration Area and the Los Angeles/El Segundo Dunes. However, the path of omission forecloses an important opportunity for informed decision-making. In this case, *the proposed Master Plan improvements will cause new, significant and unavoidable adverse new impacts to thousands of human beings* (i.e. elevated noise levels, increased single-event exposures, increased school disruption, loss of industrial jobs and historical resources, elevated pollutant levels, etc.). Due to omission *decision makers will not know* whether it may have been possible to lessen or avoid these impacts by shifting the improvements westward and instead imposing the significant unavoidable adverse impacts on a population of 7,000-87,000 endangered El Segundo Blue Butterflies. *Decision makers will not know* how the mitigation costs for the human impacts would compare with the mitigation costs for relocating butterfly habitat. Due to omission, *decision-makers will be unable fulfill their statutory obligation* to weigh, balance and consider the trade-offs, costs and opportunities associated with environmental justice and resource protection. To avoid this outcome, the County of Los Angeles asks that LAWA provide the public and LAWA decision-maker with a full and complete assessment of this alternative.

Redesign and Reprioritize Proposed Airport Improvements: Finally, in furtherance of finding an environmentally superior alternative that fulfills the basic objectives of the project, the County asks that LAWA develop, consider and comment on a new Alternative that would solve the urgent needs LAX in a timely manner and also eliminates costly, time consuming and controversial items. The following elements should be addressed:

- ▶ Fast track the addition of international gates on the west side of Tom Bradley International Terminal.
- ▶ Fast track the lengthening of RW 6R/24L in its present position.
- ▶ Widen the north complex runways by moving RW6L/24R to the north as proposed in Alternative C.
- ▶ Eliminate the Ground Transportation Center and the Automated People Mover. Prohibit private vehicles on World Way in the Central Terminal Area, and provide security screening for a fleet of zero emission vans that would serve the many airport and privately owned garages around the airport. (Note that this trend is already evident.)

- Eliminate all provisions for the New Large Aircraft including the Design Category VI spacing of the north complex runways and provision of larger aircraft gates.
- Provide additional space in the Central Terminal Area as proposed in Alternative D.
- Close Pershing Drive to all public access.

3.4.6 Scoping Outreach did not Include Alternative D

LAWA made the 2003 SDEIS/EIR available for public comment in July of 2003 to update information presented in the 2001 Draft EIS/EIR and to integrate Alternative “D” into the environmental review process. Alternative D, the “Enhanced Safety and Security Plan,” introduces numerous infrastructure and concept changes into the alternatives analysis including a reprioritization of project goals to emphasize safety. In turn, the shift in project objectives changes the manner in which alternatives must be assessed in the environmental analysis. The objectives of the CEQA process include fostering interagency coordination early in the review of projects and encourage public participation in the planning process.¹⁰ Similarly, the purpose of the scoping process required by NEPA is to identify and disclose all of the potential Alternatives under consideration by the lead agency. This provides the public with the greatest ability to understand project issues and thus contribute useful information, suggestions and comment for consideration by the lead agency decision-makers.¹¹

In the present case, the scoping outreach and early consultation with Responsible and Trustee Agencies did not include Alternative D, which became the preferred project. This denies the public of the opportunity to comment, and it also raises questions as to the validity of the process by which “D” became the preferred Alternative -- between the 1996 circulation of the Notice of Preparation (NOP), and scoping outreach, and the circulation of the 2003 SDEIS/EIR. If the objectives and scope of the project changed sufficiently between initial outreach and circulation of the Supplement to the Draft to warrant incorporation of a preferred Alternative that was not even included in the original Draft EIS/EIR, then the NEPA scoping process should have started again. CEQA also requires, at minimum, circulation of a comprehensive Subsequent Draft EIR that includes full disclosure of the alternatives analysis and process used to select the preferred Alternative.¹²

3.5 INADEQUATE AND OUTDATED BASELINE SETTING

3.5.1 The 1996 Baseline is not Applicable to Existing Conditions in 2003

The Draft and Supplement to the Draft EIS/EIR both comply with the CEQA requirement that the baseline be defined by conditions extant at the time the Notice of Preparation was released. However, because the baseline was already five years old at the time of the 2001 Draft EIS/EIR release, and is now 7 years old for analyses contained in the Supplement, the review fails to comply with the intent of CEQA to facilitate an understanding of changes in the environment associated with the proposed project. Use of the five-year old baseline, coupled with the document’s frequent assumption that mitigative actions addressing air quality, noise, traffic, water quality, and other topical issues will occur primarily (or only) through project-related activities, tends to consistently overstate the impacts of the No Project Alternative relative to other Alternatives. Although the

¹⁰ CEQA Guidelines § 15002, § 15086, and § 1587

¹¹ NEPA Guidelines: 40 C.F.R. § 1508.25

¹² CEQA Guidelines §15162(a)

2003 SDEIS/EIR provides the “normally” accepted “baseline” of conditions extant at the time the NOP was released, CEQA Guidelines by implication allow the Lead Agency to use a baseline different than the NOP released date when “non-normal” circumstances occur.¹³

In the present case, several “non-normal” circumstances have occurred that necessitate an updated baseline. In particular, the NOP is now seven years old and conditions extant in 1996 do not represent existing conditions at the project site. More significantly, the extraordinary events of September 11, 2001 significantly altered baseline conditions – physical and social – from what existed when the NOP was released. So fundamental were these changes that LAWA withdrew the then-pending Draft EIS/EIR and Master Plan, and proceeded to formulate an entirely new alternative, which it then identified as its preferred project. Clearly, the 1996 baseline material provides an inadequate yardstick against which to measure and understand the impacts of Alternative D or any other project alternative (especially including the No Action Alternative).

It is generally understood that air travel will not soon return to pre-9/11 conditions. After 9/11, LAX implemented new operational procedures that in turn changed (1) the location and distribution of passengers and visitors, (2) the length of time passengers are at the airport, (3) the number of passengers arriving, and (4) the number of aircraft taking off and landing.

For all of these reasons the 2003 Supplemental Draft EIS/EIR fails to comply with the intent and judicial interpretation of CEQA relative to the Baseline Analysis – i.e., to facilitate an understanding of changes in the environment associated with the proposed project and project Alternatives. Furthermore, use of this 7-year old baseline tends to consistently overstate the impacts of the No Project Alternative relative to other Alternatives. When coupled with the Draft EIS/EIRs frequent assumption that mitigative actions addressing air quality, noise, traffic, water quality, and other topical issues will occur primarily (or only) through project-related activities, the error is even more apparent. CEQA clearly intends that the baseline should reflect the existing level of actual development to the maximum extent possible; since the Draft EIS/EIR baseline is set at 58 MAP (vs. 67+ MAP at present – a 15%+ discrepancy), this intent is clearly unmet.

In order to achieve an adequate document, LAWA needs to provide an updated baseline for all topical sections where current data is available. Doing so will minimize the risk of an unfavorable ruling such as the situation encountered by Logan Airport in Boston. The United States Environmental Protection Agency rated the 1999 Logan Airport EIS as “Environmental Objection, Insufficient Information” for, among other concerns, the use of the outdated baseline year of 1993.

3.5.2 Baseline Terminology is Inconsistent and Confusing

The baseline data is also inconsistent. This problem extends not only to the many different years used as the “baseline”, but also to incorrect identification of the base year for given data sets. For example, the 4th quarter 1996 database cited for the noise calibration does not match actual 4th quarter data according to published noise contours.

¹³ CEQA Guidelines § 15125

**Table 3
DIFFERENCES BETWEEN EIS/EIR NOISE IMPACT
& LAWA 1996 QUARTERLY REPORT**

	Dwellings Inside 65 CNEL	Population Inside 65 CNEL
LAWA 1996 4 th Quarter Report	31,968	85,907
EIS/EIR Table 4.1-2 For 1996	16,900	49,000
Difference	15,068	36,907

The question therefore arises as to how LAWA actually defines the “Environmental Baseline.” Is the Environmental Baseline the same as the “Adjusted Environmental Baseline?” Or the “Future Without Project Scenario” (i.e., cumulative without project)? Or the “No Action/No Project Alternative?” Or none of these? Although each of these scenarios may serve a useful purpose, such gains can be realized only when the scenarios are properly defined, adequately differentiated, and consistently employed – none of which is true for the LAX Master Plan SDEIS/EIR. Does the environmental baseline include the phase-out of older, noisier Stage 2 jets, as assumed with the build Alternatives? The forecast reduction in noise exposure for Alternatives A, C and D, as compared with the No Action/No Project Alternative,¹⁴ appears to conflict with the numbers cited in the penultimate paragraph on page ES-21. It is not clear which of the congestion relief package features are scheduled for completion in Phase 1 and which will be deferred to Phase 2.

The Summary of Alternatives¹⁵ notes, in discussing baseline conditions, that “physical conditions are represented as they existed in 1997 and in more current years when possible to provide the most up-to-date information available.” It is not clear why “up-to-date” information is possible in some categories but not others. LAWA has had five years to update the information and is anticipating spending significant funds to implement the project; there is in truth no justifiable reason for denying the public and LAWA decision-makers access to current information.

LAWA must clearly define each of the baseline and future condition scenarios used in the 2003 Supplemental Draft EIS/EIR, with an explicit statement of the rationale for its use. Perhaps LAWA should delete one or more of these scenarios from discussion. Referenced scenarios include “environmental baseline,” “environmental baseline (1996),” “environmental baseline (2000),” “adjusted environmental baseline,” “environmental baseline (2015),” “non-LAX development having cumulative impact,” “future without project scenario” (i.e., cumulative without project), and “No Action/No Project”. Incredibly, the Glossary defines none of these terms. The analysis constantly shifts the baseline timeframe to manipulate the comparative assessment of project impacts -- using 1996 baseline data for traffic, air and aircraft noise, while using 2000 through 2002 for biology, earth, and water resources. The frequent shifting from one baseline nomenclature and timeframe to another is, at best, confusing. At worst, it conceals the underlying impacts that this 2003 Supplemental Draft EIS/EIR is intended to illuminate.

¹⁴ First bar chart on Page ES-22 titled, “Population Exposed to Noise Above 65 CNEL in 2015.”

¹⁵ 2001 Draft EIS/EIR, Section 3.2.1, Pages 3-8 through 3-18.

3.5.3 Baseline Terms are Not Defined

There is no clear definition of the term “Unconstrained Forecast” anywhere in the Environmental Summary or in Sections 1, 2 or 3. The reader is left to guess what the term is intended to portray, where it fits into the long-range forecasts for LAX and other regional airports¹⁶ and the estimates of rising aviation demand.¹⁷

This lack of definition and intent extends to the term “Adjusted Baseline.” This condition has never existed, and will never exist (i.e., 1996/97 airport activity and physical facilities plus 2005 and 2015 land use activity and regional traffic). There is no basis in CEQA and/or NEPA for use of this term and it therefore requires either clarification or removal from the document in favor of more traditional and more clearly defined comparative data.

3.6 PROJECT PHASING DOES NOT REFLECT STATED PRIORITIES

The proposed project phasing illustrates the Master Plan’s embrace of an environmentally inferior alternative. The most pressing problems on the airport are the lack of adequate runway length on the north complex, the security threat of private autos near the terminals, and the lack of international gates. Taxiing of loaded B747 aircraft to the south runway complex and the bussing of international passengers across the airfield creates air quality impacts, congestion, delay, and general lack of capacity. Yet the Phase I construction plan addresses none of these issues for many years and instead concentrates initially on the fringes of the airport preparing for the Ground Transportation Center and Intermodal Transportation Center, and on demolishing and rebuilding perfectly useable terminals in preparation for moving a runway to accommodate the New Large Aircraft. This sequence does not match the urgent environmental and congestion priorities evident on the airport.

3.7 APPEARANCE OF ADVOCACY

Both the Draft EIS/EIR and the Supplement to the Draft EIS/EIR contain numerous comments and conclusive statements that create an appearance of project advocacy. This is inappropriate given the policy guidelines contained in CEQA and NEPA. It undermines confidence in the objectivity of the analyses and casts doubt on the Lead Agency commitment to full disclosure. We are particularly concerned about technical assumptions that understate the growth potential and overstate the benefits of Alternative D, as paired with assumptions that overstate the adverse impacts of the No Project Alternative (please see §3.5.2 above for further elaboration of this concern).

3.8 INADEQUATE SCOPING OUTREACH

Both the 2001 Draft EIS/EIR and the 2003 Supplemental Draft EIS/EIR make frequent mention of the regional significance of LAX and of the Master Plan process. This emphasis on regional context is evident in discussions and analyses provided throughout the text, but more significantly is an integral part of the Purpose and Objectives statement. As stated, *“The purpose and objectives of the Master Plan are to provide...sufficient airport capacity for passengers and freight in the Los*

¹⁶ 2001 Draft EIS/EIR, Table 1-13.

¹⁷ 2001 Draft EIS/EIR, Depicted in the Exhibit on Page ES-3.

*Angeles region to sustain and advance the economic growth and vitality of the Los Angeles region...*¹⁸

Nevertheless, the original scoping outreach effort did not include a single agency within the county governments of San Bernardino County, Orange County, Riverside County, or Ventura County.¹⁹ Nor did the scoping outreach include any municipal agencies, airport officials, businesses, or services within any of these four counties, although many such entities would have an interest in the regional issues addressed and in the development and analysis of project Alternatives. This is a serious omission, particularly in light of the NEPA mandate to establish close nexus between project goals and project Alternatives. It may also explain why none of the project Alternatives incorporates even minimal regional elements.

Furthermore, the scoping process is intended to identify and disclose all of the potential Alternatives under consideration by the lead agency. This provides the public with the greatest ability for input and understanding into the potential project and offers an opportunity to comment. In fact, it is common for lead agencies to remove Alternatives from further consideration between the scoping process and the distribution of the Draft EIS/EIR. In this case, the scoping outreach did not include Alternative C (the 2001 preferred alternative) or Alternative D (the 2003 preferred alternative). As noted previously, this approach forecloses the opportunity for public comment and casts doubt on the adequacy of the process by which LAWA screened and selected the alternatives. In any case, the SDEIS/EIR fails to meet CEQA and NEPA standards because LAWA did not disclose the preferred Alternative D to the public prior to document release.

Furthermore, although LAWA presented the original 2001 draft master plan at a number of public meetings held specifically for minority citizens, it is unfortunate that the same level of outreach has not occurred for the Supplement to the Master Plan. The minority segment of the population will experience the greatest exposure to the effects of changes at LAX. In particular, the County's interest in this issue is again with the unincorporated Lennox community. LAWA should develop a more thorough outreach program for Alternative D that fully informs the citizens in this area of the complete range of options and how the proposed master plan would specifically affect them. LAWA should fully disclose the decision to extend runways to the east and avoid the endangered species habitat to the west along the beaches.

3.9 PROGRAM ASSESSMENT OF BASELINE, IMPACTS, MITIGATIONS

The analytic framework of the 2001 Draft EIS/EIR was described as one in which the document was meant to set the basis for "tiered" environmental review pursuant to both NEPA and CEQA.²⁰ The tiered concept assumes that subsequent environmental documents will be required to focus the analysis on site-specific, project-level issues, impacts, and mitigation measures. The 2003 Supplemental Draft EIS/EIR does describe many concepts in more detail, but continues to keep the analysis at a program level. The program-level analyses and vague mitigation commitments may not provide the Federal Aviation Administration (FAA) with an adequate basis on which to issue an "unconditional approval" of the airport layout plan (ALP). An unconditional approval assumes that

¹⁸ 2001 Draft and 2003 Supplemental Draft EIS/EIR, Section 2.1, Page 2-1.

¹⁹ Based on review of EIS Agency Scoping Coordination Letter Mailing List and other materials provided in Appx. A.

²⁰ Section 4, Pages 4-5 and 4-6.

LAWA has completed appropriate analyses for all development actions, and the circulated document does not fulfill this requirement.

3.10 GROWTH & CUMULATIVE IMPACTS MAY BE UNDERSTATED

The Supplement to the Draft EIS/EIR bases its analysis of growth inducement on projected cargo and passenger activity. It concludes that by 2015, Alternative D would yield a direct economic output of \$63.7 billion and 350,500 jobs, plus an indirect economic output of \$93.8 billion and 629,000 jobs through a multiplier effect of 1.5. The EIS/EIR assumes that all of the jobs would be within the 5-County SCAG region, 78% of the jobs would be within a 20-mile radius, and 40% within a 10-mile radius of LAX. Finally, it concludes that Alternative D would be similar in terms of job formation to the No Action/No Project Alternative, differing by an increase of about 1%. With respect to collateral development, the EIS/EIR finds Alternative D impacts equivalent to the No Project Alternative for LAX Northside²¹, Westchester Southside and Belford, and less than the No Project Alternative for Continental City and Manchester South.

In taking this approach, the document ignores the cumulative synergistic effects that would result if LAX Northside is constructed in tandem with the LAX improvements, as proposed under Alternative D (but not Alternatives A, B or C). The increase in cargo will create corresponding increases in off-airport services and place extraordinary pressures on commercial and residential land uses in the immediate neighborhood. Apart from a discussion of the proposed cap on peak hour traffic from the LAX Northside project, the Growth-Inducing Impact Analysis (which is also the Cumulative Impact Analysis for Alternative D) does not address these more localized impacts at all, even though the history of LAX shows them to be potentially significant.

4.0 COMMENTS SPECIFIC TO THE SUPPLEMENT TO THE DRAFT EIS/EIR

4.1 AIRPORT SECURITY ASSESSMENT IS INCOMPLETE

4.1.1 Summary of Findings Concerning the Analysis of LAX Master Plan Security

As detailed at length in the discussion that follows, the security content of Alternative D documentation is inconsistent and contradictory, leaving important questions unanswered and an urgent need for definitive clarification of the true policy and planning direction. The security analysis has been treated in an aloof and disconnected manner, is preoccupied with the public approaches and the eastern half of the infrastructure; and fails to address total airport security vulnerabilities and risk management planning. These inconsistencies imply an absence of coordination in the planning process. Of greater concern is the possibility that the professed emphasis on security enhancement is not the true priority in terms of planning and phased implementation.

There is a strong case for the separate ground processing facilities and for dispersal of target populations by reducing density, controlling and limiting vehicular access and proximity. Access

²¹LAX Northside is approximately 330-acres of land located on the north side of LAX (bisected by Westchester Parkway) and owned by LAWA. Tentative Map #34836, approved for this site during the mid-1980s, would allow development of about 4.5 million square feet of office, hotel, restaurant, retail, research and airport-related land uses.

roadways merit greater emphasis on security design, demonstrating a clearer commitment to specific contingencies while anticipating traffic impacts.

The separation concept is diminished in value by the expensive and vulnerable mass transit link between the Central Terminal Area and remote landside ground facilities. It is further diminished by the lack of Flow Process Mapping data, the risk of task overload and failure to achieve target reduction, and by potential alienation if the public perceives screening requirements as excessive.

For reasons discussed in this report, we believe that the Automated People Mover is a weak link in the overall security plan. Security enhancement goals can be achieved without the Automated People Mover by moving the 3 main ground processing facilities closer to the Central Terminal Area. The western half of the airport should be drawn into the Plan with all subcomponents receiving 'substantial treatment' as required of federal regulators and stated early in the analysis. In the course of addressing the western end of the airport, *and as a matter of urgency*, LAWA should conduct a detailed assessment of the vulnerability to terrorist attack. LAWA should give serious consideration to the permanent closure of Pershing Drive as a public thoroughfare.

LAWA should provide an illustration that shows anticipated concentric ring security applications along with an explanation of the capabilities for surveillance of adjoining commercial and residential neighborhoods. Finally, the analysis should offer a quantitative projection of the demands on security and law enforcement personnel, and the intended ratio of manpower to technological devices.

4.1.2 Introduction to the Analysis of the LAX Master Plan Security Component

The LAX Master Plan Security Component addresses known and implied security issues, with a focus on Alternative D (the Enhanced Safety and Security Alternative), while also referencing the more limited discussions found in the Master Plan and SDEIS/EIR documents as a whole. The events of September 11, 2001 are commonly referenced in the Alternative D documentation, and security issues predictably appear in documentation released by the City of Los Angeles on July 9, 2003. However, it has been more difficult to obtain security plan elements for earlier plan options, namely Alternatives A, B and C, and also the No Project Alternative.

Fundamental to the integrity of the exercise is simulation of the process by which an ordinary member of the public would gain access to this public documentation. Although airport security is a relevant topical in the context of environmental review, it did not receive any attention in the pre-9/11 public deliberations for the 2001 LAX Master Plan. This is an extraordinary fact considering the status of LAX as a world-class destination and departure airport. The public documentation search process is therefore discussed here because the security content, its location within the Master Plan and the priority afforded to it, bears directly on the credibility of the stated title of Alternative D, 'The Enhanced Safety and Security Initiative' and therefore upon the worth of the security planning component.

The documentation is voluminous and consequently electronic key word searches were employed to locate security related sections in the earlier documentation, i.e. up to June of 2001. Key words used included 'security', 'threat' and 'terrorism;' Master Plan documentation published during 2003 was

also searched using electronic means. The major portions of the documentation subjected to analysis from the security perspective, after search and filtering are:

- The LAX Master Plan SDEIS/EIR: Chapter 3 Alternatives (Including Proposed Action).
- LAX Master Plan Addendum Draft dated June 2003.
- Appendix I to the LAX Master Plan Addendum Draft: Comparative Security Analysis of Alternative D and the No Action/No Project.

4.1.3 Review of the LAX Master Plan Supplement to the Draft EIS/EIR

Chapter 3, Alternatives: The Introduction notes that Council on Environmental Quality (CEQ) regulations for NEPA require federal regulators to “*Devote substantial treatment to each alternative considered in detail...*” The SDEIS/EIR offers an historical explanation of the Draft Master Plan and the context in which Alternative D was developed. An excerpt from page 3-1 illustrates some of the extraordinary circumstances applicable to long-term security planning:

“Alternative D is designed to protect airport users and critical airport infrastructure in response to the increased risk of terrorism aimed at aviation and commercial assets. The Plan is designed with the flexibility to incorporate evolving federal airport security requirements. Alternative D is also designed to enhance the on-airport presence of law enforcement and emergency response teams.”

The words ‘flexibility’ and ‘evolving’ effectively equate at the time of public deliberation to ‘unknown’. The discussion of baseline conditions (Ch. 3.2) does not address security planning in terms of existing conditions, and, the discussion of airport security (Ch. 3.3.1) provides no explanation for the failure to address security planning in the pre-9/11 options. A vague attempt is made to reassure the reader that security plans are available for Alternatives A, B, and C should these be chosen (as opposed to Alternative D), yet the discussion is wholly inadequate. Noting that ‘these alternatives would provide on-airport space for the Transportation Security Administration to conduct its mission,’ the report goes on to state:

- *“At the time this supplement to the Draft EIS/EIR was published, the federal government’s security requirements were continuing to evolve and LAWA officials were working with TSA to determine and accommodate its needs to the greatest extent possible,”* and
- *“...it is anticipated that an extensive array of security features and operational practices if/as required could be accommodated by any of the build alternatives.”*

These statements suggest that the public disclosure of security plans is unnecessarily vague, and that security planning has been overly deferred to federal regulators.

The SDEIS/EIR summarizes conceptual points making up the new approach to airport security on page 3-27 under Alternative D: “*The end goal of this design concept is to achieve a new balance between the needs of both passenger security and passenger convenience.*” Besides claiming public safety and security benefits in very sweeping terms, it also refers to the physical layout of Alternative D and mentions the Master Plan boundaries. But it does not provide any detail concerning the features of the security plan that will deliver these benefits.

The description of Alternative D Facilities (p. 3-43) repeats the message that "*Alternative D is designed to be flexible in accommodating new federal security requirements.*" There follows brief mention of 'important security features' referring to elimination of private vehicles from the Central Terminal Area roadways and elimination of the public parking structures within the Central Terminal Area. This and subsequent statements are not so much 'security features' as 'security objectives' or 'security outcomes'. The difference is important, because it is the details that impart greater understanding and thereby enable the public to judge and offer comment. For example, when the text states that passengers and employees will access the Central Terminal Area via the Automated People Mover, there is no explanation of the methodologies that would be used to secure the safety of that journey. It is thus unclear that the APM would be safer than the Central Terminal Area public parking facility. The document also declares that "*The presence of law enforcement and emergency response teams would be enhanced with Alternative D.*" Although it then goes on to speak of two new Aircraft Rescue and Fire Fighting facilities, a new police headquarters and Terminal police posts, again it resorts to generalized claims of the advantages without supportive detail. In fact, the planned police headquarter (at Westchester Parkway and Emerson Avenue), is located outside of the operating boundary of the airport.

In subsequent pages (3-47 to 3-56), the following topics are listed and discussed without reference to any specific security component: Terminal Facilities; Traffic/Parking/Circulation Facilities; Automated People Mover; Cargo Facilities; Ancillary Facilities; Land Acquisition and Relocation; Collateral Development; and Proposed Phasing. The text states that publicly available data show that airport facilities have to be upgraded to improve security. However, the Transportation Security Administration is not the only arbiter of security issues. Security is becoming an integrated component across all airport functions. Given the size of the LAX Master Plan project, it is reasonable to expect discussion of the security plan for each listed action, each function and each facility. Cargo and Phasing offer good illustrations of this need: Cargo security is currently the focus of attention by TSA and others. It is unarguable that cargo security processes will affect airport operations, logistics and facilities access over the next 2 years, but the Supplement does not appear to anticipate this. Moreover, the 3-part Phasing Plan does not even acknowledge advance security preparation for a protracted construction project during which exceptional and extraordinary vulnerabilities will apply to the airport and its environs. The new police headquarter is not listed in the phasing, nor is there any apparent recognition of the significant perimeter and core security demands. All of these elements should be addressed before project commencement.

Discussion of the Preferred Alternative (Ch. 3.5) and the CEQA Environmentally Superior Alternative (Ch. 3.6) does not elaborate on the security benefits from traffic and incident management. Security plan elements discussed in other parts of the Master Plan suggest that the security surveillance and detection system will extend well beyond the airport infrastructure into the wider public environs, but there is no detail to confirm this. We request that LAWA provide further discussion, in keeping with full public accountability, so that long-term impacts can be considered.

The role of the Transportation Security Administration is briefly discussed in Chapter 4 (p. 4-698). The remainder of this subsection describes post 9/11 security measures, including government-mandated deadlines on baggage screening that LAWA states it has met, together with current and long term plans for deployment of 'inline' screening systems. A statement in this discussion indicates that: "*...TSA is in the process of developing additional recommendations and requirements to increase security at the nation's airports*" but provides no details. We request

discussion of the additional TSA recommendations and requirements and how they may be applied to the LAX Master Plan.

4.1.4 Review of the LAX Master Plan Addendum Draft June 2003

The Executive Summary to the Draft Addendum speaks of Alternative D as 'a new design approach to securing airports for the future' (page i-1). It states that "*The alternative would incorporate, to the greatest extent possible, [TSA] recommendations as they are developed as well as the latest passenger and baggage screening technologies;*" and "*...would also enhance the on-airport presence of law enforcement, surveillance, security, and response teams.*" These statements merit further explanation as to how this would be accomplished, and with what impact. The following page (i-2) describes conceptual goals for deterrence and prevention of terrorist attacks. In shorter form the goals stated are:

1. Reduced concentrations of people in the public areas of the airport;
2. Relatively rapid movement of departing passengers and baggage through the necessary processes to the secure (sterile) parts of the airport; and
3. Reducing vehicular access to the Central Terminal Area and avoiding concentrations of people and vehicles in other ground processing areas.

On the same page, it is stated that, "*Alternative D would utilize an expanded LAWA-operated FlyAway Program throughout the region to disperse passenger processing. This service would include remote check-in of passengers and baggage, and provide direct access into the Central Terminal Area. Refer to Appendix I for a detailed assessment of the security and safety features of Alternative D.*" Although the foregoing suggests that an explanation will be forthcoming from Appendix I, our analysis has shown that Appendix I *does not present a detailed assessment* as promised, especially when compared with other parts of the documentation. Accordingly, some comment is due concerning the generalizations stated in the Executive Summary.

As noted above, the third goal is to permit only known, screened and controlled vehicles into the Central Terminal Area; this means that some vehicles will still have access. Expansion of the FlyAway program throughout the region would also offer access to the Central Terminal Area. These two factors may compromise the intent to prevent vehicle bombs imposing heavy casualties in and around the Central Terminal Area. Terrorists seeking weak links in the protective systems would have the opportunity to exploit both approaches, e.g. by hijacking, stealing or attaching bombs to vehicles that they know have privileged access. The County requests further review and comment on this issue.

Furthermore, a number of questions arise about the modes of permit, identification (vehicle and driver) and screening of so-called 'controlled vehicles.' Access and special egress road design, emergency diversion contingencies, fully equipped road vehicle inspection checkpoints, chokepoints, and barriers -- all away from the concentrations of people -- come into play here. An efficient system should impose structural constraints on all roadways, with special allowance for those passengers and foreign drivers who will make mistakes or misinterpret airport road signs. This need appears to have been underestimated (in contrast, Appendix I does enter into speculative possibilities on roadway security controls) and we ask for a reassessment of this issue.

It is extremely doubtful that regional expansion of the FlyAway service can satisfactorily and consistently secure a fully screened passenger and baggage load to justify a bus being brought close to the Central Terminal Area, especially given the threat of suicide attack. The description of the proposed passenger screening systems for those passing through the Ground Transportation Center, Intermodal Transportation Center and Rental Car facilities will be discussed later, as there are some contradictions to address. But it is necessary to point out here that a 'level one' screening will not be adequate for passengers at the FlyAway bus stations. The TSA 'level two' screening would be essential, but would have to be repeated in the Central Terminal Area because of the mixing of people from different modes of access at that location. It is unlikely that LAWA can consistently operate fully equipped remote resources (and sterile station-to-bus areas) to accomplish full screening prior to embarking on the FlyAway bus, and then keep that bus closed and secure for its entire journey. Such a system is prone to error and penetration. Moreover, the 'hassle factor' from lengthy duplication of screening operations would to some extent defeat the initial reason for using this service. We request further review of the screening operations, including assessment of the feasibility of operating the remote resource to complete screening in advance of the FlyAway bus.

Still on page i-2, the document briefly describes the Ground Transportation Center as the primary pick-up and drop off for LAX passengers. It states "*The facility would combine a controlled and monitored roadway access system with first level passenger security screening and profiling to further enhance the safety and security of all passengers using LAX.*" The interested observer might wonder what this actually means. Parts of the Draft Addendum on this topic contradict other parts of the same document, creating confusion if not doubt about the ultimate intention for security risk management of the various facilities. LAWA has made an effort in the right direction, but the analysis below shows that the documentation for Alternative D must be significantly expanded before its title as the enhanced safety and security alternative can be justified.

Discussion of the Terminal/Passenger Processing Facilities for Alternative D (Ch. 2.2) includes a statement that, "*The Central Terminal Area reconfiguration would prohibit private and commercial vehicle access to the area, eliminating the threat of vehicular blast at the curb front, which exists today in the Central Terminal Area.*" What vehicles would LAWA permit to enter the area? Would FlyAway buses and 'screened, controlled vehicles' be allowed, as mentioned in the Executive Summary?

Text on page 2-20 mentions a baggage tunnel that connects the new airport terminals with the Ground Transportation Center, and notes that this tunnel would allow passengers to check their baggage at the Ground Transportation Center, with arriving passengers using the system to re-check their baggage back to the Ground Transportation Center from the Central Terminal Area. This statement is somewhat confusing -- does this refer to Skycap check-in service only? What security process would LAWA use for departing passengers? Is the baggage tunnel available for use by departing passengers who will check in at the Central Terminal Area? If so, is there a plan to screen 100% of this baggage? Further, what are the implications for synchronizing transit of passengers and their baggage to the Central Terminal Area?

Ch. 2.2.5 describes an airside secure underground Automated People Mover linking the West Satellite Concourse with the reconfigured Central Terminal Area. Given that a geological fault exists in or close to the area, we request discussion concerning the resulting safety implications as well as contingency plans for emergencies including Automated People Mover breakdown.

The Ground Transportation Center: Discussion in Ch. 2.2.8 notes the theoretical role of the Ground Transportation Center in drawing concentrations of people away from the check-in queues by separating curbside pick up, drop off, and parking. Some of the statements in this discussion require further clarification:

“...limiting large congregations of passengers by moving ticketing, security screening, and baggage claim to the Central Terminal Area would improve passenger safety and security. Passengers would be subjected to a first level security screening process at the Ground Transportation Center. It is anticipated that the process would include a random checking of baggage and passengers using sniffing dogs, video surveillance systems, and other security devices. Second level screening would occur at the Central Terminal Area; however the Ground Transportation Center would be designed to accommodate second level screening at any time.” (Underlined words relate to later comment in this review).

Eight major functions are proposed to be included in the Ground Transportation Center, including E-Kiosk check in, Skycap baggage check-in and first level ‘passenger security screening.’ We assume that the passenger screening would also apply to visitors and employees (not just passengers), but it is unclear what is meant by ‘random checking.’ The deployment of explosive detection canine units, given their limitations, suggests that far less than 100% of people and bags would be screened at the Ground Transportation Center. Please provide further clarification for this part of the plan.

Discussion of the baggage tunnel (p. 2-36) tends to reinforce the assumption that the baggage transit system between the Ground Transportation Center and the Central Terminal Area will not incorporate EDS screening or, if some check is applied, it will not be to the standard required for aircraft loading. The discussion leaves open the question as to whether passengers not using the Skycap service would be able to send baggage through the tunnel to the Central Terminal Area, but it does say ‘*Passengers that do not use Skycap baggage check-in may carry [note, not ‘must carry’] baggage on the Automated People Mover*’. There are two important qualifying statements about the process: “*Bags carried by passengers on the Automated People Mover would need to be checked by the appropriate airline in the Central Terminal Area. No airline agents are initially anticipated to be located in the Ground Transportation Area.*” The foregoing suggests a confused and difficult process, particularly for passengers who do not use the Skycap service (potentially 60% of all LAX traffic).

There is also risk of a terrorist attack via baggage used to carry a device for detonation on the APM. The terrorist objective in this case would be 3-fold: (1) killing and maiming a maximum number of Automated People Mover passengers; (2) closing a critical part of the system down; and (3) terrorizing the public so that they will not use LAX. In logistical terms an APM journey that involves loading, mixing and unloading of passenger baggage would reduce the potential frequency of Automated People Mover arrivals and departures and the subsequent loop journey time. Please comment on this issue.

Intermodal Transportation Center (ITC): The description of random screening in the ITC section (page 2-45) is almost identical to that describing the processes at the Ground Transportation Center. Also mentioned is the intent to monitor all approaching vehicles using video surveillance systems. Please see the discussion of Appendix I for further comment on this subject.

Consolidated Rental Car Facility (RAC): This section does not address security issues, and so the review process defers to Appendix I for explanation.

Ground Access and Parking: Discussion in Chapter 2.3 emphasizes means to reduce terrorist target density and the County does not dispute the validity of this approach. However, the document lacks data to show that the projected dispersal pattern would justify the expense and disruption of reconfiguration. For example, if an improvised explosive device was detonated at the Ground Transportation Center, curbside, on or near the Automated People Mover, or at the reconfigured Central Terminal Area, what casualty rate would LAWA anticipate at, say, peak travel time? Are the projected measurements of time, distance, people dispersal, response capabilities and resources proportionate to the desired gain? Part of the improved protection evidently comes from proposed blast mitigation measures that combine structural design with open space, but we request more data on the flow of people and vehicles in order to evaluate the plan. For example, if the needed dispersal percentages are achieved by adding 3 outlying facilities, is it necessary to operate an automated train system for a distance of 1.5 miles away from the Central Terminal Area? Could LAWA achieve the same goals closer in, with resultant savings and safety mitigations on Automated People Mover operations? If LAWA holds that there is a logistical and dispersal advantage by having the Automated People Mover further out, thereby staggering the flow of people, we request that an explanation of the basis for this advantage.

In discussion of the Central Terminal (Ch. 2.3.2.1) the document says that *“access points to the Central Terminal Area road system would be controlled to enhance security in the areas immediately surrounding the airport’s infrastructure.”* It then mentions FlyAway buses and vehicles cleared to drive on the secure airside. This appears to open a security loophole. Would it not be better to provide FlyAway passengers with a dedicated lane or fast track, using the public entrance to the Central Terminal Area while having their baggage processed through the level two TSA screening checkpoint? It appears feasible to screen all FlyAway buses, passengers and baggage with a unit contracted or employed by LAWA with TSA approval. Sufficient user numbers within the FlyAway expansion plan would justify this investment. Moreover, this additional service feature, once given the security planning attention it requires, may offer a more cost effective use of reconfiguration, in addition to its target dispersal contribution. Please comment on this proposal.

Discussion of the Ground Transportation Center (p. 2-60) mentions use of video surveillance to monitor activity, and cites the ability to pre-screen vehicles before they approach the Ground Transportation Center as an integral part of security. Some very simple calculations show this to be an extremely optimistic expectation in terms of prevention. Current, developing and anticipated surveillance technology may offer improved detection and interception, but the distances covered by vehicles at various speeds (whether at normal or excessive traffic flow rates) significantly limit the ability of responding security or law enforcement officers to prevent a determined attack. A number of examples of the speed of attack execution exist, such as terrorist bombings of military installations overseas. A vehicle traveling a linear mile at 20 mph would cover the ground, if unhindered, in 3 minutes; at 40 mph, in 1.5 minutes. Some type of substantial physical obstacle, such as a hydraulic arrest barrier built into a choke point, should therefore be part of the roadway design. Such equipment does need some visibility for deterrent value; in a multi-lane setting, the barrier could be used to moderate traffic volume for other goals. We request that LAWA comment on roadway design from a security perspective, including the concept outlined above.

Security features for access to/from the Intermodal Transportation Center and the Rental Car Facility are not discussed in Chapters 2.3.2.3 and 2.3.2.4. We thus repeat our previous comments on controlled choke points, and request that LAWA provide discussion of security design. The reduction of people and vehicle density is but one layer in the defensive design that will allow the 'protection, detection, assessment, and response' concept to become reality. The fact that a target density at one location is reduced from say, 1000 to 100 people will not in itself deter an attacker. The possibility remains that a back up of people could be orchestrated to deliberately increase congestion, density and target volume. This possibility must be addressed at every airport ground processing facility in order to eliminate weakness in the overall security plan and avoid the need to later retrofit the roadways. The suggested control would also apply to design of exit roads, to prevent reverse flow access by an attacking vehicle. The intermodal and rental car facilities would probably not benefit from as much close-in law enforcement and security personnel coverage as the Ground Transportation Center and Central Terminal Area. This compounds the need for optimum security design features on roadways and building access. Please comment on these points.

Discussion of the Air Cargo Roadway (§2.3.2.5) offers no discussion about security planning, conveying the assumption that there are no security considerations. Is this a correct assumption? Similarly, there is no discussion of security planning for Off-Airport Public Road Access (§ 2.3.3), conveying the assumption that there are no security considerations. Is this a correct assumption?

In §2.3.6 it is noted that the proposed 12,400-stall employee garage (accessed via Pershing Drive) would "*be designed to help diffuse blast impacts from surrounding vehicles. It would be designed with a security-screening checkpoint for all employees using the garage.*" Why does LAWA emphasize this point for the employee parking facility but not for public parking facilities at the Ground Transportation Center, the Intermodal Transportation Center, or the rental car facility?

Discussion of the Automated People Mover (§ 2.4 et seq.) touches briefly on security in a reference to video surveillance. We have indicated previously our concern about the vulnerability of the Automated People Mover, but would add that the expected security issues and management plans for the Automated People Mover deserve more public disclosure. Please provide an assessment of this risk and the steps proposed to address it.

In discussing Cargo Facilities, Chapter 2.5 acknowledges that new security requirements are being developed by the TSA and advises that "*LAWA would incorporate any new requirements into the cargo facilities as those standards are developed.*" This section does not adequately address LAWA's own 'industry capability' -- i.e. using its own initiative to offer options. The future direction of air cargo security management may not be fully known from a regulatory perspective, but in terms of public safety we believe that it would be responsible for LAWA to pioneer its own air cargo security standard. Alternative D by virtue of its title claims to answer security concerns and to offer innovation in the process. Yet innovation is decidedly absent from the cargo aspect of the plan. The ultimate test may come from an attack on commercial aircraft via air cargo: adequate warnings exist in industry circles to justify a stronger effort in this regard. We request that the SDEIS/EIR provide more detailed discussion of air cargo security measures, and respond to the suggestion that LAWA pioneer its own standards.

Among the measures that could be considered for air cargo facilities is a plan that would allow airline operators to provide, at short notice, an integrated roadway and security system to screen and clear inbound vehicles, and a 'cold' or 'hot' operational facility for dual technology screening of

outbound cargo. In combination, these facilities could routinely earn additional airport revenue and facilitate business continuity during periods of high alert. Please comment on this suggestion.

Addendum Illustrations: The various plan drawings and artists impressions found in the Master Plan Alternative D documentation are helpful and informative. There are, however, several considerations for improving public articulation. Residents of the surrounding environs are a valuable part of airport protection. The eyes, ears and voices of local residents can provide superior protection of community assets. This holds true even when compared with trained law enforcement personnel who have access to advanced technologies. Citizens and local residents who perceive that they have a stake in the future of their airport, and who are consulted in the security planning aspects, are most likely to participate constructively. What efforts have been or will be taken by LAWA to provide public education sufficient to harness this resource?

4.1.5 Review of Appendix I: Comparative Security Analysis

The Master Plan Draft Addendum refers to Appendix I as “*a detailed assessment of the security and safety features of Alternative D.*” This statement, combined with the lack of detail in other Master Plan documents, creates high expectations as to the quality of its articulation. In practice, our review has found the experience to be disappointing. The discussion is inconsistent with other documentation and falls short of the detail that should be available for public scrutiny. We are in a new era of risk management. Traditional or conventional thinking will not successfully address future vulnerabilities unless there is a respectful treatment of the public debate. The physical and operational reach of the defensive concept will extend beyond the footprint of the airport infrastructure. In fact, the security component will have environmental effects that are unprecedented in American commercial airport planning, particularly in urban and suburban settings. The Master Plan Alternative D must offer detailed projection, measurement and quantification of these impacts.

Discussion of the Concept: The document states, on page I-2 of the Executive Summary, “*The first level (Level 1) entails screening of all persons and bags prior to entering the Central Terminal Area. Level 1 screening is focused on preventing attacks on the ground and ensuring a safe passenger environment. This level of screening will occur prior to entering the Automated People Mover system or FlyAway shuttle buses and focuses on weapons and explosive.*” This directly contradicts the ‘random screening, sniffing dogs’ explanation in the main Draft Addendum document; clarification is requested.

On page I-4 of the Appendix, under Methodology, reference is made to the Department of Homeland Security and General Accounting Office validation of “concentric rings of security” to bring protection, detection, assessment, and response” capability ‘*to the extended airport perimeter*’. The following statements from that Chapter appears to contradict the approach offered in the prior two documents:

‘Anyone entering the airport property whether to visit or travel will undergo security inspections. There are at least two levels of personnel and baggage inspection that will take place. Level 1 inspection requires screening for explosives and weapons prior to transport by the Automated People Mover or FlyAway shuttle bus to the Central Terminal Area. Using current technology, Level 1 inspection would include screening of persons and bags similar to checks made upon entering federal buildings today. These checks should be

designed to be as unobtrusive and not impede the flow of transportation to the Central Terminal Area and should take advantage of the emerging technology. Level 2 inspections will consist of current security screening criteria as mandated by TSA for departing passengers and baggage which is more intrusive and detailed than level 1'.

We offer the following observations on the above excerpt, and request that LAWA provide comment and clarification for each point:

- ▶ Level 1 inspection as described here does not match the 'random selection, sniffing dogs' explanation offered in the Draft Addendum.
- ▶ There is no mention of profiling people and baggage for selective screening.
- ▶ The stated similarity to 'checks made upon entering federal buildings today' is meaningless to people who have never seen or experienced the federal security screening process.
- ▶ At federal buildings 100% of those who enter are screened, but these systems rarely (if ever) encounter baggage in size and volume such as will be common to an airport.
- ▶ The statement above contradicts itself: the process for federal buildings is obtrusive and would impede flow if applied literally as a Level 1 screening protocol.
- ▶ The possibility of 2 levels of screening that are both obtrusive, even with Level 1 proving to be selective, implies a need to estimate consequential density effects that might in some circumstances defeat the desire to disperse people rapidly into the airport controlled areas.
- ▶ The reader is left wondering whether there is agreement and/or coordination between the planning entities on security policy and practice.

The same page refers to Figures 4-1 & 4-2 as illustrations of the concentric rings of security and deterrence strategy respectively. These very simplistic figures are of no value in helping the public to understand what the strategies mean for LAX, and no other drawings are included in Appendix I. Why is this not done, given the proliferation of site drawings and artists' impressions in the other parts of the Alternative D documentation? We ask that LAWA superimpose the concentric rings over the airport plan and explain the resulting figure. The following statement from the same page is offered for its relevance to further comment:

"PDAR facilitates the detection of possible malevolent acts prior to the hostile force coming within range of the target. By increasing the distance between critical areas and the point of detection, law enforcement officers and security personnel have additional time to assess the act as benign, dangerous, or overtly hostile, and respond appropriately."

We offer the following observations on the above excerpt, and request that LAWA provide comment and clarification for each point:

- ▶ Is it correct to assume from the statements about bomb threat dispersal that 'critical areas' include public areas where concentrations of people can be expected (e.g. the Ground Transportation and Intermodal Transportation Centers, the Central Terminal and perhaps to a lesser extent, the Rental Car Facility)?
- ▶ A rough calculation of available response times (using existing travel distances and transit times) indicates that Alternative D roadway configurations will not significantly increase response time 'prior to the hostile force coming within range of the target.' What does LAWA anticipate in terms of this issue?

- By inference, the ‘protection, detection, assessment, and response’ system would prove of value only if the outer concentric circles encompass more distant roadways and areas including commercial and residential areas, beyond the immediate airport environs. Is LAWA contemplating an expansion of the concentric circles to include these areas?
- Implementation of a multiple concentric ring system defies imagination in its practical application to LAX. The airport has an irregular property boundary that may be poorly suited to this system. There is no logical center point for the concentric rings, apart from the large Air Operations Area, and the critical areas at LAX are disparate and scattered. In this setting, what is the feasibility of developing the concept with a series of overlapping concentric rings?

Discussion in Ch. 5 (Threat) evaluates LAX as a target. This is a complex topic; we understand that evolving trends in terrorist tactics may unexpectedly shift some of the security emphasis and strategy over time. However, we believe that the threat may have been understated and ask for further discussion and comment on this issue.

The discussion of Potential Mitigations (pp. I-12, I-13) describes security measures that will be applied to MTA Green Line connections with the proposed Intermodal Transportation Center. The discussion refers to use of Closed Circuit Television surveillance and related intelligent devices (as yet unidentified), and specifically mentions facial recognition technology. Several security industry reports in 2002 and 2003 have discredited the so-called ‘face in the crowd’ facial recognition applications. Original hopes for this technology were overly optimistic, and recent experience has shown this application to be flawed. In a number of cases (for example, Ybor City, Tampa, FL) the systems have been withdrawn from use.²² Further comment will be made later in regard to use of an array of technology and the finite value of detection data inflow.

The final paragraph discussing the MTA Green Line states that “*The Green Line connection enhancements in Alternative D provide for a better security solution because no unscreened people or luggage would be permitted to enter the Central Terminal Area.*” This suggests 100% screening of people and bags, yet there is no reference elsewhere in the Addendum or Supplement to confirm this. Please comment on whether 100% screening will be provided.

There is also no discussion of the planned accommodation for and type of screening equipment, other than a vague mention: “*The MTA Green Line connection facilitates the future employment of security technology allowing a level of initial screening to occur prior to entering the Intermodal Transportation Center or Central Terminal Area.*” What form of screening will actually take place there initially, and to what extent? What increase in screening activity is planned or accommodated in the contingencies for change?

Chapter 6.2 offers a more comprehensive description of the Intermodal Transportation Center. The Comparative Analysis acknowledges that the Intermodal Transportation Center is an integral part of the concentric rings of security and ‘protection, detection, assessment, and response’ concept. The concentric rings processes are described, with the final stage described thus: “*Prior to boarding the APM, all people and bags will be screened using appropriate technology to identify weapons and explosives.*” Two benefits are cited: one is that it would permit initial screening of passengers and

²² Note that biometric facial identification systems, which are used to match individuals on a one-on-one basis, are a different form of this technology and continue to show successful results.

vehicles that without the reconfiguration would not occur; and the other is that it adds a measure of protection to passengers using the APM as they move to the Central Terminal Area. This appears to contradict other elements of the Master Plan documentation, raising questions about the consistency between security components. LAWA should define the word 'screening' and use the classification 'Level 1' more consistently. Otherwise this suggests the emergence of different security standards for access to the Automated People Mover and Central Terminal Area.

Pages I-16 and I-17 cover general security matters pertaining to the reconfigured roadways. Again we note that security technology is a valuable adjunct to trained security patrols but it is not a panacea; it is instead a management tool. Please articulate the contingency plan for interception and management of roadway incidents with minimal disruption to airport operations. This is particularly important at the policy setting stage, as large projects are notorious for paring back security expenditures and thereby compromising protection standards. Will LAWA policy identify agreed-upon security standards so that this does not occur?

In practice, the performance of Closed Circuit TV will depend on the ratio of trained personnel to monitoring devices. Although the stated benefits of roadway monitoring are attractive, the increased data will require monitoring, interpretation and action. How much thought has LAWA given to the risk of data saturation? Over-dependence on security technology may lead to higher risk of error and, ironically, diminished protection. Occupied space is projected under this plan to increase from 3.9 to 6.8 msf. In combination with increased separation distances, this increase will impose substantial new constraints and demands on emergency and enforcement response, and also upon patrol/deterrent services.

Mitchell Gray, in a University of British Columbia paper title *Urban Surveillance and Panopticism* (<http://www.surveillance-and-society.org>) explores many of the more complex issues associated with surveillance in the community. It is worthy reading for any elected official attempting to understand the implications and potential unintended consequences of surveillance systems. The basic message to be gained from Gray's treatise is contained in the following extract: "*It is rapidly becoming an urban instinct to grasp at security through surveillance and knowledge, but this, paradoxically, may add to urban insecurity in a fundamental way: by transforming society in unforeseen directions. There is a threshold point in urban surveillance beyond which quantitative change – the addition of devices used and areas watched – becomes qualitative change.*" Please comment on how LAWA has addressed the potential for over-dependence on security technology at LAX as part of the proposed Master Plan improvements.

A review of the Ground Transportation Center in Appendix I (Ch. 6.4) restates the threat and target dispersal philosophy along with the 'protection, detection, assessment, and response' protocols. According to discussion on page I-19, passengers will go through a well-organized Level 1 screening point at the Ground Transportation Center before transport on the Automated People Mover to the Central Terminal Area. The Level 1 screening serves to insure the integrity of the Automated People Mover and common areas of the Central Terminal Area, and represents the first opportunity to check passengers and employees for concealed weapons and explosive devices. Yet again there is a clear contradiction with the main part of the Draft Addendum, reinforced by a listing of measures that makes reference to design and installation of passenger and baggage screening devices; please clarify. Additional comment and questions are provided below:

- Is it the planned intention to have two levels of screening, to include 100% of pedestrians accessing the APM and Central Terminal Area?
- How would 100% screening of Level 1 people and baggage affect the risk of congestion and increased people density at the Ground Transportation Center and other remote locations? Has LAWA analyzed this risk? If so, where are the results?
- What ergonomic design factors will optimize rapid movement of people and bags? Has LAWA considered the impact of Level 1 screening on the elderly, infirm, and people traveling with small children?
- Has any field market research been conducted to assess the tolerance for earlier arrivals to negotiate two levels of screening and transportation of baggage between those two levels?

Discussion of the Rental Car Facility (Appendix I Ch. 6.5) repeats the intention to screen all personnel from the Rental Car area to the Automated People Mover. However, the same discussion notes: *'should the current Central Terminal Area roadway need to be secured' inspection of an estimated 1 million shuttle bus trips annually would be time consuming and subject to human error even if state-of-the-art security inspection equipment was employed*'. If Alternative D removes vehicular traffic, and thereby mitigates vehicle bomb risk, then would not the passenger and baggage security factor shift to the Automated People Mover? The APM system could become an attractive and vulnerable target. We are therefore concerned about the potential need to police and manage a much larger area (including an occupied mix of separate facilities), that may from the outset require equal standards of screening at Levels 1 and 2. Please comment on this concern.

The Rental Car Facility mitigation measures offer a blend of logical and speculative measures, including the discredited facial recognition system. We again raise earlier comments about discredited systems, data saturation and over-dependence on technology. This is particularly pertinent since the assessment does not refer to an equivalent demand for the increased training and numbers of security operatives (ranging from technicians through guards to airport dedicated law enforcement personnel). Please comment on LAWA's plans with respect to the presence and role of security personnel at the Rental Car Facility.

We request that LAWA provide a security deployment projection for Alternative D, together with a security technology and equipment schedule. Please illustrate how 'protection, detection, assessment, and response' can be accomplished using only technology available today, and describe any credible security equipment advances that can be expected over the next 5 years that might justify an investment in this program. It may be unwise to count on as-yet undeveloped technologies, particularly since reliable and proven technology is with us today, sufficient for planning purposes. More problematic may be the use of human resources, including appropriate numbers, competence and strategic locations.

The comparative analysis in Chapter 6.6 indicates that the Automated People Mover will be a key component for dispersal of vehicular traffic from the Central Terminal Area roadway network. This may be true, but could LAWA accomplish the same dispersal by reducing the distance between the remote ground processing points and the Central Terminal Area? Please provide a vulnerability analysis to address this issue. Further comment and questions are provided below:

- Please provide additional discussion about screening for weapons and explosives at the inbound remote Automated People Mover station access points

- ▶ Please discuss the security logistics and practical challenges of handling heavy baggage, multiple bags, and elderly and disabled passengers and children when loading and unloading the Automated People Mover. It is extremely difficult to imagine how screening, loading and offloading of passengers and baggage could be accommodated at the Ground Transportation and Intermodal Transportation Centers and the Rental Car Facility, with sufficient frequency to achieve the level of service promised in the Plan -- especially with the reconfiguration objective of rapid dispersal of people.
- ▶ The Draft Addendum states (p.2-37) "*It is also assumed that luggage carts would be allowed on the Automated People Mover and highly utilized in the transfer of people and baggage.*" This chaotic image invites questions about safety factors and load capabilities, neither of which is discussed in the Appendix I security assessment. Please address this issue.
- ▶ Please provide an exhibit showing street-to-departure ergonomics, flow and density patterns, and screening equipment layout of the remote people mover access points. Although security screening equipment is implied, space utilization is at odds with this statement from page 2-37: "*it is anticipated that passenger assembly would be limited to the passenger platform.*"
- ▶ The prevention of unscreened vehicular and bomb access to the Central Terminal Area could be offset by the APM: the train could actually carry the device to its target if Level 1 does not screen for explosives carried on the person (as in suicide attacks in Israel). Magnetometers do not detect explosives. Please address this potential security threat.
- ▶ The APM could be attacked via vehicles using Century Blvd. and 98th Street, and/or from commercial buildings and hotels overlooking the Automated People Mover guide way system. Please address this potential security threat.
- ▶ The primary vulnerability appears to come from the track distance and elevated nature of the Automated People Mover, and its target worth (i.e., elimination of a critical airport transit link, serious disruption to operations, high casualties, public terror and a prestigious but discredited security program). In effect, the Automated People Mover may serve to reintroduce the target potential that Alternative D was purportedly designed to reduce.
- ▶ If the Automated People Mover concept is to be pursued, we ask that LAWA consider the possibility of building a grade level (surface) operation, with blast diffusion techniques and materials applied to a protective wall and an armored one-way-transparent canopy for the length of the track
- ▶ Overall this part of the Plan is conceptual and idealistic. It lacks data that is essential to show how and when the processes interconnect and will be successfully negotiated while achieving safe dispersal objectives. If the main part of the Addendum (Page 2-35) is correct in its description of the intended screening activity (i.e., "*random checking of baggage and passengers using sniffing dogs, video surveillance systems and other security devices*") then the Automated People Mover will be vulnerable. Acceptance of that risk is a matter for public policy debate, but moving walkway bridges would obviate need for the Automated People Mover. We request comment and discussion on each of the points raised in this item.

Discussion of the Expanded FlyAway (Ch. 6.7.1) attempts to instill confidence in a speculative system to protect buses from becoming unwitting vehicles for terrorist attack. We have already expressed our doubts on this topic, including the considerable physical spread of the security requirement, the attendant cost, and serious questions as to the ability to control bus security within remote stations and in transit. The FlyAway bus operations would come inside the concentric circles, and it is unclear how the protection would be achieved. The technology to address these

concerns (such as under-vehicle inspections) is simplistic and conceptual. Please provide more detail concerning this system, with discussion of the attendant human resource requirements.

In the Chapter 8 Summary, Appendix I uses a subtitle 'Alternative D Advantages and Disadvantages.' It then lists five primary advantages followed immediately by three 'potential enhancements'. We request that LAWA provide more explanation of each, as we believe they merit greater priority. Note that the first suggests the provision of a Vehicle Inspection Center. We have already made reference to the need for this in roadway planning.

We believe that the Remote Delivery Facility will become a reality for many critical government facilities in the United States over the next 5 years, closely followed by other critical infrastructure sectors including commercial airports. It is already operating policy for a variety of private and public sector facilities in different parts of the world, and has seen an increase since the Anthrax mail attacks of late 2001. Accordingly, we ask that LAWA give serious consideration to an extension of this prospective facility to include an Identification and Authorization Processing Center, including some discussion in the response to this comment.

During this review we have established an unquantifiable but extensive (potentially massive) future demand for data input, retrieval, analysis, interpretation and sharing. The data will be diverse, covering audio & visual, electronic signaling, text, numerical, pictorial, computer code, identification systems, people, vehicles, transactions etc. etc. Our understanding of the transactional volume and complexities for a busy international airport shows that a dedicated Identification and Authorization Processing Center is justified to monitor the demand for access to different parts of the airport. This security-controlled service provides identification and clearance for individuals and vehicles, engaging electronic tagging, biometrics, and the administration of airport asset and airside vehicle tracking. Variables allow for individual issue of identification and access control media whether the subject is escorted or unescorted, permanent or temporary, urgent or routine. This facility should be off-airport, based on long established methods employed overseas. The processes will relate directly to the interests of law enforcement agencies and the security resource. This facility should be located close to the planned new police headquarters. Please comment on the possibility of incorporating these suggestions into the Master Plan.

The third enhancement described in Appendix I relates to the Automated People Mover, previously discussed in this review. There is, however, *a distinct and in fact total, absence of listed disadvantages relating to Alternative D security.* Our concerns are deepened by the fact that Appendix I lists 5 disadvantages of the No Action/No Project Alternative and then proceeds to mix conceded points with counter argument on 5 other points, thereby maintaining absolute opposition to the No Action/No Project Alternative. A similarly critical eye needs to be cast upon all alternatives. The current approach significantly weakens the value and integrity of the discussion as a comparative analysis, and echoes the concerns for bias and lack of full disclosure that we have stated elsewhere. We request that LAWA provide a full discussion of the disadvantages associated with the proposed security plans for each of the project Alternatives.

4.1.6 Other Security Considerations

In a project of this size, with a title of the Safety and Security Alternative, the County of Los Angeles would expect the LAX Master Plan Alternative D to embrace a total security concept. It is

therefore notable that the documentation does not elaborate on plans to secure areas that are known to have major security implications, such as cargo, maintenance hangars and facilities, fuel farm operations, and the perimeter fence lines. During an airport environs tour, the review team saw many security exposures at the west end of LAX and witnessed extreme weaknesses in access control allowing commercial delivery vehicles to enter facilities unchecked (in one instance by simple tailgating). This unauthorized access provided close quarter observation and potential access to parked wide body passenger aircraft in the vicinity. Please comment on this apparent lack of existing security at the west end, and any plans to remedy the situation.

We are aware that in a September 2002 press release, Mayor Hahn announced installation of more than 1,200 video cameras throughout the airport complex. We are unsure whether the word 'complex' refers to all LAWA managed airports, or just LAX; please clarify. We also request discussion of the current status of this project; is it correct that bids have been invited for installation of surveillance technology on the LAX perimeter? With respect to perimeter areas, we offer the following comments, along with a request that LAWA respond to each:

- The Alternative D Plan provides a substantial, expensive (albeit imperfect) protection system for the 'front door' to LAX. But it leaves the back door wide open.
- LAWA should give much more effort to security planning for the individual cargo area, the maintenance and fuel farm complex and roadways, and for the entire perimeter. Otherwise there is a danger that the environmental impact will not receive public scrutiny or will consume unacceptable time when that becomes urgent and essential.
- It is evident that LAX is vulnerable and that security improvements are relatively urgent. LAWA should prioritize the work so that the new security enhancements, when selected, come on stream as early as practicable. Special need exists for a thoughtful security risk management program during construction.
- Serious consideration should be given to the permanent closure of Pershing Drive to public access, and to introduction of a controlled, partially-automated access and egress system for vehicles with legitimate business in the maintenance, fuel farm and employee parking areas.
- In 1994 the Irish Republican Army fired four mortar bombs onto the runway at London Heathrow from a pick-up truck parked outside the perimeter fence. Two bombs hit the runway but failed to detonate. Two more recent attempts to attack aircraft with rocket-propelled grenade have occurred in Africa and at a military air base in the Middle East. The vulnerability arising from use of surface-to-air missiles is acute at the western end of the LAX airport environs. The location of the Segundo Blue Butterfly Habitat/Reserve, the topography and rough shrub cover, is almost perfect for the launch of shoulder-fired missiles and offers target range proximity to ascending and descending aircraft. As disturbing as it may be to be so candid, it is necessary to point out that a passenger, cargo and fuel laden wide-body passenger aircraft heading out for a long haul trans-Pacific flight could be attacked without sufficient time to implement successful counter measures. The suicidal nature of modern day terrorist attack reduces the notional response time even further. We recommend that an urgent and intensive review be undertaken to address this vulnerability and to proffer solutions that meet both public safety and environmental review requirements.
- Security and law enforcement personnel requirements merit discussion, as the number and need for specialized training would increase under Alternative D. For the sake of efficiency and public safety, this review should consider ways to reduce potential for jurisdictional and operational law enforcement conflict. It is our understanding that senior officers of the Los

Angeles Police Dept. in 1991 proposed a merger of policing entities for the airport, but without progress at that time. This may be a good opportunity to revisit that proposal.

4.2 THE ENVIRONMENTAL JUSTICE ASSESSMENT IS DEFICIENT

Presidential Executive Order 12898, issued in February 1994, requires all federal agencies to analyze environmental justice impacts when proposing public projects. The analysis is intended to determine whether minority and low-income communities are unfairly burdened by project impacts, with the goal of using mitigation measures to create a level playing field. In 1999, Senate Bill 115 was passed making environmental justice a requirement of CEQA as well (PRC §.72000-72001).

Despite the importance of this subject, the original Draft EIS/EIR was found to lack even the most elementary NEPA requirements for this topical issue. Review of the Supplement to the Draft EIS/EIR indicates that many of the same deficiencies in the analysis remain. The impacts associated with Environmental Justice demand a far more rigorous analysis than has been provided in the 2001 and 2003 environmental reviews. As discussed below, NEPA requires that information be included in the EIS if costs of obtaining the information are not exorbitant. Where such costs are exorbitant, NEPA requires that the EIS: (1) state that the information is complete or unavailable; (2) state the relevance of the information to the analysis; (3) summarize credible scientific information about the impacts; and/or (4) use other methods of assessing impacts that are generally accepted by the scientific community. CEQA also addresses the issue of analytic detail, requiring that an EIR provide information and analyses with a sufficient level of detail to permit informed decision-making and public participation. LAWA must apply these very basic NEPA and CEQA requirements to the SDEIS/EIR assessment of Environmental Justice.

We are also concerned about the method used to compare alternatives in the environmental justice analysis. In both the 2001 and the 2003 documents, the No Project Alternative incorporates future planned improvements that were not actually being built, and overstates the capacity of existing facilities. Consequently, the No Project Alternative appears to have far more environmental impacts than any of the proposed Build Alternatives.

Further, the 2003 Supplemental Draft EIS/EIR describes Alternative "D" as an option that would limit growth to 78 MAP. However, as described previously in § 3.1, Alternative D provides 153 fully functional, high capacity gates and does not remove concrete areas that can be used for aircraft parking. By parking aircraft, Alternative "D" can function as though it has over 200 gates. In overstating the capacity of the No Project Alternative and minimizing the capacity of the build alternatives, the impacts relating to air emissions, air toxics, noise, and traffic are all underestimated for the build alternatives. *Underestimating these impacts skews the environmental justice assessment.* This is particularly true for Alternative "D," which shifts many of the impacts toward the more economically disadvantaged communities east and northeast of LAX.

Finally, in designing runway extensions and facilities to the east under Alternative D, this plan appears to protect biological resources (especially the El Segundo Blue Butterfly) at the expense of residents in Lennox, Inglewood & Manchester Square. As part of the Environmental Justice assessment, a revision to the 2003 Supplemental Draft EIS/EIR needs to be made that compares the disproportionately high and adverse human health and environmental effects that will be incurred by

minority and/or low-income communities in order to protect a limited habitat area on the coast (see also our discussion under § 3.4.5). Our concerns are discussed further in the sections below.

4.2.1 Results of Scoping Outreach Must Be Discussed

Scoping is a public process, required by NEPA, that should be conducted as early as possible after a Lead Agency decides to prepare an EIS. The scoping process is designed to determine the scope of issues to be addressed in an EIS, and should be conducted as early as possible after a Lead Agency decides to prepare an EIS. It is intended to be an open process, incorporating the views of other agencies and the public regarding the scope of an EIS.

Environmental Justice issues are usually a major component of the scoping process, and the 2001 Draft EIS/EIR does list 126 outreach efforts with low-income and minority communities and Appendix S-D of the 2003 Supplemental Draft EIS/EIR includes copies of the material (in both Spanish and English) handed out during these outreach efforts. The 2003 SDEIS/EIR also lists four additional Environmental Justice Workshops conducted in 2001. However, neither the 2001 DEIS/EIR nor the 2003 SDEIS/EIR provides an indication of concerns or issues raised by those that were contacted, or details of what transpired during these meetings. The public is thus unable to assess whether or how LAWA may have used the information developed through these efforts. The County of Los Angeles hereby requests that the 2003 SDEIS/EIR be expanded to include specific descriptions of the efforts made to gather information from low-income and minority communities, with a table that identifies the specific concerns raised by each of these groups and discusses LAWA's steps to address those concerns.

4.2.2 The Level of Analytic Detail is Inadequate²³

Many potential Environmental Justice impacts were not fully evaluated, reportedly because LAWA was unable to quantify the impacts. NEPA states that when information is incomplete or unavailable, the Lead Agency must obtain that information unless costs are exorbitant.²⁴ According to CEQA, the analysis must be specific enough to permit informed decision-making and public participation. The following subsections include some of the impact discussions considered inadequate.

In discussing Air Quality and Health Effects, the 2001 Draft EIS/EIR and the 2003 Supplement both state: "Due to the lack of available background data and limited information on the cumulative effect of multiple air pollutants, the effect of the Master Plan on cumulative health risks among minority and low-income population cannot be quantified or fully analyzed." NEPA regulations do not permit such a deferral of obligation. All available data must be included, consistent with the mandate of NEPA, and the report must document the efforts made to obtain needed data. Where data is found to be unavailable or limited, the report should identify the cost associated with developing original data and indicate why such cost was determined to be exorbitant in the context of overall project costs.

The 2001 Draft EIS/EIR further asserts, "*Due to the lack of available background data, the cumulative or synergistic health effects of [toxic air pollutants (TAP)] emissions associated with the*

²³ 2001 Draft EIS/EIR, Section 4.4.3.

²⁴ NEPA Guidelines ; 40 C.F.R. § 15022.22.

build Alternatives and other environmental hazards could not be quantitatively analyzed within the scope and timeframe of this Draft EIS/EIR.” The 2003 SDEIS/EIR dropped this discussion and did not provide new information related to cumulative or synergistic health effects. The 2003 Supplemental Draft EIS/EIR could and should have made assumptions in order to determine such impacts. The County asks that LAWA develop and apply these assumptions to a quantitative analysis of the cumulative and synergistic health effects of TAP emissions associated with the build Alternatives and other hazards.

4.2.3 The Relocation Plan and Requirements are Unsubstantiated²⁵

The 2001 Draft EIS/EIR stated that, *“Minority-owned businesses or businesses with a high proportion of minority employees or minority/low-income customers may face special challenges that need to be considered in developing a Business Relocation Plan”* but provided no explanation or definition of “special challenges.” LAWA needs to clarify this term and indicate how these challenges would be considered in developing a business relocation plan.

The 2001 Draft EIS/EIR further stated that, *“Data is currently not available regarding the number of minority owned businesses or minority employees that might be affected by proposed acquisition.”* In fact, the referenced data is generally available and can be obtained with reasonable effort. LAWA must obtain and analyze this data in the SDEIS/EIR.

The 2003 assessment of Alternative D relocation impacts includes this statement: *“While it is possible that certain of these businesses may be minority owned, they are mostly airport related uses or uses that serve the largely non-minority/non-low-income community of Westchester-Playa del Rey.”* This statement is unsubstantiated by any facts presented in the 2001 Draft EIS/EIR or the 2003 SDEIS/EIR. Neither of these documents presents data showing how many businesses are minority owned or serve minority communities. The County requests that LAWA present such information in the SDEIS/EIR.

4.2.4 Noise Impact Mitigations Require Further Discussion

Both the 2001 and 2003 environmental documents assert that *“Certain areas affected by noise would still be faced with significant impacts due to constraints that apply most directly to minority and/or low-income communities. These include residential areas ineligible for mitigation due to inconsistent zoning or land use designations and substandard housing that may be infeasible to insulate.”*²⁶ At the very least, the 2003 Supplemental Draft EIS/EIR needs to clearly delineate the location of these impacted areas. A more appropriate solution would be to identify and implement specific mitigation measures to reduce impacts on minority neighborhoods; the document did not contain any noise mitigation measures, as discussed in detail later in this report.

4.2.5 LAWA Must Develop a Build Alternative Based on Community Input

Scoping is intended to be an open process, incorporating the views of other agencies and the public regarding the scope and focus of the EIS. CEQ regulations require Federal Agencies to identify an environmentally preferable alternative in the record of decision.²⁷ When the agency has identified a

²⁵ Discussion in this section is based on 2001 Draft EIS/EIR, §4.4.3 and SDEIS/EIR §4.4.3.

²⁶ 2001 Draft EIS/EIR, Section 4.4.3, Page 4-423; Supplemental Draft EIS/EIR, Section 4.4.3, Page 4-323.

²⁷ NEPA Guidelines: 40 C.F.R. § 1505.2(b)

disproportionately high and adverse human health or environmental effect on minority and/or low-income populations, as occurs in the 2001 and 2003 EIS/EIR documents, NEPA requires that the distribution as well as the magnitude of the disproportionate impacts should be a factor in determining the environmentally preferable alternative. This mandate is evidence in the following excerpt from the CEQ Environmental Justice Guidance document:²⁸

“Agencies should encourage the members of the communities that may suffer a disproportionately high and adverse human health or environmental effect from a proposed agency action to help develop and comment on possible alternatives to the proposed agency actions as early as possible in the process.”

To conform to these requirements, LAWA and FHWA must develop an environmentally superior alternative based in part on input from members of minority and/or low-income communities that may suffer a disproportionately high and adverse human health or environmental effect. The 2001 Draft EIS/EIR and the 2003 Supplemental Draft EIS/EIR are void of any evidence indicating that comments or input offered by impacted members of minority or low-income communities were considered in developing an environmentally superior alternative. LAWA must revise the 2003 SDEIS/EIR to incorporate an environmentally superior alternative.

4.2.6 The Area of Analysis is Arbitrarily Limited

The Environmental Justice analysis of existing conditions and impacts focuses only on census tracts surrounding LAX. LAWA completed no regional analyses, although it was stated that the area of included the region as a whole. The analysis needs to be expanded to incorporate the region that is referenced in § 2 titled the Purpose and Need for the Proposed Action in both the 2001 Draft EIS/EIR and the 2003 Supplemental Draft EIS/EIR.

4.2.7 Environmental Justice Mitigation Measures are Vague and/or Deferred²⁹

The 2003 Supplemental Draft EIS/EIR describes Environmental Justice mitigation in vague terms, deferring some of the mitigation to future studies. For example, aircraft noise mitigation measure MM-LU-1 (2003 SDEIS/EIR) states that LAWA will revise the Aircraft Noise Mitigation Program (ANMP) to include:

“Aspects that are particularly relevant to addressing the unique issues and conditions in minority and low-income areas include provision by LAWA of additional technical assistance to local jurisdictions to support more rapid and efficient mitigation, and the reduction and elimination of structural and building code compliance constraints to mitigation of substandard housing.”

Although the language suggests that LAWA has addressed this problem, the measure does not in fact commit LAWA to any definable actions that would reduce impacts. The 2003 SDEIS/EIR also describes future studies as mitigation. Of particular concern is mitigation measure MM-LU-3 calling for a study of the relationship between aircraft noise levels and the ability of children to learn:

²⁸ Environmental Justice Guidance Under NEPA, Section 5, page 15.

²⁹ Discussion is based on review of 2003 Supplemental Draft EIS/EIR Section 4.2.8.

“This measure requires that LAWA conduct a comprehensive study to determine the relationship between learning and the disruptions caused by aircraft noise with the intent to set a threshold of significance for classroom disruption due to aircraft noise”

This description suggests that the children of disadvantaged communities may be subjected to harmful noise levels in order to define thresholds of significance. A more responsible and conservative approach is needed that does not have the potential to do additional harm.

While the 2003 Supplemental Draft EIS/EIR elaborates on mitigation concepts more fully than the 2001 document, in many cases the mitigations still do not commit LAWA to definable actions that meet the CEQA and NEPA requirement to avoid, minimize, rectify, reduce, or compensate for adverse project impacts. All identified adverse impacts need to be accompanied by specific and defined mitigation measures. LAWA must evaluate the efficacy of the proposed measures in reducing identified primary and secondary impacts. The EIS/EIR should clearly identify impacts for which no measures are proposed, and should provide an indication of their severity. LAWA should then offer the amended analysis for public review and comment as part of a revised (or entirely new) Draft EIS/EIR. Only by these means can the EIS/EIR achieve adequacy with respect to the analysis of Environmental Justice.

4.3 TRAFFIC ASSESSMENT

4.3.1 The LAX Interchange at Lennox Boulevard

If Alternative D is chosen for the LAX Master Plan, the County of Los Angeles recommends the LAX Interchange be constructed on the 405 Freeway at Lennox Boulevard. The LAX Interchange would provide direct access between the 405 Freeway and LAX and significantly reduce the traffic impact of LAX on the unincorporated Lennox community and surrounding area. The name “LAX Interchange” is recommended, rather than Lennox Interchange, is to avoid the impression that motorists on the 405 Freeway can exit the freeway and travel to Lennox. Additionally, some form of interchange at Lennox Boulevard is recommended regardless of the plan chosen for LAX. Traffic demand at LAX is expected to increase steadily to the 78.9 MAP, even under the no-build scenario. Therefore, intersection or interchange improvements will be needed to mitigate LAX’s traffic impact on the Lennox community and nearby area.

County staff has met with Mr. Bruce McDaniel, Superintendent of the Lennox School District, and his staff to consider the School District’s input about the LAX Interchange. In response to their concerns, County staff informed the School District that the EIR/EIS for the LAX Interchange would include a noise study of the proposed interchange ramps. County staff also informed Mr. McDaniel the study would consider Lennox School District’s new pre-school recently constructed at the west end of 106th Street. Mr. McDaniel also expressed concern that the LAX Interchange may affect the visibility of signs to be installed on Lennox School District property adjacent to the LAX Interchange. Public Works referred the School District’s concern about the signs to LAWA’s representatives for their review and response.

4.3.2 Traffic Model Questions

A. C. Lazzaretto retained Mr. Terry Austin of Austin Foust and Associates to review the traffic model used in the LAX traffic study. Public Works staff coordinated its traffic review with Mr. Austin, and agrees with the questions and concerns raised by Mr. Austin in the discussion below.

Trip Generation: The trip generation table (Attachment A in Technical Report S2B) gives information by activity component but is hard to follow for the “Airport Miscellaneous” category. For example, what items represent the trip generation for the 12,400 space west employee parking structure and the 1,300 east employee parking structure? With respect to the employee trips, why are 54 percent assigned to the east parking structure with 1,300 spaces and only 46 percent to the 12,400-space west parking structure? (See Page 22 of the Supplemental On-Airport Surface Transportation Technical Report).

Trip Distribution: The trip distribution diagram (Figure B-1) is difficult to follow (while not labeled, it appears to be airport peak hour trips). Is there information that can more clearly show the trip distribution? The methodology discussion suggests that employee/other trips have a different trip distribution than air passenger trips. This would certainly be appropriate, but there does not appear to be any elaboration on this or any quantitative description.

General: There does not appear to be a reference for a description of the traffic model. There presumably is such a report which describes the model and provides a peak hour intersection level validation. Other questions that are also presumably addressed in that document pertain to the intersection forecasting process. For example, does the traffic model use post-processing for year 2015, and if so, is it 2000-2015 or some other interval? If there is no post-processing, then considerable reliance is being placed on the raw modeled data for 2015. This is particularly critical for peak hour intersection turn movement volumes.

4.4 NOISE ASSESSMENT

The County previously submitted to LAWA a lengthy set of comments on the noise analysis contained in the 2001 Draft EIR/EIS for the LAX Master Plan. The prior comments addressed noise impacts associated with the project Alternatives (A, B and C) under review at that time. The 2003 SDEIS/EIR expands on analyses contained in the original EIR/EIS to cover the new preferred project, Alternative D. The SDEIS/EIR also contains an analysis of single event noise impacts on sleep disturbance as well as an expanded analysis of noise impacts on schools. The sleep disturbance and school noise impacts analyses were prepared in response to CEQA litigation on the Oakland International Airport Master Plan commonly known as “Berkeley Jets.” The SDEIR/EIS presents Year 2000 noise data for comparison in addition to the Base Year 1996 data.

The comments presented here are ones made specific to the analysis of Alternative D and the sleep and school analyses that are presented in the supplemental EIR/EIS. The comments submitted in 2001 concerning Alternatives A, B and C also apply to Alternative D. Accordingly, we have organized the following review to include all of the comments originally submitted in 2001, as well as the new comments appropriate to Alternative D as described in the SDEIS/EIR.

4.4.1 Restatement of Critical Review Submitted in 2001

It is important to note that the findings of the Draft EIS/EIR include a finding of significant noise impact that cannot be mitigated to a point of insignificance. The issues raised in our analysis do not change this finding of significance. The comments presented here address whether or not the Draft EIS/EIR adequately discloses the extent and magnitude of the impact and whether or not mitigation issues are addressed adequately.

Determination of Potentially Significant Impacts: CEQA requires that the Draft EIR identify all impacts that could arise to significant levels and must employ the proper “thresholds of significance” to make that identification. CEQA also requires that the document “challenge” and “update” thresholds that may not be current or protective of the public interest. This notion includes the idea of setting thresholds that will improve the quality of life of residents. As it relates to the impacts identified below, LAWA should seize this opportunity to push the SDEIS/EIR beyond mere minimum standards or code compliance, and assert a more conservative approach to identifying significant impacts. The following identified impacts relate to the use of minimum standards.

CEQA does not mandate, require or endorse a specific decibel standard or noise metric to determine if a project engenders a significant adverse environmental impact with respect to aircraft noise. However, a significant aircraft noise impact is said to have occurred if one or both of the following conditions exist:³⁰ (a) noise sensitive areas (such as residences, churches, and hospitals) are newly exposed to 65 CNEL or greater; and/or (b) noise sensitive uses in the 65 CNEL contour of a “build” alternative experience an increase of 1.5 CNEL or greater compared with the environmental baseline conditions.

The Airport Noise Compatibility Planning guideline³¹ is the primary Federal regulation guiding and controlling planning for aviation noise compatibility on and around airports. It establishes, for most land uses and noise sensitive uses, the standard of < 65 day-night average noise level (DNL or Ldn) as “acceptable,” although it recognizes that local communities may choose to mitigate impacts below the Ldn of 65 dB.

The Federal Interagency Commission of Noise has identified 65 Ldn as the 24-hour day-night average sound level at which most people become highly annoyed by noise. However, FICON has acknowledged that people may and do become highly annoyed by noise levels well below 65 Ldn. Indeed, many commentators and acoustic researchers are seriously questioning the validity of the 65 dB Ldn criteria for planning purposes: research has shown that at this level about 15% of the population remains “highly annoyed” and that the standard is an average sound level, not a measurement of individual sound events that tend to affect people more than average levels.

The SDEIS/EIR should have employed these conservative criteria to allow a survey of a larger area and reveal the true pervasiveness of sound that was not identified in the Draft EIS/EIR. This would be important in the discussion of impacts and mitigation of noise to show that “average” threshold levels were not sufficient to show the chronic and long-term effects within the LAX flight path. It is likely that there will be exacerbated and disproportionate levels of impacts on unincorporated neighborhoods under the flight path approaches to LAX.

³⁰ California Aircraft Noise Standards, Title 21 of the California Code of Regulations.

³¹ Title 14 of the Code of Federal Regulations, Part 150.

Number of People Impacted by Noise: There is a significant discrepancy in the number of dwelling units and population impacted between the EIS/EIR baseline year impacts and data published by LAWA. Under California law, the airport must publish a quarterly report that describes the noise impact of the airport. This law has been in effect since the early 1970s and LAWA has published the Quarterly Reports as required. Appendix D of the EIS/EIR states that the base year noise impact is based on data published by LAWA in the 1996 Fourth Quarter Report.³² Chapter 4, § 4.1.3.1.2 states that the EIS/EIR relies on the Fourth Quarter 1996 operational data but does adjust the EIS/EIR contours to reflect the noise monitoring data that are collected by the airport. The difference between the impacts as defined by the EIS/EIR and the impacts as identified by LAWA in its Quarterly Report is dramatic and significant. The following data compare the number of dwellings and population impacted as defined by LAWA in the 1996 Fourth Quarter Report and as defined in the EIS/EIR for baseline year 1996.

Table 4
Difference Between Draft EIS/EIR Noise Impact and LAWA 1996 Quarterly Report

	Dwellings Inside 65 CNEL	Population Inside 65 CNEL
LAWA 1996 Fourth Quarter Report	31,968	85,907
EIS/EIR Table 4.1-2 For 1996	16,900	49,000
Difference	15,068	36,907

The differences shown in Table 4 are not presented, reconciled, or explained in the SDEIS/EIR. The population and dwelling data shown in the LAWA 1996 Quarterly Report are not mentioned in the Supplement to the Draft EIS/EIR even though the Quarterly Report shows noise impacts nearly twice as large as those reported in the SDEIS/EIR. Section 4.1.3.1.2 and Appendix D § 2.2 discuss the LAWA Quarterly Reports and the fact that noise contours in the Quarterly Reports are adjusted to reflect noise monitoring data. Appendix D presents the difference between the noise monitoring results and the EIS/EIR noise model results in the terms of dB CNEL in Table 5. The average difference between the two is presented as an under-prediction in the model of approximately 1.1 dB. Examination of the data shows that the noise monitor sites east of the airport, primarily in Inglewood, consistently show noise levels nearly 3 dB greater than the EIS/EIR noise modeling predicts. While the differences are smaller in other communities, the bulk of the population impacted is in the area where monitors show that the noise model has under-predicted the impact.

LAWA operates a permanent noise monitoring system as required by the California Airport Noise Regulations that has been approved by the State of California Division of Aeronautics. LAWA has been monitoring noise on a continuous basis and submitting Quarterly Reports since the early 1970's and every Quarterly Report includes noise impact data based on noise contours that have been adjusted to match noise monitoring data. Nevertheless, the Draft EIS/EIR relies on a noise computer model output that has not been adjusted to reflect the noise monitoring data even though the noise monitoring data show a consistent 3 dB bias in the east approach corridor to LAX.

³² Appendix D Section 2.1, Appendix D Section 2.2.

There is no doubt that there is a consistent bias in modeling data in the Inglewood approach corridor; the size of the difference in the Inglewood area compared to the system accuracy is significant. Appendix D, in the paragraph just below Table 6 makes the misleading and inaccurate statement that the SDEIS/EIR noise contours “were generally confirmed by the actual noise measurements.” This statement is based on the overall average difference at all sites, and fails to recognize the bias in the Inglewood approach corridor. The Draft EIS/EIR contours under-predict the noise impact as measured by the number of dwellings and population within the 65 CNEL contour by an amount that makes it difficult to establish a credible disclosure statement to the general public.

The SDEIS/EIR does not attempt to examine the reason for the under-prediction of aircraft noise by this noise model. Instead, the SDEIS/EIR rationalizes the lack of contour adjustment by stating, “draft FAA Order 1050.E indicates that measurements should not be used to calibrate noise contours;”³³ the cause of the discrepancy is not identified. The difference may be due to errors in input data to the noise model, not a calibration issue. Failure to adequately account for flight track dispersion could cause the kind of discrepancies the data shows. The model has the capability to report noise levels by aircraft type at each location. Such data should be compared to measurement data for those aircraft and a rational and detailed explanation of the model/measurement differences should be made. At the least, the source of the difference would then be identified (i.e., input data errors, model database differences, or model algorithm shortcomings).

The FAA has a history of being reluctant to adjust noise contours based on measurement data. This policy was based on historical attempts to use short term monitoring data to make adjustments that are not statistically justified. Such a policy is justified, in particular when attempts are made to use a few hours of monitoring data as a basis for moving noise contours. In this case, however, LAWA operates noise-monitoring sites 24 hours a day, measuring every aircraft, and has been doing so for over 20 years. These data do warrant adjustment to the noise contours; either by correcting input errors or modifying model databases (such as noise curves and aircraft profiles). FAA does not prohibit these changes and, in fact, FAA provides a mechanism for user changes to the database. The “INM Users Guide,”³⁴ contains Appendix B, “FAA Profile Review Checklist.” The first paragraph of that appendix contains the following statement,

“The Office of Environment and Energy (AEE) requires prior written approval for all user changes to the Integrated Noise Model (INM) standard profiles for FAR Part 150 studies. A similar requirement under National Environmental Policy Act (NEPA) will take effect pending FAA Order 1050.1E”.

Following that paragraph is a detailed list of information required for the FAA review of user made changes. It is not known if any attempt was made to seek FAA approval of changes needed to make the model better match measurement data. If there was no attempt, the decision should be explained. This last comment is especially appropriate if input errors have already been eliminated as a possible source of the difference.

Change in Number of People Impacted by Noise: The Draft EIS/EIR relies on the noise model to identify relative changes between baseline and future Alternative conditions. The Draft states, “*the*

³³ Appendix D, Page 17.

³⁴ For INM Version 6, dated September 1999.

modeled noise levels associated with environmental baseline conditions will have consistent relative relationships to future noise patterns prepared with the INM."³⁵ This statement, while possibly true for changes in noise level, is not accurate with respect to the area of noise impact, the number of dwelling units, and the population within the noise contours. The implication of the statement quoted above is that the increased number of people identified as impacted will be the same whether or not the noise contours are adjusted to reflect results of noise monitoring. This is not true and fails to reflect that area, dwelling units, and population are second order functions of the size of the contour. The change in the number of people residing inside the 65 CNEL contour will be much larger than reported in the Draft EIS/EIR. The percent change may remain nearly constant, but the absolute magnitude will be larger.

If LAWA does not adjust the Draft EIS/EIR contours to reflect monitoring data then the document should attempt to estimate the correct number of dwellings and people inside the contours by using an adjustment factor based on the differences identified for the baseline conditions. While this is far less satisfactory than adjusting the contours, the impacts identified would be a far better disclosure of the magnitude of the impact than is now included in the document.

Use of 1996 as Base Year: There is reason to question the validity of 1996 as the baseline year. Use of the 1996 baseline appears to underestimate the impact of the project (in addition to the contour adjustment issue identified above). To demonstrate this concern, the following table compares 1996, 1999, and Year 2000 noise impacts at LAX:

**Table 5
LAWA 1996, 1999 and 2000 Quarterly Report Noise Impacts**

	Dwellings Inside 65 CNEL	Population Inside 65 CNEL
1996 Fourth Quarter Report	31,968	85,907
1999 Fourth Quarter Report	26,422	78,026
2000 Fourth Quarter Report	27,312	80,211

The above data show that the use of the 1996 baseline, with its larger impact area, would result in underestimating impacts compared to using 1999 or 2000. The difference in the number of people impacted for the year 1996 and the year 2000 is potentially large enough to change the conclusions as to whether future year contours impact a larger or smaller number of people than baseline conditions. As a result, LAWA should update the noise study to a more current year.

Project Description/Operational Assumptions: The noise analysis is a comprehensive analysis that attempts to identify cumulative and single event noise impacts as well as detailed tables of time above specific thresholds. However, in addition to failing to adjust the contours to reflect noise monitoring data, there is substantial uncertainty associated with the future operational assumptions. The operational assumptions are in many cases counterintuitive and lack justification. This makes any analysis of the noise impacts speculative, and potentially under-predicts the impact. The following are examples of areas of concern and point to a need to do a "worst case" analysis in the

³⁵ Appendix D, Page 17.

event that these assumptions cannot be assured or justified. The following data were taken from the Executive Summary, Pages ES-9 and ES-10.

Passengers Per Departure: The baseline passengers per departure are 90.76 while Alternative C assumes 145.09. It is not explained how LAWA expects the project to result in a relocation of short haul operations to some other airport and an increase in average aircraft size. There is no component of Alternative C that results in a nearly 60% increase in passengers per departure. This increase is extraordinarily large given that no part of the project forces commuter or short haul aircraft to move or even includes a design feature that discourages these aircraft. In light of this, the Draft EIS/EIR should contemplate the noise impacts if this assumption proves to be false and commuter and short haul carriers do not move to some other airport. Further, the extent to which the passenger per departure increase is due to increased load factors needs to be addressed and a discussion of whether or not this increase in load factor (expressed as an increase in aircraft weight) was included in the INM input for the future case scenarios needs to be explored.

Cargo Activity/Cargo Building Space: The baseline cargo activity is 1.9 million tons of cargo using 1.9 million square feet of space. Alternative C activity is 4.1 million tons using 5 million square feet. The future ratio assumes that new cargo facilities are no more efficient than the old LAX facilities and fails to recognize that modern facilities may handle twice the amount of cargo per square foot. LAWA does not provide the basis for this assumption. The noise analysis should be based on the potential impact of far more cargo traffic than is currently estimated.

Maximum Airside Capacity: The Draft EIS/EIR nearly doubles the terminal space but assumes a very modest increase in passengers and operations. This is based on the assumption that future technology will not increase the capacity of existing runways. However, LAWA should also explore the opposite: what would result if improved technology results in increased airside capacity? Given the increase in terminal space, how much air traffic could those terminals handle? LAWA should disclose noise impacts for air traffic estimates based on maximum terminal capacity for the proposed project.

Peak Hour Operations/Delay: The All Weather Peak Hour Operations are identified as 150 for the baseline condition and 145 for Alternative C. The All Weather Average Delay is identified as 8.69 minutes while the Alternative C delay is identified as 13.59 minutes. This statement is counterintuitive and, at the very least, challenges the credibility of the aviation forecasts upon which the noise analyses are based. Please explain the basis for these findings.

Terminal Space/Number of Gates: Alternative C increases terminal space from 4 to 7.3 msf while gates increase from 165 to 172 (186 to 228 narrow body equivalents). The narrow body equivalent ratio increases from 21,500 sq. ft. per narrow body equivalent gate (baseline) to 32,000 square feet per gate, which is nearly a 50% increase. It appears that the project will have a larger gate capacity than is being reported and, if so, this needs to be accounted for in the noise analysis.

Regional Issues: The project is primarily a landside development project (terminals and roads) with no new runways. A major assumption in the document is that some other airport in the region will absorb the unmet aviation demand. The Draft EIS/EIR does not identify which airports will meet this demand or any mechanism to ensure that this assumption is valid. LAWA, as proprietor of multiple airports is lead agency for the EIR and the FAA is a lead agency for the EIS. Both agencies have the ability to commit to or fund airport projects outside of LAX. The document

needs to address the noise issues in the event that future airport capacity is not developed elsewhere in the region. The SDEIS/EIR should include an Alternative that meets aviation demand for the region – either through committing to a regional solution or anticipating additional runways in Alternative C – and discloses the noise impact of that Alternative.

Health Effects of Noise Technical Report: Technical Report 14b contains a general discussion of the effects of noise on people. In the last paragraph of §1 the report concludes with the statement, “It is, therefore, assumed that compliance with the compatibility criteria is sufficient to protect human health.” The statement in itself is correct, but is misleading in its implication that LAX complies with the compatibility criteria. The report fails to make a most important conclusion related to health effects of noise: LAX does not comply with the compatibility criteria. Based on this factor, it can then be concluded that noise levels associated with aircraft operations at LAX have adverse health effects on people. This should be addressed in the Technical Report and the DEIS/EIR should identify the health effects associated with high noise levels including the fact that in 1996 over 85,000 people resided in areas that exceeded the compatibility criteria.

Mitigation of Noise Impacts: The proposed project includes no noise mitigation recommendations for the proposed project. It should be noted and clearly recognized that LAWA has for many years conducted an ongoing noise mitigation program and has periodically introduced new programs as appropriate. What is not clear is why the proposed project does not address any new noise mitigation programs. Several mitigations are discussed in detail in Appendix D but not recommended for adoption by LAWA. Appendix D includes the following measures that LAWA should consider for inclusion as recommended programs for the proposed project:

- ▶ Shorten the downwind leg approach to reduce the number of overflights to communities well east of the airport.³⁶
- ▶ Eliminate early turns over El Segundo.
- ▶ Reevaluate the benefit of restricting outboard runways to arrivals only in terms of number of people and dwellings inside the 65 CNEL contour.

The analysis in Appendix D describes benefits and impacts in only general terms of change in noise level but not in area impacted. Further, the analysis appears to rely on questionable economic data to estimate mitigation costs. Specifically, the analysis assumes that the delay of 2-4 minutes associated with the measure would apply to all flights independent of time of day. It would be more logical to assume that the delay would be longer during peak periods and shorter during off peaks.

An important aspect of the existing LAX noise mitigation program is the preference for west flow departure operations. The project assumptions presented in Appendix D appear to assume some degradation in the amount of time that the airport is in west flow for departures. Figure 10 of Appendix D shows 5.71% of operations in east flow for the proposed project. Table 3 of Appendix D indicates that less than 1% of departures are to the east for baseline conditions. Figure 10 and Table 3 are in different formats, so the above comparison may not be fair; however, the SDEIS/EIR does not provide assurance that the project will not result in an increase in east flow departures.

A final mitigation that should be given consideration is expansion of the sound insulation program to homes within the 60 CNEL contour. Such a program may not qualify for traditional Federal

³⁶ Exhibit 29 of Appendix D.

funding but there may be an opportunity to use passenger facility charge (PFC) funding for such a program. Because community concerns about the impact of aircraft noise goes so far beyond the boundary of the 65 CNEL contour (particularly when the contour is not adjusted to match noise measurement data), consideration of expanding the program should be given a thorough evaluation in the Draft EIS/EIR. Figure 4.2-5 shows the 1992 65 CNEL contour upon which the insulation program is based. The Draft EIS/EIR should compare this contour with the project 60 CNEL contour and evaluate the cost of expanding the program to include the 60 CNEL contour.

Miscellaneous Noise Comments:

Data Sources and Assumptions: In §2.1, the third from last sentence, 2nd paragraph states, “this EIS/EIR will rely on the results of the Noise Management Bureau’s system in the definition of environmental baseline noise levels (per the 4th Quarter 1996 Report).” This statement is categorically wrong and misleading. It implies that the report relies on the calibrated noise contours produced by LAWA. The report relies on uncalibrated noise contours generated by the noise model that are considerably smaller than the contours presented in the 4th Quarter 1996 Report.

Environmental Baseline vs. Quarterly Noise Report: Discussion in §2.2 attempts to downplay differences between the Quarterly Report contours and the baseline contours in the SDEIS/EIR. The first paragraph cites a Figure³⁷ that would help the reader understand that the Draft EIS/EIR baseline is considerably smaller than the Quarterly Report contours, but the figure is missing from the report. The statistical analysis of the noise measurement data and noise model results from Table 6 is completely inadequate and fails to identify the bias in the noise model to under-predict noise levels in the approach corridor over Inglewood. Please address this concern.

Impact on Schools: §3.3 of Technical Report 14b (Health Effects of Noise) has a footnote explaining the 1980 lawsuit settlement with the school district. The analysis appears to assume that because of this settlement there is no impact on schools. Please identify which schools have been insulated, which schools remain to be insulated, and how many more schools will need to be insulated as a result of the project.

Federal Standards: § 4.1.4.1.2 in the last sentence states that the “...FAA has adopted standards and guidance governing airport noise compatibility.” The FAA has only published land use compatibility guidelines and has not adopted noise standards. It is up to the local authorities to adopt noise/land use compatibility standards.

Construction Noise: § 4.1.4.3.1 should reference the City of Los Angeles and the County of Los Angeles Noise Ordinances which contain noise limits and limits on the hours of activity. The County requests that LAWA identify noise limits in the ordinance as a threshold of significance, and provide analyses in accordance with that threshold.

Operations Data: In the discussion on noise patterns,³⁸ the first bullet point outlines an increase in heavy aircraft and a decrease in small aircraft. There is no explanation as to how Alternative C accomplishes this transition and there are no explicit features of Alternative C that would appear to

³⁷ Figure 2.3.

³⁸ Section 4.1.6.1.2.2, Alternative C, Aircraft Noise Pattern at 2015.

encourage it. If the assumption cannot be justified, the noise analysis should be revised to reflect the trend toward a fleet mix that does not rely on heavy aircraft for achieving the passenger demand.

Construction Scheduling: The City and County of Los Angeles have ordinances that limit the hours of construction activity. § 4.1.8.3, MM-N-9, should reference those ordinances and identify the hours that construction is permitted.

Location Impact Analysis: The last sentence of the last paragraph on Page 87 states that only CNEL and DNL have a regulatory function. This is a very limiting assumption and fails to recognize that for some types of impacts, these metrics may be inadequate. Specifically, FICON identifies these metrics as potentially inadequate for assessing noise impacts on sleep or noise impacts on the classroom environment. FICON recommends use of supplement metrics for analysis of these impacts; the County requests that LAWA use the metrics to analyze these impacts. While the document does present some Sound Exposure Level (SEL) contours and tables of time above data at specific points, the Draft EIS/EIR fails to use these data to assess sleep disturbance or school impacts.

No-Action/No Project Comparisons: The first sentence of § 5.1.3 identifies that 11 grid points will be exposed to increases of 1.5 dB. This comparison of the number of grid points is used throughout the analysis. This type of analysis fails to account for the land use that may occur at the grid points. In effect, the grid points, while regularly spaced, are located on random land uses. It would be more accurate to use INM to construct a different contour that shows all areas exposed to a change of 1.5 dB or more; the County requests that LAWA use this contour to quantify the land use impact. The INM has the ability to construct such a different contour.

Noise Mitigation: The first sentence of §7 identifies the need for mitigation of significant impacts. Since the project is shown to have a significant impact, the County requests that LAWA propose appropriate noise mitigation measures.

Alternative C Figures: Alternative C, Figure 11, does not use flight track dispersion in the noise model; however, LAWA has radar-tracking ability. Please provide a 24-hour period of actual radar tracks as an example of the extent of track dispersion over the affected areas.

Area Wide Flight Paths: Please supplement Alternative C, Figure 17 with one chart for existing conditions so the reader can identify differences. At a minimum, the text should describe how this chart changes paths relative to existing conditions.

Appendix D: Table 7 of Appendix D identifies the forecast year 2005 baseline as 2,107 operations per day and year 2015 as 2,124 operations per day.³⁹ The Quarterly Report for the 4th Quarter of the year 2000 shows that current operation levels are 2,280 operations per day (201,347 quarterly operations). Existing operations are already exceeding the 10 and 20-year projections for the No Action/No Project case. Please revise the noise analyses and comparisons to reflect realistic descriptions of future no project conditions.

Reduced Impact of Approach Overflights: Exhibit 29, Reduced Impact of Approach Overflights, shows (and the accompanying text contains) an analysis of this approach procedure and there

³⁹ Table 8.

appear to be community benefits to this procedure. Therefore, it is concerning as to why it is not included as a recommended mitigation measure.

4.4.2 New Comments on the Supplemental EIR/EIS for Alternative D

The following comments are provided based on an analysis of EIR/EIS § 4.1, "Noise," and Appendix S-C1, "Supplemental Aircraft Noise Technical Report:"

Noise Modeling: Section 2.1 implies that noise monitoring and flight track system data were used to generate noise contours, but should be revised to state that the noise analysis and noise contours were based entirely on a computer noise model. The noise data presented in the Supplemental EIR/EIS do not use any of the noise data collected by the airports noise monitoring system. The airports noise monitoring and flight track system was used only to obtain operations and runway utilization data. In fact, there is a significant conflict between the noise monitoring data published by the airport and the noise modeling done as part of the EIR/EIS.

Noise Contour Errors: § 2.1.7 The noise contours presented in the SDEIR/EIS for the year 2000 are smaller than the noise contours published by the LAWA in its Year 2000 Q4 report. No attempt is made in the SDEIS/EIR to examine the reason for the noise model under-predicting aircraft noise. The Supplemental EIS/EIR rationalizes the lack of contour adjustment by stating, "draft FAA Order 1050.E indicates that measurements should not be used to calibrate noise contours." However, no attempt is made to identify the cause of the discrepancy. The difference could be due to errors in input data to the noise model, not a calibration issue. Failure to adequately account for flight track dispersion could cause the kind of discrepancies the data shows. The model has the capability to report noise levels by aircraft type at each location. LAWA should compare the data to measurement data for those aircraft and offer a rational and detailed explanation of the model/measurement differences. At the least, the source of the difference would then be identified (i.e., input data errors, model database differences, or model algorithm shortcomings).

Noise Contours Require Adjustment: The FAA has a history of being reluctant to adjust noise contours based on measurement data. This policy was based on historical attempts to use short term monitoring data to make adjustments that are not statistically justified. Such a policy is justified, in particular when attempts are made to use a few hours of monitoring data to move noise contours; however, in this case LAWA operates noise monitoring sites 24 hours a day, measuring every aircraft and has been doing so for over 20 years. These data do justify adjusting the noise contours either by correcting input errors or modifying model databases, such as noise curves and aircraft profiles. FAA does not prohibit these changes. The FAA provides a mechanism for user changes to the database. The "INM Users Guide"⁴⁰, contains Appendix B, "FAA Profile Review Checklist." The first paragraph of that appendix contains the following statement, "The Office of Environment and Energy (AEE) requires prior written approval for all user changes to the Integrated Noise Model (INM) standard profiles for FAR Part 150 studies. A similar requirement under National Environmental Policy Act (NEPA) will take effect pending FAA Order 1050.1E." Following that paragraph is a detailed list of information required for the FAA review of user made changes. It is not known if any attempt was made to seek FAA approval of changes needed to make the model better match measurement data. If there was no attempt, LAWA should explain the decision—particularly if input errors have already been eliminated as a possible source of the difference.

⁴⁰ For INM Version 6, dated September 1999.

Mitigation Must Reflect Validated Contours: The Supplemental EIR/EIS should explicitly show the difference in noise contour location and the number of dwellings and population for the Year 2000 noise contours contained in the Quarterly Report published by LAWA and the Year 2000 noise contours contained in the Supplemental EIR/EIS. The Supplemental EIR/EIS further rationalizes the use of the noise modeling information in spite of the differences to the measurement data by stating that future measured contours will be used to adjust mitigation area. If noise mitigation programs will be based on noise measurement validated noise contours, then the mitigation measures should include a specific commitment to use such validated contours.

Assumptions Concerning Future Noise Contours lack Validation: The supplemental EIR/EIS further states in § 2.1.7 of S-C1 that using the smaller computer generated contour will result in showing greater noise impacts. This latter statement is based on the erroneous assumption that the noise contours presented for future conditions are accurate and that the noise contours for 1996, 2000 and the future no project case are underestimated. On what basis does the Supplemental EIR/EIS conclude that the future noise contours are more correct than the existing noise contours when the same model and methodology are used for each?

Inadequate Number of Flight Tracks for Modeling: Footnote 3 of § 2.1.3 states that the 74 flight tracks were adequate to produce an adequate noise model input. What data did LAWA use to draw this conclusion? Why did LAWA not complete a sensitivity analysis to determine if the discrepancy between measured noise data and modeled result differences was due to inaccurate or insufficient number of flight tracks used in the INM model? In particular, why weren't additional flight tracks used to simulate track dispersion for aircraft approaches? In the absence of supporting data, footnote 3 is misleading and should be eliminated.

Table S11 is Mislabeled: The title of this table indicates it is a comparison of single event noise. It is in fact a table of runway utilization data during runway construction. Please revise the title to Table S11 accordingly.

Sleep Disturbance Data Require Clarification: In § 6.1.1, the threshold of significance for sleep disturbance is based on the 94 SEL contour which represents a 10% awakening rate for noise events that occur at least once every 10 days. The number of awakenings presented in the data tables is not the total number of people awakened but the number awakened within the 94 SEL contour. In fact, at lower noise levels there is still sleep disturbance, albeit at a lower rate. For example, the FICAN curve shows that for an interior noise level of 45 SEL (58 SEL exterior noise level with windows open) about 1% of the population will be awakened. The awakening rate of 1% is quite low, but when applied to a large population such as that located in a 58 SEL contour, would produce a large number of people awakened. The Supplemental EIR/EIS should make it clear that the sleep disturbance data presented are not total awakenings, but awakenings within a specific contour. The methodology used in the EIR/EIS allows the comparison of alternatives within a contour that can be practically estimated and appears to be a fair basis for comparison.

Sleep Disturbance Flight Tracks Must be Identified: Analysis of single event for sleep disturbance does not make it clear whether or not the analysis relied on the same flight tracks as used for developing the CNEL model. Did LAWA use the same flight tracks? If so, then the sleep analysis fails to account for flight track dispersion, and given that the significance threshold is based on an event that occurs at least once every 10 days, the results are misleading. If flight track dispersion is not included in the analysis then the County requests that LAWA describe the results

as comparing the number of awakenings within a specific SEL contour for aircraft flown on the nominal flight tracks and aircraft flight deviations that occur on other tracks would cause further awakenings.

Sound Insulation Eligibility: §6.1.3 adds an important criterion to the eligibility program for sound insulation. The sound insulation area is now based on ANMP CNEL contours and this section adds the SEL contour map. Is this a proposed formal policy that is clearly stated in the mitigation measures (including the requirement that the location of the 94 SEL contour be verified by measurements)? Has the cost of insulating the additional homes been included in the reported costs for the Master Plan improvements? If single event contours are underestimated relative to measured noise as is the case with the CNEL contours, how would this affect the study results? How many more homes and schools would be impacted if the SEL noise is underestimated by the same amount that the CNEL contours are underestimated (as measured by comparing baseline model results to baseline year measurement results)?

Lennox Preschool Mitigation Required: The Lennox School District operates a preschool at 10417 Felton. The site of this school is affected by both aircraft noise and roadway noise. The SDEIR/EIS addresses only aircraft noise at this site and does not address roadway noise. How does the combined noise from aircraft and motor vehicles affect impact this school? Further, how would roadway improvements in the vicinity of this site affect roadway noise levels and what would be the corresponding impact on the school? The SDEIR/EIS identifies a significant impact for Alternative B, but fails to address noise level changes that may result from roadway improvements that will occur with other alternatives. Similarly, in §6.2.3 the statements on school mitigation contain no commitment to mitigate identified impacts, only a commitment to study further. The County requests affirmative commitment from LAWA for the full mitigation of noise impacts at all affected schools in the project area.

Soundproofing Homes to Reduce Noise Impacts: LAWA has outlined a number of important noise attenuation goals in Mitigation Measures MM-LU-1, MM-LU-2, MM-LU-3 and MM-LU-4. However, it is not clear how or when or even if the goals would be achieved because many of the implementation components lack definition. We are particularly concerned about the following:

MM-LU-1: Implement Revised Aircraft Noise Mitigation Program.

- ▶ Under the measure calling for 'Accelerated rate of land use mitigation to eliminate noise impact areas in the most timely and efficient manner possible,' LAWA calls for "*Increased annual funding by LAWA for land use mitigation.*" Please specify an annual dollar amount for which LAWA is willing to make a commitment.
- ▶ Under the same measure, LAWA calls for "*Reevaluating requirement for granting of avigation easements with sound insulation mitigation.*" Please specify the performance criteria that LAWA would use in this reevaluation. Under what conditions would LAWA waive the requirement for granting of avigation easements with sound insulation?
- ▶ Under the same measure, LAWA calls for "*Reduction or elimination, to the extent feasible, of structural and building code compliance constraints to mitigation of sub-standard housing.*" Please define the criteria that would justify a reduction of code compliance constraints, and the criteria that would justify the elimination of code compliance constraints. Please also estimate the proportion of currently code-constrained units that would become eligible with application of these criteria, including a specific estimate for the community of Lennox.

MM-LU-2: Incorporate Residential Dwelling Units Exposed to Single Event Awakenings Threshold into Aircraft Noise Mitigation Program:

- ▶ Although this measure adds a large number of homes to the insulation program, none of the additional units is located on unincorporated land even though many impacted homes are in Los Angeles County jurisdiction: please explain why this mitigation omits County homes.
- ▶ MM-LU-2 includes the following commitment, “*actual adjustments to the ANMP contour would be based on periodic reevaluation of the 94 dBA SEL noise contour by LAWA.*” The statement implies, but does not actually state that measurements will be used to make the actual adjustments. Please incorporate the word ‘measurements’ into this commitment.

MM-LU-3: Conduct Study of the Relationship Between Aircraft Noise Levels and Ability of Children to Learn. This measure commits LAWA to a program to reevaluate the single event threshold for schools and using results to select “*an acceptable replacement threshold of significance for classroom disruption.*” What group or groups will provide peer review of these studies and judge the acceptability of proposed significance thresholds?

MM-LU-4: Provide Additional Sound Insulation for Schools Shown by MM-LU-3 to be Significantly Impacted by Aircraft Noise. Please see the comment above concerning a key aspect of this mitigation measure calling for “*acceptance of results by peer review of industry experts.*” Again, the measure does not indicate which agencies will be involved in the selection of the industry experts for the peer review. Please indicate whether and which of the affected cities, county, and school districts will have a role in selecting the experts for the peer review.

4.5 AIR QUALITY ASSESSMENT

4.5.1 Review of Ambient Air Quality Data used in the 2001 Draft EIS/EIR

Ambient air quality data were used for two purposes in the 2001 study. One purpose was to define baseline conditions and the other was to estimate background concentrations. Baseline conditions in this case were defined as the maximum air quality concentrations in the vicinity of the airport for existing conditions (an approximate 1996-98 timeframe). Background concentrations, on the other hand, were defined as the concentrations present in the absence of nearby sources. In other words, the concentrations due to multiple small sources and distant large sources were not directly accounted for in the air quality impact assessment. Estimates of background concentrations were used in the analysis to add to the concentration estimates generated by computer dispersion models for the airport and other nearby sources to arrive at estimates of total ambient concentrations.

Data from two air quality monitoring stations were used to characterize both baseline and background ambient air quality conditions. One station was located onsite and immediately to the east of the airport runways in the South Airfield Complex. LAWA operated this station for approximately 7.5 months, from August 1997 until March 1998, and measured carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂) and particulate matter (PM₁₀). The other station was located approximately 0.6 mile south of LAX. This station, located in Hawthorne and designated as Station No. 094, was operated by the South Coast Air Quality Management District (SCAQMD) and measured ozone (O₃), lead (Pb), sulfates, CO, NO₂, SO₂ and PM₁₀.

The 2001 Draft EIS/EIR did not provide any justification for the location of the onsite ambient air quality monitoring station or any information concerning the primary purpose of the station. Typically, a monitoring station will be located and operated to either measure background concentrations or maximum source impact. Given the location of the station with respect to the prevailing wind direction and the airport runways, the station appears to be situated near the likely maximum source impact area. Data from the station are used to describe "Environmental Baseline" conditions, which apparently refers to maximum source impact for existing conditions. In most cases, computer modeling would be used to identify the locations of maximum concentrations for baseline conditions, and then one or more monitoring stations would be positioned at these locations. If the onsite monitoring station was not positioned at the expected location of maximum concentration, then it is possible that concentrations higher than those reported at the station occurred in the area.

The 2001 DEIS/EIR did not discuss this, but maximum concentrations from the nearby SCAQMD station are comparable to the concentrations reported onsite by LAWA for the same timeframe. This suggests either that maximum concentrations do not vary significantly in the area or that both stations are similarly affected by nearby sources. The document shows that the maximum concentrations from the onsite monitoring station actually occurred when the station was upwind of the airport.⁴¹ Thus, the maximum 1-hour CO concentration shown as the Environmental Baseline value in Table 4.6-11 was apparently due to other sources in the area and not the airport. This needs to be rectified.

LAWA needs to explain the basis for siting of the onsite ambient air quality monitoring station. If it was located at or near the expected location of maximum concentration (for all pollutants), please explain how this location was selected. It is also unclear whether data from the onsite monitoring station characterized true maximum baseline concentrations in the area or only the maximum concentrations at the monitoring site location. If the data did not characterize the maximum concentrations, please identify them. Finally, the Environmental Baseline concentrations shown in the 2001 DEIS/EIR Table 4.6-11 need to identify whether they represented maximum impacts from the airport emissions or if they are due to other sources in the area.

4.5.2 Review of Ambient Air Quality Data used in the 2003 Supplement to the Draft EIS/EIR

Additional baseline data is provided in the Supplement to the Draft EIS/EIR. Baseline data are taken to include background plus contributions from airport and non-airport sources. This additional baseline data includes measurements by the SCAQMD for the period 1998 through 2000 at a nearby monitoring station. Previously, baseline data were reported for 1996 through 1998 at the same SCAQMD station and also for on-site measurements collected during 1997-98. These data are presented together in Table S4-6.5, so presumably they are reasonably comparable.

Together, these two data sets comprise approximately five years of data. No discussion of the comparison of the two data sets is provided in the Supplement DEIS, but one obvious thing to look for is data trending. In comparing the data reported in Table S4.6-5, it appears that there has been little change or a slight increase in air pollution levels during the five-year period. Elsewhere in the Supplement to the DEIS/EIR future background concentrations of air pollutants are assumed to decrease substantially over time. Although it is possible that future area-wide emission reductions

⁴¹ Technical Report 4, Attachment Y.

will be greater than achieved during this five-year period, the ambient monitoring data do not appear to support a significant reduction in background concentrations during the next several years. Most of the comments and questions offered previously regarding ambient air quality data are still relevant and applicable.

Suggested Questions / Comments for LAWA

- ▶ The trends in baseline ambient air quality data given in Table S4.6-5 do not support the substantial decrease in background concentrations that are assumed to occur in future years. Can LAWA explain this and can the forecast reductions in future background air pollution levels be relied upon?

4.5.3 Review of Emission Data used in the 2003 Supplement

Baseline emissions data are given in Tables S4.6-6 and S4.6-7 for 1996 and 2000 on-airport emissions sources, respectively. The 1996 data have been updated while the 2000 estimates are new in the Supplemental DEIS. It is worth noting that the estimates for 1996 given in the Supplemental DEIS are all higher than the values given in the DEIS, and in the case of VOC and sulfur dioxide, the increases are very substantial. Compared to the original estimates given in the DEIS, the estimated emissions of VOC and sulfur dioxide are more than two times higher. The revised emission estimates for future scenarios have also increased compared to the original estimates given in the DEIS. Again, this is particularly so for VOC and sulfur dioxide which are now two to three times higher than the previous estimates.

Suggested Questions / Comments for LAWA

- ▶ The estimated emissions for on-airport sources given in the SDEIS/EIR have changed substantially from the estimates given in 2001. Can the estimated emissions for on-airport sources given in the Supplemental DEIS be relied upon to be reasonably accurate?

4.5.4 Review of Meteorological Data used in the 2003 SDEIS/EIR

The Supplemental DEIS indicates that the revised analyses were performed using upper air data from a location near San Diego.

Suggested Questions / Comments for LAWA

- ▶ Is the upper air data from the San Diego Miramar Weather Service Contract Meteorological Observatory representative of the LAX area?
- ▶ Other comments offered previously concerning the use of 10-m onsite wind data for modeling off site impacts are still applicable.

4.5.5 Appropriateness of the Analysis Methodology

General Approach: As commented in the previous review, the Supplemental DEIS includes the results of computer modeling for future scenarios only. No analysis of the existing/baseline situation is provided, which could provide a benchmark of how well the models were performing.

Suggested Questions / Comments for LAWA

- ▶ Why did LAWA not model the existing/baseline situation and compare the results to existing ambient air quality monitoring data to get a benchmark of how well the models were performing?

Aircraft Operations: The comments and questions provided previously appear to remain applicable. Perhaps the most important of these is that it remains unclear how aircraft queuing was estimated, which is critical to the accuracy of the analysis. Also, it is not clear whether the reduced airport capacity during IFR conditions has been considered in the evaluation of worst-case air quality conditions.

The Supplement to the DEIS indicates that an updated version (Version 4.11) of the EDMS model has been used to evaluate Alternative D impacts. In so doing, the version used for the previous assessments (Version 3.2) was applied to Alternative D, and a ratio of the resulting estimated emissions for the two versions was computed for each air pollutant. These ratios were then used to estimate impacts for the other alternatives based on the results originally obtained with the older version of EDMS.

The EDMS model performs two major functions for airport sources. It estimates emissions and it calculates atmospheric dispersion. In updating the EDMS model, changes were made to both sections of the model. Hence, simply 'ratioing' the previous results based on the old and new emission estimates will not account for any changes in the dispersion algorithms. Thus, use of the developed ratios to update the previous results may not be appropriate.

Suggested Questions / Comments for LAWA

- ▶ How was aircraft queuing estimated? Is this critical to the air quality impact analysis?
- ▶ Did LAWA consider IFR conditions in evaluating air quality impacts and the effect this could have on reduced runway capacity and increased aircraft queuing?
- ▶ Did the 'ratioing' technique that was used to update the previous air quality impact analyses generated by EDMS account for all changes in the model or does it only account for changes in the emission algorithms?

Off-Airport Motor Vehicles: In the previous review, it was commented that use of wind data from a height of 10-m at the airport may not be representative of winds at off-airport intersections and that using only four receptors at each intersection may also result in underestimated maximum concentrations. These comments appear to remain applicable for the Supplemental DEIS.

4.5.6 Accuracy of the Analysis

The accuracy of the air quality analyses will depend to a large extent on the computer models used and the input data for the models. Presumably, the use of the updated EDMS model for the airport sources has resulted in improved accuracy for Alternative D compared to the previous analyses. Simple ratios were developed and applied to the previous analyses in an attempt to update the results for the other alternatives. If the ratios are based on the old and new emission estimates only, which appears to be the case, it is doubtful if the predicted concentrations for the other alternatives will be very accurate. This is because the new version of the model includes changes to both the emissions and the dispersion algorithms, and the 'ratioing' of predicted concentrations based on the emission ratios would account for changes to the emission components only. Some of the resulting concentration estimates for the other with-project alternatives given in Table S4.6-12 are considerably higher than those for Alternative D. It is conceivable that a complete assessment of these other alternatives with the new version of EDMS might yield different results.

As commented before, the accuracy of the predicted impacts from the airport sources will depend to a large extent on the aircraft queuing estimates and the estimated airport runway capacity, especially during IFR conditions. It is not clear from the analysis how these issues were addressed.

The unmitigated off-airport impacts for carbon monoxide given in Table S4.6-13 appear unreasonably low. Presumably, traffic approach volumes at many of these intersections are at least several hundred vehicles per hour and perhaps several thousand during peak hours. Yet, the predicted maximum concentrations are only marginally higher (and in some cases even equal to) the estimated background concentration. Assuming that the background concentration estimates are accurate, then maximum concentrations near congested roadway intersections could be expected to be substantially higher.

The accuracy of the predicted maximum concentrations at both on- and off-airport locations depends to some extent on the validity of the assumed substantial decrease in background concentrations of some air pollutants over the next several years. If the projected decrease in background concentrations turns out to be too optimistic, the projected maximum concentrations will likely be too low.

4.5.7 Gaps in the Analysis

The lack of an analysis of existing conditions using the same computer models and methodologies that were used to evaluate future scenarios continues to be a shortcoming. Without doing this, it is difficult to judge the accuracy of the predicted future conditions. Further, the 'ratioing' technique that was used to update the analyses of airport sources for Alternatives A, B and C and for the no-project case makes it difficult to fairly compare the alternatives.

4.5.8 Appropriateness and Adequacy of Mitigation Measures

Tables S4.6-6 and S4.6-7 provide emission estimates by source category for on-airport sources for the years 1996 (baseline) and 2000. Emission estimates are provided later in Table S4.6-9 for future years and project alternatives, but these estimates are not given by source category. Only the totals for the various air pollutants are shown. In Tables S4.6-14 and S4.6-16, it indicates that NO_x and SO₂ emissions from on-airport sources will be significant. In developing a mitigation plan to

address this, it would be very useful to know what the major sources of on-airport NOx and SO2 are so that mitigation measures could be focused where they will be the most effective. Tables S4.6-6 and S4.6-7 indicate that aircraft emit a substantial portion of the NOx and SO2 emissions for the baseline and year 2000 cases. Thus, it seems probable that this will be true for the future scenarios, too. Table S4.6-18 provides a long list of proposed mitigation measures, but none of these involve measures to reduce aircraft emissions.

4.6 LAND USE ASSESSMENT (Transportation)

Information within the 2003 Supplemental Draft EIS/EIR on each of the project build alternatives relating to consistency with the 2002 Regional Transportation Plan (RTP) and Regional Aviation Plan (RAP) are too vague to draw meaningful conclusions. Of the four build alternatives in the LAX Master Plan, only Alternative D has any discussion of consistency with the current RAP and this discussion is contradictory. As an example, the 2003 Supplemental Draft EIS/EIR in discussing compatibility with the SCAG Regional Comprehensive Plan and Guide states that: *"Under Alternative D additional job opportunities, infrastructure growth, and indirect housing demand would occur."* However, in discussing compatibility with the SCAG RAP it states that: *"Under Alternative D, the LAX Master Plan would be consistent with the policy of the Regional Aviation Plan, which calls for no expansion of LAX."*⁴²

How is it possible that infrastructure growth would occur at LAX without expansion of LAX? The fact of the matter is that massive infrastructure expansion would occur under Alternative "D". The result of the infrastructure expansion provides 153 fully functional, high capacity gates and does not remove concrete areas that can be used for aircraft parking. By parking aircraft, Alternative "D" can function as though it has over 200 gates and the capacity of LAX is greatly expanded. As such, Alternative "D" is incompatible with the SCAG RAP.

Revisions to the LAX Master Plan EIS/EIR need to be made that discuss compatibility of the build alternatives to the SCAG RTP and RAP including a discussion of either how Alternative "D" can be made compatible to the current RAP, or explain why it is not feasible for Alternative "D" to be made compatible. Without these discussions, meaningful analysis of this issue is not possible.

4.6.1 Master Plan Commitments Lack Substance

The referenced Neighborhood Compatibility Program⁴³ is vague. The details and "teeth" of this commitment must be clarified in order to allow an assessment of its value. The Program should be linked to the Mitigation Monitoring Program, including identification of a formal role for neighborhood review in the formulation and monitoring of specific development plans at the airport/neighborhood interface.

4.6.2 Other Land Use Inconsistencies

Discussion on Page 4-189 of the 2001 Draft EIS/EIR asserts that Master Plan Commitments LI-1 and DA-2 will reduce land use impacts of the Ring Road on the apartments on Morley Road to less than significant levels; however, these measures are not described in the 2001 Draft EIS/EIR or

⁴² 2003 Supplemental Draft EIS/EIR, Section 4.2.6.5, page 4-169

⁴³ 2001 Draft EIS/EIR, Section 4.2.5, Page 4-116.

2003 Supplemental Draft EIS/EIR, but only referenced. In fact, throughout the 2001 Draft EIS/EIR text §§ 1 through 7, references are made to impacts and mitigation measures described in Appendix K, without any explanation or summary describing such impacts and mitigation measures. The 2003 Supplemental Draft EIS/EIR also provides no discussion of this issue. Since the LAX Expressway and State Route 1 (SR 1) improvements are integral features of the build Alternatives A through C, the 2003 Supplemental Draft EIS/EIR should be revised to incorporate this information in the body of the text.

The 2003 Supplemental Draft EIS/EIR presents additional analysis of single event noise levels as mandated by a recent court ruling by the California Court of Appeal (*Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners*, (2001) 91 Cal. App .4th 1344.). It is commendable that LAWA chose to include this evaluation so critically important in assessing impacts to land uses surrounding airports. Of particular concern are single event noise levels as they relate to school disruptions. However, inconsistencies again appear in this evaluation: Table S4.2-2 in the Land Use Section shows that 29 schools would be affected by single event noise levels, whereas Table S4.1-2 in the Noise Section shows that 50 schools would be affected by single event noise levels. These inconsistencies need to be reconciled.

4.6.3 The Land Use Assurance Letter should be Disclosed

The contents of the Land Use Assurance Letter⁴⁴ should be summarized in the text and the document should describe how conflicts would be avoided. This discussion emphasizes noise compatibility considerations and minimizes the combined effects of noise, safety, air quality, lighting, and aesthetics. After acknowledging that land use compatibility is a function of these types of combined effects, very little discussion of combined effects is included in the 2001 Draft EIS/EIR or the 2003 Supplemental Draft EIS/EIR. Please identify properties that are subject to such combined effects.

4.6.4 Key Mitigation Measures may Not be Implemented

Substantial reliance is placed on Mitigation Measure MM-LU-1 "Implement Revised Aircraft Noise Mitigation Program." This measure is broad in scope, and depends upon the cooperation and funding of agencies outside of LAWA. Consequently, there is no assurance that LAWA will be able to implement this measure in a timely manner. Moreover, LAWA does not have an outstanding track record, as a number of commitments to properties already included within the current boundaries of the ANMP have not been fulfilled. A discussion of unmet commitments from prior actions should be provided along with an evaluation of the impacts that would result if LAWA were unable to fulfill the new commitments described in the 2001 Draft EIS/EIR and 2003 Supplemental Draft EIS/EIR.

Mitigation Measures MM-LU-3 and MM-LU-4 dealing with single event noise levels disrupting school sessions are of particular concern. Mitigation Measure MM-LU-3 commits LAWA to conduct a study of the relationship between aircraft noise levels and the ability of children to learn that in essence allows single event noise levels to continue and monitors the effects of these impacts on schoolchildren in the affected classrooms. As stated earlier, this approach may harm the

⁴⁴ 2001 Draft EIS/EIR, Appendix E.

children. A more responsible and conservative approach is needed that does not have the potential to do additional harm. Mitigation Measure MM-LU-4 states that:

“Upon completion of the study required by Mitigation Measure MM-LU-3 and acceptance of its results by peer review of industry experts, any schools found to exceed a newly established threshold of significance for classroom disruption shall be incorporated into the ANMP administered by LAWA. Based on the Master Plan alternative that is ultimately approved and thresholds set forth in § 4.1, Noise, that address single overflight event noise and the ability of children to learn in the classroom, and subject to modification based on the study required by MM-LU-3 those schools listed . . . may be eligible for sound insulation.”

Although the mitigation reads as though it is addressing the problem, it does not commit LAWA to any definable actions that would reduce impacts other than a vague reference that schools may be eligible for sound insulation. LAWA must describe mitigation measures in enough detail to commit the lead agency to an action that reduces the impact. Further, mitigation measures must be defined in enough detail to analyze the potential environmental impacts that may result from the implementation of the mitigation measure.

4.7 SOCIOECONOMIC ASSESSMENT

4.7.1 Productivity Variables are based on Flawed Assumptions

The 2001 assessment of Employment and Socioeconomic Impacts (and therefore the Growth Inducement Analysis as well) was substantially flawed by assumptions made at the outset of the analysis concerning productivity gains. This conclusion is directed largely at the assumption made in 2001 that productivity gains would be the same for all of the build Alternatives. In fact, productivity rates are variable over time and highly sensitive to changes in the economy's overall rate of growth. These cycles are evident in statistics over the past 50 years, which show national annual productivity growth in the range of 2.8% from 1948-1973, compared with 1.2% during the economic slowdown of 1992-1995.⁴⁵ When Gross Domestic Product growth is decelerating, productivity slows. Given the repeated emphasis throughout the 2001 Draft and 2003 Supplement to the Draft EIS/EIR that failure to pursue the expansion project would have a negative ripple effect throughout the southern California economy, it would have been more logical to link the No Project Alternative with productivity gains lower than those associated with the build Alternatives. Similarly, to the extent that Alternative D resembles the No Project Alternative it too would be associated with productivity gains lower than those associated with the remaining build. Accordingly, the SDEIS/EIR should reassess Employment and Socioeconomic impacts for Alternative D and the No Project Alternative using a lower estimate of productivity gains.

4.7.2 Productivity Forecasts Require Further Justification

The Socioeconomic Technical Report (provided only in the 2001 Draft EIS/EIR) made note of the labor-intensive nature of many service industries, and identified the tendency toward stable or reduced productivity (and resulting job growth per unit of service) in hotels, restaurants, and numerous high-end personal, household and business services.⁴⁶ At the same time, assumptions in

⁴⁵Alejandro Bodipo-Memba, "U.S. Productivity Surged During 1998, Hinting at Escape from 25-Year Slump," Wall Street Journal, February 10, 1999.

⁴⁶ Section 3.2.3.

the Draft and 2003 Supplement to the Draft regarding the No Project Alternative show passenger volumes increasing from 71.2 MAP in 2005 and 78.7 MAP in 2015 (about a 10% gain). The Technical Report noted that the services and tourism/entertainment sectors showed the most substantial employment gains between 1972-1992 and again between 1992-1997.⁴⁷ Finally, the Report allocated substantial passenger spending on these services, particularly for hotels and dining facilities, through the 2015 horizon.

In combination, these facts would point to positive employment gains in at least those sectors for which productivity is forecast to slow – eating and drinking establishments, hotels, and amusement and recreation facilities at a minimum. Nevertheless, and in apparent contradiction of its own assessment, the Socioeconomic Technical Report forecast losses in direct LAX-related employment for both sectors between 2005 and 2015 under the No Project Alternative. Eating and drinking establishments were forecast to sustain job losses on the order of 1,725 (a 4% drop); hotels were forecast to sustain job losses on the order of 3,467 (a 7.5% drop); and amusement/recreation facilities were forecast to sustain losses on the order of 4,514 (a 14.8% drop).

An explanation is needed to justify the Technical Report forecasts of job losses that conflict with the discussion of anticipated productivity trends for hotels, restaurants, and services. Job growth in the specified service sectors should be projected.

4.7.3 Definition of the No Project Alternative is Artificially Narrow

The artificially narrow definition of the No Project Analysis weakens the analyses contained in the Socioeconomic Technical Report. As discussed previously, the 2001 Draft EIS/EIR and the 2003 Supplement both assume that under the No Project Alternative there would be no new improvements at LAX beyond those now underway, planned, or programmed. Both CEQA and NEPA favor “worst case” assessment. In this light, it would be more reasonable and informative to anticipate that LAWA would pursue a wide range of additional improvements that would in turn boost direct and indirect employment and spending, with far different socioeconomic impacts than indicated in Technical Report estimates for the No Project Alternative. The analysis of Employment and Socioeconomic impacts should be revised to incorporate the expanded assessment of actions that may in the future be taken by LAWA in the event the project is not approved and the outcomes that could reasonably be expected to result from such actions should be addressed.

The 2003 discussion of socioeconomic effects associated with Alternative D repeats a form of the unsupportable syllogism described in § 3.3.2. In the current section, Alternative D is concluded to have beneficial socioeconomic effects, Alternative D is described as substantially the same as No Action, and No Action is found to have adverse socioeconomic effects. In fact, an increase in construction jobs is the only socioeconomic difference between No Project and Alternative D that is acknowledged in the Supplement to the Draft EIS. Again, we believe that the inconsistency is due to misrepresentation in the description of alternatives – particularly Alternative D and the No Project Alternative.

⁴⁷ Section 4.1.1.

4.7.4 Distribution of Passenger Spending Requires Explanation

In estimating the distribution of passenger spending, §3.4.3.1 of Technical Report 5 indicated that it was assumed that LAX would represent the sole source for international traffic, based on historical data for the years 1985-1994. Additionally, the Section noted that:

“As a working assumption, it was assumed that there was no connecting traffic at any of the other 4 major airports in the region...the single exception to this rule results from the fact that Ontario ‘International’ Airport did serve an estimated 50,000 international passengers during late 1993 and early 1994.”

It is unclear how the “working assumption” and exception were applied in estimating future contributions under the 2005 and 2015 scenarios. Did the analysis treat the 50,000 international passengers as a one-time event, or did it assume that Ontario would continue to serve 50,000 international passengers (per year) through 2015? In either case, the document should have explored the factors that allowed Ontario to successfully enter this competitive market, with the goal of assessing Ontario’s ability to accept future unmet need in the region as a whole. This analysis would have been especially relevant to the socioeconomic analyses of the No Project Alternative, and may have resulted in far different conclusions. If the Socioeconomic Technical Report did base its 2005 and 2015 No Project Alternative scenarios on the assumption that Ontario would serve 0 or 50,000 international passengers (but no more), the analysis should provide a more detailed assessment of the potential role of Ontario in meeting international travel demand.

In general, and although the Technical Report promised such an assessment, the Socioeconomic Technical Report did not make any substantive effort to determine the degree to which the No Project Alternative might result in a redistribution of air services and associated economic activity to other airports in the region. As it stands, the analysis shines a very bright light on variables influencing the LAX growth scenarios, but does little to apply its powerful tools on the potential future role of other facilities in the region. This approach shortchanges the No Project Alternative. It also shortchanges the newly-proposed and preferred Alternative D. As noted above, the only socioeconomic difference between ‘No Project’ and Alternative D, according to the SDEIS/EIR, is construction employment. If true, then Alternative D would also be similar to No Project in its potential to redistribute non-construction air services and economic activity to other airports in the region. LAWA should expand the Supplement to the Draft EIS/EIR to take a closer look at this issue, considering the amount and type of activity that could reasonably be expected to shift within region, and the direct and indirect economic effects that might result.

4.7.5 Distribution of Regional Spending Requires Explanation

§3.4.3.1 of the 2001 Draft EIS/EIR noted,⁴⁸

“Parking costs are the only local impacts attributed to Resident passengers in the current analysis...[and to] the extent that such passengers spend money at restaurant and retail establishments during the time they spend in one of the region’s airports, this analysis may, to a small degree, have underestimated the impacts of Resident passengers.”

⁴⁸ In Footnote 32.

The analysis also discounted resident expenditures on transportation to and from the airport:

“To the extent that such transportation is provided by a private taxicab, limousine or shuttle service will cause some additional impacts on the local economy. This does not apply to connecting and visitor passengers, for whom these impacts have been measured.”

On the surface, these assumptions would be expected to impact regional spending estimates in a neutral manner, because it is applied to all airports in the region. However, since the analysis: (1) assumed that facilities other than LAX will be essentially limited to resident passengers; (2) discounted the retail, restaurant and travel expenditures of these passengers; and (3) measured such expenditures for connecting and visitor passengers, the net effect is to disproportionately minimize the regional spending contributions of airports other than LAX. Once again, the assumptions would cast an artificially unfavorable light on the No Project Alternative (though not, apparently, on Alternative D, though it is presented as equivalent apart from construction impacts).

4.8 REGIONAL TRANSPORTATION

All of the alternatives, including the No Action Alternative, call for a 41% increase in passenger activity and a 60% increase in air cargo at LAX. Passenger volume would increase from 56 MAP to 79 MAP, and air cargo would increase from 1.95 million tons to 3.2 million tons in only 12 years. Those amounts are greater than 95% of all other national airports and are greater than all the other Los Angeles regional airports combined!

If indeed the LAX Master Plan aims to promote meaningful growth at other regional airports, then realistic growth control measures must be included. The inland airports have abundant capacity and are crying for air service, and the LAX Master Plan must include measures that lead to region wide cooperation to move air service to those areas. The City of Los Angeles has refused to participate in activities of the Southern California Regional Airport Authority, which has generated several proposals to promote such efforts. Without active measures to move air traffic to other airports, the Master Plan serves only to create another incremental step in the unabated growth of LAX. We understand that LAWA has recently hired a consultant to market Ontario International Airport,⁴⁹ and would request that LAWA outline the goals of that marketing plan.

4.9 BIOLOGICAL RESOURCES

4.9.1 Review of Baseline Conditions

The SDEIS/EIR identifies eight distinctive biotic communities without clearly distinguishing among the following: naturally occurring communities; man-influenced/modified natural communities; man-created biotic situations; or areas under complete development, which no longer have biotic value for sensitive plant and animal species. The acreages of biotic habitats were rates in terms of value for sensitive species, and compared with marginal habitats, non-native habitats, and areas that are developed and no longer supporting habitats. The review indicated that the airport is largely developed, with open areas that are highly disturbed and offers little or no viable

⁴⁹ Press Enterprise Newspaper, “Still awaiting takeoff,” September 21, 2003.

habitat for sensitive plant and animal species. The Los Angeles/El Segundo Dunes and, to a lesser extent, the non-restructured dunes north of this area stand out as the only areas having high biological value that merits recognition and a conservation effort by LAWA. It is therefore recommended that the Master Plan include a "conservation element" dictating how the Los Angeles/El Segundo Dunes will be managed. This goes beyond the requirements to manage the Habitat Restoration Area for the El Segundo Blue Butterfly.

4.9.2 Review of Mitigation Measures

Several mitigation measures are listed in § 4.10.8 that would, if successful, reduce potential impacts to sensitive biological resources to a less than significant level. The selection of mitigation measures will depend on which Alternative is chosen. It is expected that a mitigation monitoring program (MMP) will be developed and implemented. However, we recommend that LAWA separate the biological mitigation measures from the larger MMP and create a Conservation Program that focuses on the Los Angeles/El Segundo Dunes and surrounding areas. This would enhance the biological program and provide LAWA with a stronger negotiating position with United States Fish and Wildlife Service on future projects.

Section 4.11.2 mentions that LAWA initiated a formal Section 7 consultation with USFWS on September 5, 2000. The remainder of § 4.11 discusses several mitigation measures that will be implemented to reduce impacts to listed species to below a significant level. It is not clear whether these mitigation measures are the basis for the formal Section 7 or if they have been included in the required Biological Assessment. Although completion of the Section 7 consultation process by the FAA is not required to be a part of the Draft EIS/EIR analysis, the level of analysis and detail presented in this Draft would suggest that it has been included.

Apparently, USFWS and LAWA have not come to terms on the level of mitigation required to mitigate impacts to the Riverside Fairy Shrimp and its habitat. There is a brief mention of this divide at the top of page 4-691. The FAA is rightly concerned that the creation/restoration of fairy shrimp habitat (vernal pools) will create significant safety issues for aircraft by attracting birds (bird air strike hazards). However, the final endangered species mitigation measures and/or conservation management strategies will depend on final resolution of this issue between USFWS and the FAA.

The Draft EIS/EIR does not give an indication whether the present mitigation measures will be satisfactory to USFWS, or whether these measures will allow the FAA to complete its obligations under the Endangered Species Act. If this is the case, it should be clearly stated. If it is not, the reader needs to know that the mitigation measures have not been approved by USFWS and could change significantly before the Section 7 consultation process is completed and a Biological Opinion is issued by the USFWS.

As discussed above under comments for § 4.10.5 Master Plan Commitment, all biological mitigation measures should be integrated into a Conservation Program for LAWA with focus on the Los Angeles/El Segundo Dunes and the Riverside Fairy Shrimp.

4.9.3 Wetlands Concerns Must be Integrated

Only U.S. Army Corps of Engineers jurisdiction was found to occur within the Air Operation Area or the Los Angeles/El Segundo Dunes; no California Department of Fish and Game (CDFG)

jurisdiction was determined to occur. The permanent conversion/loss of the 1.3 acres of atypical wetlands is a significant impact that will require a 404 permit. It will also require a Section 7 consultation between the Corps and USFWS because of the presence of embedded Riverside Fairy Shrimp cysts in soil samples.

The biological concerns associated with wetlands should also be included in a Conservation Program rather than addressed as a separate biological issue for which no Master Plan commitments are made. Although there is very limited natural habitat at LAX, any loss of these remaining natural habitats will be considered significant by USFWS, CDFG, and local wildlife protection groups. It would seem an opportune time to develop a long-term management plan for biological resources on airport lands. Once in place, this plan/strategy would set policies and procedures (officially approved by the resources regulators) for the next several years. As the Draft EIS/EIR currently reads, LAWA has identified several biological concerns that are being addressed separately and on a one-time basis. This would leave LAWA vulnerable to future challenges as unanticipated development/programs are proposed.

4.9.4 Reference to 2001 Comments from Land Protection Partners

During 2001, the Land Protection Partners (LPP) submitted a comment letter to LAWA entitled "Review of Biological Resources Analysis in LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report" as a review of the 2001 LAX Master Plan Draft EIS/EIR. Based on a preliminary assessment of points made in the LPP letter, the County of Los Angeles has concluded that their comments raise some significant issues regarding incomplete or vague project descriptions of the build alternatives, outdated CEQA analyses, questionable survey methods, questionable El Segundo Blue Butterfly population counts, underestimating impacts, and inadequate mitigation. Many of Land Protection Partners' comments echo concerns raised in this comment letter, but with a particular focus on how the concerns impact the assessment of potential biological impacts. The County endorses the points raised by LPP, which are briefly summarized below, and looks forward to reviewing LAWA's responses:

Vague and Confusing Descriptions of the Build Alternatives: LPP noted that the Draft EIR/EIS does not give a complete project description of the build alternatives. Within the extent of the LAX Master Plan boundaries, it is unclear how LAWA proposes to use certain areas of biologically significant property. Designations such as "Airport Related" are useless in evaluating the potential biological impacts associated with that designation.

Outdated CEQA Analysis: The Draft EIR/EIS describes the LAX Northside Project as "Collateral Development" that previously was entitled through a 1983 CEQA process. No new or updated analysis is found in the Draft EIR/EIS, even though development of this project appears to be contingent on the project alternative selected for LAX. In this light, reliance on 1983 CEQA documentation that did not consider LAX as a contingent project is problematic at best.

Questionable Survey Methods: Land Protection Partners' document raised questions concerning survey results, particularly with respect to the incorrect choice of survey methods. LPP noted that LAWA did not conduct general biological surveys in all habitats within the proposed project site. LPP also references impacts to 100 acres of the El Segundo Dunes habitat that was not surveyed by

LAWA, even though it would be converted to a golf course under the Westchester Southside Project described in the 2001 Draft EIR/EIS.

Questionable El Segundo Blue Butterfly Population Counts: Land Protection Partners suggests that the surveys conducted by LAWA did not use the best available scientific methods for calculating population numbers of the Federally-endangered El Segundo Blue Butterfly (ESBB). In overestimating the ESBB population, the Draft EIR/EIS gives the false impression that the ESBB is able to sustain viable populations on limited habitat, and confuses the analysis by downplaying the need for land to be kept as conservation areas.

Underestimation of Impacts of the Proposed Project Alternatives: The methods used to determine impacts to habitat were misleading and not used accurately. LPP concluded that the combined affect of not surveying all potential habitat, using questionable survey methods, and overestimating ESBB populations resulted in a misleading impact assessment.

Inadequate Mitigation Measures: LPP found that use of a point system to rate 'habitat units' resulted in inadequate mitigation for lost habitat. For example, the Draft EIR justifies preserving smaller areas of prime habitat in exchange for the conversion of larger areas of occupied but marginally disturbed habitat. LPP noted that species need both the space and the quality of habitat, concluding that 10 acres of prime habitat may not be adequate to sustain a population that had previously lived on 50 acres of marginally disturbed habitat.

4.9.5 General Comments

The 2001 Draft EIS/EIR and 2003 Supplemental Draft EIS/EIR do not give complete project descriptions of the build alternatives. Within the extent of the LAX Master Plan boundaries, it is unclear what the disposition of certain areas of biologically significant property will be indicating designations such as "Airport Related" which are useless in evaluating the potential biological impacts associated with that designation.

LAWA did not conduct general biological surveys in all habitats within the proposed project site. As an example, the 2001 Draft EIS/EIR and 2003 Supplemental Draft EIS/EIR describe impacts to 100 acres of the El Segundo Dunes habitat that was not surveyed and would be converted to a golf course under the Westchester Southside Project.

Unfortunately, given the amount of time and effort devoted to assessing baseline biological conditions, the remaining step of integrating and folding this information into a long-term Conservation Program is missing. This may be a conscious choice by LAWA management and the City of Los Angeles; however, this approach may deprive LAWA of the opportunity to gain long-term control of its own biological resources.

4.10 ADDITIONAL ISSUES

4.10.1 Historical Resources

Illustration of the different impacts associated with the Single v. Split Viaduct LAX Expressway Alternatives should be carried forward from the Appendices to the Historic/Architectural section of the Supplemental Draft EIS/EIR.

The commitment to have a qualified architectural historian supervise noise abatement of historic properties does not assure that the historic values and character of such properties will not be altered or lost. The SDEIS/EIR should discuss this possibility and attach alternate mitigation measures or a revised significance finding, if appropriate.

The 2003 Supplemental Draft EIS/EIR concludes for all the build alternatives that:

“The demolition of a historic/architectural resource is considered a significant impact at the state level that cannot be mitigated to a less than significant level without abandoning the project. A Statement of Overriding Considerations would be necessary to address unavoidable impacts on the International Airport Industrial District.”⁵⁰

This is insufficient information to support an override. Revisions to the SDEIS/EIR need to explain why demolition of this historic/architectural resource is required to implement the project and what benefits will result from the project that override this significant impact.

4.10.2 Human Health

The analyses indicated that aircraft emissions account for about 97% of total emissions and also contribute most to emissions of individual Toxic Air Pollutants,⁵¹ yet none of the mitigation measures address aircraft emissions. Many of the mitigation measures would be expected to occur regardless of what happens with the proposed Master Plan – for example, parking pricing policies to encourage single trips or to minimize idle time at the curb, steps to encourage employee telecommuting, and expanded off-airport intermodal services to other airports. Others would have no air quality benefit – for example, where unmitigated impacts result in payments to a trust fund for unrelated community improvements.

In this context, it is difficult to understand how the HHRA determined that the build Alternatives, with mitigation, would have no significant human health impacts at either horizon year. A clarification of the assumptions that were made in order to reach this conclusion is necessary to validate this conclusion.

The California Office of Environmental Health Hazards Assessment (OEHHA) evaluates non-cancer risks and has established maximum reference exposure levels (REL) for each TAP. No adverse health effects are foreseen for exposures at or below the REL. The exposure of TAP at concentrations equal to the REL represents a non-cancer hazard index level of 1.0. Exposure above

⁵⁰ 2003 Supplemental Draft EIS/EIR, Section 4.9.1, page 4-443

⁵¹ Technical Report 14a, Section 3.3.

a hazard index of 1.0 is considered a significant impact by OEHHA. The relationship for non-cancer health effects of Toxic Air Pollutants is shown in the following equation:

HI = C / REL, where:

HI = Hazard Index; an expression of the potential for non-cancer health effects

C = Annual average TAP concentration (ug/m₃)

REL = Reference exposure level (REL) for TAP; the TAP concentration at which no adverse health effects are anticipated

The Supplemental HHRA Technical Report provided as Appendix 9a in the 2003 Supplemental Draft EIS/EIR states that the REL for acrolein used in the HHRA is 0.19 ug/m₃.⁵² This same document further states that under Alternative "D", total acrolein concentrations might range between 14 ug/m₃ and 87 ug/m₃ with an overall average of 23 ug/m₃.⁵³ Using the OEHHA equation for determining the hazard index as shown above, the resulting hazard index would range between 73.68 and 457.90, well above the OEHHA threshold of significance set at a hazard index of 1.0. Evaluation of all scenarios indicates that the hazard index for acrolein are all above the OEHHA threshold, even in the existing condition and while the Supplemental HHRA indicates that Alternative D has the lowest exposure levels of all these scenarios it is nevertheless above the threshold of significance set by OEHHA. How is it that both the 2003 Supplemental Draft EIS/EIR determined that this impact is less than significant? Revisions to the SDEIS/EIR need to be made that disclose this significant impact and either mitigate to less than significant or provide the evidence that supports a Statement of Overriding Consideration for this significant impact.

4.10.3 Environmental Action Plan

Many of the key Master Plan Commitments and mitigation measures in the Environmental Action Plan (EAP) are broad and programmatic in nature. Many will require further study, with choices among specific options deferred to the Final EIS/EIR and other stages of the decision making process. The EAP needs to be expanded to identify when and where such subsequent environmental reviews will be required, with discussion as to how these timeframes relate to the improvement phasing plan set forth by LAWA, and to the sequence for FAA and LAWA consideration of required discretionary actions. The EAP, including all Master Plan Commitments and mitigation measures, should be refined and detailed to adequately serve as the CEQA Mitigation Monitoring Program, pursuant to Public Resources Code 21081.6.

4.10.4 Video-Conferencing

In the § 1.3 discussion of Alternatives to air travel, the 2001 Draft EIS/EIR notes a study by Apogee Research that contains key findings that video-conferencing has potential to satisfy (1) from 5-30% of non-discretionary travel; and (2) less than 5% of discretionary travel. The discussion in § 1.3 concludes with: "Given that 50% of LAX users are leisure travelers, it is projected that less than 5% of air travel demand at LAX could be satisfied by communication technologies in 2015. These amounts were factored into the assumptions of the LAX Master Plan forecasts." The Supplement to the Draft EIS/EIR did not resolve this error. The total amount of air travel demand at LAX that

⁵² Technical Report 9a, Section 5.1

⁵³ Technical Report 9a, Section 6.1.2

could be satisfied by communication technologies should equal the combined amounts for discretionary travel PLUS non-discretionary travel (i.e., [5-30% of demand x 50% of travel = 2.5% to 15%] + [$<5\%$ of demand x 50% of travel = $<2.5\%$] = $\sim 2.5\% - 17.5\%$). It seems that a higher number should be factored into the assumptions of the LAX Master Plan forecasts.

4.10.5 Sixty-Minute Access Zone

The Zone Boundaries shown in Figure 1-3 of the 2001 Draft EIS/EIR showing the 60-minute travel time accessibility zones for airports in southern California appear to overstate driving times for at least some of the airports shown. The assumptions used in developing this map need to be discussed and clarified in order to support the map, as drawn.

4.10.6 Weather Conditions

The 2001 Draft EIS/EIR notes that only one of the four runways is sufficiently long to serve the largest aircraft when fully loaded under adverse weather conditions (hot days with little wind).⁵⁴ However, there is no discussion as to how many days of the year, on average, are characterized by these adverse weather conditions. There is also no discussion as to how many runways can accommodate the largest aircraft when fully loaded. Both of these issues require further explanation and investigation by LAWA.

4.10.7 Remote Terminals

The 2001 Draft EIS/EIR includes discussions of the possibility of remote terminals. However, no analysis is undertaken to determine their location or impacts. Alternative "D" described in the 2003 Supplemental Draft EIS/EIR includes a Ground Transportation Center connected to the main terminal buildings by an Automatic People Mover that appears to fit the descriptions of remote terminals mentioned in the 2001 Draft EIS/EIR. However, it is unclear whether or not the Ground Transportation Center within Alternative "D" is the remote terminal mentioned in the 2001 Draft EIS/EIR. LAWA should clarify this in revisions to the Supplemental Draft EIS/EIR, and if there are other possibilities for remote terminals, then include a full characterization of these other remote terminals as well as a description of the baseline setting for the proposed locations, the impacts of their construction and use, and mitigation measures to address any adverse effects.

4.10.8 Hydrology and Water Quality

Section 4.7 of the SDEIS/EIR inadequately addresses SUSMP and drainage issues. The environmental document does not provide sufficient information to determine what drainage impacts, if any, the project may have on County facilities (MTD 992, storm drain Project Number 5241, 647, 670, etc.). To properly assess drainage and SUSMP impacts and to determine appropriate mitigation, a Drainage Concept/SUSMP report will be required. We recommend that the applicant prepare a Drainage Concept/SUSMP report showing the extent of drainage and SUSMP quality impacts, and if necessary, provide mitigation acceptable to the County. The analysis should address increases in runoff, any change in drainage patterns, treatment method proposed for SUSMP regulations, and the capacity of storm drain facilities.

⁵⁴ 2001 Draft EIS/EIR, Section 2.2.2, Page 2-6.

We also recommend that the Drainage Concept/SUSMP report should be reviewed and approved by the County of Los Angeles Land Development Division - Subdivision Plan-checking Section before the City considers its own approval. Once approved, a copy of the final Drainage Concept/SUSMP report should be included in the environmental document.

4.10.9 Solid Waste Generation and Landfill Capacity

Chapter 4 of the Master Plan Supplement to the Draft EIS/EIR, identifies the amount of solid waste generation as a result of construction and demolition activities of alternatives No Action/No Project, A, B, C, and D. The tonnage of waste generated from construction and demolition activities alone for Alternative D – the LAWA staff-preferred alternative – is well over 130,000 tons. Although LAWA states that it will require that contractors recycle a “specified” minimum percentage of waste materials generated during construction and demolition, a significant commitment is necessary to insure adequate mitigation of the scale of impact resulting from waste generated by this project. Therefore, the minimum percentage should be specified within the EIR, with a target of at least 50 percent of the waste diverted from disposal. Similarly, the percentage of minimum recycled content for materials used on site, and the specific diversion goals that will be required of lessors, should also be specified in the EIR.

Under heading of Master Plan Commitments (§4.19.5, p. 4-534), the SDEIS/EIR proposes implementation of a more aggressive recycling program, by expansion of the existing terminal recycling program to all terminals; lease provisions requiring that tenants meet specific diversion goals; and preference for recycled materials during procurement. The document should expand the discussion to include the type of material that might be targeted and the overall recycling goal.

The environmental document recognized that due to the uncertainty regarding future landfill capacity, impacts associated with cumulative increases in solid waste generation would be potentially significant (Sections 4.19.7 and 4.19.8, pages 4-537 and 4-538). Augmentation of landfill capacity is listed as a mitigation measure, however, the responsibility for implementing this mitigation measure is left to State, County, and local solid waste planning authorities. This discussion should be revised to indicate what measures the City of Los Angeles will implement to provide for the disposal of residual solid waste generated by this project and future projects within the City of Los Angeles considering the City’s stated interest to close all landfills within the City’s boundaries by 2006.

5.0 CONCLUSIONS

There is no doubt that Los Angeles International Airport is vitally important to the City of Los Angeles, to the County of Los Angeles, to the region, and to California generally. There is an obvious and pressing need for improvements at LAX, most particularly to ensure the safety and security of future air travel. However, the County of Los Angeles believes that LAWA is proposing to implement a flawed project and that the process is further compromised by an inadequate environmental review. As documented throughout this report our concerns include (a) an inadequate security planning effort, (b) misleading statements regarding growth potential, resulting in fundamentally flawed environmental analyses, (c) improper choice of a Supplement to propose and assess an entirely new preferred project, (d) use of an unwieldy and confusing document format, (e) continued reliance on a baseline that is outdated and serves to undermine rather than illuminate understanding of project impacts, (f) wholly inadequate consideration and disclosure of

Environmental Justice issues coupled with a scoping process that considered neither 2001 nor the 2003 preferred project options, (g) language suggestive of bias and advocacy and an absence of full disclosure, (h) incomplete analysis of noise and air quality and the absence of studies to establish baseline or impact-level toxic air emissions, (i) inadequate and misleading assessment of impacts on biological habitat, and (j) the failure to provide an alternative that meets stated goals and also avoids or minimizes significant impacts in the identification and assessment of Alternatives.

The problems with the 2001 and 2003 environmental documents are so serious, pervasive, and universal that the only practical remedy is to start the process over again and prepare a truly comprehensive revised EIS/EIR. The revised document would need to provide comprehensive scoping, an updated and consistent baseline, identify and assess a reasonable range of feasible alternatives, be free of internal inconsistencies, offer proper levels of analysis and explanation, and present an entirely new impact assessment that does not defer critical decisions. Only with these extensive modifications can the LAX Master Plan and associated EIS/EIR be rendered adequate.



Land Protection Partners

P.O. Box 24020, Los Angeles, CA 90024-0020
Telephone: (310) 276-2306

Review of Biological Resources Analysis in Supplement to Draft Environmental Impact Statement/Environmental Impact Report for LAX Master Plan

**Travis Longcore, Ph.D.
Catherine Rich, J.D., M.A.**

October 20, 2003

SAL00019

Review of Biological Resources Analysis in Supplement to Draft Environmental Impact Statement/Environmental Impact Report for LAX Master Plan

This review pertains to the Federal Aviation Administration/Los Angeles World Airports Supplement to Draft Environmental Impact Statement/Environmental Impact Report (“SDEIS/EIR”) for the LAX Master Plan. The scope of this review is limited to biological resources, and consequently addresses Sections 4.10 (Biotic Communities), 4.11 (Endangered and Threatened Species of Flora and Fauna), 4.12 (Wetlands), 4.14 (Coastal Zone Management and Coastal Barriers), and 4.18 (Light Emissions). The review was prepared by Dr. Travis Longcore and Catherine Rich, who are experts in the ecology and history of the natural communities that would be affected by the proposed airport expansion and in the assessment of environmental impacts under the California Environmental Quality Act, National Environmental Policy Act, and California Coastal Act. Dr. Longcore has co-authored several peer-reviewed scientific articles on the El Segundo dunes and the Los Angeles coastal prairie (including its vernal pools),¹ which both would be adversely affected by the proposed project.

The SDEIS/EIR complements, but does not replace, the original Draft Environmental Impact Statement/Environmental Impact Report (“DEIS/EIR”) for the LAX Master Plan. The SDEIS/EIR does nothing to improve the fatally flawed assessment methodology for direct impacts to sensitive biological resources that was presented in the DEIS/EIR. Rather, the SDEIS/EIR provides only a trivial and meaningless change in the name of the methodology from “modified Habitat Evaluation Procedure” to “Mitigation Land Evaluation Procedure” (“MLEP”). The SDEIS/EIR attempts to improve the analysis of indirect impacts on biological resources, including the effects of light, noise, and air pollution, but the analysis is illogical and unsupported by the literature. Finally, the SDEIS/EIR presents impact analysis for the newly-formulated Alternative D.

With the exception of the analysis of Alternative D, which triggered the preparation of a Supplement, the new biological resources analysis appears to consist primarily of responses to comments on the DEIS/EIR, including those of the resources agencies and perhaps our own.² In our 2001 review, we noted the failure of the DEIS/EIR to provide an adequate assessment of the effects of light and noise on biological resources, illustrated the gross inadequacy of the “modified Habitat Evaluation Procedure,” and identified contradictions in the project description. Because many of the problems that we identified in our 2001 review have not been addressed in the SDEIS/EIR, we incorporate our earlier comments by reference (see attached without appendices). This review evaluates the updated analysis of biological impacts and associated mitigation measures presented in the SDEIS/EIR.

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1. Mattoni, R., T. Longcore, C. Zonneveld, and V. Novotny. 2001. Analysis of transect counts to monitor population size in endangered insects: the case of the El Segundo blue butterfly, *Euphilotes bernardino allyni*. *Journal of Insect Conservation* 5(3):197–206. Longcore, T., R. Mattoni, G. Pratt, and C. Rich. 2000. On the perils of ecological restoration: lessons from the El Segundo blue butterfly. Pp. 281–286 in J.E. Keeley, M. Baer-Keeley, and C.J. Fotheringham (eds.) *2nd Interface Between Ecology and Land Development in California*. U.S. Geological Survey, Sacramento, California. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445–452. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles coastal prairie, a vanished community. *Crossosoma* 26(2):71–102.
 2. Longcore, T., and C. Rich. 2001. Review of biological resources analysis in LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report. Land Protection Partners, Los Angeles. 27 pp. + appendices.

1.0 Project Description

The maps of land use for the airport properties are updated in the Supplement to depict the four Alternatives. These maps are somewhat clearer than those in the DEIS/EIR about the land use of the ~100 acres of El Segundo dunes not included in the Habitat Restoration Area. While the DEIS/EIR included maps depicting this area as a golf course or resort hotels,³ the SDEIS/EIR identifies that area as "Airfield/Airport Open Space."⁴ The description of Alternatives does not, however, provide conclusive details about the long-term disposition of this biologically important area.⁵ The long-term plans for this property are important to the analysis of mitigation measures because the SDEIS/EIR contemplates that some habitat mitigation activities will occur in this area, outside of the ~200-acre Habitat Restoration Area.⁶

We note that the depiction of the 100 acres of El Segundo dunes north of the Habitat Restoration Area as "Airfield/Airport Open Space" diverges from the previous positions articulated by the City of Los Angeles. In the staff report for issuance of a Coastal Development Permit for landscaping along Waterview Street at the northern end of this area, the City in 2001 wrote, "The Project, a narrow, landscaped area along the streets, would provide a buffer between the golf course and residential areas...."⁷ As we noted in our previous comments, the zoning for the parcels in the dunes was set at [Q]OS-1-XL in 1994, which disallows development in the dunes habitat preserve and restricts use of the remainder of the property to "a nature preserve and accessory uses only."⁸ In the Land Use section of the SDEIS/EIR, while the entire 300 acres of the El Segundo dunes are designated as "Open Space," the map refers to the "Los Angeles Airport/El Segundo Dunes Specific Plan" as the descriptor.⁹ This Specific Plan has been superceded by the 1994 zoning update, but this fact is not reflected in the various maps in the SDEIS/EIR. The restriction of the northern 100 acres of the dunes to "nature preserve and accessory uses" should be clarified in the Final EIS/EIR.

2.0 Direct Impacts

2.1 Mitigation Land Evaluation Procedure (formerly "modified Habitat Evaluation Procedure")

The modified Habitat Evaluation Procedure presented in the DEIS/EIR has been renamed the Mitigation Land Evaluation Procedure in the SDEIS/EIR.¹⁰ This methodology was rejected outright by the U.S. Fish and Wildlife Service ("USFWS") and the California Department of Fish and Game ("CDFG") in comments on the DEIS/EIR, but the SDEIS/EIR retains the methodology while simply changing the name, "to eliminate confusion associated with a similarity in the designation to an unrelated methodology developed by the USFWS."¹¹ This change in terminology does not correct the faulty

3. DEIS/EIR, Appendix J1: Biological Assessment Technical Report, Figures 8, 11, 14.
4. SDEIS/EIR, Figures S3-2, S3-4, S3-5, S3-6, S3-7, S3-8.
5. SDEIS/EIR, Section 3. Alternatives (Including Proposed Action).
6. SDEIS/EIR, MM-BC-4 through MM-BC-8, MM-BC-10 through MM-BC-13.
7. City of Los Angeles 2001. Coastal Development Permit Application No. 00-05 Final Staff Report, p. 3.
8. City of Los Angeles. Ordinance No. 169,767, effective June 12, 1994.
9. SDEIS/EIR, Figures 4.2-6, 4.2-9, 4.2-12, 4.2-15.
10. SDEIS/EIR, p. 4-449.
11. *Id.*

assumptions of the underlying method, and does nothing to correct the deficiencies in this method that were identified by the USFWS, CDFG, and our previous review.

The SDEIS/EIR uses the Mitigation Land Evaluation Procedure to determine impacts to sensitive vegetation types and to quantify impacts to habitats of sensitive species.¹² The name change is a *de facto* confirmation that the “methodology” is not based on an accepted technique, the “Habitat Evaluation Procedures” (“HEP”)¹³ developed by the U.S. Fish and Wildlife Service, but rather was invented for this analysis. While the HEP is an established method with a history of usage,¹⁴ the MLEP is not a recognized method for the evaluation of impacts to sensitive species or vegetation types, or the determination of mitigation ratios for such impacts. Because the SDEIS/EIR does not reprint the methodology it has renamed MLEP, further discussion of the MLEP must refer to the DEIS/EIR.

The MLEP sets habitat evaluation standards based on an “optimal” site with “a multitude of floral and faunal species.”¹⁵ One would expect that each vegetation type would be compared against an optimal site of that same vegetation type, but this is not the case. Rather, the MLEP inexplicably compares all vegetation types against a valley needlegrass grassland/vernal pool complex. One might also expect that the habitat evaluation for each species would incorporate features relevant to that species’ survival. This is not true either, because the habitat evaluation standards bear no relation to species requirements. For example, we compared the habitat evaluation standards in the MLEP to the habitat requirements of loggerhead shrike (*Lanius ludovicianus*) and black-tailed jackrabbit (*Lepus californicus bennettii*) (Table 1),¹⁶ and found no nexus. The MLEP assigns low values of 0.25 for vegetation types that are occupied by these species (non-native grassland/ruderal), even though this vegetation is quite good habitat for both species. Furthermore, because the MLEP compares all vegetation types against one vegetation type, the MLEP results in the false conclusion that habitat values lost by destruction of one vegetation type can be mitigated by enhancing a completely different vegetation type.

This critical failure bears repeating. The single set of standards used to evaluate all vegetation types does not reflect ecological value, either to sensitive species or as vegetation communities. This problem derives from the physical and biological criteria used to evaluate habitat and the so-called “ecosystem functional integrity” components of the analysis. Rather than developing criteria for each vegetation type, the MLEP evaluates all vegetation types against the characteristics found in a “reference site.” The vegetation type chosen for this standard is that of valley needlegrass grassland/vernal pool complex.¹⁷ For some inexplicable reason, all vegetation types are measured against this standard, including southern foredune, southern dune scrub, and disturbed dune scrub/foredune. Dune vegetation does not exhibit many features found in a valley needlegrass grassland/vernal pool complex. Because dune vegetation does not have vernal pools and associated species, these vegetation dune types are assigned lower

12. DEIS/EIR, p. 4-615, SDEIS/EIR, p. 4-449.

13. U.S. Fish and Wildlife Service. 1996. Fish and Wildlife Service manual, 870 FW 1, Habitat Evaluation Procedures. [online at <http://policy.fws.gov/870fw1.html>]. U.S. Fish and Wildlife Service. 1980. Habitat as the basis for environmental assessment, 101 ESM. U.S. Fish and Wildlife Service. 1980. Habitat Evaluation Procedures (HEP), 102 ESM.

14. Johnson, T.L., and D.M. Swift. 2000. A test of a habitat evaluation procedure for Rocky Mountain bighorn sheep. *Restoration Ecology* 8(4S):47-56.

15. DEIS/EIR, p. 4-616.

16. Because the MLEP is the “modified HEP” with a different name, our analysis is the same as provided in our 2001 comments.

17. DEIS/EIR, p. 4-615.

“habitat” values — 0.35 for both southern dune scrub and disturbed dune scrub/foredune, and 0.45 for southern foredune. This ranking merely illustrates that dune scrub is not good valley needlegrass grassland/vernal pool complex, but it says nothing about whether it is good dune scrub.

Table 1. Relevance of Mitigation Land Evaluation Procedure Standards to Two Sensitive Species

MLEP Standards	Relevance to value of area as black-tailed jackrabbit habitat	Relevance to value of area as loggerhead shrike habitat
TOPOGRAPHY		
Mound-depression microrrelief	None. Species occurs in a variety of topographic conditions.	None
Native soils w/ slope <10%	None	None
Areas w/ period of inundation ≥ 30 days	None. Can serve as vectors for seed dispersal between vernal pools, but not necessary for habitat. ¹⁸	None
Summer desiccation	None	None
FLORA		
>10% vegetative cover	Some. Forage and cover must be present.	Some. Vegetation must support prey populations.
Native grasses >10%	None. Will forage on all manner of grasses, forbs, and shrubs. ¹⁹	None
Vernal pool associated species	None	None
Listed vernal pool associated species	None	None
FAUNA		
Domination of native fauna (reproducing)	None	None
Grassland associated species (reproducing)	None	None
Sensitive vernal pool associated species	None	None
Listed vernal pool associated species	None	None
ECOSYSTEM FUNCTIONAL INTEGRITY		
Contiguity w/ wetland and State-designated sensitive terrestrial habitat	None	None
Designated sensitive terrestrial habitat	None	None
Under regulatory conservation	None	None
Variety of pollinator/dispersal mechanisms present (wind, wildlife)	None. Is itself a dispersal agent.	None
Contiguous native habitat > 40 acres	Potentially important. Size of habitat, whether native or not, is important.	Potentially important. Size of habitat, whether native or not, is important.

18. Zedler, P.H., and C. Black. 1992. Seed dispersal by a generalized herbivore: rabbits as dispersal vectors in a semiarid California vernal pool landscape. *The American Midland Naturalist* 128(1):1–10. (Jackrabbits play a similar role in the vernal pool landscape.)

19. Johnson, R.D., and J.E. Anderson. 1984. Diets of black-tailed jack rabbits in relation to population density and vegetation. *Journal of Range Management* 37(1):79–83. MacCracken, J.G., and R.M. Hansen. 1982. Herbaceous vegetation of habitat used by blacktail jackrabbits and Nuttall cottontails in southeastern Idaho. *American Midland Naturalist* 107(1):180–184. Jameson, E.W., Jr., and H.J. Peeters. 1988. *California mammals*. University of California Press, Berkeley.

The portion of habitat value deriving from “ecosystem functional integrity” is another wholesale creation of the DEIS/EIR, and by extension the SDEIS/EIR. The choice of standards is arbitrary, with little to do with the sensitive species and vegetation types under analysis. Whether a site is “under regulatory conservation” does not necessarily have anything to do with the ecological value of its vegetation type for sensitive species. Similarly, “contiguity with state-designated habitat” is not an ecological criterion. “Variety of pollinator/dispersal mechanisms present” is oriented toward vernal pool vegetation, and the choice of “contiguous native habitat >40 acres” is arbitrary.

The MLEP fundamentally obscures the reality that sensitive plants and wildlife utilize vegetation that is not dominated by native species. Loggerhead shrikes forage in ruderal and non-native grasslands as well as in dune scrub. Jackrabbits are thriving in an area with little native plant component. Furthermore, the MLEP asserts that landscaped areas within the airport grounds contain “habitat units,” even though these areas support neither sensitive vegetation communities nor sensitive species. The MLEP is therefore of no use in evaluating the impacts to native wildlife, or in devising mitigation schemes for those impacts. The MLEP is so flawed that it completely fails to establish the nexus for mitigation of impacts.

We are not saying that it would be impossible to develop a scheme to assess vegetation communities that assigns lower area equivalence to degraded vegetation. Indeed, the suggestion by CDFG that non-native grasslands be mitigated at a 0.5:1 ratio is implicit recognition of such an approach. A preliminary effort to develop a “habitat hectares” scheme has been published in the scientific literature, but it is fundamentally different from the MLEP.²⁰ A valid “habitat area” approach should include the following features: 1) incremental values of habitat areas are assigned strictly on biological criteria, 2) these criteria are developed separately for each vegetation type, and 3) the results are not applied as proxies for the habitat requirements of individual wildlife species.²¹ The MLEP violates all three of these conditions. (Technically, this type of approach should not be called a “habitat area” approach, because “habitat” is a specific term that is defined relative to an individual species.²²)

2.2 Alternative D

The SDEIS/EIR discloses that the new, preferred Alternative D would result in direct destruction of 1.53 acres of sensitive habitat for the construction of navigational aids and associated service roads within the El Segundo dunes, both inside and outside the Habitat Restoration Area. This would include removal of 0.8 acres of disturbed foredune, 0.5 acres of disturbed grassland, and 0.2 acres of foredune.²³ The acreage may sound minimal to the casual reader, but the raw acreage does not reveal the true extent of project impacts because it conceals the spatial configuration of the development. The Biotic Communities analysis fails to reveal the geographic arrangement of the proposed construction, and does not consider this critical information in the assessment of impacts. This information about configuration is important because if the navigational aids are scattered, a greater area will be subjected to “edge effects” from adjacency to the new infrastructure and the construction. If they are clustered, then

20. Parkes, D., G. Newell, and D. Cheal. 2003. Assessing the quality of native vegetation: the “habitat hectares” approach. *Ecological Management and Restoration* 4:S29-S38.

21. *Id.*

22. Hall, L.S., P.R. Krausman, and M.L. Morrison. 1997. The habitat concept and a plea for standard terminology. *Wildlife Society Bulletin* 25:173-182.

23. SDEIS/EIR, Table S4.10-4.

impacts will be lessened. Clustering of development is one of the basic tenets of conservation planning. Every site of disturbance within the dunes habitat is an area that is more easily invaded by exotic plants and arthropods. It is therefore troubling that the SDEIS/EIR contains no assessment of the configuration of this development footprint.

Configuration of the navigational aids on the dunes is found only in the Coastal Zone Management and Coastal Barriers section. A figure in that section reveals that the navigational aids will be installed at no fewer than 23 separate locations in two lines extending two thirds of the way across the dunes from east to west.²⁴ In addition, existing navigational aids will be removed from 12 other locations both in and out of the Habitat Restoration Area. Each new navigational aid will be 9 feet square, within a 15-foot service buffer. The total area of the new navigational aids is 0.2 acres, so the remaining 1.4 acres of identified disruption must be from new roads or other construction impacts. Therefore, from the new navigational aids alone, nearly 1,300 feet of new habitat edges will be introduced into the El Segundo dunes. It is furthermore unclear if habitat disruption from removal of existing navigational aids has been evaluated.

The impact analysis for Alternative D uses the flawed MLEP to calculate "habitat units" that will be lost for various sensitive species. These habitat units are essentially meaningless; the actual acres of lost habitat should be the basis for impact assessment. According to the SDEIS/EIR the following sensitive species will experience habitat loss in the following amounts: black-tailed jackrabbit, 23.76 acres; western spadefoot toad (*Spea hammondi*), 8.97 acres; loggerhead shrike, 83.25 acres.

The area of impacts to black-tailed jackrabbit is actually much larger than 23.76 acres. The area currently occupied by this species will be used as a construction staging area, which will eliminate far more habitat than the parking garage.²⁵ In addition, the mitigation measure for this species proposes relocating all of the jackrabbits to the El Segundo dunes. The resulting total loss of habitat is therefore closer to the 118.75 acres described for the other Alternatives.

Loss of habitat for jackrabbits, loggerhead shrikes, and western spadefoot toads constitutes a significant impact because the losses would appreciably diminish the ranges of these rare species. LAX supports the only population of jackrabbits in west Los Angeles and indeed, in most of the Los Angeles basin. LAX also supports one of the last western spadefoot toad populations in the Los Angeles basin. Surveys in 2003 for breeding loggerhead shrikes recorded fewer than six pairs within the Los Angeles basin (Kimball Garrett, Los Angeles County Museum of Natural History, pers. comm.), and the species has disappeared in recent years from regularly surveyed sites at Holy Cross Cemetery, Madroña Marsh, and other Los Angeles locations (Professor Hartmut Walter, UCLA Department of Geography, pers. comm.). All three of these species are on the verge of extirpation within a large cismontane geographic area, making any impacts to the populations at LAX highly significant. Cumulative impacts to these species, from the proposed project and other projects in the area, including the Catellus West Bluffs development, are highly significant.

The impact analysis for Alternative D (and the other Alternatives) does not address the "bomb disposal site" located within the Habitat Restoration Area. Consultants to LAX previously recommended that

24. SDEIS/EIR, Figure S4.14-1.

25. SDEIS/EIR, Figure S4.20-1.

this site be moved as part of the Master Plan process so that the ongoing adverse impacts to sensitive habitats (including scraping of restored areas, and disposal of debris within restored areas) could be avoided.²⁶

The impact analysis does not provide a sufficient discussion of chemicals that would be used for dust suppression. The SDEIS/EIR suggests the use of "nontoxic" soil binders to reduce dust, but the compatibility of these chemicals with habitat restoration and biological communities is unknown or not reported, and so cannot be evaluated.

3.0 Indirect Impacts

The SDEIS/EIR provides additional discussion of the effects of light and noise on biological resources. While presenting marginally more information, the analysis and conclusions on both these topics are lacking in logic and scientific support.

3.1 Artificial Night Lighting and Wildlife

Discussion of the impacts of artificial night lighting on wildlife is hampered by the confusing use of terminology in the SDEIS/EIR. The issue is routinely described as an analysis of "light emissions," and the magnitude of lighting is described in foot-candles ("fc"). The difficulty with this is that foot-candles (or the SI equivalent lux) are measures of illumination within an area, not the emission of light from a source. Light emissions should be described in terms of luminance. Both illumination and luminance are relevant to assessment of the biological impacts of artificial lighting. Luminance is primarily associated with attraction and repulsion of animals, while illumination primarily results in orientation and disorientation.²⁷ Analysis of lighting should therefore clearly distinguish between illumination and luminance in considering impacts to wildlife.

The analysis of lighting impacts from all Alternatives lacks relevant spatial information to reach meaningful conclusions. For example, the baseline conditions within the dunes Habitat Restoration Area are described as ranging from 0.004 fc to 0.26 fc.²⁸ For all build scenarios, the SDEIS/EIR predicts that illumination will increase by 0.34 fc. The spatial distribution of this increase is not described, which makes it difficult to discern how large an area will be subjected to increased lighting from the project.

The SDEIS/EIR tries to reach the conclusion that current lighting levels have no adverse influence on wildlife. This conclusion is not supported by the facts. First, all lighting levels within the dunes were recorded during a night with a clear sky. Light reflected by clouds or fog is at a minimum on clear nights; ambient illumination may increase substantially on overcast or foggy nights.²⁹ The

26. DEIS/EIR, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 509.

27. Health Council of the Netherlands. 2000. *Impact of outdoor lighting on man and nature*. Health Council of the Netherlands, The Hague.

28. SDEIS/EIR, p. 4-452.

29. Moore, M.V., S.M. Pierce, H.M. Walsh, S.K. Kvalvik, and J.D. Lim. 2000. Urban light pollution alters the diel vertical migration of *Daphnia*. *Verhandlungen der Internationalen Vereinigung für Theoretische und Angewandte Limnologie* 27:779-782.

characterization of the baseline conditions does not therefore adequately represent lighting impacts, given the frequency of these meteorological conditions along the coast.

Second, the biological analysis asserts that only nocturnal and crepuscular species could be affected by artificial night lighting. This conclusion reveals a failure to understand basic ecology and an ignorance of the scientific literature. One of the common effects of artificial night lighting is to extend the activity period of a diurnal species into the nighttime hours. This has been well documented for birds,³⁰ and is so notable in reptiles that animals exhibiting such behavior have been characterized as using the "night light niche."³¹ In another example, seals extended foraging time on salmon by using the lights from a bridge overhead.³² Extended activity times for diurnal species results in disruption of interactions with other species. Species with extended activity periods may 1) subject other species to increased predation, 2) increase competition with nocturnal and crepuscular species, and 3) be subject to additional predation. The outcome of these altered species interactions will be positive, neutral, and negative for different members of the community, be they diurnal, crepuscular, or nocturnal. One experimental investigation reports the outcome of increased foraging time allowed by artificial lighting for butterfly larvae. The higher growth rate associated with longer photoperiod was offset by significantly higher predation on the butterfly larvae from the primary parasitoid species.³³ The SDEIS/EIR errs dramatically in claiming that diurnal species would not be affected by artificial night lighting.

Third, the SDEIS/EIR does not discuss the relevant literature to develop thresholds to determine adverse impacts from lighting. Rather, it draws on the rather illogical statement that because sensitive species are present in the dunes area with existing light levels, the light does not adversely affect these species.³⁴ Presence of a species in a degraded habitat does not mean that the habitat is not degraded. The conclusion of no impact from existing lighting cannot be drawn without knowing the density of sensitive species in the absence of artificial night lighting. Even using the measurements taken on a clear night for the SDEIS/EIR, artificial illumination on the dunes reaches 0.26 fc (2.8 lux), which is an order of magnitude greater than that provided by a full moon (~0.1 lux). The claim that illumination of this magnitude does not affect wildlife is untenable, given the known influences of lunar cycles on wildlife behavior. For example, scorpions stay closer to their burrows during the full moon.³⁵ Other animals,

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30. Goertz, J.W., A.S. Morris, and S.M. Morris. 1980. Ruby-throated hummingbirds feed at night with the aid of artificial light. *Wilson Bulletin* 92:398-399. Freeman, H.J. 1981. Alpine swifts feeding by artificial-light at night. *British Birds* 74(3):149. Hill, D. 1990. The impact of noise and artificial light on waterfowl behaviour: a review and synthesis of the available literature. British Trust for Ornithology Report No. 61, Norfolk, United Kingdom. Frey, J.K. 1993. Nocturnal foraging by scissor-tailed flycatchers under artificial light. *Western Birds* 24(3):200. Negro, J.J., J. Bustamante, C. Melguizo, J.L. Ruiz, and J.M. Grande. 2000. Nocturnal activity of lesser kestrels under artificial lighting conditions in Seville, Spain. *Journal of Raptor Research* 34(4):327-329. Thurber, W.A., and O. Komar. 2002. Turquoise-browed motmot (*Eumomota superciliosa*) feeds by artificial light. *Wilson Bulletin* 114(4):525-526.
 31. Schwartz, A., and R.W. Henderson. 1991. *Amphibians and reptiles of the West Indies: descriptions, distributions, and natural history*. University of Florida Press, Gainesville.
 32. Yurk, H., and A.W. Trites. 2000. Experimental attempts to reduce predation by harbor seals on out-migrating juvenile salmonids. *Transactions of the American Fisheries Society* 129(6):1360-1366.
 33. Gotthard, K. 2000. Increased risk of predation as a cost of high growth rate: an experimental test in a butterfly. *Journal of Animal Ecology* 69(5):896-902.
 34. SDEIS/EIR, p. 4-453.
 35. Skutelsky, O. 1996. Predation risk and state-dependent foraging in scorpions: effects of moonlight on foraging in the scorpion *Buthus occitanus*. *Animal Behaviour* 52(1):49-57.

including snakes,³⁶ small mammals,³⁷ lagomorphs,³⁸ and bats,³⁹ similarly avoid foraging during the full moon to avoid the increased predation risk. With areas of the dunes subjected permanently to illumination brighter than that of a full moon, the conclusion that this baseline condition causes no impacts is not supported by scientific evidence. Even the dimmest illumination found in the baseline conditions at the dunes (0.004 fc = 0.043 lux) is still greater than the light of a quarter moon (0.01 lux), let alone a moonless clear night (i.e., starlight only with no light pollution; 0.001 lux), or a moonless overcast night (i.e., no starlight with no light pollution; 0.0001 lux).

With these natural illumination levels in mind, it becomes evident that impacts from additional light created by the project will be significant to wildlife. All project Alternatives would increase illumination within the Habitat Restoration Area so that illumination would range from 0.344–0.6 fc (3.7–6.5 lux). This illumination is 37 to 65 times brighter than that of a full moon. Given that the wildlife species of the dunes evolved for hundreds of thousands of years with, and are adapted to, a natural light regime with a maximum illumination of the full moon, and some wildlife species may detect and respond to illuminations below 0.01 or even 0.0001 lux,⁴⁰ an increase of 0.34 fc (3.6 lux) constitutes a significant adverse impact.

3.2 Noise and Wildlife

In our 2001 comments on the DEIS/EIR, we requested that the impact of noise on wildlife be analyzed. The SDEIS/EIR presents an analysis, but it is lacking in scope and logic.

The scope of the analysis of noise impacts is limited in the SDEIS/EIR to sensitive species only. While these impacts are important, this scope is unduly narrow, because it ignores impacts to wildlife species not designated as “sensitive” that are found in rare natural communities (also called “sensitive habitats”). Rare natural communities, such as southern foredune, dune scrub, and valley needlegrass grassland, are important for both their flora and fauna. It would defeat the purpose of protecting such sensitive habitats if impacts to the wildlife in those habitats are not analyzed. The noise analysis should therefore be expanded to consider impacts to the wide range of wildlife found in the sensitive habitats at LAX, and not limited to only those individual species designated as sensitive.

The logic of the noise analysis is also flawed. This is exemplified by the conclusion that, “Based on the analysis of existing noise levels at locations occupied by sensitive species, and the presence of sensitive species within these areas, it appears that current noise conditions do not adversely affect sensitive species at LAX.”⁴¹ Again, as is the case with the analysis of artificial night lighting, insufficient information is available in the SDEIS/EIR to draw this conclusion. If the density of sensitive species

36. Clarke, J.A., J.T. Chopko, and S.P. Mackessy. 1996. The effect of moonlight on activity patterns of adult and juvenile prairie rattlesnakes (*Crotalus viridis viridis*). *Journal of Herpetology* 30(2):192–197. Klauber, L.M. 1939. *Rattlesnakes: their habits, life histories, and influence on mankind*. Second edition. Vol. 1. University of California Press, Berkeley.

37. Lima, S.L. 1998. Stress and decision making under the risk of predation: recent developments from behavioural, reproductive, and ecological perspectives. *Advances in the Study of Behavior* 27:215–290.

38. Gilbert, B.S., and S. Boutin. 1991. Effect of moonlight on winter activity of snowshoe hares. *Arctic and Alpine Research* 23(1):61–65.

39. Rydell, J. 1992. Exploitation of insects around streetlamps by bats in Sweden. *Functional Ecology* 6:744–750.

40. Tarano, Z. 1998. Cover and ambient light influence nesting preferences in the Tungara frog *Physalaemus pustulosus*. *Copeia* 1998(1):250–251.

41. SDEIS/EIR, p. 4-453.

without elevated noise levels were known, and those densities remained the same with elevated noise, then perhaps a conclusion of no impact could be reached. But the SDEIS/EIR does not report density of occupation by any sensitive species (except El Segundo blue butterfly, *Euphilotes bernardino allyni*) and presents no comparison to suggest that densities would be the same in the absence of the noise associated with the fourth largest airport in the United States. Without these critical parts of a logical argument, the conclusion that existing noise does not affect sensitive species at LAX is unfounded.

Beyond the faulty conclusion that *current* noise levels do not affect sensitive species at LAX, the SDEIS/EIR also asserts that *increased* noise would not affect sensitive species. This conclusion is a result of the inappropriately narrow scope of the analysis and a failure to consider reasonable thresholds for noise effects. A rather exhaustive body of literature is referenced, but glossed over by the SDEIS/EIR, that illustrates the adverse impacts of airport noise on vertebrates, even at levels far below the thresholds in the SDEIS/EIR. Chronic noise, even at low levels, is associated with elevated stress hormone levels, higher blood pressure, faster heart rates, and other physiological effects.⁴² As a result, birds, mammals, and other vertebrates may show anatomical differences (smaller body size, enlarged adrenal glands) from prolonged exposure to noise.

A study of the influence of aircraft overflights on birds is cited in the SDEIS/EIR, noting that "there were no major differences in the nesting productivity of the most abundant species, and the nesting success was high and similar for both the control site and the test site."⁴³ This reference is rather disingenuous, because it neglects to inform the reader that the Alaska study site experienced L_{max} below 70 dB(A) while the L_{max} at LAX ranges 90–140 dB(A) under the various Alternatives. This represents a considerable difference, because decibels are measured on a logarithmic scale.

Road noise, which is several orders of magnitude quieter than aircraft noise, has been documented to exert an adverse impact on breeding birds. Of 45 bird species investigated in woodlands in The Netherlands, 33 showed significantly depressed breeding density in response to increased noise levels near roads. All species in the small passerine families Sylviidae, Fringillidae, and Emberizidae were affected by noise.⁴⁴ Empirical measurement of the threshold value triggering decreased density in woodlands shows that for all bird species combined the threshold value is 42–52 dB(A), with individual species exhibiting thresholds as low as 36 dB(A) and as high as 58 dB(A).⁴⁵ Furthermore, years with overall low population densities showed lower threshold levels. Similar research has been conducted for

42. Manci, K.M., D.N. Gladwin, R. Vilella, and M.G. Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. U.S. Fish and Wildlife Service National Ecology Research Center, Ft. Collins, Colorado. NERC-88/29. 88 pp.

43. Rozell, K.B. 2001. Effects of military overflights on nesting neotropical migrant birds. Alaska Bird Observatory, Fairbanks.

44. Reijnen, R., R. Foppen, and G. Veenbaas. 1997. Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation* 6:567–581.

45. Reijnen, R., R. Foppen, C. ter Braak, and J. Thissen. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology* 32:187–202.

Reijnen, R., and R. Foppen. 1995. The effects of car traffic on breeding bird populations in woodland. IV. Influence of population size on the reduction of density close to a highway. *Journal of Applied Ecology* 32:481–491. Reijnen, R., R. Foppen, and H. Meeuwssen. 1996. The effects of traffic on the density of breeding birds in Dutch agricultural grasslands. *Biological Conservation* 75:255–260.

grasslands. Overall, this research shows that breeding bird habitat is degraded at noise levels as low as 36 dB(A).⁴⁶

Mammals are likewise vulnerable to impacts from chronic airport noise:

Only a few studies of the physiological effects of noise on rodents have involved wild animals. A field study by Chesser et al. (1975) involved two populations of house mice near the end of a runway at Memphis International Airport. Adult mice also were collected from a rural field 2.0 km from the airport field. Background noise levels at both fields were 80–85 dB. Noise levels of incoming and outgoing aircraft at the airport field averaged 110 dB, with the highest reading reaching 120 dB. Total body weights and adrenal gland weights of mice from the fields were measured. Additional mice were captured from the rural field, placed in the laboratory, and exposed to 1 minute of 105-dB recorded jet aircraft noise every 6 minutes to determine if noise was the causative factor. Control mice were not subjected to noise. After 2 weeks, the adrenals were removed and weighed. Adrenal gland weights of male and female mice from the airport field were significantly greater than those of mice from the rural field. The noise-exposed mice in the laboratory study had significantly greater adrenal gland weights than the control mice. After ruling out stress factors, such as population density, Chesser et al. (1975) concluded that noise was the dominant stressful factor causing the adrenal weight differences between the two feral populations.⁴⁷

While house mice are of no regulatory concern, native small mammals on the El Segundo dunes include harvest mouse, *Reithrodontomys megalotis*, and desert wood rat, *Neotoma lepida*, which are locally significant. But again, the SDEIS/EIR does not analyze these impacts because it concentrates only on sensitive species, and not on the full range of wildlife species in sensitive habitats.

The scientific literature provides ample evidence to conclude that the sensitive habitats at LAX are degraded by noise from airport operations and that increased noise would constitute a significant adverse impact.

4.0 Mitigation Measures

The SDEIS/EIR, because it relies on the MLEP to formulate mitigation measures for impacts to sensitive species and biotic communities, contains deeply flawed mitigation measures.

The SDEIS/EIR reports that all of the proposed project Alternatives will destroy four seasonal ponds occupied by western spadefoot toads on the south airfield. These populations number at least several hundred adults and all sites would be destroyed by the various project Alternatives. The SDEIS/EIR estimates occupied area as 8.97 acres of ephemerally wetted areas and adjacent upland habitats. Spadefoot toads require upland habitats surrounding their aquatic habitat.⁴⁸ It is unclear how upland habitats were measured for the SDEIS/EIR. Critically important in the analysis is that the species is found in four separate areas. Even though the areas are close to each other, the existing configuration of

46. Reijnen, R., R. Foppen, and H. Meeuwssen. 1996. The effects of traffic on the density of breeding birds in Dutch agricultural grasslands. *Biological Conservation* 75(3):255–260. Reijnen, R., R. Foppen, and G. Veenbaas. 1997. Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation* 6(4):567–581.

47. Mancini, K.M., D.N. Gladwin, R. Vilella, and M.G. Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. U.S. Fish and Wildlife Service National Ecology Research Center, Ft. Collins, Colorado. NERC-88/29. 88 pp.

48. Ruibal, R., L. Trevis, and V. Roig. 1969. The terrestrial ecology of the spadefoot toad *Scaphiopus hammondi*. *Copeia* 572–584.

habitat patches is important to reduce risk to the species from a catastrophic event (e.g., chemical spill). Depending on the separation of the pools, there may still be genetic exchange among the populations in each. These risk dynamics should be considered when evaluating the impact on the species and potential mitigation measures.

Loss of the LAX population of western spadefoot toads would cause a significant restriction of the range of the species. Because of the significance of the LAX population to the range of the species, mitigation areas should be as close as possible to the existing sites. The first choice should be within the 100 acres north of the Habitat Restoration Area where vernal pools were found historically.⁴⁹ This site would not require land acquisition and would be consistent with achieving other mitigation goals within this area. Furthermore, the biological consultants for the LAX Master Plan recommend that this site be restored with vernal pools.⁵⁰ The second priority for creation of habitat and reintroduction of western spadefoot toad is the West Bluffs site. While this site is currently graded for development, the owner is willing to sell the property, which historically supported appropriate vernal pool habitat. The area of the reintroduction site must at least equal the area occupied at LAX. Given the difficulty of restoring habitat and establishing rare species, a 3:1 mitigation ratio for pool surface area would be more appropriate. This surface area must be accompanied by surrounding upland habitat at a ratio of 10 to 15 acres for each acre of pool surface area. Ideally the mitigation pool surface area would be divided among at least three pools to minimize the effects from a possible catastrophic event.

Mitigation for impacts to Riverside fairy shrimp (*Branchinecta sandiegoensis*) should use the same pool system as developed for the western spadefoot toad.

The SDEIS/EIR suggests that the impact of destroying at least 83 acres of habitat for loggerhead shrike can be mitigated by enhancing habitat within the El Segundo dunes. As proposed, this mitigation measure will not be successful. It suggests that the loss of 83 acres of habitat can be offset by enhancing habitat within 300 acres of existing, occupied habitat. The SDEIS/EIR presents no evidence that the 300 acres of the El Segundo dunes could support a greater density of shrikes. Surveys of the El Segundo dunes in 1995 and 1998 showed this area to be occupied by breeding shrikes.⁵¹ An average of six individuals per survey were seen within the Habitat Restoration Area in 1995.⁵² Territory size for loggerhead shrikes on the Channel Islands is large, 34 ha (~84 acres),⁵³ while mainland territories are somewhat smaller, 4.4–16.0 ha (~10.9–39.5 acres).⁵⁴ Assuming the Habitat Restoration Area supports three pairs of breeding shrikes, the territory size would be ~27 ha (~66.7 acres). Experts familiar with shrikes and the El Segundo dunes doubt that the mitigation measure would be successful in increasing shrike density in this occupied habitat (Professor Hartmut Walter, UCLA Department of Geography, pers. comm.).

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49. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles coastal prairie, a vanished community. *Crossosoma* 26(2):71–102.
 50. DEIS/EIR, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 508.
 51. DEIS/EIR, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 227.
 52. DEIS/EIR, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, pp. 469–483.
 53. Scott, T.A., and M.L. Morrison. 1990. Natural history and management of the San Clemente loggerhead shrike. *Proceedings of the Western Foundation for Vertebrate Zoology* 4:23–57.
 54. Miller, A.H. 1931. Systematic revision and natural history of the American shrikes (*Lanius*). *University of California Publications in Zoology* 38:11–242.

Only one of the three proposed enhancement activities (removal of roads) could be conducted within the Habitat Restoration Area. The other enhancement activities would be conducted outside the Habitat Restoration Area. If enhancement will occur outside the Habitat Restoration Area, then the mitigation measure must establish that restored areas will be protected permanently as natural habitat. The SDEIS/EIR fails to state that mitigation areas outside of the Habitat Restoration Area will be permanently protected.

Enhancement to improve habitat for loggerhead shrikes might also have adverse consequences on other species. Shrikes are fond of Jerusalem crickets as forage.⁵⁵ The Jerusalem cricket found at the El Segundo dunes is a sensitive endemic species.⁵⁶ This is meant only to illustrate that artificially increasing the density of one species is not necessarily consistent with management for other species or for maximum biological diversity. Similarly, as discussed below, enhancement to support a large population of jackrabbits would conflict with the provision of habitat for El Segundo blue butterflies.

The proposed mitigation for impacts to black-tailed jackrabbits involves relocation from a ruderal grassland to the Habitat Restoration Area, which contains southern dune scrub and foredune scrub vegetation. It is likely that this mitigation measure will not succeed. First, the 200 acres (81 ha) of the Habitat Restoration Area will support a lower density of jackrabbits than the open grassland they now inhabit. Black-tailed jackrabbits are generalist herbivores, and therefore can survive in a range of vegetation types. The density of jackrabbits differs, however, with the composition of the vegetation. Sites that have very high grass cover relative to shrubs and forbs support far greater densities. For example, a steppe habitat with 59% grass, 10% forb, and 31% shrub cover supported 18.4 jackrabbits per ha, and density decreased with increasing shrub cover to 1.4 individuals per ha at 91.0% shrub cover.⁵⁷ Because the Habitat Restoration Area is intended to support scrub habitats, jackrabbits could only persist at a far lower density than they do in their current habitat at the Airport Operations Area, meaning a much larger area would be required to support the population. Furthermore, the SDEIS/EIR does not consider the possible reasons that black-tailed jackrabbits are no longer present on the dunes, even though they were present historically. For some reason the population was extirpated, and unless the forces that caused the extirpation are removed, the mitigation will fail. We see two possible explanations. First, the small population size within the Habitat Restoration Area was vulnerable to random events simply because it was small. If this is true, then the relocation will eventually fail unless the dunes are managed to maintain a larger population size to the detriment of other sensitive species on the dunes, including El Segundo blue butterfly. A second possible explanation for the disappearance of jackrabbits from the dunes can be deduced from the timing of their extirpation. According to surveys in the DEIS/EIR, jackrabbits died out (or were killed) sometime between surveys in 1978 and 1988.⁵⁸ The other major change in the mammal fauna between 1978 and 1988 was the appearance of the non-native red fox as a breeding resident on the dunes. Red fox are recorded predators of black-tailed jackrabbits, so the invasion and success of this predator may have resulted in the elimination of jackrabbits. If this is true, any jackrabbit relocation program must be accompanied by a humane red fox (and feral cat/dog) control program.

55. Myers, H.W. 1922. *Western birds*. The Macmillan Company, New York, p. 249.

56. Mattoni, R.H.T. 1990. Species diversity and habitat evaluation across the El Segundo sand dunes at LAX. Los Angeles Department of Airports, Los Angeles.

57. Johnson, R.D., and J.E. Anderson. 1984. Diets of black-tailed jack rabbits in relation to population density and vegetation. *Journal of Range Management* 37(1):79-83.

58. DEIS/EIR, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 493.

Mitigation for Lewis' evening primrose (*Camissonia lewisii*) does not ensure that a replacement population of the species will be created, only that more individuals will be grown on the El Segundo dunes, where the species is already found. In addition to establishing a numerical goal for the number of individuals to be replaced, mitigation should ensure that the area occupied by the species will increase by at least the 2.5 acres that would be lost. Because there is a risk-spreading benefit in the disjunct configuration of the impacted population, the mitigation site should be geographically distinct from currently occupied sites.

Mitigation Measure MM-ET-4 describes actions to mitigate impacts to El Segundo blue butterfly from Alternative D. It contains the following provisions, summarized and quoted from here, that deserve comment based on our previous experience⁵⁹ with such mitigation efforts: 1) avoid flight season for construction, such that construction occurs between October 1st and May 31st, 2) mitigate the number of plants of coast buckwheat at 1:1 ratio, 3) "salvage existing coast buckwheat plants and any larvae on the plant or in the soil below the plant that would be removed," and 4) salvage any El Segundo blue butterfly larvae from plants that are not salvaged.⁶⁰ While it may seem intuitive to avoid construction during the adult flight season, the species may indeed be more vulnerable at other times because individuals are in diapause as pupae in the sand beneath the plants. While flying adults can escape physical disturbance in the environment, pupae cannot move to avoid being crushed. If the Section 7 consultation with USFWS results in a "no jeopardy" determination, the following strategy would reduce impacts to the butterfly. Plants that will be impacted should be carefully removed in the late Spring before adult butterflies eclose by cutting them at the surface of the sand. This minimizes disturbance to pupae in the duff and sand below. Then construction should be delayed until after the ensuing flight season. Butterflies that emerge to find their plants gone will be forced to emigrate to nearby habitat. If desired, the affected areas can be searched for pupae after the flight season to locate any pupae in multiple-year diapause. Relocation of mature coast buckwheat plants is not a cost efficient means of mitigation. Most plants will die, and the butterfly would be better served by restoring more habitat with container plants. Given the timing of the construction phase, the existing measure incorrectly refers to salvage of larvae at a time when only pupae would be found. Finally, mitigation at a 1:1 ratio for plants is insufficient. The mitigation ratio for direct impacts to this rare natural community should be at a 5:1 ratio on an area basis rather than a per plant basis. The impacts to 0.24 acres of occupied El Segundo blue butterfly habitat (which will be scattered across the Habitat Restoration Area) should be mitigated by restoration of 1.25 acres of the vegetation type in similar topoclimatic configuration. Impacts to backdune areas should be mitigated by restoring backdune vegetation, not by planting a remote foredune area as contemplated by the mitigation measure.

5.0 Conclusion

The full DEIS/EIR, including the new Supplement, fails to provide a realistic assessment of the impacts of the proposed project on biological resources, including sensitive species and rare natural communities. The centerpiece of the analysis of direct impacts is a fatally flawed methodology. This methodology confuses the distinction between habitat and vegetation type, and even fails to account for

59. Longcore, T., R. Mattoni, and A. Mattoni. 2003. Final report for Palos Verdes blue butterfly pupal salvage on Palos Verdes and San Pedro housing, San Pedro, California. The Urban Wildlands Group, Los Angeles (Department of the Navy Letter Agreement # N68711-02-LT-C3001). 9 pp.

60. DSEIS/EIR, p. 4-494.

differences between vegetation types. The assessment of indirect impacts relies on illogical assertions (e.g., if a habitat is degraded for a species then further degradation will have no adverse impact), and fails to consider the scientific literature and its application to the impact analysis.

The magnitude of the LAX Master Plan development and its impacts to wildlife habitat for all four Alternatives, combined with the regional setting and cumulative impacts from development in the City of Los Angeles, lead to the conclusion that implementation of the Master Plan will have significant adverse impacts on biological resources. The mitigation measures proposed to offset these impacts are wholly insufficient to reduce these impacts to a less than significant level.

Appendix A

**Review of Biological Resources Analysis in LAX Master Plan
Draft Environmental Impact Statement/Environmental Impact Report**



Land Protection Partners

P.O. Box 24020, Los Angeles, CA 90024-0020
Telephone: (310) 276-2306

Review of Biological Resources Analysis in LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report

August 8, 2001

**Travis Longcore, Ph.D.
Catherine Rich, J.D., M.A.**

SAL00019

Review of Biological Resources Analysis in LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report

This review pertains to the Federal Aviation Administration and Los Angeles World Airports Joint Draft Environmental Impact Statement/Environmental Impact Report ("EIS/R"). It addresses Sections 4.10 (Biotic Communities), 4.11 (Endangered and Threatened Species of Flora and Fauna), 4.12 (Wetlands), 4.14 (Coastal Zone), and 4.18 (Light Emissions). The review was prepared by Dr. Travis Longcore and Catherine Rich, who are experts in the ecology and history of the natural communities that would be affected by the proposed airport expansion. Dr. Longcore has co-authored several peer-reviewed scientific articles on the El Segundo Dunes and the Los Angeles Coastal Prairie (including its vernal pools),¹ which both would be adversely affected by the proposed project.

The presentation of information in the EIS/R about biological resources is segmented into several sections. For the purpose of this review, however, all biological resource issues are treated together, because mitigation measures for biological impacts are largely the same.

1.0 Project Description

For the purpose of discussing the impacts to biological resources, the EIS/R does not provide a complete project description. Within the extent of the Master Plan boundaries, it is unclear what the disposition of certain areas of biologically significant property will be. In maps of the various project alternatives, the legend indicates useless designations such as "Airport Related."² There is no way to ascertain with certainty what the use of such land will be under the various alternatives.

1.1 Failure To Analyze Northside/Southside Project

The EIS/R describes the LAX Northside Project as "Collateral Development" that previously has been entitled through the CEQA process.³ Reliance on old CEQA documentation is problematic, and development of this project would seem to require a reopening of the environmental review, especially given the changed conditions since the approval in 1983. However, the real difficulty is that the EIS/R replaces the LAX Northside Project with the Westchester Southside Project in each of the three build alternatives for the Master Plan. These projects are not the same, and even if the CEQA documentation for the Northside Project is deemed adequate, the Southside Project must be fully analyzed under CEQA. The EIS/R does not completely describe or analyze the biological impacts of the Southside Project.

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1. Mattoni, R., T. Longcore, C. Zonneveld, and V. Novotny. 2001. Analysis of transect counts to monitor population size in endangered insects: the case of the El Segundo blue butterfly, *Euphilotes bernardino allyni*. *Journal of Insect Conservation* 5(3):197-206. Longcore, T., R. Mattoni, G. Pratt, and C. Rich. 2000. On the perils of ecological restoration: lessons from the El Segundo blue butterfly. Pp. 281-286 in J.E. Keeley, M. Baer-Keeley, and C.J. Fotheringham (eds.) *2nd Interface Between Ecology and Land Development in California*. U.S. Geological Survey, Sacramento, CA. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445-452. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles Coastal Prairie, a vanished community. *Crossosoma* 26(2):71-102.
 2. EIS/R, Figures 3-6, 3-11, 3-15.
 3. EIS/R, pp. 3-20, 3-29.

The Westchester Southside Project, as depicted in the EIS/R,⁴ would include the conversion of 100 acres of the El Segundo Dunes to a golf course. (Several figures in the EIS/R appendices map this area at the northern portion of the dunes as "golf course/open space" and include "Resort Hotels" within the same color designation. At a minimum the maps indicate some level of development of the dunes as part of the Westchester Southside Project.) The dunes golf course/open space development was not included in the CEQA analysis for the LAX Northside Project, and remains unanalyzed for compliance with any environmental laws (CEQA, NEPA, California Coastal Act). It is inappropriate for the EIS/R to rely on the Westchester Southside Project — which is a site for relocation of displaced businesses⁵ — for mitigation, and not to evaluate the full impacts of the development. While all of the El Segundo Dunes are within the Master Plan area, and the alternatives themselves show no development on the 100 acres at the northern end of the dunes, the result of adopting any of the three project alternatives is to develop 100 acres of dunes in association with "Resort Hotels" and "golf course/open space."⁶ The resource value of this area is discussed later, but the analysis of the Westchester Southside Project should not be piecemealed. Currently, the biological impacts of the Westchester Southside Project do not seem to be analyzed fully, nor are they included in the discussion of cumulative impacts for the project. Even if one accepts the premise of the EIS/R that the project will proceed absent approval of the Master Plan, the Westchester Southside Project is "reasonably foreseeable" — in fact relied upon for mitigation — and all of its impacts must be disclosed and mitigated as part of the Master Plan EIS/R.

The decision not to address the biological impacts of the Westchester Southside Project can be interpreted as a strategic choice to avoid disclosure of the full impacts of the airport expansion project. From a biological standpoint, the Westchester Southside Project, even though it would involve fewer square feet of built space than the LAX Northside Project (2.6 million square feet vs. 4.5 million square feet), it has a larger geographic footprint and greater biological impact. Any of the three build alternatives plus the Westchester Southside Project would be a catastrophe for the biological resources found at LAX.

1.2 Previous Failure To Disclose Impacts of Development on El Segundo Dunes

Los Angeles World Airports ("LAWA") has previously failed to disclose impacts of development on the El Segundo Dunes. In 1999, a newspaper story announced that LAWA was planning to install landscaping on the northern end of the El Segundo Dunes, along Waterview, Rindge, and Napoleon streets. The Urban Wildlands Group, a Los Angeles-based nonprofit whose board includes the authors of this letter, contacted LAWA to inform project managers of the sensitive resources present and request that the project not include invasive plants that would degrade the dunes. LAWA promised, but then failed to provide, the plant list for the project. LAWA proceeded to implement the project, but failed to secure the proper permits from the City of Los Angeles as required under the California Coastal Act.⁷ After installing a new walkway and over 90 mature, non-native palm trees in a sensitive habitat area,⁷

4. EIS/R, Appendix JI. Biological Assessment Technical Report, Figures 8, 11, 14.

5. EIS/R, pp. 3-33, 3-47, 3-56.

6. City of Los Angeles Ordinance 169,767 restricts use of the northern 100 acres of the El Segundo Dunes at LAX to "nature preserve and accessory uses only." This ordinance was passed unanimously by the City Council on April 6, 1994 as part of the General Plan/Zoning Consistency Program. Given this unequivocal direction from the City, it is unclear why the Master Plan is ambiguous about the disposition of this area, unless the intention is to attempt to remove the development conditions from the property and seek another use as part of the Westchester Southside Project.

7. Installation of palm trees is damaging ecologically, and also provides sites for birds to perch, potentially increasing bird strikes with aircraft. Consultants for the airport report that "[t]he El Segundo Dunes provides relatively few attractants

(cont'd)

LAWA was instructed to stop work by the California Coastal Commission, told that it must obtain a permit, and subsequently applied for a permit from the City. The Urban Wildlands Group opposed the permit application for the partially implemented project because it would significantly disrupt habitat values of an environmentally sensitive habitat area ("ESHA"), as defined under the California Coastal Act.⁸ The City analysis of the project also agreed that the site was an ESHA.⁹ The appeal of the permit was denied by the City of Los Angeles Board of Public Works with the stipulation that LAWA resolve the issue in consultation with The Urban Wildlands Group and those residents opposed to the palm trees. This has not yet happened.

LAWA steadfastly maintains that the 100 acres outside of the El Segundo Blue Butterfly Preserve is not part of the El Segundo Dunes and that it will be developed as a golf course.¹⁰ The area, however, is within the jurisdiction of the California Coastal Commission, and no approved Local Coastal Plan has been produced that would allow for a golf course. The EIS/R provides even more information to join previously published sources¹¹ showing that the area is an environmentally sensitive habitat area and therefore protected by Section 30240(a) of the California Coastal Act. For example, the EIS/R itself discloses that El Segundo blue butterflies (*Euphilotes bernardino allyni*) occupy one subsite,¹² sensitive Lewis' evening primrose (*Camissonia lewisii*) occupies seven subsites,¹³ and the area is occupied by sensitive species such as silvery legless lizard (*Anniella pulchra*), San Diego horned lizard (*Phrynosoma coronatum blainvillei*),¹⁴ loggerhead shrike (*Lanius ludovicianus*; breeding),¹⁵ and Dorothy's sand dune weevil (*Trigonoscuta dorothea dorothea*).¹⁶ The golf course or other development on the dunes should either be analyzed as part of the Master Plan EIS/R for conformance with applicable laws, including the California Coastal Act, or be explicitly deleted from the plans for the area. The EIS/R should offer some certainty about what development will take place within the Master Plan boundaries and disclose the impacts of that development.

to birds which may partially account for the significantly lower percentage of strikes occurring over this area than over the approach area. The El Segundo Dunes naturally supports very few trees — the only trees present are non-native trees that have been planted...." (EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 341). Without complete environmental review, LAWA planted more attractants for birds in the form of palm trees. The EIS/R also reports that the native birds of the dunes are not involved in bird strikes, while species promoted by urban development, such as pigeons and gulls, are involved in the most strikes.

8. California Public Resources Code §§ 30107.5, 30240.
9. City of Los Angeles. 2001. Coastal Development Permit Application No. 00-05 Final Staff Report, p. 5, "Consequently, for Coastal Act analysis purposes, the Project site is within an environmentally sensitive habitat area...."
10. Personal communication with Steve Crowther, LAWA Environmental Management Bureau, March 9, 2000, by telephone with Dr. Travis Longcore. City of Los Angeles 2001. Coastal Development Permit Application No. 00-05 Final Staff Report, p. 3, "The Project, a narrow, landscaped area along the streets, would provide a buffer between the golf course and residential areas...."
11. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445-452.
12. EIS/R, Appendix J1. Biological Assessment Technical Report, Figure 20.
13. EIS/R, Figure 4.10-2.
14. EIS/R, Figure 4.10-4.
15. EIS/R, Figure 4.10-5. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 244.
16. EIS/R, Appendix J1. Biological Assessment Technical Report, p. 214.

2.0 Current Conditions

The description of current conditions of the biological resources within the Master Plan boundaries is biased toward underestimating the value of the habitats that will be impacted.

2.1 Surveys

A great deal of effort was expended surveying the insects of the El Segundo Dunes, especially within the El Segundo Blue Butterfly Preserve, even though this area is not targeted for direct development. Surveys for areas that would be subject to significant direct impacts were inadequate. It appears that only one type of survey — sweep netting — was conducted east of Pershing Drive in the areas that would be most affected by development. This single method would not detect all of the sensitive species that might occur in the area. For example, the El Segundo Jerusalem cricket (*Stenopelmatus* sp.), a burrowing insect, would not be detected with sweep netting. Pitfall trapping would be required to ascertain its presence, and should be performed in the areas of project impacts east of Pershing Drive. Other survey methods, including black lighting and malaise trapping, were conducted only west of Pershing Drive on the El Segundo Dunes, not in the areas of direct project impacts.

While the extensive surveys conducted on the El Segundo Dunes may be useful for evaluating the impacts of the Westchester Southside Project, which the EIS/R does not do, they offer little information to understand the biological communities supported in the open spaces that would be developed under the three development alternatives. For example, the EIS/R provides no summary of the bird surveys conducted at the ephemeral wetlands and open spaces found in the western area of the airport, and provides only handwritten notes buried in the appendices.¹⁷ A summary would be useful to understand the character of the biotic communities in these areas. Species of local conservation concern such as Costa's hummingbird (*Calypte costae*), western meadowlark (*Sturnella neglecta*), and common yellowthroat (*Geothlypis trichas*) were recorded in these areas, yet no complete description of the communities is provided in the text of the document. The biological consultants for the EIS/R report that the ephemeral wetland area at the west end of the airport "provides resting and foraging habitat for numerous resident and migratory bird species,"¹⁸ but the EIS/R provides no summary of these observations or description of the impact of development on these species.

For the El Segundo Dunes, an extensive list of birds is found, complete with species that are almost certainly not present at all. The "Floral Compendium" and "Faunal Compendium" include "species observed or expected to occur on or in the immediate vicinity of the site."¹⁹ On this list are found species that are highly unlikely to be present on the dunes or even near the dunes. For example, acorn woodpecker (*Melanerpes formicivorus*) is not likely to be found on the El Segundo Dunes now or in recent history. Acorn woodpeckers in Los Angeles would be associated with coast live oaks, which are found nowhere on the El Segundo Dunes or the Los Angeles Coastal Prairie. The rather excessive bird list in the Faunal Compendium is made ever more curious by the statement elsewhere by the biological

17. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, pp. 224 (Memo-Results of Directed Surveys for American Peregrine Falcon, et al., 1998), 292 (Memo-Results of Spring Directed Surveys for Burrowing Owl, 1998), 311 (Memo-Results of Winter Directed Surveys for Burrowing Owl, 1998), 416 (Memo-Wildlife Survey of the Argo Ditch, 1997).

18. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 340 (Memo-Aircraft Bird Strike Literature Review).

19. EIS/R, Appendix JI. Biological Assessment Technical Report, Appendix A, pp. 1-5.

consultants for the EIS/R that "the Dunes does not support a large resident bird population."²⁰ It is odd to include these ambitious lists, because the biological analysis does not evaluate the impacts of the three alternatives on the species of wildlife in them.

2.2 "Determined Absent"

The summary table for sensitive species provided in Section 4.10 of the EIS/R is misleading. For many species, the table indicates that they have been "determined absent" from the Master Plan boundaries based on directed surveys. When dealing with small arthropods that are difficult to capture, persist at low numbers, and may have large annual variation in numbers, one cannot conclude that a species is "determined absent." All that can be done is to state that the species was not found during a certain duration and intensity of searching. It is likely that the survey methodology did not possess sufficient statistical power to detect the species.²¹ Presence may be determined conclusively, but absence cannot, especially for cryptic (i.e., small or camouflaged) species. Some degree of certainty about absence could be derived if one had knowledge of the population size, yearly variation in population size of the species, and the trapping efficiency of the survey methods. This information is not available, and therefore no statistically defensible declaration of absence can be made about the sensitive arthropod species.

In other instances, the declaration of absence is contradicted by the reports upon which the section is based. For example, Table 4.10-2 claims that the following species are absent from the Master Plan boundaries: Henne's ecosman moth (*Eucosa hennei*), Rivers' dune moth (*Euxoa riversii*), Ford's sand dune moth (*Psammobotrys fordii*), El Segundo scythrid moth (*Scythris* new sp.), lesser dunes scythrid moth (*Scythris* new sp.), El Segundo goat moth (*Comadia intrusa*), and Santa Monica dunes moth (*Copeblepharon sanctamonicae*). However, in the underlying report, Frank Hovore, the surveyor, writes:

Sensitive moth species (general *Comadia*, *Copeblepharon*, *Euxoa*, *Psammobotrys* [sic], *Scythris*) — A wide variety of moth specimens, including some possibly representing all of these species except *Psammobotrys* [sic], were taken in light traps, but moths in the traps were rendered unidentifiable by the combination of alcohol and churning actions of other species. All of the moth species previously known to occur on the dunes probably persist, because all of the known larval hosts are present. For most moth species, focused light collecting would be necessary to determine presence and distribution, using dry traps or light sheets. Very large numbers of *Psammobotrys* [sic] were collected on the dunes historically (LACM collection), and it is assumed that this species is present, but is highly seasonal and difficult to collect without sustained and focused field efforts.²²

The text presented in Table 4.10-2 of the EIS/R contradicts the surveys that were conducted. Far from being absent, as maintained in Table 4.10-2, a qualified surveyor determined that the methodology was insufficient to determine presence of these moth species, but that the species were indeed probably

20. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 342 (Memo-Aircraft Bird Strike Literature Review).

21. Gibbs, J.P., S. Droege, and P. Eagle. 1998. Monitoring populations of plants and animals. *Bioscience* 48(1):935-940.

22. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 214 (Memo-Results of Spring Surveys for Gastropods and Arthropods, 1998).

present. Mischaracterization such as this undermines the credibility of the description of current conditions presented in the EIS/R.

2.3 Terminology

The EIS/R is inconsistent in its use of terminology describing the 100 acres north of the El Segundo Blue Butterfly Preserve. This area, along with the preserve, is part of the El Segundo Dunes.²³ It has been degraded through residential construction and intrusion of exotic plant species, but it remains of significant biological value and is itself a sensitive habitat (see above, Section 1.2). In various places in the EIS/R, this area is referred to as “dunes and adjacent landforms,” “non-restructured dunes,”²⁴ “100 acres north of Sandpiper Street,”²⁵ and “the 100-acre open space north of the preserve.”²⁶ Implicit in the choice of terminology for this area is perhaps the intention to construct a golf course upon it. The Los Angeles Airport/El Segundo Dunes Specific Plan, adopted in 1992, incorrectly claims that “approximately 100 acres of the Dunes ... do not contain significant habitat resources.”²⁷ The Specific Plan requires the proposed golf course to provide revenue for the upkeep of the dunes habitat preserve,²⁸ thereby lifting that burden from LAWA, which perhaps partially explains LAWA’s enthusiasm for the idea. However, existing zoning for the area — established more recently than the Specific Plan — is as a nature preserve. EIS/R maps should be consistent with the existing “nature preserve” zoning and should consistently acknowledge this area as part of the El Segundo Dunes.

The EIS/R also exhibits some difficulty with terminology to describe the habitat that formerly was found throughout the entire project area inland of the El Segundo Dunes. In a published article, Mattoni and Longcore describe this area as the Los Angeles Coastal Prairie, and document the historic plant diversity and the presence of extensive vernal pools.²⁹ The article has been commended as an exemplar of the practice of historical ecology in *The Historical Ecology Handbook: A Restorationist’s Guide to Reference Ecosystems*.³⁰ For some reason, the EIS/R avoids using the Mattoni and Longcore article where it could be useful. For example, Mattoni and Longcore provide documentation of many sensitive species historically present within the study area from herbarium label texts. This includes a full list of vernal pool species historically found in the area, as well as upland forbs, grasses, and shrubs. Instead, the EIS/R chooses to classify the site as Valley Needlegrass Grassland. The historic evidence does not support the assumption that this area was dominated by perennial grasses; rather it was dominated by forbs. This is an important conclusion of Mattoni and Longcore’s research that the EIS/R neither accepts nor attempts to dispute.

23. Mattoni, R.H.T. 1992. The endangered El Segundo blue butterfly. *Journal of Research on the Lepidoptera* 29(4):277-304. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles Coastal Prairie, a vanished community. *Crossosoma* 26(2):71-102. U.S. Fish and Wildlife Service. 1998. *Recovery plan for the El Segundo blue butterfly (Euphilotes battoides allyni)*. U.S. Fish and Wildlife Service, Portland, Oregon, 67 pp.

24. EIS/R, p. 4-619.

25. EIS/R, p. 4-614 (this is listed separately from “the Los Angeles/El Segundo Dunes”).

26. EIS/R, p. 3-20.

27. City of Los Angeles General Plan, Los Angeles Airport/El Segundo Dunes Specific Plan. Ordinance No. 167,940. June 28, 1992.

28. *Id.* at 6.

29. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles Coastal Prairie, a vanished community. *Crossosoma* 26(2):71-102.

30. Egan, D., and A. Howell. 2001. Introduction. Pp. 1-23 in D. Egan and A. Howell (eds.) *The Historical Ecology handbook: a restorationist’s guide to reference ecosystems*. Washington, D.C.: Island Press.

2.4 Disturbed Dune Scrub/Foredune

Concurrent with the changing terminology about the portion of the El Segundo Dunes not found within the habitat preserve is the decision to classify all dune scrub/foredune outside of the preserve area as disturbed dune scrub. While it is true that the dunes area outside the habitat preserve has a heavier exotic species load, and does not support coast buckwheat (*Eriogonum parvifolium*), it nevertheless has more biological value than is implied by the description. For example, this area supports sensitive plants (Lewis' evening primrose, *Camissonia lewisii*), birds (loggerhead shrike, *Lanius ludovicianus*), and arthropods (see above, Section 1.2). Mattoni et al. describe the ex-residential area in their 2000 article:

Removal of the residences in the 1970s was superficial, leaving some foundations, substantial rubble, foreign soil, roads, and other infrastructure. Vegetation regenerated without assistance, producing a cover of predominately iceplant (*Carpobrotus edulis*) and acacia (*Acacia cyclopis*) with patches of a few highly dispersive dune shrub species.³¹

However, not all ex-residential sites supported the same arthropod communities. Some sites within the ex-residential area supported terrestrial arthropod communities (including rare and sensitive species) that were similar to those found on undisturbed foredune and undisturbed backdune sites.³² This variation in the vegetation and associated wildlife across the 100 acres should be reflected in the EIS/R. The wholesale characterization of the area as "disturbed dune scrub/foredune" is misleading in terms of its value to the dune system and proper statutory designation as an ESHA.

2.5 El Segundo Blue Butterfly

Much ado is made over the population size of the El Segundo blue butterfly ("ESB"). However, the methodology used to calculate population size by LAWA is flawed and overestimates population size by at least 400%. While many methods to track trends in butterfly population size exist in the scientific literature,³³ when LAWA hired consultants in 1994 to prepare the EIS/R, they inexplicably used none of the established methods. While consultants continued walking a transect to count butterflies established by Mattoni in 1984, they stopped conducting surveys throughout the entire season. It is absolutely

31. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445-452, at 446.

32. *Id.* at Table 1, Figure 2.

33. Pollard, E., D.O. Elias, M.J. Skelton, and H.A. Thomas. 1975. A method of assessing the abundance of butterflies in Monks Wood National Nature Reserve in 1973. *Entomologist's Gazette* 26:79-88. Pollard, E. 1977. A method for assessing change in the abundance of butterflies. *Biological Conservation* 12:115-132. Pollard, E. 1984. Synoptic studies of butterfly abundance. Pages 59-61 in R.I. Vane-Wright and P.R. Ackery (eds.) *The biology of butterflies*. Academic Press, London. Pollard, E. 1988. Temperature, rainfall and butterfly numbers. *Journal of Applied Ecology* 25(3):819-828. Zonneveld, C. 1991. Estimating death rates from transect counts. *Ecological Entomology* 16:115-121. Moss, D., and E. Pollard. 1993. Calculation of collated indices of abundance of butterflies based on monitored sites. *Ecological Entomology* 18(1):77-83. Pollard, E., D. Moss, and T.J. Yates. 1995. Population trends of common British butterflies at monitored sites. *Journal of Applied Ecology* 32(1):9-16. Van Strien, A.J., R. Van De Pavert, D. Moss, T.J. Yates, C.A.M. Van Swaay, and P. Vos. 1997. The statistical power of two butterfly monitoring schemes to detect trends. *Journal of Applied Ecology* 34(3):817-828. Brown, J.A., and M.S. Boyce. 1998. Line transect sampling of Karner blue butterflies (*Lycaeides melissa samuelis*). *Environmental and Ecological Statistics* 5(1):81-91. Royer, R.A., J.E. Austin, and W.E. Newton. 1998. Checklist and "Pollard walk" butterfly survey methods on public lands. *American Midland Naturalist* 140(2):358-371. King, R.S. 2000. Evaluation of survey methods for the Karner blue butterfly on the Necedah wildlife management area. *Transactions of the Wisconsin Academy of Sciences Arts and Letters* 88:67-75.

essential to survey throughout the flight season of the butterfly to obtain an estimate of total population size. Furthermore, rather than using an established method to analyze transect counts, Dr. Andrew Huang, an engineer at LAWA, constructed his own method to estimate population size. This method is flawed, and these flaws were explained by Dr. Travis Longcore to Dr. Huang in an email earlier this year, portions of which bear repeating here. The message describes methods used to estimate population size of the ESB by Longcore and others in a scientific article that was at that time in review and has subsequently been accepted for publication in an international scientific journal, the *Journal of Insect Conservation*.

The first method [of calculating population size] was the Pollard Index, which is quite straightforward and about which there can be no argument. There is not a lot of latitude in summing the average weekly count over the course of the season.

The second method is essentially the same as your numerical approximation. This method is first used, albeit with different data sources, by Watt et al in 1977 (Watt, Ward B., Frances S. Chew, Lee R. G. Snyder, Alice G. Watt, and David E. Rothschild. 1977. Population structures of Pierid butterflies I. Numbers and movements of some montane *Colias* species. *Oecologia* 27:1-22.) Watt et al. estimated "total animals [butterflies] present in the brood" by estimating daily butterfly numbers through MRR and extrapolation, summing them to calculate total animal-days, and multiplying this number by the death rate (determined by MRR). Dividing by the longevity (or residence time) would yield the same result. This is what we did, using Arnold's 1979 residence time estimates (ave 6.1 days). Your model does not divide by average longevity, but rather another figure. This is what I don't understand. What is wrong with the logic (used by Watt et al. as well) that the total brood size is equal to the total number of butterfly-days divided by the average butterfly longevity?

$$\frac{\text{butterfly-days}}{\text{longevity (days)}} = \text{butterflies}$$

Your model does something similar, calculating total butterfly days by integrating under the curve (gaussian or not) and dividing by a figure. The question, and the crux of the differences in our results, is the number that you divide by, which is 1.59. You get your number by parameterizing based on the recapture rates. I think the difficulty with this is that you do not know the age of the butterflies that were initially captured. Your method would work if all of the butterflies captured by Arnold on the first day were freshly eclosed adults. However, they cannot be. Some of them will be one, two, or more days old. Failure to account for this will skew your estimate of longevity downwards, and your total population estimate upwards. Now, I am going to guess that you will say that 1.59 days is not the longevity. But if it is not, what is it? Can you see a flaw in the logic of the Watt et al. method or otherwise reconcile it with your method?

One last thing on this method. Our application of it gave a population estimate for 1984 at LAX of 432, while Arnold's MRR estimate was 664, and the Zonneveld model estimated 910. Application of your method would give an estimate of 1,658. (Note: in case you want to calculate these numbers, with the exception of Arnold's estimate, they include an adjustment for the number of flowerheads) (Arnold, R.A. (1986) Studies of the El Segundo blue butterfly - 1984. Inland Fisheries Administrative Report 86-4.)

The third method that we used was the Zonneveld model. What is interesting is that our estimates of death rate (3.3-5.9 days), which vary from year to year, are similar to those given by Arnold (2.3-7.3 days) from MRR. We followed the model as set out by Zonneveld in the 1991 paper. We did not doubt the magnitude of the results because of the correspondence with the Watt et al method, the Pollard index, and the reasonableness of the longevity estimates.³⁴

34. Longcore, T. 6 March 2001. Email to Dr. A. Huang.

Dr. Huang did not defend his method, stating in a response to Dr. Longcore, "You have raised many outstanding issues. ... I am very busy with a number of projects. I won't be able to respond to your questions for awhile."³⁵ To date, he has not provided a substantive response. The EIS/R should therefore be adjusted to reflect El Segundo blue butterfly population numbers that are calculated using the best available scientific methods. Three methods of evaluating the transect counts are given in the *Journal of Insect Conservation* paper, the proofs of which are appended to this report.³⁶

As is evident from the literature about butterfly population size estimation,³⁷ the block counts promoted in the EIS/R are useful only to determine presence of the butterfly, not to estimate population size. The most perplexing part of the discussion of ESB population size by LAWA, both in reports by its consultants and in the EIS/R, is that none of the relevant scientific literature is referenced. Butterflies are conspicuous organisms, and schemes were developed in the 1970s to track population size, yet these are ignored. Sometimes remaking the wheel can lead to innovation, but in this instance it has led to confusion and the propagation of the myth that there are 40,000–80,000 El Segundo blue butterflies on the LAWA property: For example, LAWA claims that in 1998 there were roughly 12,000 ESB along the transect,³⁸ while proper analysis of the data indicates a population of $3,356 \pm 805$ S.D.³⁹ Similarly extravagant claims for the period 1996–2000⁴⁰ should be revised.

The EIS/R discussion of the ESB population size provides a diversion from the real issues at hand. Recovery of the species and downlisting from endangered to threatened status requires securing all of the El Segundo Dunes, including that area not currently in the habitat preserve.⁴¹ The 200-acre preserve is still vulnerable to disease, adverse weather, fire, and other accidents. Long-term extinction risk for the butterfly can be minimized through increasing habitat area, not simply by relying on existing areas to provide spectacular numbers. Furthermore, concentration on the El Segundo blue butterfly draws attention away from the ten other endemic invertebrates found on the dunes whose continued persistence depends on habitat values beyond those needed to maintain the butterfly.⁴²

LAWA's persistent strategy has been to focus on the butterfly and the 200-acre preserve to the exclusion of all else. For example, in the above-described Waterview Street Landscaping Project, LAWA's main claim in support of the project was that it did not affect the butterfly preserve or the butterfly. None of the appellants had argued that the project directly affected the butterfly, and pointed instead to the other sensitive species and habitats found on the project site. This notwithstanding, there are legitimate impacts to the El Segundo blue butterfly that would result from the alternatives in the EIS/R.

35. Huang, A. 7 March 2001. Email to Dr. T. Longcore.

36. Mattoni, R., T. Longcore, C. Zonneveld, and V. Novotny. 2001. Analysis of transect counts to monitor population size in endangered insects: the case of the El Segundo blue butterfly, *Euphilotes bernardino allyni*. *Journal of Insect Conservation* 5(3):197–206.

37. *Id.*

38. Huang, A. November 25, 1998. Estimate of LAX El Segundo Blue Butterfly (ESB) Population (unpublished report).

39. Mattoni, R., T. Longcore, C. Zonneveld, and V. Novotny. 2001. Analysis of transect counts to monitor population size in endangered insects: the case of the El Segundo blue butterfly, *Euphilotes bernardino allyni*. *Journal of Insect Conservation* 5(3):197–206, at Table 2.

40. EIS/R, Appendix JI. Biological Assessment Technical Report, Table 4.

41. U.S. Fish and Wildlife Service. 1998. *Recovery plan for the El Segundo blue butterfly (Euphilotes battoides allyni)*. U.S. Fish and Wildlife Service, Portland, Oregon, 67 pp.

42. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445–452, at 450.

3.0 Assessment of Impacts

While the EIS/R identifies impacts to biological resources, its improper quantification of those impacts results in an underestimation of the actual biological consequences of the build alternatives and ultimately the incorrect conclusion that those impacts can be mitigated to a less than significant level.

3.1 Direct Impacts

The EIS/R uses what it calls a "modified Habitat Evaluation Procedure" to determine impacts on sensitive vegetation types and to quantify impacts to habitats of sensitive species.⁴³ This procedure is supposedly based on "Habitat Evaluation Procedures" ("HEP")⁴⁴ previously developed by the U.S. Fish and Wildlife Service that have some degree of scientific validity and history of usage.⁴⁵ However, the methodology employed in the EIS/R uses the name of this procedure without incorporating any of the essential elements of the analysis. By comparing existing habitat for sensitive species against an abstracted, ideal habitat type, the EIS/R argues that loss of up to 500 acres of habitat for sensitive species can be mitigated by "improving" 100 acres of land already in a nature preserve. This conclusion is not supported by any accepted methodology of impact assessment and seems to have been specifically designed to underestimate the actual impacts to sensitive species at LAX.

HEP was designed for use with target species by the U.S. Fish and Wildlife Service in the 1970s to provide a form of standardization and comparability for environmental analysis. In HEP implementation, the term "habitat" is defined as the biophysical requirements of an individual species (e.g., bald eagle habitat), not as a general term synonymous with vegetation type (e.g., grassland habitat). The U.S. Fish and Wildlife Service states this in the guiding policies for HEP implementation:

HEP is a species-habitat approach to impact assessment; and habitat quality for selected evaluation species is documented with an index, the Habitat Suitability Index (HSI). This value is derived from an evaluation of the ability of key habitat components to supply the life requisites of selected species of fish and wildlife.⁴⁶

The explicit species-based approach of the HEP is apparent in the manual describing the procedure:

HEP is a species-based assessment methodology. It is applicable only for the species evaluated and does not directly relate that species with other ecosystem components. HEP conceptually addresses only the issues of species populations and habitats.⁴⁷

The "modified" HEP in the EIS/R does not establish which species will be used to evaluate the value of the reference sites, nor does it create HSIs for them. Rather, it sets habitat evaluation standards based on an "optimal" site with "a multitude of floral and faunal species."⁴⁸

43. EIS/R, p. 4-615.

44. The EIS/R refers to a "Habitat Evaluation Procedure" in the singular form, while the U.S. Fish and Wildlife Service manual calls the method "Habitat Evaluation Procedures" in the plural form. We abbreviate both as "HEP" and treat the acronym as a singular noun indicating a methodology.

45. For example, see Johnson, T.L., and D.M. Swift. 2000. A test of a habitat evaluation procedure for Rocky Mountain bighorn sheep. *Restoration Ecology* 8(4S):47-56.

46. U.S. Fish and Wildlife Service. 1996. Fish and Wildlife Service manual, 870 FW 1, Habitat Evaluation Procedures. [online at <http://policy.fws.gov/870fw1.html>].

47. U.S. Fish and Wildlife Service. 1980. Habitat as the Basis for Environmental Assessment, 101 ESM.

The “modified” HEP does not provide information about the value of habitats within the subject site for several of the sensitive species found there. For example, it does not consider the habitat requirements of loggerhead shrike (*Lanius ludovicianus*) or black-tailed jackrabbit (*Lepus californicus bennettii*). It assigns values of 0.25 for vegetation types that are occupied by these species (Non-Native Grassland/Ruderal). By definition under a true HEP, occupied sites would score much higher. By “modifying” the HEP to address an abstract ideal habitat, actual habitat values to sensitive species are ignored (see below, Table 1).

In fact, the “modified” HEP resembles actual HEP implementation only superficially, in that values between 0 and 1 are assigned to certain arbitrary standards for vegetation types within the study area. None of the essential features of HEP are present in the modified method; the “modified” HEP therefore does not provide the basis for impact assessment in the project area.⁴⁹

Not only is the “modified” HEP quite different from the actual procedure, the standards used to evaluate habitats do not reflect ecological value. This problem derives from the physical and biologic criteria used to evaluate habitat and the so-called “ecosystem functional integrity” components of the analysis. Rather than using target species and HSIs to characterize vegetation types as required in HEP, the EIS/R evaluates whether each of the vegetation types in the project area meets the characteristics found in a “reference site.” The habitat type chosen for this standard is that of Valley Needlegrass Grassland/Vernal Pool complex⁵⁰ (i.e., Los Angeles Coastal Prairie). For some inexplicable reason, all habitats are measured against this standard, including Southern Fore dune, Southern Dune Scrub, and Disturbed Dune Scrub/Fore dune. Of course these dune habitats do not have features found in a needlegrass grassland/vernal pool complex. Therefore, because of their failure to have vernal pools and associated species, these vegetation classifications are assigned lower habitat values, 0.35 for both Southern Dune Scrub and Disturbed Dune Scrub/Fore dune, and 0.45 for Southern Fore dune. These values are ludicrous, first because habitat values and “Habitat Units” are supposed to be relevant to individual species, and second because one vegetation type is measured by the features of another. *The analysis succeeds only in illustrating that dune habitats are not the same as vernal pool/grassland complexes.*

The portion of habitat value deriving from “ecosystem functional integrity” is another wholesale creation of the EIS/R. These standards are not part of HEP, and the choice of standards is arbitrary, with little to do with the sensitive species and vegetation types under analysis. Whether a site is “under regulatory conservation” does not necessarily have anything to do with the ecological value of its vegetation type to sensitive species. Similarly, “contiguity with state-designated habitat” is not an ecological criterion. “Variety of pollinator/dispersal mechanisms present” is oriented toward vernal pool habitats, and the choice of “contiguous native habitat >40 acres” is arbitrary. Throughout, the analysis avoids recognition that sensitive plants and wildlife utilize habitats that are not dominated by native species. Loggerhead shrikes forage in ruderal and non-native grasslands as well as in dune scrub. Jackrabbits are thriving in an area with little native plant component. A true HEP would calculate the value of the areas being utilized by carefully selected individual species and use those values to quantify impacts. The EIS/R’s “modified” HEP is fatally flawed and must either be revised to follow established procedure, or be abandoned.

48. EIS/R, p. 4-616.

49. U.S. Fish and Wildlife Service. 1980. Habitat Evaluation Procedures (HEP), 102 ESM.

50. EIS/R, p. 4-615.

3.1.1 Sensitive Vegetation Types

With the exception of the ambiguous treatment of the 100 acres on the northern portion of the El Segundo Dunes, the EIS/R claims not to be proposing direct impacts to sensitive vegetation types. The vegetation types to be removed by the three build alternatives are 306–404 acres of Non-Native Grassland/Ruderal and 60–96 acres of Disturbed/Bare Ground. Although these are not sensitive vegetation types, they are used extensively by sensitive species. Whereas the impacts of removal are to sensitive species, the EIS/R proposes mitigation of abstract “Habitat Units” using the “modified” HEP. The result of the use of the “modified” HEP is to underestimate the effects on the species that use these habitats. The “modified” HEP does not evaluate the value of non-native grassland and disturbed areas to each of the species involved, but rather compares those habitats against an idealized habitat. This allows the EIS/R to state losses and to mitigate in “Habitat Units” instead of acres. *“Habitat Units” calculated in the HEP do not reflect the value of the habitats to the sensitive species.* The EIS/R considers these “Habitat Units” as fungible entities, and thereby proposes to mitigate effects to one vegetation type by enhancing another habitat type. Also, by ranking vegetation types on the dunes by comparing them with Valley Needlegrass Grassland/Vernal Pool complex, the EIS/R creates an artificial deficit of “Habitat Units” within the dunes area. The EIS/R then proposes to mitigate for the loss of Non-Native Grassland (occupied by sensitive species) by enhancing the habitat within the already-preserved and restored area of the El Segundo Dunes. If one accepts the logic of the EIS/R’s HEP and mitigation scheme, the loss of Non-Native Grassland can be mitigated by making the El Segundo Dunes more like a Valley Needlegrass Grassland/Vernal Pool complex. (The EIS/R actually claims to restore these areas to Southern Dune Scrub, but does not reconcile that the “deficit” in habitat values on the dunes was caused by the “failure” of dune scrub to have vernal pool/grassland characteristics.) So by the twisted logic of the “modified” HEP, the loss of 366–500 acres of vegetation types occupied by sensitive species putatively can be mitigated by “improving” roughly 100 acres already protected as a nature reserve or zoned as such.⁵¹ Because the “modified” HEP does not measure habitat values for the sensitive species involved, the description of impacts in terms of “Habitat Units” will drastically underestimate the impacts to those vegetation types. Again, it must be noted that the procedure used in the EIS/R *has no basis in scientific literature* and resembles the actual HEP in name only.

All alternatives propose the removal of sensitive habitats within the El Segundo Dunes to allow construction of navigational aids. These impacts range from 640–1,344 square feet. While this does constitute a significant impact, it is dwarfed in comparison to the other direct and indirect impacts proposed under the three build alternatives.

The discussion of acreage and “Habitat Units” lost under each alternative is not clear with respect to the Westchester Southside Project. Some impacts from the Westchester Southside Project are included (e.g., loss of mature trees), but the effects of the “Resort Hotels” and golf course/open space development are not discussed. The No Action/No Project Alternative explicitly includes the loss of habitat from the LAX Northside and Continental City projects. As mentioned above, this improperly assumes completion of the LAX Northside Project even though changed conditions should result in reopening of the environmental analysis. Inclusion of these speculative developments as part of the No Project alternative serves only to make the impacts of the Master Plan alternatives appear smaller.

51. While there are certainly adequate opportunities to enhance the habitat on the El Segundo Dunes through road/infrastructure removal and revegetation, the area available is simply inadequate to compensate for the loss of sensitive species habitat under the three build alternatives.

The EIS/R mentions but does not discuss adequately one impact of the Westchester Southside development: the removal of 300 mature trees that are used as "nursery" sites for raptors.⁵² The biological appendix contains no reference to this impact, or the abundance and species of raptors involved.⁵³ Neither is a description immediately apparent in the "Biological Resources Memoranda for the Record on Floral and Faunal Surveys."⁵⁴ The EIS/R should contain a full description of the species of raptors involved, their relative abundance, the location of the trees, and behaviors observed to allow a full evaluation of the impacts.

3.1.2 Sensitive Species

The faulty "modified" HEP results in the underestimation of impacts on sensitive species in the EIS/R. The statement of the impacts to populations are low, which results in improper conclusions about mitigation (see below, Section 4.0).

Lewis' evening primrose (*Camissonia lewisii*). All alternatives acknowledge direct impacts to Lewis' evening primrose. This is expressed in terms of the number of individuals that would be affected. While the number of individuals is important, the area that these individuals occupy is as important to the conservation of the species. However, the map showing the distribution of the species indicates locations only on the El Segundo Dunes west of Pershing Drive. No indication is given of the location of areas occupied east of Pershing Drive, which total 2.5 acres.⁵⁵ Populations separated from one another offer some degree of insurance against catastrophic losses at individual sites. The complete geographic distribution of the species at LAX should be provided in the EIS/R.

Belkin's tabanid dune fly (*Brennania belkini*). The EIS/R does not acknowledge the loss of habitat for the Belkin's tabanid dune fly, which is a sensitive species.⁵⁶ This species was recorded as present in the "north runway expansion area."⁵⁷ The report indicates that the species may disperse into suitable habitat areas. The presence of this dune-associated species and the sensitive Lewis' evening primrose in the north runway expansion area suggests that this area has a substrate suitable for dune obligate species. This may be the result of previous grading, but the value of this site to these and other sensitive species (e.g., potentially El Segundo crab spider, *Ebo* new sp.⁵⁸) should be noted.

San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). The EIS/R acknowledges direct impacts to the habitat of this species, west of the southern runway, east of Pershing Drive. Each of the alternatives would result in the loss of 118.75 acres of occupied area, consisting of the entire population at LAX. The EIS/R maintains that these 118.75 acres equal 14.91 "Habitat Units," or roughly 15 acres of ideal vernal pool/grassland complex. As discussed above, this conversion to "Habitat Units" is misguided and wrong. Only two of the sixteen standards for calculating "Habitat Units" are even remotely related to the value of these areas to black-tailed jackrabbit.

52. EIS/R, pp. 4-657, 4-658, 4-663.

53. EIS/R, Appendix J1. Biological Assessment Technical Report.

54. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys.

55. EIS/R, p. 4-664.

56. California Department of Fish and Game Natural Diversity Database. 1999. Special Status Plants, Animals and Natural Communities of Los Angeles County. U.S. Fish and Wildlife Service. 1998. *Recovery plan for the El Segundo blue butterfly (*Euphilotes battoides allyni*)*. U.S. Fish and Wildlife Service, Portland, Oregon, 67 pp.

57. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 213.

58. *Id.* at 209.

Table 1. Relevance of "Modified" Habitat Evaluation Procedure Standards to Two Sensitive Species

HEP Standards	Relevance to value of area as black-tailed jackrabbit habitat	Relevance to value of area as loggerhead shrike habitat
TOPOGRAPHY		
Mound-depression microrelief	None. Species occurs in a variety of topographic conditions.	None
Native soils w/ slope <10%	None	None
Areas w/ period of inundation ≥ 30 days	None. Can serve as vectors for seed dispersal between vernal pools, but not necessary for habitat. ⁵⁹	None
Summer desiccation	None	None
FLORA		
>10% vegetative cover	Some. Forage and cover must be present.	Some. Vegetation must support prey populations.
Native grasses >10%	None. Will forage on all manner of grasses, forbs, and shrubs. ⁶⁰	None
Vernal pool associated species	None	None
Listed vernal pool associated species	None	None
FAUNA		
Domination of native fauna (reproducing)	None	None
Grassland associated species (reproducing)	None	None
Sensitive vernal pool associated species	None	None
Listed vernal pool associated species	None	None
ECOSYSTEM FUNCTIONAL INTEGRITY		
Contiguity w/ wetland and State-designated sensitive terrestrial habitat	None	None
Designated sensitive terrestrial habitat	None	None
Under regulatory conservation	None	None
Variety of pollinator/dispersal mechanisms present (wind, wildlife)	None. Is itself a dispersal agent.	None
Contiguous native habitat > 40 acres	Potentially important. Size of habitat, whether native or not, is important.	Potentially important. Size of habitat, whether native or not, is important.

The conversion of occupied area to "Habitat Units," based on the standards listed here, is a misapplication of HEP. The extent of habitat loss to the species is on the order of 119 acres. The use of improperly-defined "Habitat Units" to quantify this loss implies that 15 acres of ideal vernal pool/grassland could support as many black-tailed jackrabbits as 119 acres of non-native grassland.

59. Zedler, P.H., and C. Black. 1992. Seed dispersal by a generalized herbivore: rabbits as dispersal vectors in a semiarid California vernal pool landscape. *The American Midland Naturalist* 128(1):1-10. (Jackrabbits play a similar role in the vernal pool landscape.)

60. Johnson, R.D., and J.E. Anderson. 1984. Diets of black-tailed jack rabbits in relation to population density and vegetation. *Journal of Range Management* 37(1):79-83. MacCracken, J.G., and R.M. Hansen. 1982. Herbaceous vegetation of habitat used by blacktail jackrabbits and Nuttall cottontails in southeastern Idaho. *American Midland Naturalist* 107(1):180-184. Jameson, E.W., Jr., and H.J. Peeters. *California mammals*. Berkeley: University of California Press.

This is not possible; 15 acres is substantially smaller than the smallest recorded home range for the species (256 acres).⁶¹

Surveys determining the area occupied by black-tailed jackrabbit may underestimate the area currently occupied. Research indicates that jackrabbits may move from 2 to 10 miles during a day, from shrub cover where the species conceals itself during the day, to foraging habitat in the late afternoon and evening.⁶² The EIS/R does not provide sufficient survey information to establish if the grasslands and disturbed areas to the west of the southern runways provide only foraging habitat, and whether other locations (e.g., El Segundo Dunes) are already occupied at different times of the day. This is also suggested by studies of home range. In a study of big sagebrush and black greasewood, black-tailed jackrabbit ranges were larger (256–768 acres)⁶³ than the presumed occupied area at LAX (119 acres). This raises the question whether the species actually occupies a greater area at LAX, especially during the night and crepuscular periods when no surveys were undertaken.

Loggerhead shrike (*Lanius ludovicianus*). The same difficulties found quantifying habitat of black-tailed jackrabbit are found with description of impacts to loggerhead shrike. According to the EIS/R, the species currently occupies 171.86 acres that would be unusable following implementation of any of the project alternatives. (Such precision in habitat quantification is illusory; the EIS/R extrapolates occupied area by vegetation type, providing an *estimate* of habitat area that may differ from the area actually utilized.) Similarly, the EIS/R claims that this impact equals 22.88 “Habitat Units,” suggesting that roughly 23 acres of optimum habitat could mitigate for the loss of 172 acres of occupied habitat. This is false, and grossly underestimates the impacts to the species. No data are provided that link vegetation type to shrike density, as would be necessary to support this claim. The HEP standards are no more relevant to loggerhead shrike than they are to black-tailed jackrabbit. Unless an actual Habitat Suitability Index is developed for loggerhead shrike, all discussion of direct impacts should refer to the area of occupied habitat destroyed, not to the hypothetical “Habitat Units.” It is furthermore unclear whether the area of the Westchester Southside Project was surveyed, and whether these impacts are included.

Burrowing owl (*Athene cunicularia*). Surveys located burrowing owls within the project boundaries, though found no direct evidence of breeding. The EIS/R claims that the species “was determined not to breed within the Master Plan boundaries.”⁶⁴ This contradicts the previous assessment made by EIS/R consultant Jim Jennings, who concluded that “there is the potential that they may still breed in the project area.”⁶⁵ Because burrowing owl densities fluctuate from year to year, burrowing owls were observed in the project area, and potential burrow sites were found, the conservative approach would be to implement measures to ensure the conservation of the species. This species has recently lost much of its local habitat and if extirpated from the project site will disappear from west Los Angeles as a whole.

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61. Smith, G.W. 1990. Home range and activity patterns of black-tailed jackrabbits. *Great Basin Naturalist* 50(3):249–256. This study found home ranges of 0.4–1.2 square miles for big sagebrush and black greasewood communities in northern Utah. Many factors may allow higher densities at LAX, such as more forage provided by dense non-native grasses and forbs, but there is no evidence that 15 acres of even the best habitats could compensate for the loss of 119 acres.
 62. Dunn, J.P., J.A. Chapman, and R.E. Marsh. 1982. Jackrabbits: *Lepus californicus* and allies. Pp. 124–125 in J.A. Chapman, and G.A. Feldhamer (eds.). *Wild mammals of North America: biology, management and economics*. Baltimore: The Johns Hopkins University Press.
 63. Smith, G.W. 1990. Home range and activity patterns of black-tailed jackrabbits. *Great Basin Naturalist* 50(3):249–256.
 64. EIS/R, Tables 4.10-2, 4-630.
 65. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 463.

Western spadefoot toad (*Spea hammondi*). The EIS/R reports that the proposed project alternatives will destroy four seasonal ponds occupied by western spadefoot toads on the south airfield.⁶⁶ These populations number at least several hundred adults and all would be destroyed by the various project alternatives. The EIS/R estimates occupied area as 8.97 acres of ephemerally wetted areas and adjacent upland habitats. Spadefoot toads require upland habitats surrounding their aquatic habitat.⁶⁷ It is unclear how this area was determined for the EIS/R. Critically important in the analysis is that the species is found in four separate areas. Even though the areas are close to each other, the existing configuration of habitat patches is important to reduce risk to the species from a catastrophic event (e.g., chemical spill, disease). Depending on the separation of the pools, there may still be genetic exchange among the populations in each. These risk dynamics should be considered when evaluating the impact on the species and potential mitigation measures. Loss of the LAX population of western spadefoot toad would cause a significant restriction of the range of the species.

Riverside fairy shrimp (*Branchinecta sandiegoensis*). LAX represents the only known coastal population of Riverside fairy shrimp in Los Angeles County. Loss of this population, which is spread among nine sites on the western portion of the property, would be a significant impact. The EIS/R asserts that because the sites where fairy shrimp cysts were found do not have characteristic vernal pool plants, no suitable habitat is found for the species. This conclusion is false — fairy shrimp require vernal pool hydrology, not vernal pool plants, for their existence. This condition would exist, were the management practices at LAX to remove standing water in these pools. It is indeed LAWA's own management scheme that prevents Riverside fairy shrimp from completing its life cycle; LAWA, therefore, should incur liability for "take" of the species under the Endangered Species Act. LAWA fails to recognize that once the presence of fairy shrimp cysts was detected in the vernal pools at LAX, the airport should have ceased its activities that inhibited the life cycle of the species. Instead, the proposal is to destroy all of the areas currently occupied.

The description of acreage for this species does not seem to include the size of the cachements necessary to fill the "ephemerally wetted areas." These areas are necessary to formulate appropriate mitigation measures and evaluate impacts.

The EIS/R is insistent that "there are no extant vernal pools within the [Airport Operations Area]."⁶⁸ This statement is meant within the definition of vernal pools as a vegetation type. However, the term "vernal pool" may be used to refer to pools with standing water during the winter and spring, regardless of the presence of certain plant species. As defined by the U.S. Fish and Wildlife Service, "a vernal pool is a natural habitat of the Mediterranean climate region of the Pacific coast covered by shallow water for extended periods during the cool season but completely dry for most of the warm season drought."⁶⁹ The definition of the term is hydrological, not botanical. The EIS/R should therefore explicitly disclose that the statement "no vernal pools" refers to a botanical definition. Given the near complete destruction of vernal pools in Los Angeles County,⁷⁰ even loss of sites with vernal pool

66. *Id.* at 248.

67. Ruibal, R., L. Trevis, and V. Roig. 1969. The terrestrial ecology of the spadefoot toad *Scaphiopus hammondi*. *Copeia* 572-584.

68. EIS/R, p. 4-691.

69. Zedler, P.H. 1987. *The ecology of southern California vernal pools: a community profile*. U.S. Fish and Wildlife Service Biological Report 85(7.11), p 1.

70. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles Coastal Prairie, a vanished community. *Crossosoma* 26(2):71-102.

hydrology and any remnant species (plant or invertebrate) represents a significant impact. The EIS/R emphasizes that Riverside fairy shrimp habitat is degraded through the presence of exotic plant species, presumably to suggest how much better mitigation sites will be than current conditions. However, the degradation of the habitat by exotic plant species is irrelevant to the quality of the pool as habitat for Riverside fairy shrimp. Other degradation to the habitat results directly from LAWA's management;⁷¹ this degradation is avoidable.

3.2 Indirect Impacts

As a whole, indirect impacts are not well described in the EIS/R. Those that are described are dismissed with little or no data offered in support, leaving the probability of much greater indirect impacts from the project alternatives than those disclosed.

3.2.1 Light

Night lighting has an effect on bird species composition in an area. A study in Sacramento showed that American crows (*Corvus brachyrhynchos*) roost in areas with high nighttime lighting levels.⁷² It is hypothesized that artificial lighting allows them to reduce predation from owls.⁷³ Crows are native, but they are also aggressive, and artificially increased population levels can be detrimental to other native bird species, including such sensitive species as loggerhead shrike. Artificial night lighting has also been shown to affect the behavior of nocturnal frogs, reducing their visual acuity and ability to consume prey, an impact that may befall those amphibians found within Master Plan boundaries.⁷⁴ Many larval forms of arthropods are positively phototactic (e.g., attracted to light, even artificial light), which poses a threat to the many sensitive insect species found on the El Segundo Dunes.⁷⁵ Artificial lighting results in increased mortality of moths and other nocturnal insects.⁷⁶ Night lighting can also affect kestrels as seen from observation of lesser kestrel (*Falco naumanni*), but also applicable to American kestrel (*Falco sparverius*), found on the El Segundo Dunes.⁷⁷ In fact, artificial night lighting affects singing and foraging time of many bird species.⁷⁸ Increased lighting even affects gastropods, which would include the sensitive Trask's snail (*Helminthoglypta traskii*).⁷⁹

71. EIS/R, p. 4-699.

72. Gorenzel, W.P., and T.P. Salmon. 1995. Characteristics of American Crow urban roosts in California. *Journal of Wildlife Management* 59(4):638-645.

73. Brody, J.E. 1997. The too-common crow is getting too close for comfort. *New York Times*, May 27.

74. Buchanan, B.W. 1993. Effects of enhanced lighting on the behaviour of nocturnal frogs. *Animal Behaviour* 45(5):893-899.

75. Summers, C.G. 1997. Phototactic behavior of *Bemisia argentifolii* (Homoptera: Aleyrodidae) crawlers. *Annals of the Entomological Society of America* 90(3):372-379.

76. Frank, K.D. 1988. Impact of outdoor lighting on moths: an assessment. *Journal of the Lepidopterists' Society* 42(2):63-93. Kolligs, D. 2000. Ecological effects of artificial light sources on nocturnally active insects, in particular on butterflies (Lepidoptera). *Faunistisch-Oekologische Mitteilungen Supplement*(28):1-136.

77. Negro, J.J., J. Bustamante, C. Melguizo, J.L. Ruiz, and J.M. Grande. 2000. Nocturnal activity of Lesser Kestrels under artificial lighting conditions in Seville, Spain. *Journal of Raptor Research* 34(4):327-329.

78. Outen, A. 1998. *The possible ecological implication of artificial lighting*. Hertfordshire, UK: Hertfordshire Biological Records Centre. Bergen, F., and M. Abs. 1997. Etho-ecological study of the singing activity of the blue tit (*Parus caeruleus*), great tit (*Parus major*) and chaffinch (*Fringilla coelebs*). *Journal fuer Ornithologie* 138(4):451-467. Derrickson, K.C. 1988. Variation in repertoire presentation in northern mockingbirds. *Condor* 90(3):592-606. Hoetker, H. 1999. What determines the time-activity budgets of avocets (*Recurvirostra avosetta*)? *Journal fuer Ornithologie* 140(1):57-71. Frey, J.K. 1993. Nocturnal foraging by Scissor-Tailed Flycatchers under artificial light. *Western Birds*

(cont'd)

These effects may seem to be relatively innocuous, except that species that extend their activity periods into nighttime are often exposed to drastically increased predation threats. In a study of butterfly larvae, a higher growth rate associated with longer photoperiod (as would be caused by artificial light) resulted in significantly higher predation on the butterfly larvae from the primary parasitoid species.⁸⁰ Similar tradeoffs will likely occur for the El Segundo blue butterfly with increased lighting on the El Segundo Dunes. While the increased light may increase larval development, the time of activity may also increase predation and parasitism.

The conclusion in the EIS/R that the increased levels of night lighting will have no effect on the El Segundo blue butterfly is completely unsupported by current scientific knowledge of the mechanisms of such effects on ecological systems. The EIS/R concentrates on the adult form of the El Segundo blue butterfly, which only constitutes a minute fraction of the lifecycle of the organism, and ignores published scientific literature documenting the tradeoffs of increased lighting on larval forms of butterflies. Furthermore, the EIS/R includes no discussion of bat species that may forage on the El Segundo Dunes. Many bat species found in Los Angeles County are considered sensitive species, and their foraging patterns are affected by lighting levels. Some faster-flying species congregate at streetlights, while slower-flying species avoid them.⁸¹ The EIS/R should document the bat species foraging within the project site and evaluate the impacts of lighting and other development on them.

The increased nighttime light levels on the El Segundo Dunes constitute a significant adverse impact, and should be avoided. One method to decrease the impacts of nighttime lighting is to use low pressure sodium lamps in place of other lighting types. Yellow light from these sources has less ecological impact. Other possible mitigation measures include using full cut-off lighting fixtures and mandating operational controls.

3.2.2 Noise

The effects of airport noise on the fauna of the project area are not considered at all. Perhaps this results from the noise analysis, which improperly chooses 1996 — prior to the introduction of quieter airplanes — as the baseline for noise impacts, rather than what noise conditions would be in the absence of the proposed project. Through this careful choice of baseline, the EIS/R argues that there would be virtually no change in the noise levels on the El Segundo Dunes. However, this is not the case. Noise would be more constant under increased passenger capacity — more planes would be traveling in and out of the airport. Increased noise levels on the El Segundo Dunes will have significant adverse effects on the wildlife found there, effects that are evident from the available scientific literature.

The use of a weighted average to describe noise levels (CNEL) precludes and obfuscates analysis of actual noise impacts. From the standpoint of wildlife, and indeed human physiological responses, it is relevant to know what maximum noise levels are experienced, and at what duration. While the average noise levels described in the EIS/R offer some indication of which areas are louder than others,

24(3):200. Hill, D. 1992. *The impact of noise and artificial light on waterfowl behavior: a review and synthesis of available literature*. British Trust for Ornithology Research Report No. 61.

79. Lamiot, F. 1998. Impacts écologiques de l'éclairage nocturne. Premier Congrès européen sur la protection du ciel nocturne, June 30–May 1, Paris.

80. Gotthard, K. 2000. Increased risk of predation as a cost of high growth rate: an experimental test in a butterfly. *Journal of Animal Ecology* 69(5):896–902.

81. Rydell, J., and H.J. Baagoe. 1996. Bats & streetlamps. *Bats* 14(4):10–13.

maximum noise levels are necessary to evaluate potential hearing loss, startle reactions in animals, barriers to vocal communication, and other significant impacts to the fauna of the El Segundo Dunes.

The body of research on the effects of noise on vertebrates shows that chronic noise, even at low levels, is associated with elevated stress hormone levels, higher blood pressure, faster heart rates, and other physiological effects.⁸² As a result, birds, mammals and other vertebrates may show anatomical differences (smaller body size, enlarged adrenal glands) from prolonged exposure to noise. Species that use vocalizations to communicate may be excluded altogether from noisy areas. The effects of noise on birds and mammals in particular are relevant to the EIS/R.

Birds. Of 45 bird species investigated in woodlands in The Netherlands, 33 showed significantly depressed breeding density in response to increased noise levels near roads. All species in the small passerine families Sylviidae, Fringillidae, and Emberizidae were affected by noise.⁸³ This research also showed that noise effects followed a threshold model.⁸⁴ This means that up to a certain noise level, no decrease in density is observed. When noise increases beyond that threshold level, bird density decreases dramatically in the area between the location at which that threshold is met and the road. The decreased density over the area with noise greater than the threshold level ranges from 30% to 100% and is known as the "decrease factor."⁸⁵

These two variables, the threshold value and the decrease factor, describe the impact of noise on breeding birds. Empirical measurement of the threshold value in woodlands shows that for all bird species combined the threshold value is 42–52 dB(A), with individual species exhibiting thresholds as low as 36 dB(A) and as high as 58 dB(A).⁸⁶ Furthermore, years with overall low population densities showed lower threshold levels.

Similar research has been conducted for grasslands. Overall, this research shows that breeding bird habitat is degraded at noise levels as low as 36 dB(A). Minimum noise levels on the El Segundo Dunes are 70 dB(A) CNEL,⁸⁷ a quantification that does not even provide maximum noise levels. There is no question therefore that noise from LAX operations affects breeding bird densities on the El Segundo Dunes.

82. Mancí, K.M., D.N. Gladwin, R. Vilella, and M.G. Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. U.S. Fish and Wildlife Service National Ecology Research Center, Ft. Collins, Colorado. NERC-88/29. 88 pp. Such effects are found in humans too; children exposed to chronic noise greater than 60 dB "experienced marginally higher resting systolic blood pressure, greater heart rate reactivity to test, and higher overnight cortisol levels, which are signs of modestly elevated physiological stress" (Environmental News Network. 24 May 2001. Noisy neighborhoods harmful to childrens' health).

83. Reijnen, R., R. Foppen, and G. Veenbaas. 1997. Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation* 6:567–581.

84. Reijnen, R., R. Foppen, C. ter Braak, and J. Thissen. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology* 32:187–202.

85. *Id.* at 192.

86. Reijnen, R., R. Foppen, C. ter Braak, and J. Thissen. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology* 32:187–202.

Reijnen, R., and R. Foppen. 1995. The effects of car traffic on breeding bird populations in woodland. IV. Influence of population size on the reduction of density close to a highway. *Journal of Applied Ecology* 32:481–491.

Reijnen, R., R. Foppen, and H. Meeuwssen. 1996. The effects of traffic on the density of breeding birds in Dutch agricultural grasslands. *Biological Conservation* 75:255–260.

87. EIS/R, Figures 4.2-15, 4.2-19, 4.2-23.

Mammals. Chronic noise is a problem for native mammals on the El Segundo Dunes, as it is for humans in surrounding neighborhoods. The description of one study on the effect of airport noise on a small mammal illustrates one example of this problem:

Only a few studies of the physiological effects of noise on rodents have involved wild animals. A field study by Chesser et al. (1975) involved two populations of house mice near the end of a runway at Memphis International Airport. Adult mice also were collected from a rural field 2.0 km from the airport field. Background noise levels at both fields were 80–85 dB. Noise levels of incoming and outgoing aircraft at the airport field averaged 110 dB, with the highest reading reaching 120 dB. Total body weights and adrenal gland weights of mice from the fields were measured. Additional mice were captured from the rural field, placed in the laboratory, and exposed to 1 minute of 105-dB recorded jet aircraft noise every 6 minutes to determine if noise was the causative factor. Control mice were not subjected to noise. After 2 weeks, the adrenals were removed and weighed. Adrenal gland weights of male and female mice from the airport field were significantly greater than those of mice from the rural field. The noise-exposed mice in the laboratory study had significantly greater adrenal gland weights than the control mice. After ruling out stress factors, such as population density, Chesser et al. (1975) concluded that noise was the dominant stressful factor causing the adrenal weight differences between the two feral populations.⁸⁸

While house mice are of no regulatory concern, native mammals on the El Segundo Dunes include some native small mammals (harvest mouse, *Reithrodontomys megalotis*, desert wood rat, *Neotoma lepida*) which are locally significant. Impacts of noise to the habitat quality of the El Segundo Dunes for native mammals should be evaluated.

Reptiles and Amphibians. Spadefoot toads may be induced to emerge from their burrows in response to loud noises (95 dB(A) recordings of motorcycle noise in one experiment).⁸⁹ Fringe-toed lizards are rendered deaf after 9 minutes exposure to 95 dB(A) noise in the same study. Some snakes will show alert behavior in response to airplanes flying overhead.⁹⁰

The EIS/R should evaluate the effects of noise on the biota of the El Segundo Dunes. It is likely that if the noise baseline were set at current conditions rather than before the implementation of quieter planes, this analysis would reveal significant impacts on the ability of the El Segundo Dunes to support populations of some species of birds, mammals, and other vertebrates. Such significant impacts should be identified and mitigated.

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88. Mancini, K.M., D.N. Gladwin, R. Vilella, and M.G. Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. U.S. Fish and Wildlife Service National Ecology Research Center, Ft. Collins, Colorado. NERC-88/29. 88 pp.
89. Brattstrom, B.H., and M.C. Bondello. 1983. Effects of off-road vehicle noise on desert vertebrates. Pp. 167–206 in R.H. Webb and H.G. Wilshire, eds. *Environmental effects of off-road vehicles. Impacts and management in arid regions*. New York: Springer-Verlag.
90. Yahya, S.A. 1978. Hearing ability of brown tree snake (*Oendrelaphis tristis*). *Journal of the Bombay Natural History Society* 75:930–931.

3.2.3 Pollution

The discussion in the EIS/R about pollution effects on the El Segundo blue butterfly deserves comment. The EIS/R makes the statement, "Monitoring results indicate that current levels of vanadium are not adversely affecting the El Segundo blue butterfly population at the Habitat Restoration Area since counts for the year 2000 showed a significant increase in the population when compared to 1999."⁹¹ Many factors influence butterfly abundance from year to year; changes from 1999 to 2000 provide no information about the effect of pollution on the butterfly. This statement is indicative of a fundamental misunderstanding of the process of deductive reasoning. The reality is that we have no idea what effect pollution has on the populations of sensitive species on the El Segundo Dunes, including the El Segundo blue butterfly. Population trends cannot be derived from two years of data, and are even difficult with ten years of measurements.⁹²

3.2.4 Landscaping

The EIS/R does not assess the detrimental impacts of landscaping adjacent to the El Segundo Dunes. LAWA has planted invasive exotic species as landscape plants in the past, resulting in a greater load of exotic seed rain on the El Segundo Dunes.⁹³ Exotic landscaping material, and associated irrigation, can cause significant adverse effects on the biological resources of the El Segundo Dunes.

Installation of permanent irrigation in new areas along Pershing Drive would result in an expansion of the invasive exotic arthropod community on the El Segundo Dunes. Water sources promote population increases of non-native Argentine ants (*Linepithema humile*), European earwigs (*Forficula auricularia*), and other exotic species, which displace native insect species, an effect that has recently been documented to extend 200 m into native habitats.⁹⁴ Argentine ants are found on the El Segundo Dunes already, but the explosion in numbers associated with permanent irrigation will wreak havoc on native arthropod communities. This is shown by consistent decreases in native arthropod diversity in response to increased Argentine ant abundance.⁹⁵ Argentine ants would displace native ants surrounding the project site. This extirpation reverberates up the food chain, as some native reptiles (e.g., coast horned

91. EIS/R, Appendix JI. Biological Assessment Technical Report, p. 91.

92. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445-452.

93. Kowsky, K. 24 April 1995. Plant-life dispute blooms at airport; environmentalist sees exotic plants at LAX as threat to survival of endangered butterfly. *Los Angeles Times*, B-1. Gregor, I. 1 April 2000. Seeds of trouble: airport landscaping project has environmental groups up in arms. *Daily Breeze*, B-1.

94. Holway, D.A. 1998. Factors governing rate of invasion: a natural experiment using Argentine ants. *Oecologia* 115(1-2):206-212. Suarez, A.V., D.T. Bogler, and T.J. Case. 1998. Effects of fragmentation and invasion on native ant communities in coastal southern California. *Ecology* 79(6):2041-2056.

95. Erickson, J.M. 1971. The displacement of native ant species by the introduced Argentine ant *Iridomyrmex humilis* (Mayr). *Psyche* 78:257-266. Cole, B.J. 1983. Assembly of mangrove ant communities: patterns of geographic distribution. *Journal of Animal Ecology* 52:339-348. Human, K.G., and D.M. Gordon. 1996. Exploitation and interference competition between the invasive Argentine ant, *Linepithema humile*, and native ant species. *Oecologia* 105(3):405-412. Human, K.G., and D.M. Gordon. 1997. Effects of Argentine ants on invertebrate biodiversity in Northern California. *Conservation Biology* 11(5):1242-1248. Holway, D.A. 1998. Effect of Argentine ant invasions on ground-dwelling arthropods in northern California riparian woodlands. *Oecologia* 116(1-2):252-258. Kennedy, T.A. 1998. Patterns of an invasion by Argentine ants (*Linepithema humile*) in a riparian corridor and its effects on ant diversity. *American Midland Naturalist* 140(2):343-350. Longcore, T.R. 1999. Terrestrial arthropods as indicators of restoration success in coastal sage scrub. Ph.D. Thesis, Department of Geography, University of California, Los Angeles.

lizard, *Phrynosoma coronatum*, found on the El Segundo Dunes) preferentially feed on native ants and decline in their absence.⁹⁶

The EIS/R should require as a mitigation measure that in areas adjacent to the El Segundo Dunes, all landscaping plants be limited to locally native species, and that irrigation be limited to winter only.

3.3 Cumulative Impacts

The analysis of cumulative impacts is woefully inadequate and is inconsistent with previous conclusions reached by the City of Los Angeles in environmental impact reports. The discussion of cumulative impacts in Sections 4.10 and 4.11 of the EIS/R consists of a description of the Master Plan area and the following statement:

Areas surrounding the study area consist largely of developed areas with little or no habitat value. However, two biologically significant open spaces, the Ballona Wetlands and the Ballona Bluffs, remain extant within the vicinity of the study area.⁹⁷

However, in the Final Environmental Impact Report for the West Bluffs Project — a project to build residences on the last open space on the Ballona Bluffs — the City of Los Angeles found:

The contribution of the proposed project to impacts on plant and animal life from ongoing development in the region is not considered to be significant, due to the disturbed nature and correspondingly low resource value of the project site.⁹⁸

The current EIS/R is inconsistent with the above statement. To the contrary, the current EIS/R states that:

The cumulative impacts on biotic communities from development of the LAX Master Plan Improvements, and other proposed projects in the area, most notably the Playa Vista Master Plan Project and the Catellus residential proposal on the Ballona Bluffs, are considered significant due to the limited amount of extant natural habitat in the vicinity of the study area, particularly wetlands.⁹⁹

The EIS/R then argues that implementation of the LAX Master Plan will not contribute to these cumulative impacts. The City of Los Angeles seems to claim that whichever project is under review does not contribute to cumulative impacts, yet once approved, the City's subsequent environmental review documents acknowledge that projects did contribute to cumulative impacts. The reality is that both the Catellus West Bluffs Project and the LAX Master Plan will contribute to significant cumulative impacts on natural resources.

Upland foraging habitat for grassland songbirds and raptors will be nearly eliminated by the combination of the LAX Master Plan, the West Bluffs Project, Playa Vista Phase I, and the potential

96. Suarez, A.V., J.Q. Richmond, and T.J. Case. 2000. Prey selection in horned lizards following the invasion of Argentine ants in southern California. *Ecological Applications* 10:711-725.

97. EIS/R, pp. 4-663, 4-706.

98. City of Los Angeles. October 1998. EIR No. 91-0675. West Bluffs Project Section IV.D.3.

99. EIS/R, p. 4-664.

Playa Vista Phase II. The Ballona Creek watershed (with the exception of the Baldwin Hills) will no longer support many bird species as a result of the cumulative impacts of these developments. Western meadowlark, white-tailed kite, California horned lark, loggerhead shrike, sharp-shinned hawk, northern harrier, Cooper's hawk, and American kestrel will experience significant declines in suitable habitat as a result of these cumulative impacts. Peregrine falcon will experience significant losses of foraging habitat. Many birds associated with the Ballona Wetlands forage in upland habitats, especially during the winter and spring rains. For example, great blue heron and snowy egret forage in the ephemeral wetlands at LAX and the West Bluffs site. If all of these projects are completed, all remnants of vernal pools in the northern portion of the former Los Angeles Coastal Prairie will be obliterated. Vernal pool hydrology at the West Bluffs site and at LAX would be destroyed, yet the EIS/R claims that no significant cumulative impacts will result from the project.

This is the end of the line for open space in west Los Angeles. The City of Los Angeles must recognize that the current project, plus the others previously approved by the City, have significant, irreversible, cumulative impacts on biological resources.

4.0 Mitigation Measures

The mitigation measures that rely on the "modified Habitat Evaluation Procedure" are insufficient to offset the significant impacts that would result from the build alternatives. The use of "Habitat Units" in mitigation measures MM-BC-2, MM-BC-4, MM-BC-5, MM-BC-6, and MM-BC-7 is fundamentally flawed.

The all-purpose mitigation measure "Conservation of Faunal Resources" (MM-BC-4) is completely inadequate to address impacts to sensitive species from the project alternatives. The conversion to "Habitat Units" is spurious; all mitigation must replace lost habitat with an equal or greater area.

4.1 Lewis' Evening Primrose

Mitigation for Lewis' evening primrose does not ensure that a replacement population of the species will be created, only that more individuals will be grown on the El Segundo Dunes, where the species is already found. In addition to establishing a numerical goal for the number of individuals to be replaced, mitigation should ensure the area occupied by the species will increase by at least the 2.5 acres that would be lost. Because there is a risk-spreading benefit in the disjunct configuration of the impacted population, the mitigation site should be geographically distinct from currently occupied sites.

4.2 Western Spadefoot Toad

Mitigation for the western spadefoot toad ignores the geographic configuration of the impacted population(s). These toads are found in four distinct ephemerally wet areas on the LAX property, all of which would be destroyed by the build alternatives. Division of the population into separate, hydrologically distinct pools with different cachmentments is a benefit to the population. Mitigation for these losses cannot be achieved through creation of 1.24 acres of ideal habitat (the "Habitat Units"), but rather must consist of four separate pools and associated cachmentments of at least 9 acres.

The choice of mitigation location is important as well. The top choice would be on the areas of the former Los Angeles Coastal Prairie west of Pershing Drive. However, the EIS/R claims that allowing a vernal pool in this area would encourage bird life as well, and would therefore pose a hazard to aircraft.

If off-site mitigation is necessary, the first choice should be the West Bluffs property, currently subject to development by the Catellus Corporation. The West Bluffs site has vernal pool hydrology and is the only candidate site within a reasonable distance of LAX. Distant sites such as Madrona Marsh and potentially California State University Dominguez Hills (where spadefoot toads possibly persist in a vernal pool but are subject to imminent extirpation from construction), should be utilized only in addition to a more proximate site. If no proximate sites are secured (e.g., the West Bluffs property is unobtainable), then the conclusion of the EIS/R must be that the impacts to the species cannot be mitigated to a less than significant level. Without the LAX population, or a possible West Bluffs replacement, the range of the species in the region will be significantly diminished, even with more distant offsite mitigation.

4.3 Riverside Fairy Shrimp

A similar analysis applies to the proposed mitigation for the loss of habitat for the Riverside fairy shrimp. The species is currently found in at least nine areas affected by the build alternatives. The proposed mitigation is for "no more" than 1.3 acres of replacement habitat.¹⁰⁰ To the contrary, loss of this occupied habitat should be mitigated by provision of nine pools with associated upland cachement areas to support vernal pool hydrology. While the mitigation measure suggests one location with 0.75 habitat value (i.e. restoration of vernal pool plants and other vernal pool characteristics), it is more important to the fairy shrimp that multiple locations be acquired. Population models for species found in habitat patches (e.g., metapopulations) show that persistence is enhanced not by density at a single site — although patch size is important — but by maximizing the number of occupied patches.¹⁰¹ To trade occupied sites for other biological values such as presence of sensitive plant species decreases the long-term persistence possibilities for the fairy shrimp. Certainly full vernal pool restoration would be a noble conservation goal, but it does not mitigate the impacts to the Riverside fairy shrimp. The potential mitigation sites should be chosen by proximity to LAX. The West Bluffs site could provide one, possibly two pools. Additional pools should be identified to mitigate fully the impacts to the species.

4.4 San Diego Black-tailed Jackrabbit

As discussed above, the proposed mitigation for the San Diego black-tailed jackrabbit is insufficient to offset the losses to the species. The loss of 119 acres of occupied habitat must be offset by the provision of at least 119 acres of additional habitat. The EIS/R provides no evidence to show that the species can be supported at similar densities in the Habitat Restoration Area on the dunes, nor that the "Habitat Units" of restoration on the dunes will make the area more suitable for jackrabbits. Black-tailed jackrabbits require mixed grasses, forbs, and shrubs for food; dune scrub may provide less preferred forage than exotic grassland. The Habitat Restoration Area therefore may support lower densities of the species than currently occupy the 119 acres of exotic grassland. Furthermore, the EIS/R provides no estimate of the size of the population to be impacted, or the diel¹⁰² patterns of movement exhibited by the species, information that is necessary to formulate an effective mitigation measure. Any release program on the El Segundo Dunes must be accompanied by a humane control program for the exotic red fox (*Vulpes vulpes*).

100. EIS/R, p. 4-708.

101. Hanski, I. 2000. *Metapopulation ecology*. London: Oxford University Press.

102. "Diel" refers to a 24-hour period, a full day and night.

4.5 Loggerhead Shrike

The EIS/R proposes to mitigate for loss of occupied loggerhead shrike habitat (172 acres) with restoration on the El Segundo Dunes in the form of 22.88 "Habitat Units." Implicit in this proposal is the assumption that the density of loggerhead shrikes on the El Segundo Dunes can be increased to accommodate those displaced by the loss of 172 acres of occupied habitat. The EIS/R provides no information about densities of loggerhead shrike to support this implicit assumption. To the contrary, because the El Segundo Dunes are already occupied with breeding loggerhead shrikes, and the shrike's use of habitat is not tied to whether the vegetation is native or not (or to the arbitrary habitat standards of the HEP), restoration on the El Segundo Dunes is not likely to appreciably increase the density of shrikes found there. Mitigation for this impact must be found elsewhere, in the form of 172 acres of shrike habitat. Loggerhead shrike are found at the West Bluffs site, but the site is only 44 acres and so could only offer partial mitigation for impacts at LAX. Other additional mitigation sites include properties covered under the Playa Vista master plan, or in the Baldwin Hills. However, if 172 acres of shrike habitat in addition to the El Segundo Dunes cannot be identified and acquired as mitigation, then the significant impact to this species cannot be mitigated to a less than significant level. The impacts are certainly not mitigated by the proposal to provide 23 extra "Habitat Units" in currently occupied habitat.

4.6 Los Angeles Coastal Prairie

Prescriptions for restoration of Valley Needlegrass Grassland described in MM-BC-5, MM-BC-6, and MM-BC-7 are not consistent with evidence of the historic vegetation in the area, which Mattoni and Longcore have described as Los Angeles Coastal Prairie. The prescription is for a needlegrass dominated habitat, with four common subshrubs. First, five plant species are insufficient to restore this habitat type; the actual plant diversity of the habitat was significantly higher. Second, the relative abundance of species is nothing approaching historical conditions. A transect along a historic photograph of the Coastal Prairie (or "meadow" as described by Pierce¹⁰³), shows the following coverage: *Lupinus bicolor* (39%), *Camissonia bistorta* (18%), *Phacelia stellaris* (14%), *Lotus strigosus* (8%), *Festuca megalura* (4%), *Cryptantha intermedia* (1%), and open (16%).¹⁰⁴ A mitigation measure should bear at least some resemblance to the vegetation type that it proposes to emulate. Furthermore, the standard of 10% native cover for successful restoration is outrageous. The claim that this is defensible because 10% is deemed significant for the identification of a native grassland by the California Department of Fish and Game is equally stunning. Ten percent cover represents the most degraded grasslands, not a standard to achieve in restoration. If the success criterion for grassland mitigation were followed, the vegetation created would score very low on the "modified" HEP touted in the EIS/R.

4.7 Restoration Performance Criteria

The performance criteria for the restoration efforts are all exceedingly weak. The only quantifiable standard for revegetation performance is attainment of native cover, the highest of which is 45%. Ecologists have developed many measures of habitat quality that are available to define performance

103. Pierce, W.D. 1938. The fauna and flora of the El Segundo sand dunes: I. General ecology of the dunes. *Bulletin of the Southern California Academy of Sciences* 37(3):93-97.

104. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles Coastal Prairie, a vanished community. *Crossosoma* 26(2):71-102, at 87.

standards for revegetation, including many measures of plant diversity and plant structure.¹⁰⁵ Wetland mitigation must meet stringent standards quantifying wetland functions and values.¹⁰⁶ Terrestrial arthropods have been used to assess the performance of revegetation in re-creating native habitats.¹⁰⁷ The performance criteria for restoration should provide more ecological information than simply percent native cover, especially when so many measures are readily available. Without true ecological assessment of restored areas, the success of the mitigation will be forever unknown.

4.8 Raptor "Nursery Sites"

Insufficient information about the impact to raptors using mature trees is provided to allow assessment of whether the mitigation measure (MM-BC-3) would be effective for replacement of mature trees. The location of this mitigation would be important, and the destruction of nearly all of the open space used for foraging by raptors may render "nursery sites" extraneous, with no raptors to use them.

5.0 California Coastal Act

None of the build alternatives in the Master Plan would be consistent with the California Coastal Act. First, there would be many impacts to the environmentally sensitive habitat area on the El Segundo Dunes through the indirect effects of increased construction, light, landscaping, pollution, and road construction. The mitigation measures proposed are insufficient to mitigate for these significant disruptions of habitat values. Even though the development is designed to occur outside the coastal zone boundary, Section 30240(b) of the Coastal Act provides that:

Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.¹⁰⁸

Second, the EIS/R does not discuss impacts to marine biological resources, which could occur as a result of runoff into and jet fuel dumping over the ocean. Impacts to marine biological resources should be described and appropriate changes implemented before preparation of a final EIS/R.

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105. Magurran, A.E. 1988. *Biological diversity and its measurement*. Princeton: Princeton University Press, 179 pp.
106. Rheinhardt, R.D., M.M. Brinson, and P.M. Farley. 1997. Applying wetland reference data to functional assessment, mitigation, and restoration. *Wetlands* 17(2):195-215.
107. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445-452. Bisevac, L., and J.D. Majer. 1999. Comparative study of ant communities of rehabilitated mineral sand mines and heathland, Western Australia. *Restoration Ecology* 7(2):117-126. Holl, K.D. 1996. The effect of coal surface mine reclamation on diurnal lepidopteran conservation. *Journal of Applied Ecology* 33(2):225-236. Longcore, T.R. 1999. Terrestrial arthropods as indicators of restoration success in coastal sage scrub. Ph.D. Thesis, Department of Geography, University of California, Los Angeles. Parmenter, R.R., and J.A. Macmahon. 1987. Early successional patterns of arthropod recolonization on reclaimed strip mines in southwestern Wyoming [USA]: the ground-dwelling beetle fauna (Coleoptera). *Environmental Entomology* 16(1):168-177. Wheeler, C.P., W.R. Cullen, and J.R. Bell. 2000. Spider communities as tools in monitoring reclaimed limestone quarry riparian woodlands. *Landscape Ecology* 15(5):401-406. Williams, K.S. 1993. Use of terrestrial arthropods to evaluate restored riparian woodlands. *Restoration Ecology* 1:107-116. Williams, K.S. 1997. Terrestrial arthropods as ecological indicators of habitat restoration in southwestern North America. Pp. 238-258 in K.M.N.R.W. Urbanska and P.J. Edwards (eds.). *Restoration ecology and sustainable development: First International Conference, Zurich, Switzerland*. Cambridge: Cambridge University Press.
108. California Public Resources Code § 30240(b).

6.0 Conclusion

The EIS/R treatment of biological resources represents the result of significant effort and expenditure on the part of the preparers. Unfortunately, the resulting analysis is deeply flawed, unscientific, and improperly reaches the conclusion that the mitigation measures would reduce impacts to a less than significant level. To the contrary, implementation of any of the three build alternatives would be catastrophic for the biological resources on the project site and result in a significant local and cumulative impact on sensitive species. If approved and implemented, the Master Plan will permanently degrade the diversity and abundance of native wildlife in west Los Angeles. The last refuges of birds and mammals depending on large open spaces will be erased from the landscape.

Appendix B

Qualifications of Travis Longcore and Catherine Rich

TRAVIS LONGCORE

P.O. Box 24020
Los Angeles, California 90024-0020
Telephone: (310) 247-9719

EDUCATION

- Ph.D., Geography, University of California, Los Angeles 1995–1999
Dissertation Title: *Terrestrial Arthropods as Indicators of Restoration Success in Coastal Sage Scrub*
- M. A., Geography, University of California, Los Angeles 1993–1995
Thesis Title: *Risk, Technology, and Place: Siting a Radioactive Waste Dump in California's Ward Valley*
- Honors B. A., Geography *summa cum laude*, University of Delaware 1989–1993
Thesis Title: *Information Technology and World City Restructuring: The Case of New York City's Financial District*

PROFESSIONAL EXPERIENCE

- Research Assistant Professor, Center for Sustainable Cities, Department of Geography,
University of Southern California 2001–present
- Lecturer, UCLA Department of Geography, UCLA Department of Organismic Biology,
Ecology and Evolution, UCLA Institute of the Environment 2000–present
Lower division: Biogeography, People and the Earth's Ecosystems, Ecology and Conservation of California Oaks. Upper division: World Vegetation, Forest Ecosystems, Ecology, Environmental Impact Analysis.
- Co-founder and Science Director, The Urban Wildlands Group 1996–present
Organization studies and works to protect species, habitats, and ecological processes within urban and urbanizing areas. Projects include restoration and management of habitat supporting endangered butterfly species, education of policymakers on impacts of artificial light and noise on wildlife, research on minimizing ecological effects of fuel modification.
- Principal, Land Protection Partners 1998–present
Consultant to attorneys in land protection actions (primarily California Environmental Quality Act, California Coastal Act, and federal Endangered Species Act). Services include issue identification, preparation of biological analysis with supporting scientific literature review, and communication with resource agency personnel.
- Research Associate, Sustainable Cities Program, University of Southern California 1999–2001
- Summer Instructor, UCLA Graduate School of Education and Information Studies 1997–1999
- Staff Researcher, UCLA Department of Geography 1996–1999
- Teaching Assistant, UCLA Department of Geography 1995–1996
- Geographic Information System Technician, Water Resources Agency, New Castle
County, Delaware 1992–1993

GRANTS, HONORS, AND AWARDS

Professional

- Santa Monica Bay Restoration Commission 2003
Grant of \$131,000 to Los Angeles Conservation Corps and The Urban Wildlands Group to restore coastal dune and bluff vegetation and develop a master plan for restoration of El Segundo dune and bluff habitat.
- Defense Logistics Agency 2003
Contract for \$43,779 to The Urban Wildlands Group to conduct experimental captive propagation of endangered Palos Verdes blue butterfly.
- James C. Zumberge Fund for Innovation, University of Southern California 2003
Grant of \$50,000 for interdisciplinary investigation of phytoremediation with native plants.
- Conservation and Research Foundation 2003
Grant of \$5,000 to The Urban Wildlands Group to support preparation of book, *Ecological Consequences of Artificial Night Lighting*.
- California ReLeaf 2003
Grant of \$7,500 to The Urban Wildlands Group for project, "Urban Forest Assessment and Outreach at UCLA."
- U.S. Department of the Navy 2002
Contract for \$12,000 to The Urban Wildlands Group to salvage Palos Verdes blue butterfly pupae from Navy property to be disposed and developed.
- U.S. Fish and Wildlife Service 2002
Contract for \$10,000 to The Urban Wildlands Group to draft management plan for endangered Kern primrose sphinx moth.
- U.S. Fish and Wildlife Service 2002
Contract for \$24,000 to The Urban Wildlands Group to draft species recovery plan for endangered Calippe silverspot butterfly.
- International Dark-Sky Association Executive Director's Award 2002
- National Fish and Wildlife Foundation 2002
Grant of \$5,000 to The Urban Wildlands Group to support conference *Ecological Consequences of Artificial Night Lighting*.
- Electric Power Research Institute 2002
Grant of \$2,000 to The Urban Wildlands Group to support conference *Ecological Consequences of Artificial Night Lighting*.
- Defense Logistics Agency 2002
Contract for \$42,665 to The Urban Wildlands Group to conduct experimental captive propagation of endangered Palos Verdes blue butterfly.
- U.S. Fish and Wildlife Service Landowner Incentive Program 2001
Grant of \$37,300 to The Urban Wildlands Group to restore habitat for endangered El Segundo

blue butterfly on private property in Torrance, California.

John Randolph Haynes and Dora Haynes Foundation 2000

Co-author of \$398,000 grant to USC Sustainable Cities Program to assess benefits of urban greening in a dense inner-city neighborhood.

Los Angeles Department of Water and Power 2000

USC Sustainable Cities Program awarded \$9,000 contract to assess "Cool Schools" tree planting program.

New Research Design Award for a More Sustainable Los Angeles Region, John Randolph Haynes and Dora Haynes Foundation 2000

Awarded \$5,000 to develop a research design for the use of native plants in phytoremediation.

Graduate

Conference Travel Grant, UCLA Department of Geography 1999

Dissertation Improvement Grant, National Science Foundation (\$8,000) 1998

Distinguished Doctoral Scholar Fellowship, UCLA Alumni Association (\$17,500) 1998

Portable Fellowship, UCLA Graduate Division (\$18,500) 1997

Graduate Research Fellowship, National Science Foundation (\$64,400) 1993

Chancellor's Fellowship, UCLA Graduate Division (declined) 1993

Undergraduate

Alexander J. Taylor Award ("Outstanding Senior Man"), University of Delaware 1993

Geography Faculty Award, University of Delaware 1993

Mid-Atlantic Region Finalist, Rhodes Scholarship 1992

Fellow, Arizona Honors Academy, Northern Arizona University 1992

Marie Donaghay Award for Excellence in Geography, University of Delaware 1992

Phi Beta Kappa 1992

Phi Beta Kappa Clift and DeArmond Award, University of Delaware 1991

George and Margaret Collins Seitz Award, University of Delaware 1991

Eugene duPont Memorial Distinguished Scholar Award, University of Delaware (\$44,500) 1989

PUBLICATIONS AND PRESENTATIONS

In Preparation

1. Rich, Catherine, and Travis Longcore (eds.). *Ecological consequences of artificial night lighting*. Island Press (scheduled 2004).
2. Longcore, Travis. Christina Li, and John P. Wilson. Nature's services in a dense urban neighborhood. *Environmental Management*.

In Review

4. Longcore, Travis and Catherine Rich. Ecological light pollution. *Frontiers in Ecology and Environment*.
3. Longcore, Travis, Catherine Rich, and Dietland Müller-Schwarze. Management by assertion: beavers and vireos at Lake Skinner (Riverside County, California). *Ecological Restoration*.
2. Longcore, Travis, Christina Li, and John P. Wilson. Applicability of CITYgreen urban ecosystem analysis software to a dense urban neighborhood. *Urban Geography*.
1. Longcore, Travis. Ecological effects of fuel management practices around residential development. Sidebar for chapter by Kevin Shafer in text on California fire ecology.

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11. Longcore, Travis. Arthropods as indicators of restoration success in coastal sage scrub (California, U.S.A.). *Restoration Ecology* 11(4):00-00 (2003).
10. Mattoni, Rudi, Travis Longcore, Zdenka Krenova, and Alison Lipman. Mass rearing the endangered Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*: Lycaenidae). *Journal of Research on the Lepidoptera* 37:55-67 (2003).
9. Longcore, Travis, Rudi Mattoni, Cor Zonneveld, and Jorn Bruggeman. INsect Count Analyzer: a tool to assess responses of butterflies to habitat restoration. *Ecological Restoration* 21 (1):60-61 (2003).
8. Zonneveld, Cor, Travis Longcore, and Claudia Mulder. Optimal schemes to detect presence of insect species. *Conservation Biology* 14(2):476-487 (2003).
7. Longcore, Travis. Ecological effects of fuel modification on arthropods and other wildlife in an urbanizing wildland. Pp. 000-000 in Galley, Krista E.M., Robert C. Klinger, and Neil G. Sugihara (eds.). *Proceedings of Fire Conference 2000: The First National Congress on Fire Ecology, Prevention, and Management*. Miscellaneous Publication No. 13, Tall Timbers Research Station, Tallahassee, Florida (2003).
6. Mattoni, Rudi, Travis Longcore, Cor Zonneveld, and Vojtech Novotny. Analysis of transect counts to monitor population size in endangered insects: the case of the El Segundo blue butterfly, *Euphilotes bernardino allyni*. *Journal of Insect Conservation* 5(3):197-206 (2001).
5. Longcore, Travis, Rudi Mattoni, Gordon Pratt, and Catherine Rich. On the perils of ecological restoration: lessons from the El Segundo blue butterfly. Pp. 281-286 in Keeley, Jon, Melanie Baer-Keeley, and C. J. Fotheringham, eds. *2nd Interface Between Ecology and Land Development in California*, U.S. Geological Survey Open-File Report 00-62, Sacramento, CA (2000). (Abstracted in *Ecological Restoration* 19(2):125 (2001).)
4. Mattoni, Rudi, Vojtech Novotny, and Travis Longcore. Arthropod monitoring for fine scale habitat analysis: A case study of the El Segundo sand dunes. *Environmental Management* 25(4):445-452 (2000).
3. Mattoni, Rudi and Travis R. Longcore. The Los Angeles coastal prairie, a vanished community. *Crossosoma* 23(2):71-102 (1997).

2. Mattoni, Rudi, Gordon F. Pratt, Travis R. Longcore, John F. Emmel and Jeremiah N. George. The endangered Quino checkerspot butterfly, *Euphydryas editha quino* (Lepidoptera: Nymphalidae). *Journal of Research on the Lepidoptera* 34:99–118 (1997).
1. Longcore, Travis R. and Peter W. Rees. Information technology and downtown restructuring: the case of New York City's financial district. *Urban Geography* 17(4):354–372 (1996).

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2. Longcore, Travis. Review of *From Coastal Wilderness to Fruited Plain: A History of Environmental Change in Temperate North America from 1500 to Present*, by Gordon G. Whitney. *Ethics, Place and Environment* 4(3):278–279 (2001).
1. Longcore, Travis. Review of *Butterflies on British and Irish Offshore Islands: Ecology and Biogeography*, by Roger Dennis and Tim Shreeve. *Journal of Research on the Lepidoptera* 35:139–140 (2000).

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31. U.S. Fish and Wildlife Service [Anderson, Alison, with Edith Allen, Mark Doderer, Travis Longcore, Dennis Murphy, Camille Parmesan, Gordon Pratt, and Michael Singer]. Recovery plan for the Quino checkerspot butterfly (*Euphydryas editha quino*). Portland, Oregon, U.S. Fish and Wildlife Service, x + 179 pp. (August 11, 2003)
30. Longcore, Travis, and Catherine Rich. Review of biological impact analysis in Initial Study and Mitigated Negative Declaration (PD-S-942/TT5411), City of Simi Valley. Los Angeles, Land Protection Partners, 15 pp. (July 24, 2003).
29. Longcore, Travis, and Catherine Rich. Conservation value of Catellus West Bluffs property justifies purchase with public funds, Los Angeles, Land Protection Partners, 11 pp. (May 2, 2003).
28. Pincetl, Stephanie, Jennifer Wolch, John Wilson, and Travis Longcore. Toward a sustainable Los Angeles: a "nature's services" approach. Los Angeles, USC Center for Sustainable Cities, 47 pp. (report to John Randolph Haynes and Dora Haynes Foundation, February 2003).
27. Longcore, Travis, Catherine Rich, John Marzluff, and Barbara Nightingale. Peer review of artificial light and noise impact analysis in *Sand Point Magnuson Park Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project Final Environmental Impact Statement [Seattle, Washington]*. Los Angeles, Land Protection Partners, 15 pp. (January 16, 2003).
26. Longcore, Travis, and Catherine Rich. Review of biological resources analysis in Malibu Bay Company Development Agreement Draft Environmental Impact Report. Los Angeles, Land Protection Partners, 28 pp. (November 11, 2002).
25. Longcore, Travis, and Catherine Rich. Action plan for Kern primrose sphinx moth (*Euproserpinus euterpe*) at Carrizo Plain National Monument. Los Angeles, The Urban Wildlands Group. 15 pp. (report to U.S. Fish and Wildlife Service, November 1, 2002).
24. Longcore, Travis, Rudi Mattoni, Alison Lipman, Zdenka Krenova, and Catherine Rich. Final report for Palos Verdes blue butterfly year 2002 captive rearing on Defense Fuel Support Point, San Pedro, California. Los Angeles, The Urban Wildlands Group (Defense Logistics Agency Agreement # N68711-02-LT-00010). 18 pp. (October 1, 2002).
23. Longcore, Travis, and Catherine Rich. Effects of light and noise from a proposed Wal-Mart

- "Supercenter" on the wildlife of Penjajawoc Marsh (Bangor, Maine). Los Angeles, Land Protection Partners. 18 pp. (June 7, 2002).
22. Longcore, Travis and Catherine Rich. Protection of environmentally sensitive habitat areas in proposed Local Coastal Plan for City of Malibu. Los Angeles, The Urban Wildlands Group. 19 pp. (May 2002).
 21. Mattoni, Rudi and Travis Longcore. Census results for Palos Verdes blue butterfly and associated species, 1994–2001. Pp. 2–10 in Mattoni, Rudi (ed.) *Status and trends: habitat restoration and the endangered Palos Verdes blue butterfly at the Defense Fuel Support Point, San Pedro, California, 1994–2001*. Los Angeles, The Urban Wildlands Group (April 2002).
 20. Mattoni, Rudi, Travis Longcore, and Alison Lipman. Description of habitat characteristics of the Palos Verdes blue butterfly. Pp. 11–15 in Mattoni, Rudi (ed.) *Status and trends: habitat restoration and the endangered Palos Verdes blue butterfly at the Defense Fuel Support Point, San Pedro, California, 1994–2001*. Los Angeles, The Urban Wildlands Group (April 2002).
 19. Longcore, Travis. Invertebrate community composition as an indicator of restoration success. Pp. 52–68 in Mattoni, Rudi (ed.) *Status and trends: habitat restoration and the endangered Palos Verdes blue butterfly at the Defense Fuel Support Point, San Pedro, California, 1994–2001*. Los Angeles, The Urban Wildlands Group (April 2002).
 18. Longcore, Travis and Jeremiah George. Habitat Evaluation for El Segundo Blue Butterfly (*Euphilotes bernardino allyni*) at Malaga Bluffs. Los Angeles, The Urban Wildlands Group (report to U.S. Fish and Wildlife Service Cooperative Agreement #1448-11430-1-J041, December 30, 2001).
 17. Longcore, Travis and Catherine Rich. A review of the ecological effects of road reconfiguration and expansion on coastal wetland ecosystems. Los Angeles, The Urban Wildlands Group. 12 pp. (November 14, 2001).
 16. Longcore, Travis and Catherine Rich. Review of biological resources analysis in draft Sully-Miller/Fieldstone Communities Environmental Impact Report (SCH#99101125). Los Angeles, Land Protection Partners. 15 pp. (October 19, 2001).
 15. Longcore, Travis and Catherine Rich. Review of biological resources analysis in LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report. Los Angeles, Land Protection Partners. 27 pp. (August 8, 2001).
 14. Longcore, Travis and Catherine Rich. Review of biological resources analysis in City of Malibu Negative Declaration No. 00-010 (Kempin Single Family Residence). Los Angeles, Land Protection Partners. 5 pp. (July 23, 2001).
 13. Young, Terrence, with Travis Longcore. *Creating Community Greenspace: A Handbook for Developing Sustainable Open Spaces in Central Cities*. Los Angeles, California League of Conservation Voters Education Fund. 64 pp. (2000).
 12. United States Fish and Wildlife Service (Alison Anderson, Edith Allen, Mark Doder, Camille Parmesan, Travis Longcore, Gordon Pratt, Dennis Murphy, and Michael Singer). Draft Recovery Plan for the Quino Checkerspot butterfly (*Euphydryas editha quino*). Portland, Oregon (2000).
 11. Longcore, Travis, Kyle Fitzpatrick, and Maureen Phelan. Assessment of Los Angeles Department of Water and Power Cool Schools Program, University of Southern California Sustainable Cities Program (report to Los Angeles Department of Water and Power, December 2000).

10. Mattoni, Rudi and Travis Longcore. 2000 Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*) Adult Population Survey (report to U.S. Fish and Wildlife Service, August 28, 2000).
9. Lassiter, Unna, Travis Longcore, and Stephanie Pincetl. 53rd and Latham: Residents' Preferences for Amenities for an Urban Park, University of Southern California Sustainable Cities Program (report to City of Los Angeles, Department of Recreation and Parks, January 2000).
8. Mattoni, Rudi, Travis Longcore, and Rick Rogers. 1999 Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*) Adult Population Survey (report to U.S. Fish and Wildlife Service, August 28, 1999).
7. Lipman, Alison, Travis Longcore, Rudi Mattoni, and YinLan Zhang. Habitat Evaluation and Reintroduction Planning for the Endangered Palos Verdes Blue Butterfly (report to California Department of Fish and Game, June 1, 1999).
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5. Mattoni, Rudi, Travis Longcore, and Rick Rogers. 1998 Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*) Adult Population Survey (report to U.S. Fish and Wildlife Service, June 10, 1998).
4. Mattoni, Rudi, Gordon Pratt, Travis Longcore, Jeremiah George, and Jan Leps. Interim Report 1997: Conservation Planning for the Endangered Laguna Mountains Skipper, *Pyrgus ruralis lagunae* (report to U.S. Forest Service, January 1998).
3. Pratt, Gordon, Rudi Mattoni, Travis Longcore, Jeremiah George, Cecelia Pierce, and Chris Nagano. Distribution of Quino Checkerspot Butterfly (*Euphydryas editha quino*) in Southern San Diego County and Related Observations (report to U.S. Bureau of Land Management, January 1998).
2. Mattoni, Rudi, Arthur Bonner, Jeremiah George, and Travis Longcore. 1997 Annual Report: Defense Fuel Support Point Revegetation, Chevron Pipeline Mitigation (report to U.S. Fish and Wildlife Service, August 1, 1997).
1. Mattoni, Rudi, Arthur Bonner, Jeremiah George, Travis Longcore, Catherine Rich, and Rick Rogers. 1997 Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*) Adult Population Survey (report to U.S. Fish and Wildlife Service, June 30, 1997).

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10. Longcore, Travis, and Catherine Rich. Urban oaks and urban oak woodlands. *Oaks* (newsletter of the California Oak Foundation), pp. 3, 7 (2003).
9. Longcore, Travis. Fire clearance. *Los Angeles Times* (April 29, 2000)
8. Longcore, Travis. Further enlightenment. *Malibu Times* (February 4, 1999).
7. Longcore, Travis. Ask campus community about changes. *Daily Bruin*, p. 12 (May 19, 1998).
6. Longcore, Travis, editor. Biological assessment: coastal sage scrub at University of California, Los

Angeles. Prepared by Geography 123, Dr. Rudi Mattoni, Lecturer (unpublished report, December 1997).

5. Longcore, Travis. The Endangered Delhi sand dunes. *Western Tanager* 63(8):1-2 (1997).
4. Longcore, Travis. LAAS Year in review. *Western Tanager* 63(7):1-3 (1997).
3. Longcore, Travis. Election special: comparative excerpts from party platforms. *Western Tanager* 63(3):1-3 (1997).
2. Longcore, Travis. Big Birdathon Day. *Western Tanager* 63(1):1-3 (1997).
1. Rich, Catherine and Travis Longcore. Consultation issues at UCLA: landscape and construction (unpublished report, February 1996).

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15. Longcore, Travis and Catherine Rich. Ecological Consequences of Artificial Night Lighting in Natural Lands Management. Invited paper presented at George Wright Society Biennial Conference (San Diego, California, April 14-18, 2003).
14. Li, Christina, Travis Longcore, and John Wilson. The Association of American Geographers 98th Annual Meeting (New Orleans, Louisiana, March, 2003)
13. Longcore, Travis, Cor Zonneveld, Jorn Bruggeman, and Rudi Mattoni. *Tracking population responses of the endangered Palos Verdes blue butterfly to habitat enhancement using INCA (INsect Count Analyzer)*. The Ecological Society of America 87th Annual Meeting/Society for Ecological Restoration 14th Annual International Conference (Tucson, Arizona, August 4-9, 2002)
12. Longcore, Travis and John P. Wilson. *Applicability of CITYgreen urban ecosystem analysis software to a densely built urban neighborhood*. The Association of American Geographers 98th Annual Meeting (Los Angeles, California, March 19-23, 2002).
11. Longcore, Travis. *Obvious and insidious effects of sprawl on wildlife* (invited plenary speaker). Smart Growth for Californians and Wildlife, National Wildlife Federation and Planning and Conservation League (San Diego, California, May 19-20, 2001)
10. Longcore, Travis. *Ecological effects of fuel modification on arthropods and other wildlife in an urbanizing wildland*. Fire Conference 2000: The First National Congress on Fire Ecology, Prevention and Management (San Diego, California, November 27-December 1, 2000).
9. Longcore, Travis. *Response of terrestrial arthropod communities in coastal sage scrub to short-term climate change*. The Association of American Geographers 96th Annual Meeting (Pittsburgh, Pennsylvania, April 5-9, 2000).
8. Longcore, Travis. *Terrestrial arthropods and restoration: if you build it, will they come?* Society for Ecological Restoration Eleventh Annual Conference/Xerces Society Annual Meeting (The Presidio of San Francisco, September 23-25, 1999).
7. Longcore, Travis. *Putting the bugs in: assessing ecological restoration with terrestrial arthropods*. The Association of American Geographers 95th Annual Meeting (Honolulu, Hawaii, March 23-27, 1999)
6. Longcore, Travis and Catherine Rich. *419 acres: UCLA's natural history. 1. Land use, 2. Biological*

- homogenization, 3. Island biogeography.* Poster series and display presented at California's Biodiversity Crisis: The Loss of Nature in an Urbanizing World (UCLA, October 24–25, 1998).
5. Mattoni, Rudi, Jeremiah George, Travis Longcore, and Gordon Pratt. *Scale and the resonating impact of an exotic plant.* Southern California Academy of Sciences Annual Meeting (California State University, Fullerton, May 2–3, 1997).
 4. Longcore, Travis, Rudi Mattoni, Gordon Pratt, and Catherine Rich. *On the perils of ecological restoration: lessons from the El Segundo blue butterfly.* 2nd Interface Between Ecology and Land Development in California (Occidental College, Los Angeles, California, April 18–19, 1997).
 3. Mattoni, Rudi, Travis Longcore, Jeremiah George, and Catherine Rich. *Down memory lane: the Los Angeles coastal prairie and its vernal pools.* Poster presented at 2nd Interface Between Ecology and Land Development in California (Occidental College, Los Angeles, California, April 18–19, 1997).
 2. Longcore, Travis. *The role of science in Natural Community Conservation Planning.* Restoring Our Commitment to Recovery in the Era of the Habitat Conservation Plan, Endangered Species Defense Coalition (Starr Ranch, California, July 30, 1996).
 1. Longcore, Travis. *Mainland colonization by endemic insular taxa.* XXXth Annual Southwest Population Biology Conference (James Reserve, California, April 20–21, 1996).

INVITED PRESENTATIONS

- South Coast Wildlands Project Missing Linkages Workshop, August 2002
University of Southern California, Department of Geography, February 2002
Santa Monica Mountains Conservancy, September 2001
California Native Plant Society, South Coast Chapter, August 2001
California State University, Northridge, Olivatt Library, April 2001
University of California Natural Resources Continuing Conference, Wrigley Institute for Environmental Studies, April 2001
Society for Ecological Restoration, California Chapter Annual Conference, October 2000
University of Stockholm, Department of Zoology, September 2000
University of Gothenberg, Department of Applied Environmental Science, September 2000
Lorquin Entomological Society, Los Angeles, California, June 2000
University of California, Los Angeles, Department of Geography, May 2000
Southern California Institute of Architecture, June 1998
Los Angeles Unified School District Target Science, "Butterflies in the City" Workshop Series, South Central Los Angeles Leadership Team, October 1998

PROFESSIONAL SERVICE

- Referee, *Restoration Ecology, Journal of Research on the Lepidoptera, Environmental Management, Transactions in GIS*

Independent Scientific Advisor (Quino checkerspot butterfly), County of San Diego, 2002
Baldwin Hills Park Citizens Advisory Committee, 2002
Conference Co-Chair, The Urban Wildlands Group and UCLA Institute of the Environment, *Ecological Consequences of Artificial Night Lighting*, 2001–2002
Member, Advisory Council, Yosemite Restoration Trust, 1999–present
Member, Recovery Team (Technical Subteam), Quino Checkerspot Butterfly, U.S. Fish and Wildlife Service, 1999–present
Newsletter Layout, Endangered Habitats League, 1998–2002
Member, Conference Steering Committee, UCLA Institute of the Environment, *California's Biodiversity Crisis: The Loss of Nature in an Urbanizing World*, 1998
Managing Editor, Journal of Research on the Lepidoptera, 1997–1999
Member, Recovery Team, El Segundo Blue Butterfly, U.S. Fish and Wildlife Service, 1997–1998
Member, Environmental Review Board, County of Los Angeles (appointed by Los Angeles County Board of Supervisors), 1997–present
Editor, *Western Tanager*, newsletter of the Los Angeles Audubon Society, 1997
Vice President, Los Angeles Audubon Society, 1995–1997
Coordinator, Los Angeles Audubon Society Birdathon, 1996 (recognized by National Audubon Society, "Most Money Raised by a Rookie," September-October issue of *Audubon* magazine)
Graduate Student Association Representative, UCLA Academic Senate Council on Planning and Budget, 1996–1999
Member, Graduate Affairs Committee, UCLA Department of Geography, 1995–1997
Member, Instructional Technology Committee, UCLA Department of Geography, 1993–1995

PROFESSIONAL AFFILIATIONS

Member, Ecological Society of America
Member, Association of American Geographers
Member, Society for Ecological Restoration
Member, Southern California Botanists
Member, California Botanical Society

PUBLIC COMMUNICATION

Associated Press, *Boston Globe*, *Daily Breeze* (Torrance, California), *Daily Bruin* (Westwood, California), *Los Angeles Times*, *Metro Santa Cruz* (Santa Cruz, California), *Riverside Press-Enterprise* (Riverside, California), *Sacramento News and Review* (Sacramento, California), *San Jose Mercury News*, Scripps Howard News Service (Washington, DC), *The Christian Science Monitor* (Boston), *The Globe and Mail* (Toronto), *California Wild*, *Discover*, *Life*, *People*, *Science*, *Science News*, *Reader's Digest* (Canada), National Geographic Television ("America's Endangered Species: Don't Say Goodbye"), NBC Nightly News, ABC News, CNN Radio Español, National Public Radio ("Talk of the Nation"), BBC World Service

CATHERINE RICH
P.O. Box 24020
Los Angeles, California 90024-0020
Telephone: (310) 276-2306

Education

UCLA Department of Geography, M.A. June 1997. Emphasis in biogeography, urban wildlife, environmental philosophy. Thesis: *Poliophilophilia? Toward an Understanding of the Role of Human Emotion in Nature Preservation*. Teaching Assistant: Biogeography, Physical Geography, People and the Earth's Ecosystems.

UCLA School of Law, J.D. June 1981. Member, State Bar of California. Co-founder and Associate Editor, *UCLA Journal of Environmental Law and Policy*. Co-founder and officer (faculty liaison), UCLA Environmental Law Society.

University of California, Berkeley, A.B. March 1978 (with Distinction). Pre-medical course, psychology major. Member, Board of Directors, U.C. Berkeley CalPIRG (1976-1977). Co-founder, U.C. Berkeley CalPIRG (1976).

Professional Experience

Co-founder and Executive Officer, The Urban Wildlands Group (1996-present). Organization studies and works to protect species, habitats, and ecological processes within urban and urbanizing areas. Projects include restoration and management of habitat supporting endangered butterfly species, public education about effects of noise and artificial night lighting on wildlife, promotion of humane approaches to wildlife management, research on minimizing ecological effects of fuel modification.

Principal, Land Protection Partners (1998-present). Consultant to attorneys in land protection actions (primarily California Environmental Quality Act, California Coastal Act, federal Endangered Species Act). Services include issue identification, preparation of biological analysis with supporting scientific literature review, communication with resource agency personnel.

Contract Attorney, Law Offices of Jonathan Kirsch (1999-present). Trademark and publishing law.

Copy Editor, *Journal of Research on the Lepidoptera* (1997-1999).

Legal/Policy Consultant (1989-1992). Projects included assisting in the preparation of lawsuit (*Nordlinger v. Lynch*) challenging property tax assessment scheme mandated by Proposition 13 (for Center for Law in the Public Interest).

Deputy, Los Angeles City Councilman Marvin Braude (1987-1988). Formulated and developed environmental policies and programs. Represented councilman before city boards,

commissions, and committees, and at community meetings. Coordinated councilman's reelection campaign for seat on AQMD Board.

Community Representative (1985–1986). Directed successful effort to prevent developer from demolishing five contiguous apartment buildings in an unredeveloped Westwood neighborhood. Persuaded Los Angeles City Council to enact a local building moratorium, then successfully represented local community before Planning and Environment Committee of the City Council in a hardship exemption hearing requested by developer. Prepared architectural and historical documentation for Historic Preservation Overlay Zone application.

Staff Attorney, California Commission on Campaign Financing (1984–1985). Contributed to two-volume report on legislative campaign financing (*The New Gold Rush: Financing California's Legislative Campaigns*).

Full-time staff member, Gary Hart presidential campaign (1984). Field desk contact for Northern California; Los Angeles regional co-coordinator. Appointed to Credentials Committee of the 1984 Democratic National Convention.

Attorney, Paul, Hastings, Janofsky & Walker (1983). General civil litigation.

Editor/Assistant, Professor Charles M. Firestone (1982–1983). Edited Firestone and Johnson's *Cases and materials on communications law and policy*, assisted in preparations for conference, UCLA Communications Law Program/International Bar Association Symposium on International Satellite Television.

Research Assistant, Professor Richard Abel (Summer 1980). Compiled information on workplace exposure to toxic substances.

Intern, Hollywood Revitalization Committee (funded by National Trust for Historic Preservation) (Summer 1979). Evaluated feasibility of establishing a façade easement program for Hollywood's historic buildings.

Research Assistant, Professor Laura Nader (funded by National Highway Traffic Safety Administration) (Spring 1978). Research on social costs of automobile accidents.

Research Assistant, Professor Laura Nader (Summer 1977). Participated in study funded by Energy Research & Development Administration evaluating feasibility of alternative energy systems in California. Interviewed officials involved with the implementation of Energy Conservation Standards for New Residential Buildings.

Peer Reviewed Publications

Rich, Catherine, and Travis Longcore (eds.). *Ecological consequences of artificial night lighting*. Island Press (in preparation for 2004 publication).

Longcore, Travis, and Catherine Rich. Ecological light pollution. *Frontiers in Ecology and Environment* (in review).

Longcore, Travis, Catherine Rich, and Dietland Müller-Schwarze. Management by assertion: beavers and vireos at Lake Skinner (Riverside County, California). *Ecological Restoration* (in review).

Longcore, Travis, Rudi Mattoni, Gordon Pratt, and Catherine Rich. On the perils of ecological restoration: lessons from the El Segundo blue butterfly. Pp. 281–286 in Keeley, Jon, Melanie Baer-Keeley, and C.J. Fotheringham, eds. *2nd Interface Between Ecology and Land Development in California*, U.S. Geological Survey Open-File Report 00-62, Sacramento, CA (2000). (Abstracted in *Ecological Restoration* 19(2):125 (2001).)

Scientific Reports

Longcore, Travis, and Catherine Rich. Review of biological impact analysis in Initial Study and Mitigated Negative Declaration (PD-S-942/TT5411), City of Simi Valley. Los Angeles, Land Protection Partners, 15 pp. (July 24, 2003).

Longcore, Travis, and Catherine Rich. Conservation value of Catellus West Bluffs property justifies purchase with public funds. Los Angeles, Land Protection Partners, 11 pp. (May 2, 2003).

Longcore, Travis, Catherine Rich, John Marzluff, and Barbara Nightingale. Peer review of artificial light and noise impact analysis in Sand Point Magnuson Park Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project Final Environmental Impact Statement [Seattle, Washington]. Los Angeles, Land Protection Partners, 15 pp. (January 16, 2003).

Longcore, Travis, and Catherine Rich. Adequacy of biological resources analysis in Heschel West School Draft Environmental Impact Report. Los Angeles, Land Protection Partners, 23 pp. (December 11, 2002).

Longcore, Travis, and Catherine Rich. Review of biological resources analysis in Malibu Bay Company Development Agreement Draft Environmental Impact Report. Los Angeles, Land Protection Partners, 28 pp. (November 11, 2002).

Longcore, Travis, and Catherine Rich. Action plan for Kern primrose sphinx moth (*Euproserpinus euterpe*) at Carrizo Plain National Monument. Los Angeles, The Urban Wildlands Group, 15 pp. (report to U.S. Fish and Wildlife Service, November 1, 2002).

Longcore, Travis, Rudi Mattoni, Alison Lipman, Zdenka Krenova, and Catherine Rich. Final report for Palos Verdes blue butterfly year 2002 captive rearing on Defense Fuel Support Point, San Pedro, California. Los Angeles, The Urban Wildlands Group (Defense Logistics Agency Agreement # N68711-02-LT-00010), 18 pp. (October 1, 2002).

Longcore, Travis, and Catherine Rich. Effects of light and noise from a proposed Wal-Mart "Supercenter" on the wildlife of Penjajawoc Marsh (Bangor, Maine). Los Angeles, Land Protection Partners, 18 pp. (June 7, 2002).

Longcore, Travis, and Catherine Rich. Protection of environmentally sensitive habitat areas in proposed Local Coastal Plan for City of Malibu. Los Angeles, The Urban Wildlands Group, 19 pp. (May 30, 2002).

Longcore, Travis, and Catherine Rich. A review of the ecological effects of road reconfiguration and expansion on coastal wetland ecosystems. Los Angeles, The Urban Wildlands Group, 12 pp. (November 14, 2001).

Longcore, Travis, and Catherine Rich. Review of biological resources analysis in draft Sully-Miller/Fieldstone Communities Environmental Impact Report (SCH #99101125). Los Angeles, Land Protection Partners, 15 pp. (October 19, 2001).

Longcore, Travis, and Catherine Rich. Review of biological resources analysis in LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report. Los Angeles, Land Protection Partners, 27 pp. (August 8, 2001).

Longcore, Travis, and Catherine Rich. Review of biological resources analysis in City of Malibu Negative Declaration No. 00-010 (Kempin Single Family Residence). Los Angeles, Land Protection Partners, 5 pp. (July 23, 2001).

Mattoni, Rudi, Arthur Bonner, Jeremiah George, Travis Longcore, Catherine Rich, and Rick Rogers. 1997 Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*) adult population survey (report to U.S. Fish and Wildlife Service, June 30, 1997).

Rich, Catherine, and Travis Longcore. Consultation issues at UCLA: landscape and construction (unpublished report, February 1996).

Nader, Laura, Norman Milleron, Joseph Palacios, and Catherine Rich. Belief, behavior, and technologies as driving forces in transitional stages — the people problem in dispersed energy futures. Pp. 177–238 in *Distributed energy systems in California's future: a preliminary report, Volume 2*. Washington, D.C.: Energy Research & Development Administration (September 1977).

Conference Presentations

Longcore, Travis, and Catherine Rich. Ecological consequences of artificial night lighting in natural lands management. Invited paper presented at George Wright Society Biennial Conference, San Diego, California (April 14–18, 2003).

Longcore, Travis, and Catherine Rich. *419 acres: UCLA's natural history. 1. Land use, 2. Biological homogenization, 3. Island biogeography*. Poster series and display presented at California's Biodiversity Crisis: The Loss of Nature in an Urbanizing World (UCLA, October 24–25, 1998).

Longcore, Travis, Rudi Mattoni, Gordon Pratt, and Catherine Rich. *On the perils of ecological restoration: lessons from the El Segundo blue butterfly*. Paper presented at 2nd Interface Between Ecology and Land Development in California (Occidental College, Los Angeles, California, April 18–19, 1997).

Mattoni, Rudi, Travis Longcore, Jeremiah George, and Catherine Rich. *Down memory lane: the Los Angeles coastal prairie and its vernal pools*. Poster presented at 2nd Interface Between Ecology and Land Development in California (Occidental College, Los Angeles, California, April 18–19, 1997).

Grants and Awards

Santa Monica Bay Restoration Commission. Grant of \$131,000 to Los Angeles Conservation Corps and The Urban Wildlands Group to restore coastal dune and bluff vegetation and develop a master plan for restoration of El Segundo dune and bluff habitat (2003).

Defense Logistics Agency. Contract for \$43,779 to The Urban Wildlands Group to conduct experimental captive propagation of endangered Palos Verdes blue butterfly (2003).

Conservation and Research Foundation. Grant of \$5,000 to The Urban Wildlands Group to support preparation of book, *Ecological Consequences of Artificial Night Lighting* (2003).

California ReLeaf. Grant of \$7,500 to The Urban Wildlands Group for project, "Urban Forest Assessment and Outreach at UCLA" (2003).

U.S. Department of the Navy. Contract for \$12,000 to The Urban Wildlands Group to salvage Palos Verdes blue butterfly pupae from Navy property to be disposed and developed (2002).

U.S. Fish and Wildlife Service. Contract for \$24,000 to The Urban Wildlands Group to develop Recovery Plan for endangered Callippe silverspot butterfly in San Francisco area, California (2002).

U.S. Fish and Wildlife Service. Contract for \$10,000 to The Urban Wildlands Group to develop Action Plan for endangered Kern primrose sphinx moth on BLM land in the Carrizo Plain National Monument, California (2002).

National Fish and Wildlife Foundation. Grant of \$5,000 to The Urban Wildlands Group to support conference, *Ecological Consequences of Artificial Night Lighting* (2002).

Electric Power Research Institute. Grant of \$2,000 to The Urban Wildlands Group to support conference, *Ecological Consequences of Artificial Night Lighting* (2002).

Defense Logistics Agency. Contract for \$42,665 to The Urban Wildlands Group to conduct experimental captive propagation of endangered Palos Verdes blue butterfly (2002).

U.S. Fish and Wildlife Service Landowner Incentive Program. Grant of \$37,300 to The Urban Wildlands Group to restore habitat for endangered El Segundo blue butterfly on private property in Torrance, California (2001).

International Dark-Sky Association Executive Director's Award, "In recognition of her enthusiastic efforts in the pursuit of the promotion of Dark Skies" (2002).

International Dark-Sky Association Executive Director's Award, "For outstanding service in protecting our nighttime environment" (2001).

Selected Activities and Memberships

Conference Co-Chair, The Urban Wildlands Group/UCLA Institute of the Environment, *Ecological Consequences of Artificial Night Lighting* (2002)

Advisor, California Wildlife Foundation (2002–present)

Member, Advisory Council, California Oak Foundation (1999–present)

Member, Conference Steering Committee, UCLA Institute of the Environment, *California's Biodiversity Crisis: The Loss of Nature in an Urbanizing World* (1998)

President, Los Angeles Audubon Society (1996–1997)

Conservation Co-Chair, Los Angeles Audubon Society (1995–1996)

Second Vice President, Los Angeles Audubon Society (1994–1995)

Member, Advisory Committee, Los Angeles County 1996 Proposition A. Successfully lobbied for inclusion of, and wrote, statement in Proposition A's preamble pertaining to the importance of maintaining biological diversity within the County, and successfully lobbied for creation of a competitive grant category for habitat acquisition and/or restoration.

Member, Society for Conservation Biology

Member, Cooper Ornithological Society



ADMINISTRATIVE OFFICE

CITY OF CULVER CITY

9770 CULVER BOULEVARD, CULVER CITY, CALIFORNIA 90232-0507

(310) 253-6000

FAX (310) 253-6010

JERRY B. FULWOOD
Chief Administrative Officer

November 6, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

**RE: Comments on the LAX Master Plan 2003 Supplemental
Environmental Impact Statement / Environmental Impact Report**

Dear Mr. Ritchie:

The City of Culver City has adopted the attached City Council Resolution 2003-R086 that formally transmits our comments on the LAX Master Plan Draft Supplemental EIS/EIR.

Overall, we believe the Draft Supplemental EIS/EIR fails to adequately address potential significant impacts to Culver City caused by the proposed project. The Draft Supplemental EIS/EIR and associated documents primarily focus on an analysis of impacts and proposed mitigation measures for the area immediately adjacent to the airport.

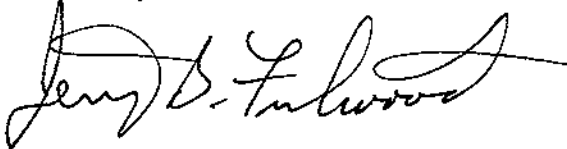
Due to the failure of the Draft Supplemental EIS/EIR to adequately address impacts and propose mitigation measures for Culver City, we believe that the Los Angeles World Airports (LAWA) should find the Draft Supplemental EIS/EIR inadequate for certification and require that it be revised and re-circulated to respond to the deficiencies we have identified in Resolution 2003-R086 and the extensive technical comments that is attached thereto as Exhibit A.

Mr. Jim Ritchie
Page 2 of 2
November 6, 2003

Culver City's comments on the 2003 Supplemental EIS/EIR are in addition to the comments previously provided to LAWA on the 2001 Draft EIS/EIR. A copy of the 2001 Draft EIS/EIR comments is attached. Both sets of Resolutions adopted by the City Council constitute the City's comments on the entire LAX Master Plan and EIS/EIR.

We look forward to your response to the comments and concerns of the City of Culver City.

Sincerely,



Jerry Fulwood
Chief Administrative Officer

Attachments:

1. Culver City City Council Resolution No.2003-R086 including Exhibit A
2. Culver City City Council Resolution No. 2001-R068 and comments on the 2001 Draft EIS/EIR

Copy: Honorable City Council Members, City of Culver City
U.S. Congresswoman Diane Watson, 32nd Congressional District
U.S. Congresswoman Jane Harman, 36th Congressional District
Honorable Kevin Murray, Senator, 26th Senatorial District
Honorable Herb Wesson, Speaker of the Assembly, 47th Assembly District
Supervisor Yvonne Braithwaite Burke, LA County, 2nd District
Supervisor Don Knabe, LA County, 4th District
Honorable James Hahn, Mayor City of Los Angeles
Honorable Cindy Miscikowski, Los Angeles Council Member, Council District 11
David Kessler, Federal Aviation Administration

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1 capacity of its existing facilities and promotes development of additional capacity at the
2 many other commercial airports in Southern California to serve the expanding air
3 commerce market place. As established in City Council Resolution No. 98-R087, the
4 City's official position regarding the proposed expansion is one of opposition to the LAX
5 capacity expansion beyond that which can be accommodated by existing LAX facilities,
6 and support for developing the capacity of other commercial airports within Southern
7 California; and,

8
9 WHEREAS, LAWA and the FAA prepared a joint Draft EIS/EIR to address
10 the potential environmental impacts caused by the proposed LAX expansion, which was
11 released for public review and comment on January 18, 2001; and,

12 WHEREAS, the Draft EIS/EIR analyzes four project alternatives: 1) No
13 Action /No Project; 2) Alternative A, Additional runway to the north airfield, 3) Alternative
14 B, an additional runway to the south airfield, and 4) Alternative C, no additional runways
15 but reconfiguration of existing runways including either lengthening, widening, and
16 relocating; and,

17
18 WHEREAS, on June 25, 2001, the Culver City City Council adopted
19 Resolution No. 2001-R068 determining that the 2001 Draft EIS/EIR is substantially
20 inadequate for certification by the Lead Agencies and that there was insufficient analysis
21 of the environmental impacts of the proposed project to Culver City. Despite our close
22 proximity to the airport, the 2001 Draft EIS/EIR does not adequately address potential
23 significant impacts to Culver City caused by the LAX Master Plan, including the proposed
24 LAX Expressway, an elevated roadway along the I-405. Also, a fully regional solution to
25 the growth and demand in air passenger and air cargo capacity is not adequately
26 considered in the 2001 Draft EIS/EIR. The City of Culver City's comments on the 2001
27

1 Draft EIS/EIR, including the City Council Resolution No. 2001-R068 were forwarded to
2 LAWA on July 18, 2001; and,

3 WHEREAS, a City Staff Team, consisting of various City Departments as
4 well as a noise consultant and a traffic consultant hired by the City of Culver City, was
5 established to evaluate and comment on the adequacy of the Draft EIS/EIR in addressing
6 potential impacts to Culver City; and,

7
8 WHEREAS, the City Council of the City of Culver City, accepted public
9 comments and considered the Draft Supplemental EIS/EIR at public meetings on October
10 27, 2003.

11 NOW, THEREFORE, the City Council of the City of Culver City, California,
12 DOES HEREBY RESOLVE as follows:

13 In addition to the comments made through Resolution No. 2001-R068, the
14 following key findings are hereby made by the City Council of the City of Culver City.
15 These findings are described more fully and augmented in greater detail in "Exhibit A",
16 which is attached to this Resolution.

17
18 1. The Draft Supplemental EIS/EIR inadequately and inaccurately
19 addresses the substantial adverse environmental impacts potentially affecting the City of
20 Culver City. Below is a summary of impacts not discussed or analyzed in the Draft
21 Supplemental EIS/EIR.

22 a. Traffic: The Draft Supplemental EIS/EIR is completely
23 inadequate in evaluating traffic impacts in the City of Culver City. Only one
24 intersection in Culver City was analyzed. The analysis should have included
25 other intersections within the radius of influence of the Airport Expansion, to
26 determine whether significant environmental impacts may be caused within
27

1 Culver City and whether those impacts can be mitigated to a to a level of
2 insignificance. Assessment of additional intersections should have been
3 included, all of which currently are operating at unacceptable levels of
4 service.

5 As traffic delays impact the street network system, mass transit
6 (Culver CityBus – Line 6) and public safety services are equally impacted.
7 The Draft Supplemental EIS/EIR does not adequately address potential
8 fiscal impacts of increased Home Land Security. Further, there is potential
9 spillover congestion onto the I-10 freeway at the I-405 interchange. Not only
10 is there a lack of acceptable analysis, the failure to address these issues
11 results in a failure to address potential mitigation measures which might
12 have the effect of reducing the levels of adverse impacts.

13
14 b. Aircraft Overflight Noise: There are potential aircraft overflight
15 noise impacts from two new arrival paths and a new departure path. There
16 are on average approximately 2,100 existing daily flights according to the
17 1996 environmental baseline. A major problem with the Draft Supplemental
18 EIS/EIR regarding aircraft noise is the lack of key data and detailed analysis
19 of the overflight noise impact to Culver City and other communities in close
20 proximity. The degree of impact cannot be determined because noise levels
21 and flight frequency information for aircraft overflights is not provided in the
22 Draft Supplemental EIS/EIR.

23
24 c. Air Pollution: The Draft Supplemental EIS/EIR completely fails
25 to evaluate localized air pollution impacts on Culver City. No mitigation
26 measures are proposed for Culver City from increased air and mobile
27

1 sources from auto traffic, aircraft operations, construction, and in particular
2 from freight and cargo operations. Without this critical analysis, the Draft
3 Supplemental EIS/EIR fails to comply with the minimum requirements of the
4 California Environmental Quality Act (CEQA) and the National Environmental
5 Policy Act (NEPA).

6 d. Cumulative Impacts: The Draft Supplemental EIS/EIR fails to
7 adequately analyze the cumulative impacts of other projects, which will be
8 under construction during the same time period as the proposed expansion
9 of LAX such as I-405 HOV project, Playa Vista, Baldwin Hills Regional Park
10 Plan project, MTA Exposition Line project, and the West Los Angeles
11 College Facilities Master Plan project. For example, the cumulative impacts
12 of the LAX expansion along with the Playa Vista project, including their
13 cumulative construction impacts, would result in significant adverse impacts
14 to the I-405, Sepulveda Boulevard, and other arterials, resulting in adverse
15 impacts to local circulation and air emissions.

16 e. NOP/NOI Comment Letter: In response to the NOP/NOI to
17 prepare the Draft EIS/EIR issued in June 1997, Culver City requested in a
18 letter dated July 31, 1997, that major issues and concerns related to traffic,
19 air quality, overflight operations, regional context, and other subject areas
20 impacting Culver City be analyzed in the preparation of the Draft EIS/EIR.
21 None or minimal analysis of these issues are contained in the 2001 Draft
22 EIS/EIR or in the 2003 Draft Supplemental EIS/EIR. Further, Culver City's
23 NOP/NOI comment letter is not contained in Draft Supplemental EIS/EIR or
24
25
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1 Appendix A of the 2001 Draft EIS/EIR, where copies of written comments
2 from affected agencies are contained.

3 2. The magnitude of omissions in the Draft Supplemental EIS/EIR is so
4 extensive that attached hereto as "Exhibit A" of this Resolution, are significant additional
5 comments which detail the failure of the lead agencies to adequately address the
6 complete array of adverse environmental impacts this project is anticipated to have on
7 Culver City.
8

9 Pursuant to the foregoing recitation and findings, the City Council of the City
10 of Culver City, California, hereby:

11 1. Determines that the Draft Supplemental EIS/EIR is substantially
12 inadequate and inaccurate for certification by the Lead Agencies and that a complete and
13 proper level of environmental data and analysis must be incorporated into the Draft
14 Supplemental EIS/EIR to address the identified deficiencies.
15

16 2. Establishes that this Resolution, including attached Exhibit "A,"
17 constitutes the City of Culver City's comments on the July 2003 Draft Supplemental
18 EIS/EIR that was prepared for the proposed LAX Master Plan Addendum.
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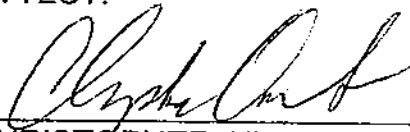
1 3. Directs and authorizes Staff to transmit the comments of the City of
2 Culver City on the Draft Supplemental EIS/EIR to LAWA and FAA.

3 APPROVED and ADOPTED this 27th day of October 2003.

4
5 

6 ALAN CORLIN, Mayor
7 City of Culver City, California

8 ATTEST:

9 

10 CHRISTOPHER ARMENTA
11 City Clerk

12 APPROVED AS TO FORM:

13 

14 CAROL A. SCHWAB
15 City Attorney

EXHIBIT A
City of Culver City Resolution No. 2003 – R0
Supplemental Draft EIS/EIR for the LAX Master Plan Addendum
October 27, 2003

SURFACE TRANSPORTATION

Intersection and Street Segment Traffic Impact Analysis

1. The impacts of LAX expansion traffic within Culver City were not given sufficient analysis. The most thorough method of analyzing the traffic flow quality and impacts on a street network is the evaluation of the operations at the critical intersections. They are the locations that act as valves for the flows on the intersecting streets. The flow along the street segments between the important intersections does not yield a true picture, because the interruptions to flow at the critical intersections are not properly accounted for in that type of analysis.
 - a) Only one intersection in Culver City was included in the impact analysis – Sepulveda Boulevard/Centinela Avenue, at the southern edge of the City [Figure 4.3.2-1, following page 4-243].
 - b) In response to the Notice of Preparation of the EIR several years ago, Culver City requested analysis at approximately 40 important intersections within the City, and those intersections were included in discussions of the study method and scope with the City of Los Angeles Department of Transportation and with the LAX consultants. The requests in the response to the Notice of Preparation were not acknowledged. Except for the one intersection mentioned above, the requested intersections were not included in the January 2001 Draft EIS/EIR or the July 2003 Draft Supplemental EIS/EIR. The intersections are listed below:

1. Braddock Drive	@ Overland Avenue
2. Braddock Drive	@ Sepulveda Boulevard
3. Bristol Parkway	@ Centinela Avenue
4. Bristol Parkway	@ Slauson Avenue
5. Buckingham Parkway	@ Slauson Avenue
6. Centinela Avenue	@ Green Valley Circle
7. Centinela Avenue	@ Washington Boulevard
8. Centinela Avenue	@ Washington Place
9. Culver Boulevard	@ Main Street/Washington Boulevard
10. Culver Boulevard	@ Overland Avenue
11. Culver Boulevard	@ Sawtelle Boulevard
12. Culver Boulevard	@ Sepulveda Boulevard

13. Duquesne Avenue	@ Jefferson Boulevard
14. Glencoe Avenue	@ Washington Boulevard
15. Green Valley Circle	@ Sepulveda Boulevard
16. Hannum Avenue	@ Playa Street
17. Hannum Avenue	@ Slauson Avenue
18. I-405 NB Ramps s/o Venice Boulevard	@ Sepulveda Boulevard
19. I-405 SB Ramp n/o Culver Boulevard	@ Sawtelle Boulevard
20. Inglewood Boulevard	@ Washington Boulevard
21. Jefferson Boulevard	@ Overland Avenue
22. Jefferson Boulevard	@ Sepulveda Blvd (N)
23. Jefferson Boulevard	@ Slauson Avenue
24. La Cienega Boulevard	@ Washington Boulevard
25. Marina Freeway	@ Slauson Avenue
26. Matteson Ave/I-405 SB Ramps	@ Sawtelle Boulevard
27. Motor Avenue	@ Washington Boulevard
28. Overland Avenue	@ Washington Boulevard
29. Playa Street/Jefferson Blvd.	@ Sepulveda Boulevard
30. Redwood Avenue	@ Washington Boulevard
31. Sawtelle Boulevard	@ Sepulveda Boulevard
32. Sawtelle Boulevard	@ Venice Boulevard
33. Sawtelle Boulevard	@ Washington Boulevard
34. Sawtelle Boulevard	@ Washington Place
35. Sepulveda Boulevard	@ Slauson Avenue
36. Sepulveda Boulevard	@ Washington Boulevard
37. Sepulveda Boulevard	@ Venice Boulevard
38. Sepulveda Boulevard	@ Washington Place
39. Walgrove Avenue	@ Washington Boulevard

- c) Only six street segments in Culver City were included in the analysis -- 1) Sawtelle Boulevard, south of Venice Boulevard; 2) Sepulveda Boulevard, south of Venice Boulevard; 3) Overland Avenue, south of Venice Boulevard; 4) Sepulveda Boulevard, south of Slauson Avenue; 5) Centinela Avenue, west of Sepulveda Boulevard; and 6) Washington Boulevard, east of Lincoln Boulevard [Figure 4.3.2-1].
- d) Other streets that are components of routes to/from the airport, such as Jefferson Boulevard (west of Sepulveda Boulevard and east of Overland Avenue), Culver Boulevard, and Centinela Avenue (toward the east), are not included, although they are likely to carry meaningful volumes of airport traffic.

- e) Of the streets that are included, some of the segments are not the most critical in evaluating impacts of airport traffic. For example, Overland Avenue, south of Jefferson Boulevard would have far higher impacts of airport traffic than the segment of Overland Avenue (south of Venice Boulevard) that was chosen for analysis. The same could be said about Sawtelle Boulevard, south of Culver Boulevard, and about Washington Boulevard, east and west of Sepulveda Boulevard.
 - f) There is only one study segment along the entire length of La Cienega Boulevard, although that is currently one of the most attractive routes to/from LAX. That attraction will certainly increase when the GTC is located adjacent to La Cienega Boulevard as part of Alternative D, but the impacts have been overlooked.
2. In the January 2001 Draft EIR/EIS in Table II-7.4 on page II-7.13, the "existing" (1996) Level of Service (LOS) operations in the afternoon peak hour were at:
- LOS A or B along Sepulveda Boulevard, south of Venice Boulevard.
 - LOS A and B along Overland Avenue, south of Venice Boulevard.
 - LOS A along La Cienega Boulevard, south of Slauson Avenue.
 - LOS A and B along Washington Boulevard, east of Lincoln Boulevard.
 - LOS B and C along Sepulveda Boulevard, south of Slauson Avenue.

Those calculated levels do not conform to actual experience on the streets. The actual, observable operations are at lower levels, even though traffic signal enhancing equipment (ATSAC) has been installed. The application of street segment analysis has not sufficiently taken into account the interruptions to flow that occur at the critical intersections along the segments.

3. Many of the findings of current and future Levels of Service on street segments [Table S4.3.2-4, pages 4-258 through 4-261] are not credible and should be re-evaluated in light of current experience.
- a) La Cienega Boulevard, south of Slauson Avenue is shown at LOS A or B during all peak hours to the year 2015, although the road is observably congested during peak hours and many non-peak hours now. New traffic counts should be taken and new analyses should be made to bring the study up-to date.
 - b) Washington Boulevard, east of Lincoln Boulevard, is shown at LOS A during all peak hours to 2015, although that high level of operations has not been the experience since the opening of the Costco store in that street segment. Apparently, the calculations, which are based on pre-Costco counts, did not take the new retail traffic into account, despite Costco being

highlighted in the report text as a related project. New traffic counts should be taken and new analyses should be made to bring the study up-to date.

Again, those findings demonstrate the weakness of analysis using street segments instead of intersections. The interruptions of flow at the critical intersections are not fully accounted for in the segment methodology.

4. On page 4-254 is the statement, "Analysis shows that these two important mitigation components [new freeway-to-airport interchanges on I-405 and I-105] would be effective in encouraging airport traffic to stay on the freeway system, and avoid off-loading onto the surface streets." No such analysis is presented, nor could one be produced without taking into account the already significant and increasing congestion on the San Diego Freeway, during both peak and non-peak periods.

The reason drivers seek alternative routes to/from LAX, instead of using the San Diego Freeway, is not the lack of a direct connection between the freeway and the airport. It is because the freeway, itself, north of the airport through Culver City and northward through West Los Angeles, is congested during much of the day, both on weekdays and on weekends. Sepulveda Boulevard and other north-south streets are attractive alternative routes for distances far north of Centinela Avenue. When Playa Vista is developed, the freeway congestion will increase and extend into more hours of the day, as well as further north.

Freeway Impacts

5. The proposed Lennox Interchange will not add to the capacity of the freeway nor improve its operations compared with current conditions. The interchange will not reduce freeway congestion north of the airport through West Los Angeles and into the San Fernando Valley. It may actually add to the congestion by giving airport-oriented drivers the false expectation of a convenient, fast route between the freeway and the airport. The interchange should not be considered to be a mitigation measure for traffic flows on the north/south surface streets, parallel to the freeway that would serve traffic to/from the airport. Most drivers who currently use the surface streets will continue to do so to avoid freeway traffic congestion, and many new drivers will be attracted to the surface streets because of significantly increased freeway congestion.
6. The analysis of the impacts of airport expansion traffic on the freeways is cursory and difficult to ascertain. The results of the impact analyses are not covered or difficult to locate in the report text.

7. Page ES-28: In the discussion regarding congestion, it states that the general area bounded by Marina Freeway, the San Diego Freeway, Rosecrans Avenue, and Vista Del Mar, the hours spent traveling on freeways would be reduced by about 10 percent. This cannot be so, considering that the San Diego Freeway is currently operating at very low levels of service throughout the day and that the LAX master plan is not adding capacity to any of the freeways.
8. People who regularly travel on the San Diego Freeway north of the Marina Freeway through Culver City and West Los Angeles often move at less than 30 miles per hour in mid-afternoon and even slower speeds during peak periods. The average speeds in Table S4.3.2-2 on page 4-252 are not achieved now. The document needs to evaluate and better explain how the addition of LAX traffic will improve the speeds over current conditions.

Congestion Management Plan (CMP) Analysis

9. Although the CMP facilities that were studied are listed on page 4-262, the results of the analyses regarding the individual facilities are hidden and not readily accessible in Attachment G of the Technical Report. That is where the reader has to go to find the impacts of LAX traffic on any of the freeways. Many readers will not have that document and will not be able to find the information in the main text document of the Draft Supplemental EIS/EIR. Please provide an executive summary of Attachment G in the main text of the Draft Supplemental EIS/EIR.
10. CMP Analysis. The intersection of Venice Boulevard and Overland Avenue is designated as a CMP Route Monitoring Location. In the Off-Airport report on page 4-290, Table S4.3.2-14, it indicates that this location will be impacted for Alternative D. The Project's Fair Share Contribution to this location is designated to be 17.7%. Overland Avenue was widened in 2001, both north and south of Venice Boulevard. It is incomprehensible as to how an intersection on the northerly City limit of Culver City is impacted when no intersections with equal or worse level of service between this location and the intersection of Centinela Avenue and Sepulveda Boulevard (at the southerly City limit) are impacted.

Traffic Mitigation Measures

11. There are no guarantees for the funding or implementation of any of the mitigation measures that are presented. On page 4-273, as the introductory sentence to the "Mitigation Measures" section, is the statement, "The following mitigation measures are applicable only to the extent that the use of airport revenues to fund such measures is permissible under federal law and policies." The airport administrators and representatives should obtain

conceptual federal agency approval for funding of the recommended measures before they are presented as feasible. If any of the recommended measures cannot be implemented, the findings of the study will be invalid, and the proposed project should not proceed until feasible and fundable measures can be substituted.

12. At the Sepulveda Boulevard/Centinela Avenue intersection, the only study intersection in Culver City, the recommended mitigation measure is the addition of a right-turn lane on westbound Centinela Avenue. That will require roadway widening into the Caltrans right-of-way. That should be acknowledged in the report, because it will require Caltrans approval, acquisition of substantial right-of-way, construction of a retaining wall, and extensive traffic signal modifications.

13. On pages 4-278 and 4-283, mitigation measures are presented for the roadway links that will be significantly impacted. For the links within Culver City, the only measures recommended are "Fair-share contributions to regional transit service will mitigate the impacts of this link." The following information and analysis is lacking in the document and will need to be provided:

- a) Analyze how the proposed regional transit service measures will be sufficiently effective in mitigating the specific impacts on any of the links.
- b) Explain how and by whom the "fair-share contributions" will be determined. Include the City of Culver City as part the review and approval process.
- c) Identify which agencies will participate and receive funds. Explain how the funds will be spent. Will the funds be for capital improvements only, or will operating costs (particularly, for transit) be included?
- d) Explain and discuss how the compliance of the transit agency and the effectiveness of the transit measures will be monitored to assure that the impacts will be mitigated.

14. In Table S4.3.2-14, on page 4-290, regarding Venice Boulevard, ATSAC signal equipment has been installed at each intersection for many years (before January 1994). Therefore, that cannot be included as a mitigation measure for LAX traffic impacts. An alternative measure should be provided (the signals in that section are operated by the City of Los Angeles, not City of Culver City).

15. Page 4-275: It is unclear how the Year 2008 impacts at the intersection of Centinela and Jefferson Boulevard will be mitigated by the I-405/Lennox interchange.

16. Page 4-276. The mitigation measure at the Sepulveda and Centinela intersection calls for removal of the median island to accommodate a right turn lane. The width of the street may not provide enough space for this.

Construction Traffic Impacts

17. The construction of the LAX modifications will coincide with the construction of the Route I-405 HOV project and Playa Vista, approximately two miles north of the airport [page 4-273]. Both construction contractors will use Sepulveda Boulevard and the San Diego Freeway for major haul/delivery routes and for employee commuter routes. Coordination between the constructions of the two large projects is not likely to be effective, because construction companies schedule operations for their own efficiency without regard to the real impacts on the general public. As stated in the report, "... the cumulative impacts from construction activities on the off-airport surface transportation system would still be significant and temporary." The construction periods during which the two projects (airport modification and Playa Vista) will overlap will be a minimum of five years. That is a long period to be labeled "temporary".
18. According to Table S4.3.2-9 on page 4-270, there will be no truck deliveries or earthmoving trucks from 7 to 11 a.m. That is not a reasonable expectation, based on observable patterns of construction activities.
19. Based on Table S4.3.2-9, the truck movements between 12 a.m. and 7 a.m. would total 6% of the total daily movements. An estimated 73% of the truck movements would occur between 11 a.m. and 3 p.m. But, ST-12 on page 4-248 states that "Truck deliveries will be concentrated during night hours ..." The peak hour for airport traffic will be 11 a.m. to 12 noon, and 18% of the truck movements – an average of 8 entering trucks plus 8 leaving trucks per minute – will occur during that hour. They will interfere with the peak passenger traffic flows.
20. Scheduling truck deliveries to not occur during four peak hours of the day [ST-12, page 4-248] does not adequately address the peak-period truck traffic problem. Many truck drivers will travel from remote supply depots to the airport vicinity during the peak periods in order to enter the airport boundaries during the allowable periods. When leaving, they will exit before the starts of the peak periods, but they will still be traveling on the freeway/street network to the remote locations during the peak periods. Additionally, the freeways and streets serving the airport area are congested during periods far longer than four peak hours per day. Additional and better mitigation measures are needed to adequately address traffic impacts from construction activities.

21. Remote parking areas for construction employees located up to 50 miles away from LAX are recommended [ST-13, page 4-248]. Aside from the improbability of those remote areas being attractive to and extensively used by employees, there is no analysis of the impacts of the added traffic at those remote locations, nor is there analysis of the impacts of the shuttle traffic between those locations and the airport.
22. Although the peak hours on the traffic system may be 8 to 9 a.m. and 5 to 6 p.m., the adjacent hours are also periods of high traffic volumes and congestion. For example, the 4 to 5 p.m. hour will be a high commuter traffic hour for both LAX construction workers and employees at other developments outside the airport throughout the region. That hour cannot be ignored. Analyses of construction traffic impacts during that hour are necessary.

On-Airport Surface Transportation

23. Page 4-217. The analysis takes summer as the peak periods to be evaluated through out the document when construction is purported to be at its peak. There is no indication that the high construction period would not slip into the end-of-the year holiday period. The holiday period between Thanksgiving and New Years is recognized as placing a maximum demand on LAX resources. There is a reasonable expectation that construction will continue through this heightened period of travel. Consideration should be given to this scenario. In addition, the schools are typically not in session during summer months providing a benefit to ambient traffic surrounding the LAX. Ambient traffic surrounding the LAX is nominally worse during the holiday periods at the end of the calendar year.
24. Airport Parking. There were 847,394 vehicles accommodated in airport parking facilities in August 2000 (Page 4-222). Figure S4.3.1.2 indicates that at present the CTA parking facilities are almost 100% occupied.
- The project (Page 4-225) causes demand to regularly exceed capacity on all airport parking facilities. This is true for employee parking and car rental lots as well. The possibility of increased vehicular circulation by motorists seeking parking needs to be evaluated and analyzed in the Draft Supplemental EIS/EIR.
25. The executive summary states that the new configuration of LAX would provide about 35,000 parking spaces, but does not mention the number of current parking spaces.
26. Construction Operations (Page 4-225). During this period the baseline/ambient traffic conditions on the off-airport roadway network will be

aggravated to the level of breakdown. The resultant spillover will resonate through the flow of traffic on surface streets and adjacent Freeway operations. There is no mention in the Draft Supplemental EIS/EIR how or if this impact would be mitigated or reduced.

27. Transit Operations (Page 4-227). All MTA buses will use the Green Line LRT Station as a transit facility. Will other municipal buses be given the same opportunity?
28. RAC vehicles (Table S4.3.1-4). The on-airport rental car facilities can accommodate 9,000 ready/return spaces. Are the vehicles considered in Table S4.3.1-4 and if so, please indicate under which category?
29. On page ES-27, it states, "The primary landside feature of Alternative D would be the relocation of all passenger ground access facilities from the existing Central Terminal Area to the east side of the airport, near I-405." Moving the main access facilities away from LAX proper is simply going to relocate the traffic concentrations to the local streets. The mitigation measures to address this issue have not been adequately provided.
30. Page ES-27: All internal airport ground access facilities should operate at levels of service A or B, at the very least, since all public traffic will no longer exist here.
31. On page 3-25, it states, "...the Mayor of Los Angeles, noting the need to fully examine a regional approach to satisfy air transportation demand..." Since this is a regional approach, as stated, the traffic influence and demand is also regional. Yet, the traffic study is confined to the LAX area.

Transportation – Transit Operations

32. 4.3 Surface Transportation. While the Supplement to the Draft Environmental Impact Report does provide mitigation measures at several intersections through which Culver CityBus operates service, these mitigations measures alone are not enough to greatly improve the quality of or increase the use of public transit. If transit is expected to reduce the number of vehicles passing through intersections at peak times, it must offer its users the advantage of timesavings. The Culver City Transportation Department suggests the implementation of the Transit Priority System (TPS) at all intersections along its line 6 as a mitigation measure to LAX expansion. Over 1,200 daily trips are made on Culver CityBus' line 6 to and from the LAX Transit Center. Providing these and future passengers with greater timesavings will undoubtedly encourage more people to ride transit to and from LAX. By installing TPS along line 6, LAX would reinforce the message that transit is a preferred mode of travel to and from the airport. TPS is compatible with the

Adaptive Traffic Control System, which is already programmed as a mitigation measure at several line 6 intersections.

33. As a means of accommodating more vehicles at impacted intersections, the Draft Supplemental EIS/EIR recommends that existing lanes be re-stripped. The Culver City Transportation Department would strongly stress that lanes be wide enough to comfortably handle transit buses (at least 10') and at the same time, be equipped for bus pullovers at designated stops.
34. The Draft Supplemental EIS/EIR repeatedly makes reference to the provision of "...fair-share contributions towards the MTA's proposed Metro Rapid Program or other enhancements to benefit transit traveling to and from LAX." The Transportation Department would like to see the specifics of such enhancements discussed in further detail, particularly a reference as to whether or not LAX will provide fair-share funding to both the Metro Rapid Program and local line 6 transit.
35. On page 4-283, the Year 2015 Alternative D Mitigation Plan refers to the Overland Avenue link south of Venice Boulevard as a location for "Fair-share contributions to regional transit." Does this refer to Culver CityBus' local line 3?
36. Section 4.3.1 On-Airport Surface Transportation. It is unclear in the document what date was used to analyze transit systems. Culver CityBus Line 6 serving this corridor had grown over 20% in ridership since 1993 to over 2 million passengers annually. The Draft Supplemental EIS/EIR should specify and use current municipal / regional transit data in the study to best reflect the true impact of transit service in and around the airport.
37. Section 4.3.1.6.2 Construction Impacts. It is unclear in the document whether traffic will be diverted traffic from Sepulveda Boulevard during construction. With the assumption of LOS F on Sepulveda Boulevard, this would greatly affect the service of Culver CityBus Line 6 serving the Metro Green Station at Aviation and Imperial via Sepulveda Blvd.
38. Page 4-237, Consistency with other Adopted Plans. Alternative D do not mention or include information contained in the plans of Culver City (General Plan or Short Range Transit Plan) or information contained in the MTA Long Range Plan.

AIR QUALITY

1. Although Alternative D would cause less negative regional air quality impacts, the Supplement to the Draft EIR still fails to evaluate localized air

pollution impacts on Culver City. No mitigation measures are proposed whatsoever.

2. With the goal of encouraging transit use, one of the recommended mitigation measure components mentioned on page 4-392 is to, "Construct on-site or off-site bus turnouts, passenger benches, or shelters; include public outreach." Because a large percentage of passengers and employees driving to LAX must pass through Culver City, the City of Culver City would recommend any mitigation measure that reduces the number of trips to and from LAX via Culver City roads. Although making public transit more accessible to patrons via capital improvements is laudable, the possibility of an employer funded fare subsidy program for use on Culver City buses could potentially decrease the number of vehicle trips through our city significantly. Coupled with improved rapid express buses and proposed increased service frequencies, such fare incentives could dramatically reduce commuting trips along heavily impacted Culver City roads.
3. **Page 4-387, 4.6.7 Cumulative Impacts.** The Draft Supplemental EIS/EIR must take into consideration other planned developments such as I-405 HOV project and Playa Vista. During the initial construction year (2004), Playa Vista Phase II will likely be under construction. This would increase truck traffic as well as emissions relating to construction duties.
4. **Section 4.6, Air Quality.** The plan provides mitigations only for the immediate area around LAX and not for the surrounding areas which could have impacts from increased congestion and air quality from increased air and mobile sources. We can only assume from the magnitude of this project that both air pollution and traffic congestion will increase. Whether the proposed mitigation measures will ease both (air pollution & congestion) is hard to say since the mitigation measures need to be approved by other entities (i.e. shuttle services, airlines, LAX employees, hotels, etc.).

NOISE

Overflight Noise

1. Reviewing the "Current Standard and projected Assumed Flight Tracks" for Alternatives D of the Draft Supplemental EIS/EIR indicates a change in flight tracks over Culver City. Currently, there are two departure flight tracks (airplanes headed east) and no arrival flight tracks passing over Culver City. These two departure tracks are utilized when aircraft take-off in an easterly direction from LAX. Although take-offs to the east are infrequent, the current aircraft over-flight noise level impact and flight frequency within the City of Culver City from the two departure flight paths is not addressed or provided in the documents.

2. For Alternative D, Draft Supplemental EIS/EIR proposes two arrival and one-departure flight tracks passing over portions of Culver City. There is no data in the Draft SEIS/SEIR indicating projected aircraft over-flight noise levels or flight frequency within Culver City from these flight tracks. Existing and proposed aircraft over-flight noise data is needed to evaluate the magnitude of the noise impact of the flight track route changes over Culver City.
3. Based on the 1996 baseline, there are on average approximately 2,100 existing daily flights. This results in approximately 180 additional daily flights for the No Action/No Project and Alternative D options. For Alternatives A and B, there would be an increase of approximately 600 daily additional flights. For Alternative C, there would be an increase of approximately 200 additional daily flights. The Draft Supplemental EIS/EIR should include a more up to date baseline figures (i.e. 2000) for existing flight operations.
4. The documents indicate that aircraft taking off in a westerly direction for an eventual destination in the east will follow what is referred to, as Loop 1 Departure Procedure, which may potentially impact Culver City. All aircraft flying the Loop 1 Departure Procedure routes climb immediately to 5,000 feet west of the airport over the Pacific Ocean and cross the shoreline. The aircrafts will then make a sharp loop resulting in an eastbound route directly above LAX. The aircraft will then follow an easterly departure route crossing directly over Culver City. This procedure is expected to be put in place during the next decade, regardless of the disposition of the LAX Master Plan Alternatives. The degree of negative impact to Culver City is uncertain at this time, as over flight noise levels or frequency of flights within Culver City were not addressed in the Draft Supplemental EIS/EIR. Therefore inadequate information was given to effectively evaluate the noise impacts of the Loop 1 Departure route over Culver City. A complete analysis is needed to quantify the potential for over flight noise impacts on Culver City.
5. The Draft SEIS/SEIR noise sections needs to expand its discussion on the effect of aircraft noise on the quality of life and health, including the effects of sleep disturbance and education, on persons within the areas impacted primarily by CNEL 65 levels. There are no CNEL 65 areas within Culver City but the discussions of sleep disturbances from aircraft over flights of Culver City should be considered as a potential impact on the health and well being of some Culver City residents.
6. The critical point concerning noise and Culver City is that the 65 CNEL noise measurement customarily used in assessing noise from airports does not fully capture the noise exposure likely to be experienced by the population. It represents a weighted average, and therefore discounts single noise events, that can be much higher in sound level. This is of significant concern relative

to aircraft overflights over Culver City where short term, high level noise events add little to average sound levels but can impact a large population with intrusive noise impacts. The Draft Supplemental EIS/EIR fails to adequately address and analyze this issue in the City of Culver City.

PUBLIC SAFETY

Police

1. The primary concern of the police department with the LAX Expansion Project alternatives, including the new Alternative D, is traffic congestion. Traffic congestion significantly impacts the response time of police vehicles to emergency calls, which impact the quality of life in Culver City. The only two routes for response to the Fox Hills area from the east portion of Culver City are La Cienega Boulevard and Sepulveda Boulevard. Both of those streets are currently heavily congested during peak traffic hours and impact the response time of emergency vehicles to or from these areas.

The Draft Supplemental EIS/EIR describes traffic conditions, during peak hours of certain road segments. The segment of Sepulveda Boulevard between Venice Boulevard and Centinela Boulevard is described in the report as follows: "Low volumes; primarily free-flow operations. Density is low, and vehicles can freely maneuver within the traffic stream. Drivers can maintain their desired speeds with little or no delay." That report is not accurate. In fact, the actual traffic conditions during peak hours fit the description of the Impact Report's worst conditions, as follows. "Forced-flow operations with high approach delays at critical signalized intersections. Speeds are reduced substantially, and stoppages may occur for short or long periods of time because of downstream congestion.

All of Culver City's major roads lead to the LAX. Alternative D will cause increased traffic congestion and delays on all of Culver City's north/south through streets. The proposed Alternative D does not address our previous concerns. That is, traffic congestion will increase during all hours, not only at peak times. There will be increased congestion not only on our major streets but also increased vehicular traffic within our residential, park, and school properties throughout the City as a result of the proposed alternative.

As a result of the LAX improvements, there will be added congestion. This will degrade police emergency response times as well as increase demand for law enforcement services and staffing.

Fire

1. As far as comments on Alternatives A, B and C and the No Action/No Project Alternative, previous Fire Department comments on the January 2001 Draft EIS/EIR are still valid. A copy of those comments is forwarded along with these comments.
2. Alternative D is scaled down and therefore has less of an impact to Culver City as compared to the other three alternative plans. However, traffic impacts associated with Alternative D would affect the Culver City Fire Department. More congestion will slow response times of Fire Department vehicles on City streets. The impacts to Culver City's emergency response times are not addressed in the Draft Supplemental EIS/EIR.

OTHER

1. 4.4 Social Impacts: Business assistance services from LAWA, as a result of relocation, should include coordination with Culver City. The Bullet point (fifth from the bottom) should read: "LAWA will coordinate with the County of Los Angeles and the cities of Inglewood, Hawthorne, El Segundo, AND CULVER CITY to locate properties within their jurisdictions suitable for businesses displaced by the acquisition program (4.4.2.5 Master Plan Commitments, RBR-1, Residential, and Business Relocation Program, Page 4-306).
2. In response to the NOP/NOI to prepare the Draft EIS/EIR issued in June 1997, Culver City requested in a letter dated July 31, 1997, that major issues and concerns related to traffic, air quality, overflight operations, regional context, and other subject areas impacting Culver City be analyzed in the preparation of the Draft EIS/EIR. None or minimal analysis of the issues the City requested to be analyzed are contained in the January 2001 Draft EIS/EIR or the 2003 Draft Supplemental EIS/EIR. Further, Culver City's NOP/NOI comment letter is not contained in Appendix A of the 2001 Draft EIS/EIR, where copies of written comments from affected agencies are contained.



CITY OF CULVER CITY

9770 CULVER BOULEVARD
CULVER CITY, CALIFORNIA 90232-0507
CITY HALL Tel. (310) 253-6000
FAX (310) 253-6010
e.mail@culvercity.org

EDWARD M. WOLKOWITZ
MAYOR

CAROL A. GROSS
VICE MAYOR

COUNCIL MEMBERS
DAVID HAUPTMAN
ALAN B. CORLIN
STEVEN J. ROSE

July 18, 2001

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

[Certified with Return Receipt]

RE: Comments on the LAX Master Plan Environmental Impact Statement / Environmental Impact Report

Dear Mr. Ritchie:

The City of Culver City has reviewed the LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR) and submits this letter containing our comments. We are deeply concerned about the negative and unmitigated impacts the proposed LAX expansion will have on Culver City. Accordingly, the City of Culver City has adopted the attached City Council Resolution No. 2001-R068 that formally transmits our comment on the Draft EIS/EIR.

Overall, we believe the Draft EIS/EIR fails to adequately address potential significant impacts to Culver City caused by the proposed expansion of LAX including the proposed LAX Expressway along the I-405 Freeway. The Draft EIS/EIR and associated documents primarily focus on an analysis of impacts and proposed mitigation measures for the area immediately adjacent to the airport.

Due to the failure of the Draft EIS/EIR to adequately address impacts and propose mitigation measures for Culver City, despite our close proximity, we believe that the Los Angeles World Airports should find the Draft EIS/EIR inadequate for certification and require that it be revised and re-circulated to respond to the deficiencies we have identified in Resolution No. 2001-R068 and the extensive technical comments that is attached thereto as Exhibit A.

The City of Culver City will use all means necessary to insure that the environmental documents are adequate in their analysis of, and proposed mitigation of, potential impacts on our city. We will work to insure that our city is fully protected from any inappropriate impacts of the project itself.

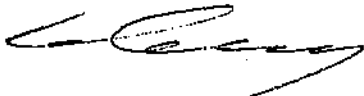
SAL00020

Mr. Jim Ritchie
Page 2 of 2
July 18, 2001

As part of this letter, a copy of Culver City City Council Resolution No. 98-R087, referenced in Resolution No. 2001-R068, calling for a regional airport for Southern California is attached. Further, we are also forwarding a copy of a letter dated June 11, 2001, from the Hillside Memorial Park and Mortuary located in Culver City containing their comments on the LAX Master Plan Draft EIS/EIR.

We look forward to your response to the comments and concerns of the City of Culver City.

Sincerely,



Edward M. Wolkowitz
Mayor, City of Culver City

- Attachments:
1. City Council Resolution No. 2001-R068 including Exhibit A
 2. City Council Resolution No. 98-R087, Calling for a Regional Airport Plan
 3. Hillside Memorial Park and Mortuary letter dated June 11, 2001

Copy: U.S. Congresswoman Diane Watson, 32nd Congressional District
Honorable Kevin Murray, Senator, 26th Senatorial District
Honorable Herb Wesson, Assembly Member, 47th Assembly District
Supervisor Yvonne Braithwaite Burke, LA County, 2nd District
Supervisor Don Knabe, LA County, 4th District
Honorable James Hahn, Mayor City of Los Angeles
Honorable Ruth Galanter, Los Angeles Council Member, Council District 6
David Kessler, Federal Aviation Administration
Tom Bridle, Policy Deputy for Congresswoman Jane Harman
City Council Members, City of Culver City
Barry Berlin, Executive Director, Hillside Memorial Park and Mortuary

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RESOLUTION NO. 2001-R068

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CULVER CITY, CALIFORNIA, RECOMMENDING THAT THE LEAD AGENCIES FIND THE DRAFT ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED LAX MASTER PLAN INADEQUATE FOR CERTIFICATION BECAUSE IT FAILS TO COMPLY WITH THE REQUIREMENTS OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT AND THE NATIONAL ENVIRONMENTAL POLICY ACT.

WHEREAS, the City of Los Angeles Department of Airports has developed a draft Master Plan for Los Angeles International Airport (LAX) which incorporates capacity enhancements to enable the expansion of passenger activity from a current 60 million passengers per year up to an expected 98 million passengers per year and its cargo activity from its current 1.7 million tons per year to an expected 4.2 million tons per year through the year 2015; and,

WHEREAS, LAX is located in close proximity, approximately two miles from the boundaries of the City of Culver City, and the impacts of its operation are of critical interest to the citizens of Culver City; and,

WHEREAS, on July 31, 1997, Culver City provided written comments to the City of Los Angeles Department of Airports and the Federal Aviation Administration (FAA) on the June 11, 1997, Notice of Preparation/Notice of Intent of a Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR), which in addition to other comments, requested that issues related to traffic, air quality, overflight operations, and regional context be analyzed in the environmental review document; and,

WHEREAS, on September 14, 1998, the City Council of the City of Culver City approved and adopted Resolution No. 98-R087, calling for the development of a Regional

1 Airport Plan for Southern California that constrains LAX to operate within the capacity of its
2 existing facilities and promotes development of additional capacity at the many other
3 commercial airports in Southern California to serve the expanding air commerce market
4 place. As established in City Council Resolution No. 98-R087, the City's official position
5 regarding the proposed expansion is one of opposition to the LAX capacity expansion
6 beyond that which can be accommodated by existing LAX facilities, and support for
7 developing the capacity of other commercial airports within Southern California; and,

8
9 WHEREAS, the Los Angeles World Airports (LAWA) and the FAA prepared a
10 joint Draft EIS/EIR to address the potential environmental impacts caused by the proposed
11 LAX expansion, which was released for public review and comment on January 18, 2001;
12 and,

13 WHEREAS, the Draft EIS/EIR analyzes four project alternatives: 1) No
14 Action/No Project; 2) Alternative A, Additional runway to the north airfield, 3) Alternative B,
15 an additional runway to the south airfield, and 4) Alternative C, no additional runways but
16 reconfiguration of existing runways including either lengthening, widening, and relocating;
17 and,

18
19 WHEREAS, a City Staff Team, consisting of various City Departments as well
20 as a noise consultant and a traffic consultant hired by the City of Culver City, was
21 established to evaluate and comment on the adequacy of the Draft EIS/EIR in addressing
22 potential impacts to Culver City; and,

23
24 WHEREAS, the City Council of the City of Culver City, accepted public
25 comments and considered the Draft EIS/EIR at public meetings on May 29, 2001, and
26 June 25, 2001.

1 NOW, THEREFORE, the City Council of the City of Culver City, California,
2 DOES HEREBY RESOLVE as follows:

3 SECTION 1. The following key findings are hereby made by the City Council
4 of the City of Culver City. These findings are described more fully and augmented in
5 greater detail in "Exhibit A", which is attached to this Resolution.

6 1. The Draft EIS/EIR inadequately and inaccurately addresses the
7 substantial adverse environmental impacts potentially affecting the City of
8 Culver City. The Draft EIS/EIR is inadequate and inaccurate as an
9 informational document based on but not limited to the following issues:

10 a. Aircraft Overflight Noise: There are potential aircraft
11 overflight noise impacts from two new arrival paths and a new
12 departure path. A major problem with the Draft EIS/EIR regarding
13 aircraft noise is the lack of key data and detailed analysis of the
14 overflight noise impact to Culver City and other communities in close
15 proximity. The degree of impact cannot be determined because noise
16 levels and flight frequency information for aircraft overflights is not
17 provided in the Draft EIS/EIR.

18 b. Traffic: The Draft EIS/EIR is totally inadequate in
19 evaluating traffic impacts in the City of Culver City. Only one
20 intersection in Culver City was analyzed. The analysis should have
21 included other intersections within the radius of influence of the Airport
22 Expansion, to determine at which point in Culver City, impacts can be
23 mitigated to a to a level of insignificance, if possible. Assessment of
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1 additional significant intersections should have been included, all of
2 which currently are operating at unacceptable levels of service. Not
3 only is there a lack of acceptable analysis, the failure to address these
4 issues results in a failure to address potential mitigation measures
5 which might have the effect of reducing the levels of adverse impacts.

6 c. Air Pollution: The Draft EIS/EIR totally fails to evaluate
7 localized air pollution impacts on Culver City. No mitigation measures
8 are proposed for Culver City from increased air and mobile sources
9 from auto traffic, aircraft operations, construction, and in particular from
10 freight and cargo operations. Without this critical analysis, the Draft
11 EIS/EIR fails to comply with the minimum requirements of the California
12 Environmental Quality Act (CEQA) and the National Environmental
13 Policy Act (NEPA).
14

15 d. LAX Expressway Traffic: It is anticipated that there will be
16 more congestion on Culver City arterial streets and creation of
17 "congestion nodes" on the I-405 resulting from anticipated traffic friction,
18 as well as weaving impacts on the I-405 immediately north of SR-90
19 freeway as a result of the proposed Expressway. However, an
20 assessment of these impacts is completely absent from the Draft
21 EIS/EIR.
22

23 e. LAX Expressway Traffic Noise: There are potential
24 adverse impacts due to increased noise from vehicular traffic within
25 residential, park, and school properties located near Coolidge Avenue
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1 and Culver Park Place. These noise-sensitive sites are located
2 abutting or adjacent to the alignment of the proposed Expressway.
3 However, no noise analysis, no noise measurements, and no mitigation
4 measures or sound barriers are proposed for these noise-sensitive
5 uses in Culver City.

6 f. LAX Expressway Construction Activities: Construction of
7 the Expressway is anticipated in Phase II of the Master Plan. The
8 document fails to analyze any cumulative construction impact on Culver
9 City from both the I-405 widening project and the proposed LAX
10 Expressway. The duration of the construction will be 10 years, from
11 2005 to 2015. Despite the long duration of the construction period,
12 there is inadequate analysis and no construction mitigation measures
13 proposed for the affected areas in Culver City.

14 g. LAX Expressway Land Use: Based on evaluation of the
15 proposed LAX Expressway, there are potential land use impacts to
16 residential, business, school, and park uses. The Draft EIS/EIR fails to
17 demonstrate that the proposed Expressway will be compatible with
18 certain sensitive receptor uses due to the lack of analysis and noise
19 mitigations proposed for areas in Culver City. Also, it is apparent from
20 Figure 3.1-7 of Appendix K, that some areas in Culver City will require
21 property acquisition with Expressway Alternative No. 3, particularly on
22 the east side of the I-405 Freeway, north of the SR-90/I405 freeway
23 interchange. However, the Draft EIS/EIR fails to provide adequate
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1 information, analysis, and mitigation measures regarding this matter.
2 Furthermore, there is also potential visual/shade and shadow/aesthetics
3 impacts from the placement of the elevated Expressway and column
4 supports in Culver City but no analysis or mitigation measures are
5 provided in the document.

6 h. Cumulative Impacts: The Draft EIS/EIR fails to
7 adequately analyze the cumulative impacts of other projects, which will
8 be under construction during the same time period as the proposed
9 expansion of LAX such as Playa Vista. For example, the cumulative
10 impacts of the LAX expansion along with the Playa Vista project,
11 including their cumulative construction impacts, would result in
12 significant adverse impacts to the I-405, Sepulveda Boulevard, and
13 other arterials, resulting in adverse impacts to local circulation and air
14 emissions.
15

16 i. Regional Context: The Draft EIS/EIR presumes that a
17 vast majority of the region's growth in air passenger and air cargo
18 demand will be directed to LAX. A number of commercially viable
19 airports in the Southern California area currently exist and are
20 underutilized relative to their capacity. A fully regional solution to this
21 air passenger and air cargo capacity has not been adequately
22 addressed in the Draft EIS/EIR.
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24 j. NOP/NOI Comment Letter: In response to the NOP/NOI
25 to prepare the Draft EIS/EIR issued in June 1997, Culver City
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1 requested in a letter dated July 31, 1997, that major issues and
2 concerns related to traffic, air quality, overflight operations, regional
3 context, and other subject areas impacting Culver City be analyzed in
4 the preparation of the Draft EIS/EIR. None or minimal analysis of the
5 issues the City requested to be analyzed are contained in the Draft
6 EIS/EIR. Further, Culver City's NOP/NOI comment letter is not
7 contained in Appendix A of the Draft EIS/EIR, where copies of written
8 comments from affected agencies are contained.
9

10 2. The magnitude of omissions in the Draft EIS/EIR is so extensive
11 that attached hereto as "Exhibit A" of this Resolution, are significant additional
12 comments which detail the failure of the lead agencies to adequately address
13 the complete array of adverse environmental impacts this project is anticipated
14 to have on Culver City.
15

16 SECTION 2. Pursuant to the foregoing recitation and findings, the City
17 Council of the City of Culver City, California, hereby:

18 1. Determines that the Draft EIS/EIR is substantially inadequate
19 and inaccurate for certification by the Lead Agencies and that a complete and
20 proper level of environmental data and analysis must be incorporated into the
21 Draft EIS/EIR to address the identified deficiencies.
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23 2. Establishes that this Resolution, including attached Exhibit "A,"
24 constitutes the City of Culver City's formal position and comments on the Draft
25 EIS/EIR that was prepared for the proposed LAX Master Plan.
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3. Directs and authorizes Staff to transmit the position and comments of the City of Culver City on the Draft EIS/EIR to LAWA and FAA.

APPROVED and ADOPTED this 25th day of June 2001.



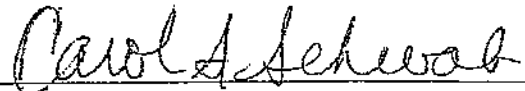
EDWARD M. WOLKOWITZ, Mayor
City of Culver City, California by:
CAROL GROSS, VICE MAYOR

ATTEST:

APPROVED AS TO FORM:



TOM CRUNK
City Clerk by:
ELA VALLADARES, DEPUTY CITY CLERK



CAROL A. SCHWAB
City Attorney

RLAX

EXHIBIT A
 CITY OF CULVER CITY RESOLUTION NO. 2001-R068
 Culver City Comments on the L A X Master Plan Draft EIS/EIR
 June 25, 2001

SURFACE TRANSPORTATION

Intersection and Street Segment Traffic Impact Analysis

1. The impacts of LAX expansion traffic within Culver City were not given sufficient analysis. The most thorough method of analyzing the traffic flow quality and impacts on a street network is the evaluation of the operations at the critical intersections. They are the locations that act as valves for the flows on the intersecting streets. The flow along the street segments between the important intersections does not yield a true picture, because the interruptions to flow at the critical intersections are not properly accounted for in that type of analysis. Only one intersection in Culver City was included in the Draft EIS/EIR impact analysis – Sepulveda Boulevard / Centinela Avenue, at the southern edge of the City [Figure 2-1, following page 2-4]. We feel additional and critical Culver City intersections listed in the table below should be analyzed in the Draft EIS/EIR.

1. Braddock Drive	@ Overland Avenue
2. Braddock Drive	@ Sepulveda Boulevard
3. Bristol Parkway	@ Centinela Avenue
4. Bristol Parkway	@ Slauson Avenue
5. Buckingham Parkway	@ Slauson Avenue
6. Centinela Avenue	@ Green Valley Circle
7. Centinela Avenue	@ Washington Boulevard
8. Centinela Avenue	@ Washington Place
9. Culver Boulevard	@ Main Street/Washington Boulevard
10. Culver Boulevard	@ Overland Avenue
11. Culver Boulevard	@ Sawtelle Boulevard
12. Culver Boulevard	@ Sepulveda Boulevard
13. Duquesne Avenue	@ Jefferson Boulevard
14. Glencoe Avenue	@ Washington Boulevard
15. Green Valley Circle	@ Sepulveda Boulevard
16. Hannum Avenue	@ Playa Street
17. Hannum Avenue	@ Slauson Avenue
18. I-405 NB Ramps s/o Venice Boulevard	@ Sepulveda Boulevard
19. I-405 SB Ramp n/o Culver Boulevard	@ Sawtelle Boulevard
20. Inglewood Boulevard	@ Washington Boulevard
21. Jefferson Boulevard	@ Overland Avenue

22. Jefferson Boulevard	@ Sepulveda Boulevard (N)
23. Jefferson Boulevard	@ Slauson Avenue
24. La Cienega Boulevard	@ Washington Boulevard
25. Marina Freeway	@ Slauson Avenue
26. Matteson Avenue/I-405 SB Ramps	@ Sawtelle Boulevard
27. Motor Avenue	@ Washington Boulevard
28. Overland Avenue	@ Washington Boulevard
29. Playa Street/Jefferson Boulevard	@ Sepulveda Boulevard
30. Redwood Avenue	@ Washington Boulevard
31. Sawtelle Boulevard	@ Sepulveda Boulevard
32. Sawtelle Boulevard	@ Venice Boulevard
33. Sawtelle Boulevard	@ Washington Boulevard
34. Sawtelle Boulevard	@ Washington Place
35. Sepulveda Boulevard	@ Slauson Avenue
36. Sepulveda Boulevard	@ Washington Boulevard
37. Sepulveda Boulevard	@ Venice Boulevard
38. Sepulveda Boulevard	@ Washington Place
39. Walgrove Avenue	@ Washington Boulevard

2. Only six street segments in Culver City were included in the analysis – 1) Sawtelle Boulevard, south of Venice Boulevard; 2) Sepulveda Boulevard, south of Venice Boulevard; 3) Overland Avenue, south of Venice Boulevard; 4) Sepulveda Boulevard, south of Sawtelle Boulevard; 5) Centinela Avenue, west of Sepulveda Boulevard; and 6) Washington Boulevard, east of Lincoln Boulevard. [Figure 2-1].
 - a. Other streets that are components of routes to/from the airport, such as Jefferson Boulevard (west of Sepulveda Boulevard and east of Overland Avenue), Culver Boulevard, and Centinela Avenue (toward the east), are not included, although they are likely to carry meaningful volumes of airport traffic. These streets should also be studied.
 - b. Of the streets that are included, some of the segments are not the most critical in evaluating impacts of airport traffic. For example, Overland Avenue, south of Jefferson Boulevard would have far higher impacts of airport traffic than the segment of Overland Avenue that was chosen for analysis. The same could be said about Sawtelle Boulevard, south of Culver Boulevard, and about Washington Boulevard, east and west of Sepulveda Boulevard.
 - c. There is only one study segment along the entire length of La Cienega Boulevard, although that is one of the most attractive routes to/from LAX carrying 15% of LAX traffic, as shown in Draft EIS/EIR Table II-7.13.
 - d. According to Table II-7.4 on page II-7.13, the “existing” (1996) operations in the afternoon peak hour were at:

- Level of Service (LOS) A or B along Sepulveda Blvd., south of Venice Boulevard.
- LOS A and B along Overland Avenue, south of Venice Boulevard.
- LOS A along La Cienega Boulevard, south of Slauson Avenue.
- LOS A and B along Washington Boulevard, east of Lincoln Boulevard.
- LOS B and C along Sepulveda Boulevard, south of Slauson Avenue.

Those calculated levels do not conform to actual experience on the streets. The actual, observable operations are at lower levels, even though traffic signal enhancing equipment (ATSAC) has been installed. The street segment analysis has not taken account sufficiently of the interruptions to flow that occur at the critical intersections along the segments.

e. Many of the findings of current and future Levels of Service on street segments [Table II-7.4, page II-7.13; Attachment C, unnumbered pages] are not credible and should be re-evaluated in light of current experience.

- La Cienega Boulevard, south of Slauson Avenue is shown at LOS A or B during all peak hours to the year 2015, although the road is observably congested during peak hours and many non-peak hours now.
- Washington Boulevard, east of Lincoln Boulevard, is shown at LOS A during all peak hours to 2015, although that high level of operations has not been the experience since the opening of the Costco store in that street segment. Apparently, the calculations, which are based on pre-Costco counts, did not take the new retail traffic into account, despite Costco being highlighted in the report text as a related project.
- Sepulveda Boulevard, south of Slauson Avenue is shown at Loss's A and C in the afternoon peak hour of 2015 with the Alternative C traffic included. The street is already operating at LOS's below those levels, and the additional traffic with no mitigation will not improve operations.

Again, those findings demonstrate the weakness of analysis using street segments instead of intersections. The interruptions of flow at the critical intersections are not fully accounted for in the segment methodology.

3. The "No Action/No Project" (NA/NP) alternative includes large volumes of traffic that would have been generated by LAX Northside and Continental City [page 4-293], assuming these developments were going to be built. However, they have not been built and are not part of the background or base conditions against which the proposed expansion traffic should be measured. Therefore, no credit should be allowed for those non-existent trips. As shown on page 3-10, the Draft EIS/EIR trip generation estimates for Alternative C of the LAX expansion were 22% to 26% lower than the NA/NP trip generation estimates. With such assumptions of base

conditions, the LAX expansion is being treated as if it were a traffic mitigation project, rather than a traffic generating development.

4. According to the Draft EIS/EIR, LAX Alternative C will result in a significant impact at the Sepulveda Boulevard/Centinela Avenue intersection in the year 2015. Two distinct and conflicting mitigation measures are proposed in different parts of the document.
 - a. In Table 4.3.2-28 on page 4-350, pavement widening, etc. is recommended to provide a third left-turn lane for northbound Sepulveda Boulevard. That measure would not be available, because it has already been assigned to the Playa Vista Phase II development.
 - b. In Attachment F [pages are unnumbered], ATSAC traffic signal enhancement equipment is recommended. That equipment is already in place and has been for several years. Therefore, it cannot be considered as a mitigation measure for Alternative C traffic.

Since both of the conflicting mitigation measures that are recommended in different parts of the Draft EIS/EIR are invalid, the impacts at the Sepulveda Boulevard/Centinela Avenue intersection must be considered unmitigated.

5. There is no recommendation or offering of mitigation measures for the Alternative C traffic impacts on the street segments, although such measures are presented for the street segments that would be impacted by Alternatives A and B.
 - a. In 2005, Alternative C traffic will have significant impacts at Sepulveda Boulevard, south of Venice Boulevard, and on Overland Avenue, south of Venice Boulevard (with final mitigation). [Attachment C, pages are unnumbered]
 - b. In 2015, Alternative C traffic will have significant impacts at three segments: 1) Sepulveda Boulevard, south of Venice Boulevard; 2) Overland Avenue, south of Venice Boulevard; and 3) Sepulveda Boulevard, south of Slauson Avenue. Even with the "final mitigation" in place, the second and third segments would have significant impacts residual [Attachment C, pages are unnumbered]. These impacts need to be addressed.
6. For Alternative A, street segment mitigation measures include ATSAC traffic signal enhancement at the Sepulveda Boulevard/Slauson Avenue intersection and at the Sepulveda Boulevard/Centinela Avenue intersection [Table 4.3.2-20, page 4-325]. The ATSAC equipment at those two locations, and at all other intersections along Sepulveda Boulevard, has been in place for several years. Therefore, the mitigation measures are invalid, and the impacts would remain un-mitigated.
7. One of the stated accomplishments of the "congestion relief package" would be to increase the average arterial speed by 3% [Page ES-24]. That would be trivial and

of no real value to individual drivers. For example, at 30 miles per hour, a 3% increase would lead to an average of 30.9 miles per hour, which would not be noticeable to individual drivers.

8. **Supplemental Environmental Evaluation for LAX Expressway and State Route 1 Improvements, Paragraph 2.2.3 on Page 8.** This section describes Pershing Drive as a six-lane arterial. While that statement is true immediately adjacent to the airport, the section of Pershing Drive that connects to Culver Boulevard is a narrow two-lane winding road that will feed the six-lane arterial. This has been left out of the report or ignored. It will be Culver Boulevard and probably Manchester that drivers will use to access the proposed terminals adjacent to Pershing Drive. Culver Boulevard itself is a two-lane road from the 90 Marina Freeway to the Jefferson intersection, and that two-lane road creates congestion in the morning all the way through Playa del Rey and along Vista del Mar all the way back up to Imperial Boulevard. The Playa Vista Traffic Mitigation will address some of this congestion, but Playa Vista is not mitigating anticipated traffic that will be generated by the LAX exchange. This situation needs to be addressed in the Draft EIS/EIR.
9. **4.4.4 Overview, "Community Disruption", also 5.1 Technical Report 3b, page 43, last bullet, 1st paragraph.** Closing Pershing Drive to through traffic places additional morning and evening rush-hour traffic onto Vista Del Mar. The LAX Master Plan shows no connection from eastbound Imperial to Pershing Drive northbound, or a connection from Pershing Drive southbound to the Ring Road (it diverts the traffic over the dunes at Sandpiper) onto Vista Del Mar. How does someone driving from Vista Del Mar turn onto the Ring Road to use the new West Terminal? How does someone driving south on Pershing Drive gain access to the Ring Road to use the new West Terminal? What happens to all the am/pm commuter traffic using Pershing Drive between Imperial and Manchester?
10. **Overview Sections 4.14 & 4.4.4 "Community Disruption", page 4-20.** There is no mention of increased traffic volume on Vista del Mar under the Coastal Zone Management and Coastal Barriers. Section 4.4.4 says "...but adjacent Vista del Mar would provide suitable north/south alternative access." This information needs to be provided in the document.
11. **Overview, Section 4.21 "Design, art...", page 4-47, Key Conclusions, Views and Vistas.** The document says that aesthetic quality along Vista de Mar would not be affected and that the popular ocean and airport views from Sandpiper St. within the dunes area would also be retained. If the traffic southbound on Pershing Drive is not allowed to travel to Imperial and is diverted over Sandpiper to Vista del Mar, Sandpiper will become a well-used and dangerous street. It should be noted that it would be dangerous for vehicles to slow down or stop on Sandpiper to catch the view.

LAX Expressway

12. The reason drivers seek alternative routes to/from LAX, instead of using the San Diego Freeway, is not the lack of a direct connection between the freeway and the airport. It is because the freeway, itself, north of the airport and through Culver City and West Los Angeles, is congested during much of the day, both on weekdays and on weekends. Sepulveda Boulevard and other north-south streets are attractive alternative routes for distances far north of Centinela Avenue. When Playa Vista is developed, the freeway congestion will increase and extend into more hours of the day, as well as further north.
13. The LAX Expressway will not add to the capacity of the freeway. The expressway will essentially be a long off and on-ramp between the airport and the San Diego Freeway. The expressway will not reduce freeway congestion north of the expressway. It may actually add to the congestion by giving airport-oriented drivers the false expectation of a convenient, fast route between the freeway and the airport. The expressway should not be considered a mitigation measure for traffic flows on the surface streets that would serve traffic to/from the airport. Most drivers who currently use the surface streets will continue to do so to avoid freeway traffic congestion, and many new drivers will be attracted to the surface streets because of significantly increased freeway congestion.
14. The first San Diego Freeway ramps north of the juncture of the LAX Expressway and the freeway will be in Culver City. Drivers leaving the airport heading north on the expressway and encountering congestion as they enter the northbound freeway will want to leave the freeway at the first convenient off-ramps, that is, within Culver City. The problem of airport traffic using surface arterial and local streets will have been moved north from Los Angeles into Culver City; the problem will not be eliminated. This issue needs to be addressed in the Draft EIS/EIR.
15. Impacts to Culver City's major intersections should be analyzed under the assumption that the LAX Expressway may not go forward. The analysis should then correlate how the proposed Expressway will mitigate the identified impacts to a level of insignificance.

Freeway Impacts

16. There has been no consideration or analysis of the traffic friction and weaving impacts that will result from the addition of the expressway ramps to the already poorly operating freeway-to-freeway interchange of the San Diego and Marina Freeways. When future Playa Vista traffic is added by way of the San Diego Freeway's Jefferson Boulevard ramps, which are part of that entire interchange, the impacts will be significant.
17. The analysis of the impacts of airport expansion traffic on the freeways is cursory and difficult to ascertain. Although Figure II-7.3 shows study links along two of the

freeways, the results of the impact analyses are not covered in the report text. The results must be found in tables in Attachment C, as follows:

- a. On the San Diego Freeway, the impacts of LAX expansion traffic will be significant both north or south of the airport, even "with final mitigation" in place.
- b. On the Glenn Anderson Freeway (I-105), the impacts east of the airport will be significant.

In neither case are mitigation measures for those impacts presented.

18. There is no analysis of the impacts of LAX expansion traffic on the Santa Monica Freeway (I-10). Although the I-10 is somewhat north of the airport, it serves airport traffic from throughout the region to the northeast and northwest. Analysis of the impacts on the I-10 Freeway should be included in the Draft EIS/EIR.

Construction Traffic Impacts

19. The analysis of construction related impacts is perfunctory, particularly when it is expected that the airport expansion construction will be spread over at least 14 years. The following points need to be addressed:
 - a. Although "The general construction concept is to have many of the transportation improvements completed within the first five years after construction begins ..." [page 4-318], the important LAX Expressway and the northeastern portion of the ring road from the San Diego Freeway to Sepulveda Boulevard would not be available to traffic until well after the first five years [Table 4.3.2-18, page 4-318].
 - b. The Draft EIS/EIR admits to a flow of 2.8 trucks per minute for 10 hours per day in a six-day work schedule or 1.2 trips per minute for 20 hours per day in a seven-day work schedule [Page 4-319]. That is a large number of trucks to be imposed on the current traffic flows on the streets and freeways, particularly when Playa Vista truck trips are also added. The mitigation recommended is to divide the truck trips among four locations at the construction site. But, that does not address the impacts of the trucks on the streets and freeways that are even a short distance away from the construction site. Those impacts are ignored.
 - c. Scheduling truck deliveries to not occur during four peak hours of the day [page 7-3] does not address the truck traffic problem. Many truck drivers will travel from remote supply depots to the airport vicinity during the peak periods in order to enter the airport boundaries during the allowable periods. When leaving, they will exit before the starts of the peak periods, but they will still be traveling on the freeway/street network to the remote locations during the peak periods. Additionally, the freeways and streets serving the airport area are congested during periods far longer than four peak hours per day.

- d. The construction employees will work in three shifts. The workers for the second shift will arrive before the first shift ends [Page 4-319]. Therefore, there would have to be employee parking for, perhaps, 8,000 workers during the period each day when the two shifts overlap. Will that magnitude of employee parking be feasible?
- e. Remote parking areas are recommended for construction employees in Palmdale, Van Nuys, and Ontario [Page 4-319]. Aside from the improbability of those remote areas being attractive to and extensively used by employees, there is no analysis of the impacts of the added traffic at those remote locations, nor is there analysis of the impacts of the shuttle traffic between those locations and the airport.
- f. There is no analysis of the impacts of the construction worker traffic on the entire street/freeway network. Those traffic flows, which will extend through most of the 14-year construction period, will be substantial six or seven days each week.
- g. There is no definition of the work shift schedules upon which to evaluate the potential overlap with the network peak periods, which currently extend for much longer durations than the typical 7 to 9 a.m. and 4 to 6 p.m. Therefore, the impacts of employee traffic cannot be evaluated with any assurance of accuracy or high probability.
- h. The assurances that "Construction traffic during all other times can be managed ..." [page 4-320] and "Traffic patterns around the airport for the general public would be largely maintained ..." [Page 4-320] are weak substitutes for actual measures that should be described and analyzed.
- i. "However, even with these commitments in place, the project would still cause sufficient construction-related traffic to cause noticeable disruption of normal traffic flows near the airport." [Page 4-320]. That will last over most of the construction period of 14 years, and will result in delays to air passengers, cargo deliveries, and the general public bound for other destinations within the sub-region or just passing through.
- j. The construction of the LAX expansion will coincide with the construction of Playa Vista, approximately two miles north of the airport [4-320]. Both construction contractors will use Sepulveda Boulevard and the San Diego Freeway for major haul routes. The LAX Draft EIS/EIR mitigation measure is to expand the "... traffic coordination office ..." to minimize the impacts of construction traffic [4-320]. That is likely to be an ineffective measure, as construction companies schedule operations for their own convenience and efficiency without regard to the real impacts on the general public.
- k. The Draft EIS/EIR authors admit "... significant and temporarily unavoidable ..." impacts [page 4-320]. The construction periods during which the two projects

(airport expansion and Playa Vista) will overlap will be a minimum of 10 years. That is a long period to be labeled "temporarily".

- I. Depending upon scheduling, the impact of closing all or part of Sepulveda Boulevard could be a major disruption to traffic flow in Culver City especially if Playa Vista and LAX Northside are being constructed simultaneously.

Airport Expansion Phasing

20. The anticipated phasing schedule for the airport expansion should be more realistic, because the analyses of expansion traffic are for certain specific study years, and if the study years are not realistic, the analyses are not correct. The Draft EIS/EIR analysis is divided into two airport expansion development phases [Page 2-12]. The traffic impact study and report should be revised extensively to coincide with realistic study years.
 - a. Phase I would be 5 to 6 years long and would end in 2005, according to the document. That is now impossible. The EIS/EIR will not be approved before late 2001, and Phase I of the actual construction could not begin before 2002. Therefore, Phase I would end in 2007 or 2008, not 2005.
 - b. Phase II, which would end 10 years after the completion of Phase I, according to the document, would extend to 2017 or 2018, not 2015, as stated throughout the Draft EIS/EIR.

Related Projects Analysis

21. The accuracy of the related projects analysis is questionable when the following mistakes about several of the highlighted entries [page 2-16] are considered:
 - a. Sony Pictures Studio – "2 miles north of LAX" [It is 5 miles north of LAX.]
 - b. Costco Center – "City of Los Angeles" [It is in Culver City.]
 - c. Marina del Rey – "City of Los Angeles" [It is in unincorporated County area.]

If the report authors made mistakes with significant information regarding large and well-known projects near their study site, about which there is substantial public information, what is the potential for accuracy of the remainder of the list that includes many smaller projects and many more remote projects?

Transit Systems

22. Page 4-241, Transit Systems. The date used for this analysis is based on 1993 data. This data is old and thus inaccurate. Culver CityBus Line 6 serving this corridor had grown over 20% in ridership since 1993 to over 2 million passengers annually. We recommend that the LAX study use current municipal / regional transit

data in the study to best reflect the true impact of transit service in and around the airport.

23. Page 4-254, 4.3.1.6.2 Alternate A- Added Runway North: Relocation and expansion of the LAX Transit Center. The City would like to be involved in the decision making process for its proposed relocation of the transit center.
24. Page 4-274 Environmental Action Plan (Proposed) Last Paragraph. This paragraph and globally throughout the document, should propose the use of signal transponders for all Municipal and Regional transit services in and around the airport. LADOT is currently using its Intelligent Transportation System (ITS) infrastructure and the ATCS system for the Rapid Bus along Wilshire and Ventura Boulevards. This technology used with transponders on transit buses serving the airport area could improve mobility.
25. Tables 4.3.2-8, 4.3.2-9, 4.3.2-12, 4.3.2-13 and 4.3.2-15. These tables reflect the circulation / LOS impact at major intersections in and around the LAWA project. As the tables note, a LOS of "F" is predicted along Sepulveda Blvd. and surrounding Culver City arterials and streets. In fact, the vehicle to capacity ratio (V/C) is significantly higher than the 1.00 used to define intersections as LOS "F". In some cases the V/C exceeds 1.5 on arterials in proximity to Culver City and along Culver CityBus routes.
26. Page 4-320 Section 4.3.2.9 Mitigation Measures. All Alternatives (A, B and C) should propose to install transponders for all transit operations serving the airport area. This should be coordinated with the proposal to mitigate impacts on mobility and LOS at surrounding intersections as identified in Tier 1 and 2 with the installation of LADOT's ATCS or priority control system.
- Additionally, if a negative impact is determined at an intersection creating a LOS of .85 or greater as a result of the implementation of either Alternative A, B, or C a mitigation should be required to improve that intersection to an acceptable LOS; or its previous LOS.
27. Page 4-236, Environmental Action Plan and Page 4-252, Phase I Construction Commitments (2000 – 2005): ST-4 Limited Short Term Lane Closures. Master Plan Commitment ST-4 states that the lane closures at key Century Blvd. / Sepulveda Blvd. intersections would be limited to 12 hours and would be scheduled for less congested non-summer and non-holiday periods. This expected closure would severely hurt the on-time performance of Culver CityBus Line 6. We recommend work to commence during non-peak traffic periods as well, such as nights and weekends. This impact was addressed in the Draft EIS/EIR.
28. Page 4-269, 4.3.1.7.2 Alternatives A, B, and C: Phase I (Year 2004). The Culver City Transportation Department has concern with the proposal's mention to divert traffic off Sepulveda Blvd. onto Century Blvd. during the construction of the

Sepulveda tunnel. With the assumption of LOS F, this would greatly affect the service of Culver CityBus Line 6 serving the Metro Green Line Station at Aviation and Imperial via Sepulveda Blvd.

29. **Page 4-270, 4.3.1.9.3 Alternative C- No Additional Runway.** The Culver City Transportation Department has concern that no mitigation measures are identified for the construction impacts on inbound upper level ramp to the CTA from south Sepulveda Blvd. This will have a significant impact of bus services and general mobility along Sepulveda Blvd.
30. **Page 4-320, Section 4.3.2.8 Cumulative Impacts.** As noted in this section, other projects might be under development concurrently, such as Playa Vista. If both projects use the same truck routes, such as the I-405, Sepulveda Blvd. or other arterials a significant adverse impact to local circulation will result. If at all possible the LAWA Traffic Coordination Office should plan for truck trips during non-peak periods or at night.
31. **Page 4-263, Consistency with other Adopted Plans.** Alternatives A, B, and C do not mention or include information contained in the plans of Culver City (General Plan or Short Range Transit Plan) or information contained in the MTA Long Range Plan.
- AIR QUALITY**
32. **Page 4-496, Table 4.6-9.** The table represents unmitigated off-airport emission inventories. Should we assume the significant increase in PM 10 is a result of increased cargo operations and additional trips over the base?
33. **Page 4-509, Overall Significance of Alternative C.** Under Alternative C, conformity requirements are met. However, there is concern with the amount of emissions brought to the eastside of the airport under this Alternative. Under Alternative C mobile source emissions from cargo carriers, additional passenger trips, and increased flights cannot be mitigated.
33. **Page 4-511, 4.6.7 Cumulative Impacts.** This expansion of LAX should take into consideration other planned developments such as Playa Vista. During the initial construction year (2004), Playa Vista Phase II will likely be under construction. This would increase truck traffic as well as emissions relating to construction duties.
34. **Section 4.6, Draft EIS/EIR.** The plan provides mitigations only for the immediate area around LAX and not for the surrounding areas which could have impacts from increased congestion and air quality from increased air and mobile sources. We can only assume from the magnitude of this project that both air pollution and traffic congestion will increase. Whether the proposed mitigation measures will ease both (air pollution & congestion) is hard to say since the mitigation measures need to be

approved by other entities (i.e. shuttle services, airlines, LAX employees, hotels, etc.).

NOISE

Overflight Noise

35. Reviewing the "Current Standard and projected Assumed Flight Tracks" for No Action and Alternatives A, B and C, Appendix D of the Draft EIS/EIR indicates a change in flight tracks over Culver City. Currently, there are two departure flight tracks (airplanes headed east) and no arrival flight tracks passing over Culver City. The current aircraft over-flight noise level impact and flight frequency within Culver City from the two departure flights paths is not addressed in the Draft EIS/EIR documents.
36. For each build alternatives, the Draft EIS/EIR proposes two arrival and one departure flight tracks passing over portions of Culver City. There is no data in the Draft EIS/EIR indicating projected aircraft over-flight noise levels or flight frequency within Culver City from these flight tracks. Existing and proposed aircraft over-flight noise data is needed to evaluate the noise impact of the flight track route changes over Culver City.
37. The documents indicate that aircraft taking off in a westerly direction for an eventual destination in the east will follow what is referred to, as Loop 1 Departure Procedure, which may potentially impact Culver City. All aircraft flying the Loop 1 Departure Procedure routes climb immediately to 5,000 feet west of the airport over the Pacific Ocean and cross the shoreline. The aircrafts will then make a sharp loop resulting in an eastbound route directly above LAX. The aircraft will then follow an easterly departure route crossing directly over Culver City. This procedure is expected to be put in place during the next decade, regardless of the disposition of the LAX Master Plan Alternatives. The degree of negative impact to Culver City is uncertain at this time, as over flight noise levels or frequency of flights within Culver City were not addressed in the Draft EIS/EIR. Therefore inadequate information was given to effectively evaluate the noise impacts of the Loop 1 Departure route over Culver City. A complete analysis is needed to quantify the potential for overflight noise impacts on Culver City.
38. The Draft EIS/EIR noise sections needs to expand its discussion on the effect of aircraft noise on the quality of life and health, including the effects of sleep disturbance and education, on persons within the areas impacted primarily by CNEL 65 levels. There are no CNEL 65 areas within Culver City but the discussions of sleep disturbances from aircraft over flights of Culver City should be considered as a potential impact on the health and well being of some Culver City residents.

39. The critical point concerning noise and Culver City is that the 65 CNEL noise measurement customarily used in assessing noise from airports does not fully capture the noise exposure likely to be experienced by the population. It represents a weighted average, and therefore discounts single noise events, that can be much higher in sound level. This is of significant concern relative to aircraft overflights over Culver City where short term, high level noise events add little to average sound levels but can impact a large population with intrusive noise impacts. The Draft EIS/EIR fails to adequately address this issue.

Lax Expressway Traffic Noise

40. LAX Expressway Alternative No. 3 has the potential to increase the traffic noise impact on a larger and more noise sensitive area within Culver City than LAX Expressway Alternative No. 2. The Draft EIS/EIR reports the traffic noise from Alternative No. 3 will potentially impact numerous properties within Culver City from Port Road at the I-405 freeway south to Green Valley Circle. Sensitive areas anticipated to have an increase in traffic noise impact with this Alternative are residential or school properties located adjacent to the freeway, north of Segrell Way.
41. The Draft EIS/EIR report indicates a potential residential zone impact on the west side of Coolidge Avenue between Diller Avenue and Port Road. After reviewing the reports and completing an inspection of the neighborhood, there are additional residential parcels on Culver Park Place/Culver Park Drive between Segrell Way and Diller, which could be impacted by an increase in traffic noise. It is also believed that the El Marino School and Park will be affected by an increase in traffic noise with the completion of the Alternative 3 Expressway Viaduct. These additional "affected" areas should be analyzed and included in Figures 3.1-1 to 3.1-10 of Appendix K.
42. The LAX Expressway Noise Abatement section states that the implementation of the Alternative 3 project could increase traffic noise by a small increment at several residences located along Coolidge Avenue and that a screening analysis was conducted. The report also states that the existing and future-without-project traffic noise level is likely to approach or exceed the FHWA Noise Abatement Criteria (NAC) due to the major highway facilities and interchange/on ramps in the vicinity of these residential uses. The report suggests that any noise abatement in the form of sound walls in this area would be deferred and evaluated as part of the Caltrans project development process for sound walls.
- It is understood that this statement means that although LAWA predicts an increase in traffic noise from the Expressway Alternative No. 3 to residential properties, noise mitigation in the form of sound walls would not be included in the Expressway design, but included in the Caltrans sound wall project development list. Any noise mitigation measures such as the construction sound walls should be independent of

Caltrans sound wall project development process and included as a separate mitigation measure in the Draft EIS/EIR and Appendix K documents.

Lax Expressway Construction Noise

43. Construction noise and vibration impacts are likely when a construction site is located within 300 feet of residences or schools. Based on the preliminary construction plan indicated in the Appendix K of the Draft EIS/EIR, there is the potential for short-term impact from construction noise within Culver City. Also, it indicates that construction crews, on occasion, will be scheduled to work during the evening hours utilizing high-powered lights for illumination.

A complete and thorough analysis of construction impacts and required mitigation measures associated with the LAX Expressway is needed in Appendix K. During the preliminary engineering, a detailed analysis of construction noise impacts and mitigation measures must be developed and provided to the City of Culver City for inclusion in the construction contract documents. The mitigations should include, but not be limited to, the following:

- Requiring the contractor to construct temporary construction sound walls.
- Placing restrictions on construction during nighttime hours.
- Limiting the use of particularly noisy activities such as impact pile driving and jack hammering.
- Requiring the construction to be performed in compliance with specific equipment and property line noise limits.

Approaches to ensure that construction is performed in compliance with specified requirements include:

- Construction noise monitoring by the construction management firm.
- Requiring contractors to retain acoustical engineers to perform noise control plans.
- Limiting specific noisy construction activities, particularly during early morning and nighttime hours.
- Requiring contractor to have temporary noise barriers stockpiled.
- Performance of all construction in a manner to minimize noise.
- Use of equipment with high performance mufflers.
- Minimization of the need for the use of back-up alarms.
- Selections of haul routes and schedules to minimize impact to residential neighborhoods.
- Positioning of staging areas away from noise sensitive areas.

LAND USE

44. **Draft EIS/EIR, Section 4.2, Page 4-76 to 4-234.** The land use study area discussed in the Draft EIS/EIR is limited to those communities immediately surrounding LAX (i.e. Cities of LA, Inglewood, El Segundo, and Hawthorne). The City of Culver City is not included in the land use study area. Therefore, the evaluation and land use mitigation measures regarding land use impacts is limited to the Cities listed above. The land use study area and discussion should however, be expanded to include communities such as Culver City, which although is not directly adjacent to the LAX boundary, are close enough where potential significant noise, traffic, air quality and more impacts from the proposed LAX Master Plan could occur. There is inadequate information in the Draft EIS/EIR to effectively determine whether individual or combined impacts associated with the Master Plan alternatives could render land uses in Culver City incompatible.
45. **Draft EIS/EIR, Section 4.0, Figure 4-1, Page 4-3.** The Expressway is shown in this figure to be part of the "Master Plan Boundaries". However, the Expressway is only drawn up to the area near the Howard Hughes Parkway on and off ramps. As Appendix K states, the LAWA preferred Expressway extends all the way up to areas north of the SR-90/I-405 Interchange. Include and expand this Master Plan Boundary figure to show the entire length of the proposed Expressway roadway, in particular the neighborhoods of Culver City.
46. **Appendix K, 4.1 Land Use, Page 19-24 and Appendix K, 5.1 Land Use, Pages 64-68.** Adequate analysis of land use impacts is lacking and required mitigation measures for the proposed LAX Expressway on Culver City is not addressed in Appendix K. LAX's primary mitigation measure is the Expressway. The Expressway could cause significant impacts to Culver City and therefore the analysis of the Expressway on Culver City is essential and critical. Figure 3.1-1 and 3.1-7, highlights only some of the potentially affected parcels which may require partial or full acquisition for right-of-way purposes. For instance, the affected parcel labeled as "P" for Public Facility Parcels on the east side of the I-405 Freeway between Bristol Parkway and Green Valley Circle is NOT entirely a flood control channel. Portions of this highlighted area are private property. The figures need to be revised and include all affected land uses in Culver City.
- a. There should be specific mention and analysis of land use impacts to the single-family homes on Coolidge Avenue, Culver Park Place, and Culver Park Drive, as well as the El Marino School and the El Marino Park. Also, there is no mention of potential property acquisition at this location, despite the closeness of this proposed roadway.
 - b. Under both the Single Viaduct and Split Viaduct Alignment for the LAX Expressway, additional areas in Culver City along the I-405 could be subject to land use impacts. Impacts to Culver City will start slightly north of the SR-90 interchange down to the City limits at Green Valley Circle, with elevated

crossovers at Centinela, Sepulveda, Bristol Parkway, and Jefferson Boulevards. Due to the need for placing column structures, there could also be significant impact to the industrial properties along Bankfield Avenue as well as to some industrial/commercial properties that are on Jefferson Boulevard. There could also be column placements in the parking lots that are in the vicinity of Bristol Parkway and Centinela Avenue. Supports for the elevated structure will, most likely, be located in the CHP parking lot, in the area of Bankfield Avenue-Selmarine Drive, and the west side of Slauson Avenue north of Jefferson Boulevard.

There are multiple environmental impacts to Culver City that must be addressed along the east side of the I-405 right-of-way in the vicinity of Bristol Parkway and Green Valley Circle. There are commercial, light manufacturing, and office uses along the east edge of the I-405 that would be subject to land use impacts from the LAX Expressway. Hotels located within the City of Culver City such as the Radisson, the Sheraton Four Points, and the Ramada Plaza Hotel located on Centinela and Sepulveda Boulevard could also be impacted. An application for a new car dealership (Airport Marina Ford) has been submitted to the City of Culver City for initial review. This new facility is proposed to be located on private property and partially in the current LA County Flood Control easement area as well as some portion of the existing Centinela Avenue right of way. This proposed development would be in conflict with the proposed alignment of both the build alternatives of the LAX Expressway.

47. **Appendix K, 4.1 Land Use, Page 19-24 and Appendix K, 5.1 Land Use, Pages 64-68.** In Appendix K, there is a limited amount of discussion and analysis of adopted Culver City land use, circulation, and noise policies.
48. **Appendix K, Section 5.5.1.2, Page 65, 1st paragraph, Alternative 2 (Split Viaduct).** Under Lax Expressway Alternative 2, the report states *"Although this alternative would likely require the acquisition of additional Right-of-Way along both the east and west side of the 405 FWY would not be considered a high priority roadway improvement under Culver City's General Plan Circulation Element. Irrespective of the emphasis the city places on the priority of the LAX Expressway project Alternative 2, no specific conflict with Culver City's Circulation Element have been identified."* This statement is confusing, misleading, and needs to be clarified. It should be noted that the City's Circulation Element was updated in 1996. At this time, any off airport roadway improvements such as the LAX Expressway was not analyzed or included in our Circulation Element. Therefore, to state there is no specific conflict with the Circulation is not correct.
49. **Appendix K, Page 66, Section 5.1.1.3, Second Paragraph, Last Sentence.** Correct and revise the last sentence to include the language in bold brackets. "However the reduction to noise levels to 66 dBA would not be consistent with the City Inglewood and **[City of Culver City]** General Plan Noise Element." Also, nowhere in the document does it discuss or explain or provide mitigations as to how

noise generated from the proposed Expressway will be reduced to 66 dBA or lower in those areas in Culver City.

50. **Appendix K, Figure 4.1-6 on page 4-65.** Any figure(s) illustrating the location/map of the proposed LAX expressway should include and highlight those communities or uses that would be impacted by the ENTIRE length of the proposed expressway.
51. **Appendix K, Page 23, Section 4.1.2.1.** – Correct language on this page to state that the City of Culver City, not "community of Fox Hills" bounds the northeast portion of the LAX Expressway.
52. **Preliminary Section 4F of the Supplemental Environmental Evaluation for LAX Expressway and State Route 1 Improvements.** On Page 6, *Table B*, it lists Fox Hills Park as a part of the City of Fox Hills. This should be corrected to show that Fox Hills Park is in the City of Culver City. Again, on Page 6, *Table B*, El Marino Park should be added to the list, as should El Marino School.
53. **Draft EIS/EIR Page 3-44, Master Plan Chapter V Page V-3.111, Appendix K page 2.** The referenced documents contain no or minimal discussions on the proposed Expressway under Alternative B (Additional runway to the South). Under Master Plan Alternative B, will the Expressway also extend up to the Howard Hughes Parkway ramps or to the SR-90/405 interchange? Where is the terminus of the Expressway under Alternative B?
- Parks and Schools**
54. **Volume 3, Section 4.26.3 Parks and Recreation Section in Paragraph 4.26.3.3 Affected Environmental/Environmental Baseline.** Culver City is not included in the list of analysis. An expressway on the east side of the 405 would be adjacent to the El Marino Elementary School, and would be adjacent to El Marino Park. This is of concern for environmental and noise related issues and needs to be further analyzed in the EIR as to what impacts the expressway would create and how it would affect both the school and the park.
55. **Section 4.27, Schools.** The analysis of this section includes distant schools in San Pedro and Banning, but does not mention Culver City at all. How can a major report such as this can ignore a city close to LAX while including schools in San Pedro, Carson, etc.? There is no consideration of El Marino School, which is literally within 100 feet of the existing freeway and the proposed Expressway would be built very close to the school. This issue needs to be addressed as a part of the Draft EIS/EIR.
56. **Preliminary Section 4F of the Supplemental Environmental Evaluation for LAX Expressway and State Route 1 Improvements.** The *Figure A* diagram of the Expressway on the east side of the freeway shows that there will be impacts to El

Marino School and the adjacent El Marino Park; yet it is not mentioned elsewhere in the report.

Since the impacts to El Marino School and El Marino Park are not addressed and in fact are ignored in the document, there is no way to comment on the adequacy of the impact analysis without seeing this specific analysis that should have been done as part of the Draft EIS/EIR document. The document needs to provide an analysis to be able to comment on.

4.4 Social Impacts

57. **Section 4.4.2 Relocation of Residences or Businesses.** Under the build alternatives, the LAX expressway would impact residences and businesses in Culver City (i.e. Marina Ford, etc.). How will these impacts be mitigated? What would be the tax impacts for these uses if relocated, acquired, etc.?
58. **Section 4.4.4 Community Disruption and Alteration of Surface Transportation Patterns, Page 4-20.** It should be acknowledged under "The Transportation System Improvements Under Build Alternatives" section, that certain northern portions of the LAX Expressway are proposed to extend out of the I-405 and MTA right of way onto non-ROW land in Culver City boundaries.
59. **Section 4.18 Light Emissions, Page 4-824.** There is no mention or analysis in the Draft EIS/EIR or Appendix K of potential light spill (light that shines beyond the area intended for illumination, can be a source of annoyance particularly for residences where light spill might disturb sleep or privacy) from the proposed LAX Expressway onto adjoining properties in the City of Culver City (i.e. residential properties on Coolidge Avenue and near Culver Park Place). Also, there are no mitigation measures required for potential light emission impacts from the LAX Expressway in the City of Culver City.

4.20 Construction Impacts

60. Significant negative impacts to Culver City are anticipated with the construction of the LAX Master Plan and in particular the LAX Expressway. There will be construction impacts within Culver City related to noise, land use, surface transportation, air quality, schools, aesthetics, lighting, public safety, and other environmental subject areas. However, the Draft EIS/EIR and associated appendices and technical reports neither address nor mention these impacts onto Culver City. From review of the documents, the evaluation and discussion of construction related impacts and mitigation is geared toward the immediate area surrounding the LAX boundary (i.e. Westchester, El Segundo, Inglewood, etc.). Therefore, it is uncertain whether the mitigation measures and master plan commitments related to construction of LAX apply to affected areas in Culver City. Clarify and specify in the Draft EIS/EIR and associated documents any construction impacts and mitigation measures applicable to affected areas in Culver City.

61. **Construction Schedule, page 4-859, 4-860.** Include a discussion under Alternative A and Alternative B, explaining under which phase the LAX Expressway will be constructed.
62. **Appendix K.** There is minimal and inadequate discussion of construction impacts and mitigation measures of the LAX Expressway.

4.21 Design, Art and Architecture

63. **Page 4-921, Lax Expressway.** This section should discuss visual/aesthetic impacts to land uses in Culver City. The Single Viaduct alignment (Alternative 3) for the LAX Expressway would parallel the I-405 right-of-way from approximately Arbor Vitae Street to areas slightly north of the SR-90. Figure 3.1-7 in Appendix K only highlights some and not all the affected areas in Culver City. In the area particularly northeast of the I-405/1-90 freeway interchange, the LAX Expressway would be visible from sensitive receptors such as single-family homes on Coolidge Avenue, Culver Park Place, Culver Park Drive, as well as the El Marino School and El Marino Park. At present, there is a densely landscaped area, which provide a visual buffer between the I-405 freeway and the homes on Coolidge Avenue. The proposed LAX Expressway would be closer than the existing freeway, if not on top of some of the homes and yards, and will eliminate the landscape buffer. Notwithstanding potential property acquisition at this location, the closeness of this proposed roadway will impact views from the residential area as well as the El Marino School and Park. Therefore significant aesthetic and view impacts from the LAX Expressway are expected.

Additional areas in Culver City along the I-405 would be subject to visual impacts under both the Single Viaduct and Split Viaduct Alignment for the LAX Expressway. The light manufacturing, commercial, office, research and development uses would be subject to visual impacts and shade and shadow effects from the LAX Expressway. Hotels located within the City of Culver City such as the Radisson, Four Points Sheraton Hotel, and the Ramada Plaza Hotel on Centinela and Sepulveda Boulevard would also view the proposed LAX Expressway.

Impacts to Culver City will start from slightly north of the SR-90 and I-405 freeway interchange down to the City limits at Green Valley Circle, with elevated crossovers at Centinela, Sepulveda, Bristol Parkway, and Jefferson Boulevards. Due to the need for placing column structures, there could also be significant impact to the industrial properties along Bankfield Avenue as well as to some industrial/commercial properties that are on Jefferson Boulevard. There would also be visual impacts, including shade and shadow effects and column placements in the parking lots that are in the vicinity of Bristol Parkway and Centinela Avenue. Supports for the elevated structure will, most likely, be located in the CHP parking lot, in the area of Bankfield Avenue-Selmarine Drive, and the west side of Slauson Avenue north of Jefferson Boulevard.

These impacts to Culver City are not mentioned in the Draft EIS/EIR or in Appendix K. Conduct a view analysis within Culver City areas, provide adequate mitigation measures, and include discussion within the Draft EIS/EIR of the visual/aesthetic/shade and shadow impacts to these sensitive receptors as well as other commercial and other types of uses in Culver City impacted by the LAX Expressway.

64. **Page 4-898, Environmental Action Plan and Page, 4-926 MM-DA-1 & MM-DA-2.** The two proposed mitigation measures (MM-DA-1 & MM-DA-2) designed to address aesthetic and visual impacts from the construction of the LAX Expressway should include areas and roadways in Culver City such as Coolidge Avenue, Culver Park Drive, Culver Park Place, Slauson Avenue, Selmarine Avenue, Bankfield Avenue, Jefferson Boulevard, Bristol Parkway, Green Valley Circle, and Centinela Parkway. Ensure in the language of the proposed mitigation measures that any construction fencing, pedestrian canopies, and view analysis be provided for these roadways listed above as they will be directly and significantly impacted by the proposed LAX Expressway.
65. **Appendix K, Page 60 and 110, Visual.** The visual analysis section does not analyze or evaluate view impacts or shade and shadow effects of the LAX Expressway to those areas in Culver City northeast of the I-405/I-90 freeways.
66. **Appendix K, Figure 4.17-1, Photo Locations.** Figure 4.17-1, stops short of depicting the entire northern length of the Expressway adjacent to Culver City. As such, the photo analysis conducted did not analyze those areas north of the freeway interchange in Culver City. Modify this figure to show additional photo locations and show the proposed Expressway extending slightly north the I-405/I-90 interchange, consistent with Figure 3.1-7, Segment A.

4.24 Human Health and Safety (CEQA)

67. **4.24.2.6, Environmental Consequences, Page 4-1046.** Provide an explanation or time frame in the phasing out of older, noisier aircraft. How long will this take?

PUBLIC SAFETY

Police:

68. The primary concern of the Police Department with the LAX Expansion Project proposals is traffic congestion. Traffic Congestion impacts the response time of Police vehicles to emergency calls, which impacts the quality of life in Culver City. The only two routes for response to the Fox Hills area from the East Portion of Culver City are La Cienega Avenue and Sepulveda Boulevard. Both of those streets

are congested during peak traffic hours and impact the response time of emergency vehicles to or from the above-described areas.

69. **Executive Summary IV-8.28 and IV-8.31.** The document describes traffic conditions, during peak hours of certain road segments. The segment of Sepulveda between Venice and Centinela is described in the report as follows. "Low volumes; primarily free-flow operations. Density is low, and vehicles can freely maneuver within the traffic stream. Drivers can maintain their desired speeds with little or no delay." That Report is not accurate. In fact, the actual traffic conditions during peak hours fit the description of the Impact Report's worst conditions, as follows. "Forced-flow operations with high approach delays at critical signalized intersections. Speeds are reduced substantially, and stoppages may occur for short or long periods of time because of downstream congestion."

70. All of our major roads lead to LAX. The LAX Expressway is proposed to accommodate traffic flow in and out of LAX. It directly feeds outbound LAX traffic to the San Diego Freeway, connecting N/B traffic to the 405 Freeway between the Jefferson Blvd and Culver Blvd ramps. There are no proposals for modifying that portion of the freeway for the added volume. The overflow traffic will exit into Culver City from the next two northbound ramps (Culver and Venice). That volume of traffic will add to the already congested Sepulveda Blvd, Washington Blvd, Washington Place, Culver Blvd and Venice Boulevards during peak traffic hours. It will also cause increased traffic congestion and delays on all of Culver City's North/South through streets. As the LAX grows, added traffic congestion will result in slower response times to emergency police calls.

Fire:

71. Both LAX Expressway proposals have southbound lanes beginning north of SR 90 freeway and continuing south to Arbor Vitae Street. There are no on- or off-ramps to provide emergency access along the way. Arriving at the emergency scene may prove difficult as traffic backs up with no way to divert vehicles. Culver City will be responsible for providing coverage on the southbound expressway unless farther distanced Los Angeles City Fire Department units are expected to handle all calls. The draft EIS/EIR needs to adequately address how emergency vehicles (fire trucks) can access/respond in a timely manner along the entire length of the proposed Expressway under non-peak and peak travel times.

72. The Report does not address additional traffic congestion on Sepulveda Boulevard through Culver City or the merging Expressway onto northbound San Diego Freeway. Any new traffic will have a significant impact on the Culver City Fire Department's response into the Fox Hills neighborhood, Centinela Avenue, I-405 Freeway north, etc. from the current location of Culver City Fire Station 3 located at 11304 Segrell Way.

73. Overviews 4.24.3 Safety, page 4-58, under LNG/CNG Facility, last paragraph, last sentence. Under all three Alternatives, the existing LNG Facility would be relocated to a site in the southeast portion of the airport near the East Imperial Cargo Complex. CNG storage would be constructed in conjunction with the LNG facility. The hazard radius for the LNG/CNG Facility would remain at a maximum of approximately 1,300 feet. As the location shown is in close proximity to the I-105 Freeway, the document does not mention the freeway as a possible exposure.

ENERGY

74. 4.17 Energy Supply and Natural Resources. The projections are all based on 1997, 1998 figures, before deregulation set in. What are the environmental impacts on electricity and natural gas usage based on current generation and transport capacity projections?

75. 4.17.1.8 Mitigation Measures. There is repeated reference to a Master Plan Commitment E-1, Energy Conservation and Efficiency Plan that would be implemented by LAWA which therefore eliminates the need for any mitigation measures. Has any portion of the plan been implemented to date, and if so what has the effectiveness been in energy reduction? Is it feasible to indicate that LAWA is capable of reducing energy consumption?

REGIONAL CONTEXT

76. The Draft EIS/EIR presumes that a vast majority of the region's growth in air passenger and air cargo demand will be directed to LAX. A number of commercially viable airports in the Southern California area currently exist and are underutilized relative to their capacity. A fully regional solution to this air passenger and air cargo capacity has not been adequately addressed in the Draft EIS/EIR.

77. 1.13.3 Future Demand for Air Passenger and Cargo Transportation. What is the impact the Alameda Corridor and the East Alameda Corridor projects on shifting the transport of cargo to other airports from manufacturing centers?

78. 1.2.4 Forecast Distribution of Demand. Where is the scenario that LAX is constrained to its current MAP and the demand has to be distributed to other airports? Only discussion is that air traffic will decrease overall, not about distribution.

79. 1.3 Meeting the Demand for Transportation. The length of the driving time to various cities is unrealistic. Assumes less than 50 mph speed on open freeways.

80. 1.4 The Need to Expand LAX. Statements do not indicate the benefit to the region with a freeze on LAX expansion – reduced traffic, pollution, noise, etc.

81.2.6 **Non-LAX Development.** Costco Center is located in Culver City not City of Los Angeles.

OTHER

82. In response to the NOP/NOI to prepare the Draft EIS/EIR issued in June 1997, Culver City requested in a letter dated July 31, 1997, that major issues and concerns related to traffic, air quality, overflight operations, regional context, and other subject areas impacting Culver City be analyzed in the preparation of the Draft EIS/EIR. None or minimal analysis of the issues the City requested to be analyzed are contained in the Draft EIS/EIR. Further, Culver City's NOP/NOI comment letter is not contained in Appendix A of the Draft EIS/EIR, where copies of written comments from affected agencies are contained.



November 7, 2003

Metropolitan
Transportation
Authority

One Gateway Plaza
Los Angeles, CA
90012-2952

Mr. Jim Ritchie
Los Angeles World Airports
City of Los Angeles
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Dear Mr. Ritchie:

Thank you for the opportunity to comment on the Supplement to the Draft Environmental Impact Statement / Environmental Impact Report on the LAX Master Plan. This letter conveys the Los Angeles County Metropolitan Transportation Authority's (MTA) comments concerning issues that are germane to our agency's statutory responsibilities.

The following issues should be addressed in the Final EIS / EIR, including transportation project programming and funding, the Metro Green Line extension, intermodal service interface and planning, facility capacity and utilization, and planning methodology.

- 1. Transportation Project Programming and Funding.** The Master Plan relies on numerous transportation mitigation projects that lack sufficient detail to determine their feasibility. Los Angeles World Airports (LAWA) should clarify which transportation projects have committed funds programmed, the source of those funds, and which projects lack full funding and/or have not completed the environmental review process.
- 2. Metro Green Line Extension.** There is no discussion in Alternative D regarding any future extension of the Metro Green Line. The Master Plan should address a possible Green Line station located at the new Ground Transportation Center (GTC), so that airport-bound Green Line passengers coming from the north would not have to overshoot the GTC by alighting at the current Aviation Green Line station. In addition, LAWA should ensure that construction of the automated people mover (APM) would not preclude the potential extension of the Green Line. It should be noted that the proposed alignment for the APM crosses the MTA-owned Harbor Subdivision right-of-way. This is an active rail line presently operated by BNSF, which has perpetual operating rights.
- 3. Intermodal Service Interface and Planning.** MTA would like to coordinate more closely with LAWA on the expansion of the Fly-Away program. In

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particular, Metro Rapid service interface issues and MTA's proposed hub-and-spoke bus restructuring should be explored. Specific locations for new Fly-Away routes should be identified.

4. **Transit Facility Capacity and Utilization.** Alternative D states that the new GTC would handle 60% of airport-access passenger trips, while the new Intermodal Transportation Center (ITC) would handle 30% of airport-access passenger trips. Assuming that airport-access passenger trips using public transportation are now less than 5%, the Final EIR / EIS should justify this assumption about future ridership and explain how public transit agencies will meet this huge increase in new passenger demand.
5. **Metro Rail Demand.** Alternative D calls for Green Line added capacity of 30% and Blue Line added capacity of 50% by the year 2015. LAWA should clarify whether this assumes improvements beyond the Blue Line's current three-car train operation. In addition, the Final EIR /EIS should explain how the additional Green Line capacity will occur.
6. **LAX Transit Center.** LAWA proposes to eliminate the existing LAX transit center near Lot C and incorporate it into the new ITC. LAWA should coordinate with MTA on this, since this will affect MTA's operations, routing, deadheading, and operational costs.

The MTA looks forward to reviewing the Final EIS / EIR. If you have any questions regarding this response, please call Stephen Fox at (213) 922-2238.

Sincerely,



JAMES L. de la LOZA
Executive Officer
Countywide Planning & Development

Los Angeles Unified School District

ROY ROMER
Superintendent of Schools

ANGELO J. BELLOMO
Director
Office of Environmental Health and Safety

November 7, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Mater Plan Office
P.O. Box 92216
Los Angeles, California 90009

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, California 90009

Re: Supplement to the Draft Environmental Impact Statement/Environmental Impact Report
for the Los Angeles International Airport Proposed Master Plan Improvements project

Dear Sirs:

Attached please find the Los Angeles Unified School District's (District) comments on the above referenced project. The focus of the our comments relate to the inadequacy of the air toxic analysis and subsequent risk assessment prepared for the proposed project.

The District also acknowledges the concerns raised by the Inglewood Unified School District (IUSD) relating to increased noise on educational facilities in proximity of its schools. The District believes that concerns raised by the IUSD are relevant to its schools located within proximity of the airport facility.

It is the District's charge to protect the health and safety of its students and staff, and the integrity of the learning environment. As such, the District requests that the document be revised to effectively address the impact of toxic air contaminants and noise on our local schools.

The District appreciates your consideration of our comments. Should you have any questions, please contact me at (213) 241-3921 or Bill Piazza of my staff at (213) 743-5086.

Sincerely,



Patrick A. Schanen, Deputy Director
Office of Environmental Health and Safety

c: A. Bellomo
J. Golida

INTER-OFFICE CORRESPONDENCE

Los Angeles Unified School District

TO: Jay Goida, Associate General Counsel
Office of the General Counsel

Date
November 4, 2003

FROM: Bill Piazza 
Office of Environmental Health and Safety

SUBJECT: Supplement to the Draft EIS/EIR-Los Angeles International Airport Proposed Master Plan Improvements: Assessment of Air Quality Impacts.

In response to your request to assess the adequacy of the air quality element for the above referenced project, the following is provided.

Upon review of available documentation provided in the supplement to the Draft EIS/EIR, staff identified a critical flaw in the dispersion model methodology utilized to characterize the generation of toxic air pollutants from aircraft operations. This technical flaw, in conjunction with the applicant's failure to characterize the generation of toxic air pollutants associated with on-road mobile source activity, underestimates the potential human health impacts from exposure to toxic air contaminants related to the implementation of the proposed project. Additionally, the Draft EIS/EIR does not provide the necessary technical documentation/information to permit a thorough review as required under CEQA guidance.

The following discussion documents staff's assertion that the assessment of toxic air pollutants is without merit and relevant documentation to permit a review of the applicant's dispersion modeling analysis was not "readily available for public examination."

The dispersion modeling methodology is flawed and fails to appropriately assess the generation of toxic emissions from aircraft operations.

To assess carcinogenic and noncarcinogenic exposures, the applicant utilized a predictive model or mathematical simulation to estimate the dispersion of toxic air emissions and quantify their relative concentrations throughout the local community. Although staff believes that dispersion modeling is the appropriate analytical approach to assess pollutants generated from an airport landing facility, the choice of model and associated input values will dictate the viability of the simulation.

For this assessment, the applicant employed the Industrial Source Complex Short Term (ISCST3) dispersion model. ISCST3 is a United States Environmental Protection Agency (U.S. EPA) "guideline" model used to predict pollutant concentrations from an array of emission sources (i.e., point, area and volume). However, to characterize each source,

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discrete input values must be entered by the user. For example, to account for the heat generated from jet aircraft exhaust, the applicant attempted to approximate the initial plume rise of various aircraft engines based upon a heat balance approach to produce a theoretical buoyancy flux and corresponding vertical exit velocity of the exhaust gas. The resultant exit velocity along with various source parameters (i.e., release height, exhaust temperature, stack diameter) were programmed into the model's point source algorithm to characterize "on-ground" (i.e., taxi/idle and takeoff) and "in-air" (i.e., approach and climbout) aircraft emissions. The identified release parameters utilized to assess the impact of aircraft emissions is provided in the original Draft EIS/EIR, Technical Report 4.

To assess the adequacy of the applicant's approach, staff identified the initial height of the exhaust plume for the on-ground aircraft/engine size categories (i.e., small, medium and large) corresponding to the lowest identified equivalent vertical exit velocity. This procedure was also recommended by the applicant who reports in their Technical Report, that utilizing the data "in Table VIII, plume rise can be calculated using the standard plume rise formulas presented in ISCST3 User's Guide." Results of staff's review indicate that for all aircraft/engine size categories, calculated plume heights from a horizontal source are excessive and physically impossible. Table 1 outlines the predicted plume heights for the above referenced aircraft/engine size categories. Supporting calculation worksheets are presented in Attachment A.

Table 1
Calculated Initial Plume Heights
(units expressed in meters)

Stability Class	Small Jet Taxi/Idle	Medium Jet Taxi/Idle	Large Jet Taxi/Idle	Small Jet Takeoff	Medium Jet Takeoff	Large Jet Takeoff
A-D	23.720	85.146	125.104	71.740	347.493	517.774
E	36.065	63.824	75.591	59.181	132.263	164.706
F	30.274	53.312	63.079	49.459	110.116	137.043

As noted above, the initial plume heights extend from 23.72 meters (77.8 feet) for small jet aircraft operating in the taxi/idle mode to 517.774 meters (1698.7 feet) for larger aircraft during takeoff roll. Clearly, these values are without merit. To exemplify staff's concern, the U.S. Department of Transportation, Federal Aviation Administration (FAA) released a letter report in October 2002 entitled "*Preliminary Report: The use of LIDAR to characterize aircraft initial plume characteristics.*" Although the LIDAR study reports "significant" plume rise occurs, until an "additional follow-on analysis" is conducted, a single value of 12 meters (39.4 feet) be utilized for large commercial and commuter aircraft.

As such, this recommendation was incorporated into FAA's EDMS model version 4.1. As reported in the September 30, 2002 EDMS Reference Manual Supplement entitled *Model Changes between EDMS 4.05 and EDMS 4.1*, it was reported:

Previously, the release height and the initial vertical dispersion coefficient were based on best available information and good engineering judgment. Based on results of an aircraft plume behavior study performed using LIght Detection And Ranging (LIDAR) aircraft plume behavior can be more accurately characterized through revised model defaults for release height and the initial vertical dispersion coefficient.

The model change bulletin continues by stating that:

Previously, the release height was airframe dependent and set to the average engine centerline height. In EDMS 4.1, the release height has been set to 12 meters for all aircraft types. This is meant to compensate for plume rise in buoyant jet and turboprop exhaust, since the LIDAR study concluded that significant plume rise occurs and was not being accounted for.

Noting the relevance of utilizing an appropriate plume height to assess pollutant dispersion from aircraft operations, the applicant's initial height approximations are excessive and inconsistent with FAA guidance.

To exemplify, staff prepared a comparative analysis of modeled concentrations based upon the applicant's point source parameters with those currently recommended by the FAA. Due to the applicant's failure to provide relevant model input data (see discussion regarding technical documentation below) to reprogram the model utilizing the revised plume height for each source location, the analysis compared the relative difference in downwind concentrations for each on-ground aircraft/engine size category. To account for the revised plume height, the source release height was set to 12 meters and the exit velocity was limited to a nominal value of 0.001 meters per second to limit momentum flux. Additionally, the exhaust temperature was set to 0 to negate the effects of thermal buoyancy. This value will cause the ISCST3 model to set the exit temperature equal to the ambient temperature for each hour in the meteorological data set. For each source, a unitized emission rate was used to characterize the hydrocarbon exhaust stream.

A polar grid receptor network consisting of 36 direction radials was programmed to identify receptors at 500, 750, 1000, 1250 and 1500 meters. Hourly surface weather data from the South Coast Air Quality Management District's Lennox monitoring station was incorporated into the modeling exercise to represent local weather conditions and prevailing winds.

Tables 2 and 3 present the results of the comparative analysis. As noted below, the relative percentage increase from the original model configuration is considerable for all aircraft/engine size categories.

Table 2
Maximum Period Values
 (units expressed in micrograms per cubic meter)

Source Description	Concentration Initial Plume Height	Concentration Revised Plume Height	Percent Increase
Small Jet Taxi/Idle	5.38	9.10	69.3
Medium Jet Taxi/Idle	1.92	9.09	373.7
Large Jet Taxi/Idle	1.13	9.09	701.7
Small Jet Takeoff	2.33	9.10	291.3
Medium Jet Takeoff	0.24	9.09	3709.3
Large Jet Takeoff	0.11	9.09	7876.4

Table 3
Maximum One Hour Values
 (units expressed in micrograms per cubic meter)

Source Description	Concentration Initial Plume Height	Concentration Revised Plume Height	Percent Increase
Small Jet Taxi/Idle	75.42	183.37	143.1
Medium Jet Taxi/Idle	21.89	183.20	737.0
Large Jet Taxi/Idle	15.17	183.06	1107.1
Small Jet Takeoff	26.19	183.37	600.2
Medium Jet Takeoff	3.70	183.20	4845.6
Large Jet Takeoff	1.90	183.06	9526.6

As such, staff contends that the applicant's dispersion analysis characterizing the generation of toxic air pollutants is flawed and clearly underestimates the impact of aircraft emissions on the local community. A copy of the dispersion model input and output files is presented in Attachment B.

The assessment fails to address the generation of toxic air emissions from on-road mobile sources.

Notwithstanding the questionable adequacy of the applicant's assessment of aircraft

emissions, they also fail to recognize and subsequently assess the generation of toxic air pollutants from vehicular traffic associated with the proposed project.

There is a body of documentation acknowledging that vehicular sources generate toxic air pollutants. In fact, in a 1994 environmental fact sheet entitled *Air Toxics from Motor Vehicles*, the U.S. EPA estimated that “mobile (car, truck, and bus) sources of air toxics account for as much as half of all cancers attributed to outdoor sources of air toxics.” In the recent South Coast Air Quality Management District (SCAQMD) *Multiple Air Toxics Exposure Study* (MATES II), it was reported that:

The contribution to risk is dominated by mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.). About 70% of all risk is attributed to diesel particulate emissions; about 20% to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde); about 10% of all risk is attributed to stationary sources (which include industries and other certain businesses such as dry cleaners and print shops.)

The California legislature (SB 352, Escutia 2003) has also recognized the potential impact associated with exposure to mobile source emissions by establishing a statutory “standard of care” for assessing the impact of toxic pollutants on students and school-based staff located near roadways.

Clearly, vehicular sources associated with the proposed project may contribute significantly to the impacts of toxic emissions throughout the local community. The applicant has the obligation to provide a comprehensive evaluation of all sources of toxic emissions associated with the proposed project. There is no basis to omit this source category from consideration.

For your reference, staff has attached the above referenced U.S. EPA fact sheet and recommends that the applicant contact representatives from the U.S. EPA’s Office of Air Quality Planning and Standards, the California Air Resources Board, as well as the SCAQMD for guidance in preparing an appropriate assessment.

The Draft EIS/EIR fails to provide the necessary technical documentation to permit a complete examination of the applicant’s dispersion model analysis.

Section 15147 of Title 14 of the California Code of Regulations provides guidance regarding the technical detail contained within an EIR. As reported in the guidelines:

The information contained in an EIR shall include summarized technical data, maps, plot plans, diagrams, and similar relevant information sufficient to permit full assessment of significant environmental impacts by reviewing agencies and members of the public. Placement of highly technical and specialized analysis and data in the body of an EIR should be avoided through inclusion of supporting information and analyses as appendices to the main body of the EIR. Appendices to the EIR may be prepared in volumes separate from the basic EIR document, but shall be readily available for public examination and shall be submitted to all clearinghouses which assist in public review.

Although staff appreciates the applicant's attempt to disclose its "highly" technical documentation in the various appendices to the Draft EIS/EIR, an essential portion of their analysis was not available for public examination. To effectively evaluate the results of a model analysis, one must examine the actual input and output files to confirm its consistency with a prescribed methodology or identify discrepancies contrary to that methodology.

It also allows the reviewer to reprogram the model with revised input values to produce a comparative analysis which may serve as the basis to challenge its adequacy. Although staff was able to identify a serious flaw in the applicant's modeling analysis, it was limited to a review of written documentation without benefit of evaluating the actual model data. Staff believes that access to this information may have led to the identification of additional inadequacies in the applicant's analysis.

To underscore the relevance of staff's contention, the SCAQMD CEQA Air Quality Handbook references the assessment methodology utilized under the Air Toxic "Hot Spots" Information and Assessment Act (AB 2588, Connelly 1987) to address air toxic exposures within the context of a CEQA analysis. The guidance document entitled *Air Toxic Hot Spots Program Risk Assessment Guidelines Part IV: Technical Support Document Exposure Assessment and Stochastic Analysis* (OEHHA, 2000) provides detailed discussion on various aspects of air dispersion modeling including requirements for report submittal. Specifically, the guidance reports air dispersion modeling results shall include but not be limited to 1) model printouts (numbered) including annual concentrations and maximum hourly concentrations and 2) electronic media (disk) with input/output files for the air dispersion program (e.g., the ISCST3 input file containing the regulatory options and emission parameters, receptor locations, meteorology, etc.).

Although inclusion of this data is customary, the applicant did not provide nor make publicly available this information to permit a full evaluation of the impacts of toxic air emissions on the local community.

Staff trusts that the preceding analysis demonstrates the inadequacy of the applicant's air toxic assessment and provides relevant documentation to challenge its adequacy. Please advise as to the disposition of this memorandum and subsequent response by the applicant. I can be reached at (213) 241-3926 should you have any questions or need additional information.

bp:

c: P. Schanen

Attachments: as stated

Attachment A

	Original Plume Height						Revised Plume Height					
	Small Taxi/Idle	Medium Taxi/Idle	Large Taxi/Idle	Small Takeoff	Medium Takeoff	Large Takeoff	Small Taxi/Idle	Medium Taxi/Idle	Large Taxi/Idle	Small Takeoff	Medium Takeoff	Large Takeoff
INPUT PARAMETERS:												
Hs - Stack Height (m)	2.000	2.000	2.000	2.000	2.000	2.000	12.000	12.000	12.000	12.000	12.000	12.000
Ds - Stack Diameter (m)	15.000	40.000	60.000	15.000	40.000	60.000	15.000	40.000	60.000	15.000	40.000	60.000
Vs - Stack Velocity (mps)	0.019	0.016	0.012	0.090	0.150	0.130	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100
Ts - Stack Temp. (°K)	561.0	561.0	561.0	561.0	561.0	561.0	293.0	293.0	293.0	293.0	293.0	293.0
Stack Orientation (V or H)	V	V	V	V	V	V	V	V	V	V	V	V
CALCULATED VALUES:												
VFR - Flow Rate (m³/sec)	3.358	20.106	33.929	15.904	188.496	367.566	0.177	1.257	2.827	0.177	1.257	2.827
Fb - Buoy. Flux Param. (m⁴/sec²)	5.0	30.0	50.6	23.7	280.9	547.8	0.000	0.000	0.000	0.000	0.000	0.000
Fm - Mom. Flux Parameter (m⁴/sec²)	0.011	0.053	0.068	0.238	4.701	7.944	0.000	0.000	0.001	0.000	0.000	0.001
FIXED VALUES:												
UBAR - Wind Speed (mps)	3.3											
Ta - Ambient Temp. (°K)	293											
s - Stab. Param. (E) (1/sec²)	0.0007											
s - Stab. Param. (F) (1/sec²)	0.0012											
RESULTS (Plume Height - m):												
Buoyant												
A-D	23.720	85.146	125.104	71.740	347.493	517.774	12.000	12.000	12.000	12.000	12.000	12.000
E	36.065	63.824	75.591	59.181	132.263	164.706	12.000	12.000	12.000	12.000	12.000	12.000
F	30.274	53.312	63.079	49.459	110.116	137.043	12.000	12.000	12.000	12.000	12.000	12.000
Momentum												
A-D	2.259	2.582	2.655	3.227	7.455	9.091	12.014	12.036	12.055	12.014	12.036	12.055
E	2.749	3.284	3.388	4.111	7.707	8.798	12.131	12.251	12.329	12.131	12.251	12.329
F	2.682	3.169	3.265	3.923	7.199	8.192	12.119	12.229	12.300	12.119	12.229	12.300
Controlling												
A-D	23.720	85.146	125.104	71.740	347.493	517.774	12.014	12.036	12.055	12.014	12.036	12.055
E	36.065	63.824	75.591	59.181	132.263	164.706	Momentum	Momentum	Momentum	Momentum	Momentum	Momentum
F	30.274	53.312	63.079	49.459	110.116	137.043	Momentum	Momentum	Momentum	Momentum	Momentum	Momentum

Attachment B

** Model: ISCST3 File Creation Date: 11/5/2003 Time: 2:14:32 PM
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CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** MODEL SETUP OPTIONS SUMMARY ***

**Simple Terrain Model is Selected

**Model is Setup For Calculation of Average CONCentration Values.

-- SCAVENGING/DEPOSITION LOGIC --

**Model Uses NO DRY DEPLETION. DDPLETE = F
**Model Uses NO WET DEPLETION. WDPLETE = F
**NO WET SCAVENGING Data Provided.
**NO GAS DRY DEPOSITION Data Provided.
**Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

**Model Uses URBAN Dispersion.

**Model Uses User-Specified Options:

1. Final Plume Rise.
2. Not Use Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Not Use Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 1 Short Term Average(s) of: 1-HR
and Calculates PERIOD Averages

**This Run Includes: 12 Source(s); 12 Source Group(s); and 180 Receptor(s)

**The Model Assumes A Pollutant Type of: OTHER

**Model Set To Continue RUNNING After the Setup Testing.

**Output Options Selected:

Model Outputs Tables of PERIOD Averages by Receptor
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 1.3 MB of RAM.

**Input Runstream File: LAX1.DTA

**Output Print File: LAX1.LST

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** POINT SOURCE DATA ***

SOURCE ID	PART. CATS.	NUMBER EMISSION RATE (GRAMS/SEC)		X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE	
												SCALAR	VARY BY
1A	0	0.10000E+01		0.0	0.0	0.0	2.00	561.00	0.02	15.00	NO		
1B	0	0.10000E+01		0.0	0.0	0.0	12.00	0.00	0.00	15.00	NO		
2A	0	0.10000E+01		0.0	0.0	0.0	2.00	561.00	0.02	40.00	NO		
2B	0	0.10000E+01		0.0	0.0	0.0	12.00	0.00	0.00	40.00	NO		
3A	0	0.10000E+01		0.0	0.0	0.0	2.00	561.00	0.01	60.00	NO		
3B	0	0.10000E+01		0.0	0.0	0.0	12.00	0.00	0.00	60.00	NO		
4A	0	0.10000E+01		0.0	0.0	0.0	2.00	561.00	0.09	15.00	NO		
4B	0	0.10000E+01		0.0	0.0	0.0	12.00	0.00	0.00	15.00	NO		
5A	0	0.10000E+01		0.0	0.0	0.0	2.00	561.00	0.15	40.00	NO		
5B	0	0.10000E+01		0.0	0.0	0.0	12.00	0.00	0.00	40.00	NO		
6A	0	0.10000E+01		0.0	0.0	0.0	2.00	561.00	0.13	60.00	NO		
6B	0	0.10000E+01		0.0	0.0	0.0	12.00	0.00	0.00	60.00	NO		

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID SOURCE IDs

1A 1A ,

1B 1B ,

2A 2A ,

2B 2B ,

3A 3A ,

3B 3B ,

4A 4A ,

4B 4B ,

5A 5A ,

5B 5B ,

6A 6A ,

6B 6B ,

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

*** ORIGIN FOR POLAR NETWORK ***

X-ORIG = 0.00 ; Y-ORIG = 0.00 (METERS)

*** DISTANCE RANGES OF NETWORK ***

(METERS)

500.0, 750.0, 1000.0, 1250.0, 1500.0,

*** DIRECTION RADIALS OF NETWORK ***

(DEGREES)

10.0, 20.0, 30.0, 40.0, 50.0, 60.0, 70.0, 80.0, 90.0, 100.0,
110.0, 120.0, 130.0, 140.0, 150.0, 160.0, 170.0, 180.0, 190.0, 200.0,
210.0, 220.0, 230.0, 240.0, 250.0, 260.0, 270.0, 280.0, 290.0, 300.0,
310.0, 320.0, 330.0, 340.0, 350.0, 360.0,

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: LENNOX.ASC

FORMAT: (412,2F9.4,F6.1,i2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)

SURFACE STATION NO.: 52118

UPPER AIR STATION NO.: 91919

NAME: LENNOX,

NAME: LAX,

YEAR: 1981

YEAR: 1981

YR	MN	DY	HR	FLOW	SPEED	TEMP	STAB	MIXING HEIGHT (M)		USTAR	M-O LENGTH	Z-O	IPCODE	PRATE
				VECTOR	(M/S)	(K)	CLASS	RURAL	URBAN	(M/S)	(M)	(M)	(mm/HR)	
81	01	01	01	134.8	1.00	285.9	7	387.1	152.0	0.0000	0.0	0.0000	0	0.00
81	01	01	02	124.9	0.00	286.5	7	397.2	152.0	0.0000	0.0	0.0000	0	0.00
81	01	01	03	85.0	1.00	285.9	6	407.3	152.0	0.0000	0.0	0.0000	0	0.00
81	01	01	04	143.5	1.34	285.9	5	417.4	152.0	0.0000	0.0	0.0000	0	0.00
81	01	01	05	151.5	1.00	285.4	4	427.4	427.4	0.0000	0.0	0.0000	0	0.00
81	01	01	06	319.5	1.00	283.7	5	437.5	152.0	0.0000	0.0	0.0000	0	0.00
81	01	01	07	139.5	1.00	283.7	6	447.5	152.0	0.0000	0.0	0.0000	0	0.00
81	01	01	08	314.6	1.00	284.3	5	70.1	201.5	0.0000	0.0	0.0000	0	0.00
81	01	01	09	186.5	1.00	287.0	4	144.7	254.3	0.0000	0.0	0.0000	0	0.00
81	01	01	10	256.6	1.00	291.5	3	219.4	307.0	0.0000	0.0	0.0000	0	0.00
81	01	01	11	44.1	1.34	294.8	2	294.0	359.8	0.0000	0.0	0.0000	0	0.00
81	01	01	12	80.6	3.13	290.9	3	368.7	412.5	0.0000	0.0	0.0000	0	0.00
81	01	01	13	132.2	3.13	289.8	3	443.3	465.3	0.0000	0.0	0.0000	0	0.00
81	01	01	14	124.2	3.13	290.4	3	518.0	518.0	0.0000	0.0	0.0000	0	0.00
81	01	01	15	134.8	2.68	290.4	3	518.0	518.0	0.0000	0.0	0.0000	0	0.00
81	01	01	16	143.2	2.68	289.3	4	518.0	518.0	0.0000	0.0	0.0000	0	0.00
81	01	01	17	132.6	2.68	288.1	5	518.0	511.1	0.0000	0.0	0.0000	0	0.00
81	01	01	18	120.1	2.24	287.6	6	518.0	468.5	0.0000	0.0	0.0000	0	0.00
81	01	01	19	110.5	1.34	287.0	7	518.0	425.9	0.0000	0.0	0.0000	0	0.00
81	01	01	20	145.7	1.00	287.0	7	518.0	383.4	0.0000	0.0	0.0000	0	0.00
81	01	01	21	111.1	1.00	287.6	7	518.0	340.8	0.0000	0.0	0.0000	0	0.00
81	01	01	22	2.0	1.00	287.0	7	518.0	298.2	0.0000	0.0	0.0000	0	0.00
81	01	01	23	0.7	0.00	286.5	7	518.0	255.6	0.0000	0.0	0.0000	0	0.00
81	01	01	24	134.7	1.00	286.5	6	518.0	213.0	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
 FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 1A ***
 INCLUDING SOURCE(S): 1A

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.00	1.46215	1.00799	0.71400	0.53147	0.41291
20.00	1.18369	0.80569	0.56608	0.41850	0.32313
30.00	1.22672	0.83845	0.59198	0.43970	0.34098
40.00	1.35768	0.91434	0.64033	0.47294	0.36519
50.00	1.61603	1.10713	0.78715	0.58901	0.46003
60.00	1.42109	0.91202	0.62622	0.45735	0.35041
70.00	1.83238	1.08142	0.71140	0.50594	0.38073
80.00	3.96496	2.44495	1.65935	1.21006	0.93008
90.00	5.37559	3.33666	2.27007	1.65672	1.27320
100.00	4.46035	2.71910	1.83074	1.32701	1.01490
110.00	2.97491	1.76945	1.17207	0.83930	0.63566
120.00	2.63826	1.64263	1.11346	0.80890	0.61880
130.00	2.50613	1.63594	1.13300	0.83320	0.64248
140.00	2.13678	1.42456	0.99585	0.73651	0.57025
150.00	1.38156	0.91564	0.63375	0.46362	0.35502
160.00	1.04895	0.72104	0.50911	0.37765	0.29241
170.00	1.25565	0.89042	0.63841	0.47808	0.37257
180.00	1.40201	1.00650	0.72674	0.54686	0.42769
190.00	1.14520	0.81487	0.58474	0.43789	0.34114
200.00	1.01285	0.72347	0.51986	0.38951	0.30349
210.00	1.00183	0.71102	0.50905	0.38065	0.29630
220.00	1.01894	0.71586	0.51053	0.38131	0.29693
230.00	1.31747	0.92171	0.65441	0.48623	0.37643
240.00	1.88242	1.34179	0.96633	0.72666	0.56849
250.00	2.14083	1.49245	1.05832	0.78582	0.60806
260.00	2.97600	2.09679	1.49946	1.12137	0.87319
270.00	3.51152	2.49498	1.79413	1.34718	1.05228
280.00	2.53689	1.77642	1.26789	0.94773	0.73812
290.00	1.20689	0.79795	0.54979	0.40055	0.30572
300.00	0.87489	0.58063	0.40261	0.29534	0.22692
310.00	0.86631	0.57422	0.39839	0.29263	0.22523
320.00	1.04318	0.69456	0.48364	0.35624	0.27479
330.00	1.19157	0.78563	0.54456	0.40026	0.30854
340.00	1.24983	0.80942	0.55359	0.40288	0.30824
350.00	1.54742	1.04097	0.72802	0.53813	0.41659
360.00	1.67271	1.14893	0.81164	0.60304	0.46796

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 1B ***
 INCLUDING SOURCE(S): 1B

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.00	3.06066	1.52228	0.93139	0.63990	0.47309
20.00	2.46377	1.21700	0.73957	0.50484	0.37096
30.00	2.54845	1.26631	0.77355	0.53053	0.39151
40.00	2.75776	1.36369	0.82956	0.56693	0.41712
50.00	3.33106	1.66969	1.02841	0.71084	0.52841
60.00	2.72503	1.33147	0.80295	0.54511	0.39887
70.00	3.08134	1.47130	0.87185	0.58393	0.42290
80.00	6.72212	3.32077	2.02531	1.39016	1.02836
90.00	9.09946	4.51346	2.75931	1.89614	1.40298
100.00	7.38600	3.63278	2.20726	1.50988	1.11331
110.00	4.84370	2.34532	1.40705	0.95251	0.69620
120.00	4.58365	2.24950	1.36360	0.93053	0.68443
130.00	4.73226	2.34273	1.42886	0.97935	0.72273
140.00	4.15273	2.06493	1.26392	0.86893	0.64296
150.00	2.73366	1.34048	0.80963	0.54958	0.40175
160.00	2.22609	1.10089	0.67005	0.45815	0.33726
170.00	2.75221	1.37810	0.84613	0.58230	0.43073
180.00	3.10926	1.56755	0.96729	0.66825	0.49577
190.00	2.53046	1.26673	0.77726	0.53452	0.39507
200.00	2.27091	1.13530	0.69587	0.47811	0.35310
210.00	2.20739	1.10187	0.67482	0.46347	0.34231
220.00	2.22358	1.10537	0.67552	0.46369	0.34270
230.00	2.89340	1.43142	0.87015	0.59386	0.43619
240.00	4.18545	2.09767	1.29049	0.89038	0.66046
250.00	4.66836	2.30999	1.40469	0.95889	0.70434
260.00	6.47809	3.23793	1.98598	1.36581	1.00980
270.00	7.67954	3.86098	2.37891	1.64184	1.21731
280.00	5.43923	2.72012	1.66986	1.14954	0.85082
290.00	2.42659	1.17918	0.70727	0.47754	0.34769
300.00	1.75308	0.85675	0.51740	0.35178	0.25784
310.00	1.73847	0.84920	0.51319	0.34938	0.25650
320.00	2.10392	1.03157	0.62501	0.42633	0.31348
330.00	2.34592	1.14922	0.69613	0.47498	0.34955
340.00	2.38031	1.15486	0.69420	0.47074	0.34473
350.00	3.09491	1.52732	0.93045	0.63784	0.47127
360.00	3.47271	1.72369	1.05326	0.72295	0.53417

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 2A ***
 INCLUDING SOURCE(S): 2A ,

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION | DISTANCE (METERS)
 (DEGREES) | 500.00 750.00 1000.00 1250.00 1500.00

10.00	0.30837	0.35208	0.33079	0.29263	0.25472
20.00	0.26819	0.29396	0.27074	0.23632	0.20359
30.00	0.28646	0.30688	0.28217	0.24711	0.21383
40.00	0.33140	0.34116	0.30881	0.26819	0.23085
50.00	0.41281	0.42088	0.38315	0.33560	0.29143
60.00	0.44094	0.38429	0.32398	0.27122	0.22837
70.00	0.69915	0.53072	0.41105	0.32627	0.26519
80.00	1.44650	1.18594	0.95968	0.78472	0.65249
90.00	1.91993	1.60719	1.31043	1.07445	0.89396
100.00	1.60862	1.31850	1.06132	0.86293	0.71373
110.00	1.06058	0.85017	0.67389	0.54154	0.44362
120.00	0.81351	0.71799	0.60023	0.49822	0.41691
130.00	0.64353	0.62945	0.55622	0.47752	0.40865
140.00	0.49739	0.51920	0.47265	0.41258	0.35683
150.00	0.31108	0.32526	0.29452	0.25496	0.21840
160.00	0.22493	0.24556	0.22872	0.20205	0.17587
170.00	0.27333	0.30972	0.29233	0.25990	0.22709
180.00	0.31514	0.36129	0.34173	0.30380	0.26533
190.00	0.25410	0.28979	0.27288	0.24168	0.21040
200.00	0.21303	0.24958	0.23771	0.21185	0.18515
210.00	0.20456	0.24209	0.23104	0.20602	0.18011
220.00	0.20339	0.23934	0.22788	0.20303	0.17749
230.00	0.25965	0.30541	0.29067	0.25848	0.22530
240.00	0.36386	0.43899	0.42595	0.38478	0.33993
250.00	0.41926	0.49355	0.47116	0.41994	0.36663
260.00	0.59787	0.70917	0.67939	0.60744	0.53203
270.00	0.70680	0.84373	0.81130	0.72756	0.63882
280.00	0.51055	0.60238	0.57539	0.51382	0.44986
290.00	0.23869	0.26837	0.24867	0.21700	0.18643
300.00	0.16040	0.18407	0.17369	0.15391	0.13391
310.00	0.15404	0.17637	0.16745	0.14953	0.13105
320.00	0.19090	0.21763	0.20621	0.18402	0.16128
330.00	0.22050	0.24893	0.23430	0.20819	0.18193
340.00	0.23089	0.25611	0.23800	0.20962	0.18203
350.00	0.29540	0.33886	0.32039	0.28537	0.24996
360.00	0.33121	0.38288	0.36254	0.32263	0.28211

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 2B ***
 INCLUDING SOURCE(S): 2B

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.00	3.05836	1.52165	0.93114	0.63977	0.47302
20.00	2.46191	1.21649	0.73936	0.50474	0.37090
30.00	2.54655	1.26579	0.77334	0.53042	0.39145
40.00	2.75574	1.36314	0.82934	0.56682	0.41706
50.00	3.32856	1.66900	1.02813	0.71070	0.52833
60.00	2.72312	1.33096	0.80275	0.54501	0.39881
70.00	3.07953	1.47082	0.87165	0.58384	0.42284
80.00	6.71840	3.31975	2.02489	1.38995	1.02824
90.00	9.09459	4.51213	2.75877	1.89586	1.40282
100.00	7.38228	3.63178	2.20685	1.50967	1.11319
110.00	4.84136	2.34469	1.40680	0.95238	0.69612
120.00	4.58120	2.24884	1.36333	0.93039	0.68435
130.00	4.72939	2.34196	1.42854	0.97919	0.72263
140.00	4.15012	2.06422	1.26363	0.86878	0.64287
150.00	2.73184	1.33999	0.80943	0.54948	0.40170
160.00	2.22444	1.10045	0.66987	0.45806	0.33721
170.00	2.75006	1.37752	0.84589	0.58218	0.43066
180.00	3.10675	1.56687	0.96700	0.66810	0.49569
190.00	2.52842	1.26618	0.77703	0.53440	0.39501
200.00	2.26905	1.13480	0.69566	0.47801	0.35304
210.00	2.20560	1.10139	0.67462	0.46337	0.34225
220.00	2.22182	1.10489	0.67532	0.46359	0.34264
230.00	2.89111	1.43081	0.86990	0.59374	0.43611
240.00	4.18216	2.09677	1.29013	0.89019	0.66035
250.00	4.66475	2.30901	1.40429	0.95869	0.70423
260.00	6.47305	3.23656	1.98542	1.36553	1.00963
270.00	7.67355	3.85934	2.37824	1.64150	1.21711
280.00	5.43508	2.71899	1.66940	1.14930	0.85068
290.00	2.42487	1.17873	0.70709	0.47745	0.34764
300.00	1.75191	0.85643	0.51727	0.35172	0.25780
310.00	1.73733	0.84889	0.51306	0.34932	0.25646
320.00	2.10252	1.03119	0.62486	0.42625	0.31343
330.00	2.34441	1.14881	0.69597	0.47490	0.34950
340.00	2.37885	1.15447	0.69404	0.47066	0.34469
350.00	3.09283	1.52676	0.93022	0.63772	0.47120
360.00	3.47020	1.72301	1.05298	0.72280	0.53408

**MODELOPTS:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 3A ***
 INCLUDING SOURCE(S): 3A

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION | DISTANCE (METERS)
 (DEGREES) | 500.00 750.00 1000.00 1250.00 1500.00

10.00	0.15819	0.21202	0.22065	0.20939	0.19166
20.00	0.14073	0.18007	0.18286	0.17080	0.15449
30.00	0.15389	0.19060	0.19203	0.17932	0.16260
40.00	0.18193	0.21471	0.21205	0.19596	0.17655
50.00	0.23042	0.26789	0.26550	0.24739	0.22496
60.00	0.25957	0.25672	0.23228	0.20493	0.17961
70.00	0.42593	0.37127	0.30737	0.25544	0.21481
80.00	0.86201	0.81555	0.71264	0.61366	0.52961
90.00	1.13386	1.09926	0.97146	0.84052	0.72665
100.00	0.94956	0.90397	0.78865	0.67664	0.58154
110.00	0.62086	0.58012	0.49814	0.42252	0.35982
120.00	0.45970	0.47314	0.43037	0.37851	0.33024
130.00	0.35043	0.39747	0.38248	0.34844	0.31134
140.00	0.26477	0.32115	0.31965	0.29690	0.26866
150.00	0.16513	0.20058	0.19861	0.18316	0.16441
160.00	0.12049	0.15105	0.15346	0.14444	0.13186
170.00	0.14914	0.19261	0.19851	0.18787	0.17188
180.00	0.17310	0.22640	0.23475	0.22268	0.20388
190.00	0.13892	0.18073	0.18676	0.17663	0.16128
200.00	0.11357	0.15282	0.16034	0.15281	0.14011
210.00	0.10723	0.14693	0.15495	0.14787	0.13557
220.00	0.10509	0.14400	0.15187	0.14513	0.13334
230.00	0.13338	0.18233	0.19187	0.18293	0.16762
240.00	0.18623	0.26057	0.27899	0.26994	0.25057
250.00	0.21490	0.29264	0.30788	0.29408	0.27011
260.00	0.30763	0.42404	0.44928	0.43123	0.39763
270.00	0.36357	0.50540	0.53806	0.51813	0.47897
280.00	0.25997	0.35913	0.38038	0.36513	0.33682
290.00	0.11772	0.15690	0.16134	0.15163	0.13755
300.00	0.07637	0.10517	0.11026	0.10535	0.09693
310.00	0.07272	0.10007	0.10542	0.10138	0.09391
320.00	0.09028	0.12427	0.13109	0.12605	0.11665
330.00	0.10369	0.14189	0.14901	0.14280	0.13186
340.00	0.10942	0.14623	0.15108	0.14291	0.13079
350.00	0.14560	0.19826	0.20784	0.19862	0.18308
360.00	0.16727	0.22731	0.23834	0.22741	0.20912

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 3B ***
 INCLUDING SOURCE(S): 3B

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.00	3.05652	1.52115	0.93093	0.63966	0.47296
20.00	2.46041	1.21609	0.73920	0.50466	0.37085
30.00	2.54502	1.26538	0.77317	0.53034	0.39140
40.00	2.75412	1.36270	0.82916	0.56673	0.41701
50.00	3.32655	1.66845	1.02790	0.71058	0.52826
60.00	2.72158	1.33054	0.80258	0.54492	0.39876
70.00	3.07807	1.47043	0.87149	0.58376	0.42280
80.00	6.71542	3.31893	2.02455	1.38978	1.02814
90.00	9.09069	4.51106	2.75833	1.89564	1.40269
100.00	7.37929	3.63097	2.20652	1.50950	1.11310
110.00	4.83948	2.34419	1.40659	0.95228	0.69606
120.00	4.57923	2.24831	1.36312	0.93028	0.68429
130.00	4.72708	2.34133	1.42828	0.97906	0.72256
140.00	4.14801	2.06364	1.26340	0.86867	0.64280
150.00	2.73037	1.33960	0.80927	0.54940	0.40165
160.00	2.22312	1.10009	0.66973	0.45799	0.33716
170.00	2.74833	1.37704	0.84569	0.58208	0.43060
180.00	3.10473	1.56631	0.96678	0.66799	0.49562
190.00	2.52679	1.26573	0.77685	0.53431	0.39496
200.00	2.26756	1.13439	0.69550	0.47792	0.35299
210.00	2.20416	1.10100	0.67446	0.46329	0.34221
220.00	2.22040	1.10450	0.67517	0.46352	0.34260
230.00	2.88928	1.43031	0.86970	0.59363	0.43606
240.00	4.17951	2.09605	1.28983	0.89004	0.66026
250.00	4.66184	2.30823	1.40397	0.95853	0.70413
260.00	6.46900	3.23545	1.98497	1.36530	1.00950
270.00	7.66874	3.85803	2.37770	1.64123	1.21695
280.00	5.43175	2.71808	1.66903	1.14911	0.85057
290.00	2.42349	1.17836	0.70694	0.47737	0.34760
300.00	1.75097	0.85618	0.51717	0.35167	0.25777
310.00	1.73642	0.84865	0.51296	0.34927	0.25643
320.00	2.10139	1.03089	0.62474	0.42619	0.31340
330.00	2.34319	1.14848	0.69583	0.47483	0.34946
340.00	2.37767	1.15416	0.69392	0.47060	0.34465
350.00	3.09116	1.52631	0.93004	0.63763	0.47115
360.00	3.46817	1.72246	1.05275	0.72269	0.53402

**MODELOPTS:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 4A ***
 INCLUDING SOURCE(S): 4A ,

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.00	0.40364	0.42970	0.38606	0.33159	0.28274
20.00	0.34667	0.35542	0.31327	0.26560	0.22422
30.00	0.36655	0.36941	0.32581	0.27737	0.23526
40.00	0.42026	0.40891	0.35567	0.30043	0.25350
50.00	0.51914	0.50236	0.44024	0.37538	0.31974
60.00	0.53749	0.44950	0.36752	0.30082	0.24908
70.00	0.83295	0.60624	0.45731	0.35628	0.28562
80.00	1.74360	1.36169	1.06944	0.85684	0.70212
90.00	2.32565	1.85004	1.46256	1.17459	0.96298
100.00	1.94765	1.51791	1.18531	0.94436	0.76990
110.00	1.28786	0.98206	0.75490	0.59414	0.47953
120.00	1.00774	0.84296	0.68051	0.55147	0.45366
130.00	0.81579	0.75455	0.64195	0.53677	0.45073
140.00	0.63956	0.62853	0.54929	0.46608	0.39499
150.00	0.40129	0.39561	0.34413	0.28971	0.24326
160.00	0.29052	0.30026	0.26884	0.23089	0.19688
170.00	0.35153	0.37616	0.34100	0.29474	0.25235
180.00	0.40415	0.43649	0.39631	0.34264	0.29342
190.00	0.32658	0.35073	0.31699	0.27302	0.23306
200.00	0.27647	0.30360	0.27684	0.23957	0.20507
210.00	0.26723	0.29586	0.27037	0.23426	0.20072
220.00	0.26704	0.29412	0.26844	0.23261	0.19948
230.00	0.34123	0.37507	0.34142	0.29460	0.25135
240.00	0.47861	0.53909	0.49983	0.43779	0.37835
250.00	0.55117	0.60624	0.55309	0.47806	0.40837
260.00	0.78508	0.86892	0.79557	0.69006	0.59164
270.00	0.92847	1.03414	0.95083	0.82756	0.71152
280.00	0.67211	0.73937	0.67518	0.58512	0.50165
290.00	0.31644	0.33133	0.29311	0.24791	0.20833
300.00	0.21532	0.22993	0.20703	0.17770	0.15113
310.00	0.20798	0.22203	0.20131	0.17406	0.14902
320.00	0.25707	0.27272	0.24667	0.21320	0.18261
330.00	0.29667	0.31098	0.27919	0.24019	0.20511
340.00	0.30988	0.31964	0.28358	0.24189	0.20521
350.00	0.39278	0.41986	0.37959	0.32797	0.28106
360.00	0.43728	0.47164	0.42740	0.36935	0.31632

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 4B ***
 INCLUDING SOURCE(S): 4B

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.00	3.06066	1.52228	0.93139	0.63990	0.47309
20.00	2.46377	1.21700	0.73957	0.50484	0.37096
30.00	2.54845	1.26631	0.77355	0.53053	0.39151
40.00	2.75776	1.36369	0.82956	0.56693	0.41712
50.00	3.33106	1.66969	1.02841	0.71084	0.52841
60.00	2.72503	1.33147	0.80295	0.54511	0.39887
70.00	3.08134	1.47130	0.87185	0.58393	0.42290
80.00	6.72212	3.32077	2.02531	1.39016	1.02836
90.00	9.09946	4.51346	2.75931	1.89614	1.40298
100.00	7.38600	3.63278	2.20726	1.50988	1.11331
110.00	4.84370	2.34532	1.40705	0.95251	0.69620
120.00	4.58365	2.24950	1.36360	0.93053	0.68443
130.00	4.73226	2.34273	1.42886	0.97935	0.72273
140.00	4.15273	2.06493	1.26392	0.86893	0.64296
150.00	2.73366	1.34048	0.80963	0.54958	0.40175
160.00	2.22609	1.10089	0.67005	0.45815	0.33726
170.00	2.75221	1.37810	0.84613	0.58230	0.43073
180.00	3.10926	1.56755	0.96729	0.66825	0.49577
190.00	2.53046	1.26673	0.77726	0.53452	0.39507
200.00	2.27091	1.13530	0.69587	0.47811	0.35310
210.00	2.20739	1.10187	0.67482	0.46347	0.34231
220.00	2.22358	1.10537	0.67552	0.46369	0.34270
230.00	2.89340	1.43142	0.87015	0.59386	0.43619
240.00	4.18545	2.09767	1.29049	0.89038	0.66046
250.00	4.66836	2.30999	1.40469	0.95889	0.70434
260.00	6.47809	3.23793	1.98598	1.36581	1.00980
270.00	7.67954	3.86098	2.37891	1.64184	1.21731
280.00	5.43923	2.72012	1.66986	1.14954	0.85082
290.00	2.42659	1.17918	0.70727	0.47754	0.34769
300.00	1.75308	0.85675	0.51740	0.35178	0.25784
310.00	1.73847	0.84920	0.51319	0.34938	0.25650
320.00	2.10392	1.03157	0.62501	0.42633	0.31348
330.00	2.34592	1.14922	0.69613	0.47498	0.34955
340.00	2.38031	1.15486	0.69420	0.47074	0.34473
350.00	3.09491	1.52732	0.93045	0.63784	0.47127
360.00	3.47271	1.72369	1.05326	0.72295	0.53417

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 5A ***
 INCLUDING SOURCE(S): 5A

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.00	0.01857	0.02812	0.03692	0.04330	0.04709
20.00	0.01652	0.02484	0.03199	0.03680	0.03937
30.00	0.01690	0.02663	0.03447	0.03953	0.04220
40.00	0.01904	0.03065	0.03917	0.04421	0.04664
50.00	0.02211	0.03816	0.04960	0.05643	0.05995
60.00	0.02222	0.04007	0.04967	0.05316	0.05327
70.00	0.03231	0.06125	0.07442	0.07665	0.07380
80.00	0.06488	0.12663	0.16128	0.17426	0.17590
90.00	0.08661	0.16801	0.21563	0.23492	0.23875
100.00	0.07217	0.13836	0.17588	0.18983	0.19107
110.00	0.04749	0.08805	0.11004	0.11693	0.11576
120.00	0.03863	0.06857	0.08770	0.09635	0.09838
130.00	0.03323	0.05517	0.07130	0.08033	0.08406
140.00	0.02701	0.04365	0.05718	0.06573	0.07003
150.00	0.01834	0.02767	0.03531	0.04003	0.04217
160.00	0.01457	0.02117	0.02697	0.03092	0.03307
170.00	0.01849	0.02780	0.03588	0.04149	0.04474
180.00	0.02131	0.03278	0.04276	0.04977	0.05393
190.00	0.01785	0.02632	0.03378	0.03903	0.04212
200.00	0.01483	0.02152	0.02774	0.03233	0.03515
210.00	0.01391	0.02030	0.02638	0.03096	0.03381
220.00	0.01380	0.01965	0.02540	0.02980	0.03257
230.00	0.01735	0.02472	0.03181	0.03714	0.04039
240.00	0.02325	0.03450	0.04560	0.05429	0.05996
250.00	0.02808	0.03965	0.05091	0.05943	0.06460
260.00	0.03850	0.05685	0.07460	0.08817	0.09669
270.00	0.04407	0.06715	0.08914	0.10589	0.11650
280.00	0.03200	0.04756	0.06267	0.07424	0.08153
290.00	0.01540	0.02076	0.02612	0.03009	0.03226
300.00	0.00908	0.01286	0.01672	0.01966	0.02137
310.00	0.00811	0.01170	0.01537	0.01818	0.01987
320.00	0.00942	0.01414	0.01890	0.02251	0.02470
330.00	0.01050	0.01592	0.02138	0.02547	0.02792
340.00	0.01175	0.01707	0.02232	0.02610	0.02820
350.00	0.01627	0.02467	0.03273	0.03868	0.04227
360.00	0.01939	0.02944	0.03877	0.04557	0.04964

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 5B ***
 INCLUDING SOURCE(S): 5B

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.00	3.05836	1.52165	0.93114	0.63977	0.47302
20.00	2.46191	1.21649	0.73936	0.50474	0.37090
30.00	2.54655	1.26579	0.77334	0.53042	0.39145
40.00	2.75574	1.36314	0.82934	0.56682	0.41706
50.00	3.32856	1.66900	1.02813	0.71070	0.52833
60.00	2.72312	1.33096	0.80275	0.54501	0.39881
70.00	3.07953	1.47082	0.87165	0.58384	0.42284
80.00	6.71840	3.31975	2.02489	1.38995	1.02824
90.00	9.09459	4.51213	2.75877	1.89586	1.40282
100.00	7.38228	3.63178	2.20685	1.50967	1.11319
110.00	4.84136	2.34469	1.40680	0.95238	0.69612
120.00	4.58120	2.24884	1.36333	0.93039	0.68435
130.00	4.72939	2.34196	1.42854	0.97919	0.72263
140.00	4.15012	2.06422	1.26363	0.86878	0.64287
150.00	2.73184	1.33999	0.80943	0.54948	0.40170
160.00	2.22444	1.10045	0.66987	0.45806	0.33721
170.00	2.75006	1.37752	0.84589	0.58218	0.43066
180.00	3.10675	1.56687	0.96700	0.66810	0.49569
190.00	2.52842	1.26618	0.77703	0.53440	0.39501
200.00	2.26905	1.13480	0.69566	0.47801	0.35304
210.00	2.20560	1.10139	0.67462	0.46337	0.34225
220.00	2.22182	1.10489	0.67532	0.46359	0.34264
230.00	2.89111	1.43081	0.86990	0.59374	0.43611
240.00	4.18216	2.09677	1.29013	0.89019	0.66035
250.00	4.66475	2.30901	1.40429	0.95869	0.70423
260.00	6.47305	3.23656	1.98542	1.36553	1.00963
270.00	7.67355	3.85934	2.37824	1.64150	1.21711
280.00	5.43508	2.71899	1.66940	1.14930	0.85068
290.00	2.42487	1.17873	0.70709	0.47745	0.34764
300.00	1.75191	0.85643	0.51727	0.35172	0.25780
310.00	1.73733	0.84889	0.51306	0.34932	0.25646
320.00	2.10252	1.03119	0.62486	0.42625	0.31343
330.00	2.34441	1.14881	0.69597	0.47490	0.34950
340.00	2.37885	1.15447	0.69404	0.47066	0.34469
350.00	3.09283	1.52676	0.93022	0.63772	0.47120
360.00	3.47020	1.72301	1.05298	0.72280	0.53408

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 6A ***
 INCLUDING SOURCE(S): 6A

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.00	0.00930	0.01251	0.01626	0.01969	0.02247
20.00	0.00828	0.01091	0.01402	0.01675	0.01885
30.00	0.00817	0.01116	0.01473	0.01775	0.02004
40.00	0.00888	0.01242	0.01651	0.01980	0.02215
50.00	0.00964	0.01468	0.02050	0.02513	0.02848
60.00	0.00889	0.01385	0.01970	0.02361	0.02577
70.00	0.01150	0.01877	0.02765	0.03312	0.03555
80.00	0.02238	0.04001	0.06051	0.07514	0.08377
90.00	0.03007	0.05429	0.08171	0.10175	0.11397
100.00	0.02528	0.04429	0.06610	0.08180	0.09112
110.00	0.01747	0.02835	0.04110	0.04998	0.05490
120.00	0.01561	0.02443	0.03447	0.04206	0.04692
130.00	0.01476	0.02169	0.02938	0.03562	0.04003
140.00	0.01262	0.01809	0.02428	0.02957	0.03355
150.00	0.00908	0.01200	0.01541	0.01829	0.02039
160.00	0.00748	0.00945	0.01195	0.01421	0.01599
170.00	0.00915	0.01239	0.01605	0.01929	0.02183
180.00	0.01038	0.01452	0.01908	0.02311	0.02630
190.00	0.00900	0.01188	0.01520	0.01817	0.02052
200.00	0.00762	0.00986	0.01250	0.01492	0.01689
210.00	0.00715	0.00931	0.01185	0.01421	0.01617
220.00	0.00725	0.00910	0.01142	0.01364	0.01550
230.00	0.00904	0.01147	0.01434	0.01702	0.01923
240.00	0.01188	0.01571	0.02028	0.02464	0.02836
250.00	0.01471	0.01848	0.02299	0.02724	0.03079
260.00	0.01955	0.02597	0.03331	0.04022	0.04603
270.00	0.02180	0.03029	0.03957	0.04819	0.05541
280.00	0.01619	0.02165	0.02789	0.03378	0.03876
290.00	0.00836	0.00984	0.01186	0.01380	0.01541
300.00	0.00486	0.00593	0.00741	0.00883	0.01002
310.00	0.00426	0.00533	0.00672	0.00805	0.00920
320.00	0.00482	0.00631	0.00813	0.00988	0.01136
330.00	0.00536	0.00704	0.00912	0.01114	0.01283
340.00	0.00613	0.00769	0.00968	0.01159	0.01316
350.00	0.00819	0.01098	0.01431	0.01744	0.02002
360.00	0.00966	0.01315	0.01710	0.02072	0.02365

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE PERIOD (8760 HRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 68 ***
 INCLUDING SOURCE(S): 68

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.00	3.05652	1.52115	0.93093	0.63966	0.47296
20.00	2.46041	1.21609	0.73920	0.50466	0.37085
30.00	2.54502	1.26538	0.77317	0.53034	0.39140
40.00	2.75412	1.36270	0.82916	0.56673	0.41701
50.00	3.32655	1.66845	1.02790	0.71058	0.52826
60.00	2.72158	1.33054	0.80258	0.54492	0.39876
70.00	3.07807	1.47043	0.87149	0.58376	0.42280
80.00	6.71542	3.31893	2.02455	1.38978	1.02814
90.00	9.09069	4.51106	2.75833	1.89564	1.40269
100.00	7.37929	3.63097	2.20652	1.50950	1.11310
110.00	4.83948	2.34419	1.40659	0.95228	0.69606
120.00	4.57923	2.24831	1.36312	0.93028	0.68429
130.00	4.72708	2.34133	1.42828	0.97906	0.72256
140.00	4.14801	2.06364	1.26340	0.86867	0.64280
150.00	2.73037	1.33960	0.80927	0.54940	0.40165
160.00	2.22312	1.10009	0.66973	0.45799	0.33716
170.00	2.74833	1.37704	0.84569	0.58208	0.43060
180.00	3.10473	1.56631	0.96678	0.66799	0.49562
190.00	2.52679	1.26573	0.77685	0.53431	0.39496
200.00	2.26756	1.13439	0.69550	0.47792	0.35299
210.00	2.20416	1.10100	0.67446	0.46329	0.34221
220.00	2.22040	1.10450	0.67517	0.46352	0.34260
230.00	2.88928	1.43031	0.86970	0.59363	0.43606
240.00	4.17951	2.09605	1.28983	0.89004	0.66026
250.00	4.66184	2.30823	1.40397	0.95853	0.70413
260.00	6.46900	3.23545	1.98497	1.36530	1.00950
270.00	7.66874	3.85803	2.37770	1.64123	1.21695
280.00	5.43175	2.71808	1.66903	1.14911	0.85057
290.00	2.42349	1.17836	0.70694	0.47737	0.34760
300.00	1.75097	0.85618	0.51717	0.35167	0.25777
310.00	1.73642	0.84865	0.51296	0.34927	0.25643
320.00	2.10139	1.03089	0.62474	0.42619	0.31340
330.00	2.34319	1.14848	0.69583	0.47483	0.34946
340.00	2.37767	1.15416	0.69392	0.47060	0.34465
350.00	3.09116	1.52631	0.93004	0.63763	0.47115
360.00	3.46817	1.72246	1.05275	0.72269	0.53402

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 1A ***
INCLUDING SOURCE(S): 1A

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.0	75.33028 (81080402)	59.48808 (81080402)	45.49354 (81080402)	35.76237 (81080402)	29.01273 (81080402)
20.0	75.29073 (81100622)	59.45583 (81100622)	45.47075 (81010523)	35.74536 (81010523)	28.99915 (81010523)
30.0	75.31223 (81081702)	59.46924 (81081702)	45.47676 (81081702)	35.74767 (81081702)	28.99971 (81081702)
40.0	75.30453 (81091922)	59.46248 (81091922)	45.47115 (81091922)	35.74292 (81091922)	28.99558 (81091922)
50.0	75.36717 (81071323)	59.50792 (81071323)	45.50547 (81071323)	35.77042 (81071323)	29.01866 (81071323)
60.0	75.22815 (81050501)	59.41453 (81050501)	45.43821 (81050501)	35.71815 (81050501)	28.97570 (81050501)
70.0	75.31721 (81072205)	59.48178 (81072205)	45.49019 (81072205)	35.76038 (81072205)	29.01145 (81072205)
80.0	75.30703 (81092821)	59.47286 (81092821)	45.48277 (81092821)	35.75410 (81092821)	29.00599 (81092821)
90.0	75.28042 (81101322)	59.46189 (81101322)	45.47817 (81101322)	35.75224 (81101322)	29.00543 (81101322)
100.0	75.29282 (81052323)	59.46699 (81052323)	45.48029 (81052323)	35.75308 (81052323)	29.00575 (81041221)
110.0	75.34439 (81061504)	59.46609 (81061504)	45.46273 (81061504)	35.73065 (81061504)	28.98519 (81080624)
120.0	75.21974 (81120920)	59.41047 (81120920)	45.43606 (81120920)	35.71687 (81120920)	28.97487 (81120920)
130.0	75.29526 (81030821)	59.46719 (81030821)	45.48200 (81010201)	35.75640 (81010201)	29.00953 (81010201)
140.0	75.29507 (81111423)	59.46896 (81111423)	45.48193 (81111423)	35.75446 (81111423)	29.00687 (81111423)
150.0	74.93748 (81022122)	59.14399 (81022122)	45.20752 (81022122)	35.52030 (81022122)	28.80263 (81022122)
160.0	75.27917 (81111007)	59.46537 (81111007)	45.48272 (81111007)	35.75683 (81111007)	29.00980 (81111007)
170.0	75.31379 (81080102)	59.47878 (81080102)	45.48769 (81080102)	35.75827 (81080102)	29.00961 (81080102)
180.0	75.29683 (81072403)	59.46579 (81121124)	45.48204 (81121124)	35.75579 (81121124)	29.00867 (81121124)
190.0	75.29639 (81110902)	59.47230 (81110902)	45.48551 (81110902)	35.75786 (81110902)	29.01001 (81110902)
200.0	75.33169 (81080404)	59.48931 (81080404)	45.49456 (81080404)	35.76323 (81080404)	29.01348 (81080404)
210.0	75.29126 (81040502)	59.46983 (81040502)	45.48420 (81040502)	35.75708 (81040502)	29.00950 (81040502)
220.0	75.34056 (81101822)	59.49405 (81101822)	45.49739 (81101822)	35.76513 (81101822)	29.01487 (81101822)
230.0	75.27434 (81042102)	59.46285 (81111005)	45.48146 (81111005)	35.75614 (81111005)	29.00941 (81111005)
240.0	75.30623 (81110822)	59.47433 (81110822)	45.48479 (81110822)	35.75616 (81110822)	29.00902 (81120304)
250.0	75.31870 (81110122)	59.48034 (81110122)	45.48798 (81110122)	35.75807 (81110122)	29.00920 (81110122)
260.0	75.30199 (81092823)	59.47312 (81121422)	45.48693 (81121422)	35.75939 (81121422)	29.01151 (81121422)
270.0	75.30546 (81111819)	59.47612 (81111819)	45.48717 (81111819)	35.75946 (81111123)	29.01156 (81111123)
280.0	75.31524 (81031001)	59.48223 (81031001)	45.49136 (81031001)	35.76172 (81031001)	29.01280 (81031001)
290.0	75.35664 (81070505)	59.50217 (81070505)	45.50197 (81070505)	35.76802 (81070505)	29.01687 (81070505)
300.0	75.27802 (81121106)	59.46155 (81121106)	45.47852 (81121106)	35.75282 (81121106)	29.00609 (81121106)
310.0	75.27412 (81120403)	59.46204 (81120403)	45.48035 (81120403)	35.75501 (81120403)	29.00833 (81120403)
320.0	75.27568 (81021423)	59.45777 (81021423)	45.47474 (81021423)	35.74932 (81021423)	29.00290 (81021423)
330.0	75.28216 (81061202)	59.44854 (81101807)	45.46575 (81101807)	35.74113 (81101807)	28.99548 (81101807)
340.0	75.32257 (81092922)	59.48374 (81092922)	45.49081 (81092922)	35.76045 (81092922)	29.01127 (81092922)
350.0	75.41996 (81070323)	59.53226 (81070323)	45.51773 (81070323)	35.77720 (81070323)	29.02268 (81070323)
360.0	75.34824 (81082024)	59.49812 (81082024)	45.49981 (81082024)	35.76674 (81082024)	29.01604 (81082024)

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 1B ***
 INCLUDING SOURCE(S): 1B

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.0	183.37440 (81040504)	96.95113 (81040504)	62.27958 (81040504)	44.57628 (81040504)	34.14481 (81040504)
20.0	183.31308 (81010523)	96.91596 (81010523)	62.25521 (81010523)	44.55757 (81010523)	34.12951 (81010523)
30.0	183.34143 (81090304)	96.93221 (81090304)	62.26648 (81090304)	44.56622 (81090304)	34.13658 (81090304)
40.0	183.27606 (81091922)	96.89473 (81091922)	62.24050 (81091922)	44.54627 (81091922)	34.12027 (81091922)
50.0	183.37440 (81071323)	96.95113 (81071323)	62.27958 (81071323)	44.57627 (81071323)	34.14481 (81071323)
60.0	183.20413 (81050501)	96.85346 (81050501)	62.21193 (81050501)	44.52433 (81050501)	34.10233 (81050501)
70.0	183.36105 (81072205)	96.94346 (81072205)	62.27428 (81072205)	44.57220 (81072205)	34.14148 (81072205)
80.0	183.34715 (81011924)	96.93549 (81011924)	62.26875 (81011924)	44.56796 (81011924)	34.13801 (81011924)
90.0	183.34717 (81101322)	96.93550 (81101322)	62.26875 (81101322)	44.56796 (81101322)	34.13801 (81101322)
100.0	183.35234 (81041221)	96.93847 (81041221)	62.27082 (81041221)	44.56954 (81041221)	34.13931 (81041221)
110.0	183.23029 (81080624)	96.86847 (81080624)	62.22232 (81080624)	44.53231 (81080624)	34.10886 (81080624)
120.0	183.30464 (81042505)	96.91112 (81042505)	62.25187 (81042505)	44.55499 (81042505)	34.12740 (81042505)
130.0	183.37332 (81010201)	96.95051 (81010201)	62.27915 (81010201)	44.57595 (81010201)	34.14454 (81010201)
140.0	183.35233 (81021206)	96.93846 (81021206)	62.27081 (81021206)	44.56954 (81021206)	34.13930 (81021206)
150.0	182.36285 (81012701)	96.37106 (81012701)	61.87783 (81012701)	44.26788 (81012701)	33.89264 (81012701)
160.0	183.37332 (81111007)	96.95051 (81111007)	62.27915 (81111007)	44.57595 (81111007)	34.14454 (81111007)
170.0	183.35233 (81080102)	96.93847 (81080102)	62.27081 (81080102)	44.56954 (81080102)	34.13931 (81080102)
180.0	183.36459 (81121124)	96.94550 (81121124)	62.27568 (81121124)	44.57328 (81121124)	34.14237 (81121124)
190.0	183.36462 (81110902)	96.94550 (81110902)	62.27568 (81110902)	44.57329 (81110902)	34.14236 (81110902)
200.0	183.37004 (81021302)	96.94863 (81021302)	62.27785 (81021302)	44.57494 (81021302)	34.14372 (81021302)
210.0	183.36459 (81040502)	96.94550 (81040502)	62.27568 (81040502)	44.57329 (81040502)	34.14236 (81040502)
220.0	183.36761 (81101822)	96.94724 (81101822)	62.27689 (81101822)	44.57420 (81101822)	34.14312 (81101822)
230.0	183.37413 (81111005)	96.95097 (81111005)	62.27947 (81111005)	44.57619 (81111005)	34.14474 (81111005)
240.0	183.37332 (81120304)	96.95051 (81120304)	62.27915 (81120304)	44.57595 (81120304)	34.14454 (81120304)
250.0	183.37003 (81020402)	96.94863 (81020402)	62.27785 (81020402)	44.57495 (81020402)	34.14372 (81020402)
260.0	183.37415 (81121422)	96.95097 (81121422)	62.27948 (81121422)	44.57620 (81121422)	34.14474 (81121422)
270.0	183.37440 (81111123)	96.95113 (81111123)	62.27958 (81111123)	44.57627 (81111123)	34.14481 (81111123)
280.0	183.37196 (81121606)	96.94971 (81121606)	62.27860 (81121606)	44.57553 (81121606)	34.14420 (81121606)
290.0	183.37004 (81121907)	96.94863 (81070505)	62.27785 (81121907)	44.57494 (81121907)	34.14372 (81070505)
300.0	183.35233 (81121106)	96.93848 (81121106)	62.27081 (81121106)	44.56954 (81121106)	34.13931 (81121106)
310.0	183.36757 (81120403)	96.94723 (81120403)	62.27687 (81120403)	44.57419 (81120403)	34.14312 (81120403)
320.0	183.33514 (81021423)	96.92862 (81021423)	62.26398 (81021423)	44.56430 (81021423)	34.13503 (81021423)
330.0	183.29564 (81101807)	96.90595 (81101807)	62.24829 (81101807)	44.55225 (81101807)	34.12516 (81101807)
340.0	183.36456 (81040323)	96.94549 (81040323)	62.27568 (81040323)	44.57329 (81040323)	34.14236 (81040323)
350.0	183.36760 (81070323)	96.94721 (81070323)	62.27687 (81070323)	44.57420 (81070323)	34.14311 (81070323)
360.0	183.37003 (81082024)	96.94863 (81082024)	62.27785 (81082024)	44.57494 (81082024)	34.14372 (81082024)

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 2A ***
INCLUDING SOURCE(S): 2A

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.0	17.06040 (81032423)	21.77886 (81080402)	21.85998 (81080402)	20.25344 (81080402)	18.29698 (81080402)
20.0	17.25008 (81071522)	21.76610 (81100622)	21.84666 (81100622)	20.24055 (81100622)	18.28478 (81100622)
30.0	17.23603 (81082420)	21.77420 (81081702)	21.85369 (81081702)	20.24644 (81081702)	18.28977 (81081702)
40.0	17.20686 (81110320)	21.77185 (81091922)	21.85108 (81091922)	20.24380 (81091922)	18.28720 (81091922)
50.0	17.21153 (81021419)	21.79363 (81071323)	21.87187 (81071323)	20.26269 (81071323)	18.30428 (81071323)
60.0	16.90662 (81050501)	21.74318 (81050501)	21.82610 (81050501)	20.22278 (81050501)	18.26935 (81050501)
70.0	17.17487 (81070621)	21.77340 (81072205)	21.85580 (81072205)	20.25035 (81072205)	18.29467 (81072205)
80.0	17.24268 (81081503)	21.77029 (81092821)	21.85234 (81092821)	20.24686 (81092821)	18.29129 (81092821)
90.0	17.23458 (81090805)	21.75867 (81101322)	21.84392 (81101322)	20.24108 (81101322)	18.28735 (81101322)
100.0	17.24350 (81080321)	21.76410 (81052323)	21.84785 (81052323)	20.24377 (81052323)	18.28918 (81052323)
110.0	17.21877 (81121319)	21.79288 (81061504)	21.86304 (81061504)	20.24902 (81061504)	18.28802 (81061504)
120.0	17.19020 (81092920)	21.73967 (81120920)	21.82340 (81120920)	20.22079 (81120920)	18.26787 (81120920)
130.0	17.21929 (81012121)	21.76539 (81030821)	21.84858 (81030821)	20.24408 (81030821)	18.28922 (81030821)
140.0	17.20095 (81032701)	21.76478 (81111423)	21.84861 (81111423)	20.24454 (81111423)	18.28993 (81111423)
150.0	16.87704 (81012322)	21.65899 (81022122)	21.72660 (81022122)	20.11913 (81022122)	18.16648 (81022122)
160.0	17.24391 (81071224)	21.75701 (81111007)	21.84373 (81111007)	20.24188 (81111007)	18.28874 (81111007)
170.0	17.17919 (81012422)	21.77235 (81080102)	21.85463 (81080102)	20.24917 (81080102)	18.29354 (81080102)
180.0	17.06249 (81122320)	21.76864 (81072403)	21.84861 (81072403)	20.24238 (81121124)	18.28885 (81121124)
190.0	16.92165 (81110902)	21.76457 (81110902)	21.84917 (81110902)	20.24558 (81110902)	18.29124 (81110902)
200.0	17.22434 (81122208)	21.77928 (81080404)	21.86046 (81080404)	20.25391 (81080404)	18.29744 (81080404)
210.0	17.11597 (81011207)	21.76243 (81040502)	21.84753 (81040502)	20.24437 (81040502)	18.29033 (81040502)
220.0	17.14797 (81041303)	21.78284 (81101822)	21.86332 (81101822)	20.25613 (81101822)	18.29918 (81101822)
230.0	16.91235 (81042102)	21.75554 (81042102)	21.84209 (81042102)	20.24062 (81111005)	18.28784 (81111005)
240.0	17.15868 (81030601)	21.76943 (81110822)	21.85217 (81110822)	20.24717 (81110822)	18.29189 (81110822)
250.0	17.14389 (81022806)	21.77464 (81110122)	21.85616 (81110122)	20.25012 (81110122)	18.29408 (81110122)
260.0	17.22252 (81061901)	21.76953 (81092823)	21.85048 (81092823)	20.24565 (81121422)	18.29158 (81121422)
270.0	17.21862 (81042205)	21.76849 (81111819)	21.85203 (81111819)	20.24757 (81111819)	18.29261 (81111819)
280.0	17.21606 (81031601)	21.77585 (81081002)	21.85524 (81031001)	20.25026 (81031001)	18.29488 (81031001)
290.0	17.18416 (81051303)	21.78944 (81070505)	21.86848 (81070505)	20.26003 (81070505)	18.30216 (81070505)
300.0	16.91475 (81121106)	21.75745 (81121106)	21.84320 (81121106)	20.24073 (81121106)	18.28725 (81121106)
310.0	16.91165 (81120403)	21.75516 (81120403)	21.84207 (81120403)	20.24045 (81120403)	18.28751 (81120403)
320.0	16.91531 (81021423)	21.75723 (81021423)	21.84232 (81021423)	20.23947 (81021423)	18.28578 (81021423)
330.0	16.92559 (81061202)	21.76348 (81061202)	21.84375 (81061202)	20.23761 (81061202)	18.28222 (81101807)
340.0	16.93379 (81092922)	21.77582 (81092922)	21.85748 (81092922)	20.25144 (81092922)	18.29537 (81092922)
350.0	17.23636 (81090922)	21.81595 (81070323)	21.88870 (81070323)	20.27486 (81070323)	18.31313 (81070323)
360.0	17.22961 (81040420)	21.78593 (81082024)	21.86578 (81082024)	20.25804 (81082024)	18.30068 (81082024)

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 2B ***
INCLUDING SOURCE(S): 2B

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.0	183.20235 (81040504)	96.90202 (81040504)	62.25871 (81040504)	44.56528 (81040504)	34.13820 (81040504)
20.0	183.14108 (81010523)	96.86687 (81010523)	62.23434 (81010523)	44.54658 (81010523)	34.12290 (81010523)
30.0	183.16940 (81090304)	96.88312 (81090304)	62.24560 (81090304)	44.55521 (81090304)	34.12997 (81090304)
40.0	183.10410 (81091922)	96.84566 (81091922)	62.21964 (81091922)	44.53528 (81091922)	34.11367 (81091922)
50.0	183.20235 (81071323)	96.90202 (81071323)	62.25871 (81071323)	44.56527 (81071323)	34.13820 (81071323)
60.0	183.03224 (81050501)	96.80441 (81050501)	62.19107 (81050501)	44.51335 (81050501)	34.09573 (81050501)
70.0	183.18901 (81072205)	96.89436 (81072205)	62.25340 (81072205)	44.56121 (81072205)	34.13487 (81072205)
80.0	183.17513 (81011924)	96.88639 (81011924)	62.24788 (81011924)	44.55697 (81011924)	34.13140 (81011924)
90.0	183.17513 (81101322)	96.88641 (81101322)	62.24788 (81101322)	44.55697 (81101322)	34.13140 (81101322)
100.0	183.18031 (81041221)	96.88937 (81041221)	62.24994 (81041221)	44.55854 (81041221)	34.13269 (81041221)
110.0	183.05836 (81080624)	96.81940 (81080624)	62.20146 (81080624)	44.52132 (81080624)	34.10225 (81080624)
120.0	183.13266 (81042505)	96.86202 (81042505)	62.23100 (81042505)	44.54399 (81042505)	34.12080 (81042505)
130.0	183.20126 (81010201)	96.90140 (81010201)	62.25827 (81010201)	44.56495 (81010201)	34.13793 (81010201)
140.0	183.18030 (81021206)	96.88937 (81021206)	62.24993 (81021206)	44.55854 (81021206)	34.13269 (81021206)
150.0	182.19174 (81012701)	96.32225 (81012701)	61.85708 (81012701)	44.25696 (81012701)	33.88608 (81012701)
160.0	183.20126 (81111007)	96.90140 (81111007)	62.25827 (81111007)	44.56495 (81111007)	34.13793 (81111007)
170.0	183.18030 (81080102)	96.88937 (81080102)	62.24994 (81080102)	44.55855 (81080102)	34.13269 (81080102)
180.0	183.19255 (81121124)	96.89641 (81121124)	62.25481 (81121124)	44.56228 (81121124)	34.13576 (81121124)
190.0	183.19258 (81110902)	96.89640 (81110902)	62.25481 (81110902)	44.56229 (81110902)	34.13575 (81110902)
200.0	183.19798 (81021302)	96.89953 (81021302)	62.25697 (81021302)	44.56394 (81021302)	34.13711 (81021302)
210.0	183.19255 (81040502)	96.89640 (81040502)	62.25481 (81040502)	44.56229 (81040502)	34.13576 (81040502)
220.0	183.19557 (81101822)	96.89813 (81101822)	62.25601 (81101822)	44.56320 (81101822)	34.13651 (81101822)
230.0	183.20207 (81111005)	96.90186 (81111005)	62.25859 (81111005)	44.56519 (81111005)	34.13813 (81111005)
240.0	183.20126 (81120304)	96.90140 (81120304)	62.25827 (81120304)	44.56495 (81120304)	34.13793 (81120304)
250.0	183.19798 (81020402)	96.89953 (81020402)	62.25697 (81020402)	44.56395 (81020402)	34.13711 (81020402)
260.0	183.20210 (81121422)	96.90186 (81121422)	62.25860 (81121422)	44.56520 (81121422)	34.13813 (81121422)
270.0	183.20235 (81111123)	96.90202 (81111123)	62.25871 (81111123)	44.56527 (81111123)	34.13820 (81111123)
280.0	183.19991 (81121606)	96.90060 (81121606)	62.25773 (81121606)	44.56453 (81121606)	34.13758 (81121606)
290.0	183.19800 (81121907)	96.89953 (81070505)	62.25697 (81121907)	44.56395 (81121907)	34.13711 (81121907)
300.0	183.18030 (81121106)	96.88938 (81121106)	62.24994 (81121106)	44.55855 (81121106)	34.13270 (81121106)
310.0	183.19551 (81120403)	96.89813 (81120403)	62.25599 (81120403)	44.56319 (81120403)	34.13650 (81120403)
320.0	183.16312 (81021423)	96.87953 (81021423)	62.24310 (81021423)	44.55330 (81021423)	34.12841 (81021423)
330.0	183.12366 (81101807)	96.85687 (81101807)	62.22742 (81101807)	44.54126 (81101807)	34.11855 (81101807)
340.0	183.19252 (81040323)	96.89639 (81040323)	62.25480 (81040323)	44.56229 (81040323)	34.13575 (81040323)
350.0	183.19554 (81070323)	96.89812 (81070323)	62.25600 (81070323)	44.56320 (81070323)	34.13650 (81070323)
360.0	183.19798 (81082024)	96.89953 (81082024)	62.25697 (81082024)	44.56394 (81082024)	34.13711 (81082024)

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 3A ***
 INCLUDING SOURCE(S): 3A

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.0	9.64371 (81032423)	13.61216 (81080402)	15.14118 (81080402)	15.05750 (81080402)	14.29903 (81080402)
20.0	9.74874 (81071522)	13.60407 (81100622)	15.13176 (81100622)	15.04772 (81100622)	14.28932 (81100622)
30.0	9.74152 (81082420)	13.60980 (81081702)	15.13737 (81081702)	15.05277 (81081702)	14.29379 (81081702)
40.0	9.72309 (81110320)	13.60837 (81091922)	15.13559 (81091922)	15.05083 (81091922)	14.29180 (81091922)
50.0	9.72539 (81021419)	13.62300 (81071323)	15.15117 (81071323)	15.06595 (81071323)	14.30607 (81071323)
60.0	9.60933 (81021420)	13.58812 (81050501)	15.11572 (81050501)	15.03288 (81050501)	14.27588 (81050501)
70.0	10.03237 (81040621)	13.60808 (81072205)	15.13755 (81072205)	15.05454 (81072205)	14.29668 (81072205)
80.0	10.21047 (81090821)	13.60619 (81092821)	15.13520 (81092821)	15.05199 (81092821)	14.29405 (81092821)
90.0	10.20421 (81090221)	13.59998 (81080221)	15.12759 (81101322)	15.04610 (81101322)	14.28963 (81101322)
100.0	10.20500 (81051721)	13.60144 (81052323)	15.13114 (81052323)	15.04884 (81052323)	14.29169 (81052323)
110.0	10.20157 (81081401)	13.62586 (81061504)	15.14849 (81061504)	15.05883 (81061504)	14.29591 (81061504)
120.0	10.20427 (81081420)	13.58550 (81120920)	15.11338 (81120920)	15.03098 (81120920)	14.27436 (81120920)
130.0	10.19820 (81010818)	13.60329 (81062702)	15.13194 (81030821)	15.04933 (81030821)	14.29194 (81030821)
140.0	10.17270 (81100319)	13.60186 (81111423)	15.13166 (81111423)	15.04941 (81111423)	14.29227 (81111423)
150.0	10.14661 (81012420)	13.53949 (81022122)	15.05050 (81022122)	14.95891 (81022122)	14.19800 (81022122)
160.0	9.83795 (81012421)	13.59559 (81111007)	15.12677 (81111007)	15.04608 (81111007)	14.29021 (81111007)
170.0	10.19459 (81103001)	13.60744 (81080102)	15.13676 (81080102)	15.05368 (81080102)	14.29579 (81080102)
180.0	10.19644 (81122221)	13.60597 (81072403)	15.13345 (81072403)	15.04910 (81072403)	14.29060 (81121124)
190.0	10.12412 (81042021)	13.60140 (81110902)	15.13171 (81110902)	15.04988 (81110902)	14.29304 (81110902)
200.0	9.73204 (81122208)	13.61242 (81080404)	15.14150 (81080404)	15.05785 (81080404)	14.29939 (81080404)
210.0	9.67424 (81011207)	13.59979 (81040502)	15.13028 (81040502)	15.04872 (81040502)	14.29212 (81040502)
220.0	9.68978 (81041303)	13.61504 (81101822)	15.14391 (81101822)	15.05988 (81101822)	14.30108 (81101822)
230.0	9.20674 (81071303)	13.59470 (81042102)	15.12566 (81042102)	15.04487 (81042102)	14.28925 (81111005)
240.0	9.69544 (81030601)	13.60534 (81110822)	15.13476 (81110822)	15.05193 (81110822)	14.29428 (81110822)
250.0	9.68768 (81022806)	13.60924 (81110122)	15.13822 (81110122)	15.05474 (81110122)	14.29652 (81110122)
260.0	9.94075 (81102001)	13.60615 (81092823)	15.13436 (81092823)	15.05054 (81092823)	14.29308 (81121422)
270.0	9.77586 (81061902)	13.60440 (81111819)	15.13429 (81111819)	15.05189 (81111819)	14.29456 (81111819)
280.0	10.12902 (81042903)	13.61120 (81081002)	15.13837 (81081002)	15.05419 (81031001)	14.29660 (81031001)
290.0	9.71090 (81051303)	13.61994 (81070505)	15.14833 (81070505)	15.06354 (81070505)	14.30404 (81070505)
300.0	9.20623 (81121106)	13.59628 (81121106)	15.12684 (81121106)	15.04561 (81121106)	14.28936 (81121106)
310.0	9.20426 (81120403)	13.59430 (81120403)	15.12548 (81120403)	15.04489 (81120403)	14.28913 (81120403)
320.0	9.47832 (81100102)	13.59641 (81021423)	15.12650 (81021423)	15.04491 (81021423)	14.28842 (81021423)
330.0	9.21345 (81061202)	13.60248 (81061202)	15.12978 (81061202)	15.04556 (81061202)	14.28711 (81061202)
340.0	9.21765 (81092922)	13.60996 (81092922)	15.13911 (81092922)	15.05571 (81092922)	14.29752 (81092922)
350.0	9.99738 (81040421)	13.63985 (81070323)	15.16595 (81070323)	15.07780 (81070323)	14.31535 (81070323)
360.0	9.73612 (81040420)	13.61731 (81082024)	15.14600 (81082024)	15.06164 (81082024)	14.30253 (81082024)

**MODELOPTS:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 3B ***
 INCLUDING SOURCE(S): 3B

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.0	183.06404 (81040504)	96.86253 (81040504)	62.24191 (81040504)	44.55644 (81040504)	34.13288 (81040504)
20.0	183.00282 (81010523)	96.82739 (81010523)	62.21756 (81010523)	44.53774 (81010523)	34.11758 (81010523)
30.0	183.03113 (81090304)	96.84363 (81090304)	62.22881 (81090304)	44.54638 (81090304)	34.12465 (81090304)
40.0	182.96585 (81091922)	96.80618 (81091922)	62.20285 (81091922)	44.52644 (81091922)	34.10835 (81091922)
50.0	183.06404 (81071323)	96.86253 (81071323)	62.24191 (81071323)	44.55643 (81071323)	34.13288 (81071323)
60.0	182.89404 (81050501)	96.76496 (81050501)	62.17430 (81050501)	44.50452 (81050501)	34.09041 (81050501)
70.0	183.05070 (81072205)	96.85487 (81072205)	62.23661 (81072205)	44.55236 (81072205)	34.12955 (81072205)
80.0	183.03683 (81011924)	96.84691 (81011924)	62.23109 (81011924)	44.54812 (81011924)	34.12608 (81011924)
90.0	183.03683 (81101322)	96.84692 (81101322)	62.23109 (81101322)	44.54812 (81101322)	34.12608 (81101322)
100.0	183.04201 (81041221)	96.84988 (81041221)	62.23315 (81041221)	44.54970 (81041221)	34.12737 (81041221)
110.0	182.92017 (81080624)	96.77995 (81080624)	62.18468 (81080624)	44.51249 (81080624)	34.09694 (81080624)
120.0	182.99440 (81042505)	96.82255 (81042505)	62.21421 (81042505)	44.53516 (81042505)	34.11547 (81042505)
130.0	183.06294 (81010201)	96.86191 (81010201)	62.24148 (81010201)	44.55610 (81010201)	34.13261 (81010201)
140.0	183.04201 (81021206)	96.84988 (81021206)	62.23314 (81021206)	44.54970 (81021206)	34.12737 (81021206)
150.0	182.05417 (81012701)	96.28298 (81012701)	61.84040 (81012701)	44.24817 (81012701)	33.88079 (81012701)
160.0	183.06294 (81111007)	96.86191 (81111007)	62.24148 (81111007)	44.55610 (81111007)	34.13261 (81111007)
170.0	183.04201 (81080102)	96.84989 (81080102)	62.23315 (81080102)	44.54970 (81080102)	34.12737 (81080102)
180.0	183.05424 (81121124)	96.85692 (81121124)	62.23802 (81121124)	44.55344 (81121124)	34.13044 (81121124)
190.0	183.05426 (81110902)	96.85692 (81110902)	62.23802 (81110902)	44.55344 (81110902)	34.13043 (81110902)
200.0	183.05968 (81021302)	96.86003 (81021302)	62.24018 (81021302)	44.55510 (81021302)	34.13179 (81021302)
210.0	183.05424 (81040502)	96.85692 (81040502)	62.23802 (81040502)	44.55344 (81040502)	34.13043 (81040502)
220.0	183.05727 (81101822)	96.85863 (81101822)	62.23922 (81101822)	44.55435 (81101822)	34.13118 (81101822)
230.0	183.06377 (81111005)	96.86237 (81111005)	62.24181 (81111005)	44.55635 (81111005)	34.13281 (81111005)
240.0	183.06294 (81120304)	96.86191 (81120304)	62.24148 (81120304)	44.55610 (81120304)	34.13261 (81120304)
250.0	183.05968 (81020402)	96.86003 (81020402)	62.24018 (81020402)	44.55511 (81020402)	34.13179 (81020402)
260.0	183.06378 (81121422)	96.86237 (81121422)	62.24181 (81121422)	44.55636 (81121422)	34.13281 (81121422)
270.0	183.06404 (81111123)	96.86253 (81111123)	62.24191 (81111123)	44.55643 (81111123)	34.13288 (81111123)
280.0	183.06160 (81121606)	96.86112 (81121606)	62.24093 (81121606)	44.55569 (81121606)	34.13226 (81121606)
290.0	183.05969 (81121907)	96.86004 (81121907)	62.24018 (81070505)	44.55510 (81121907)	34.13179 (81121907)
300.0	183.04201 (81121106)	96.84990 (81121106)	62.23315 (81121106)	44.54970 (81121106)	34.12738 (81121106)
310.0	183.05722 (81120403)	96.85863 (81120403)	62.23920 (81120403)	44.55435 (81120403)	34.13118 (81120403)
320.0	183.02483 (81021423)	96.84004 (81021423)	62.22632 (81021423)	44.54446 (81021423)	34.12309 (81021423)
330.0	182.98541 (81101807)	96.81739 (81101807)	62.21064 (81101807)	44.53242 (81101807)	34.11324 (81101807)
340.0	183.05423 (81040323)	96.85689 (81040323)	62.23801 (81040323)	44.55344 (81040323)	34.13043 (81040323)
350.0	183.05725 (81070323)	96.85862 (81070323)	62.23920 (81070323)	44.55435 (81070323)	34.13118 (81070323)
360.0	183.05968 (81082024)	96.86003 (81082024)	62.24018 (81082024)	44.55510 (81082024)	34.13179 (81082024)

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 4A ***
INCLUDING SOURCE(S): 4A

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.0	21.75891 (81080402)	26.14745 (81080402)	25.10784 (81080402)	22.60360 (81080402)	20.02444 (81080402)
20.0	21.74678 (81100622)	26.13229 (81100622)	25.09269 (81100622)	22.58935 (81100622)	20.01157 (81010523)
30.0	21.75612 (81081702)	26.14143 (81081702)	25.10026 (81081702)	22.59553 (81081702)	20.01635 (81081702)
40.0	21.75407 (81091922)	26.13858 (81091922)	25.09723 (81091922)	22.59257 (81091922)	20.01353 (81091922)
50.0	21.77702 (81071323)	26.16381 (81071323)	25.12029 (81071323)	22.61300 (81071323)	20.03171 (81071323)
60.0	21.72114 (81050501)	26.10619 (81050501)	25.07032 (81050501)	22.57050 (81050501)	19.99506 (81050501)
70.0	21.75200 (81072205)	26.14150 (81072205)	25.10354 (81072205)	22.60055 (81072205)	20.02222 (81072205)
80.0	21.74929 (81092821)	26.13773 (81092821)	25.09954 (81092821)	22.59665 (81092821)	20.01851 (81092821)
90.0	21.74200 (81080221)	26.12520 (81101322)	25.09109 (81101322)	22.59114 (81101322)	20.01492 (81101322)
100.0	21.74114 (81052323)	26.13104 (81052323)	25.09503 (81052323)	22.59370 (81052323)	20.01658 (81052323)
110.0	21.78551 (81061504)	26.16011 (81061504)	25.10781 (81061504)	22.59594 (81061504)	20.01255 (81061504)
120.0	21.71670 (81120920)	26.10236 (81120920)	25.06756 (81120920)	22.56854 (81120920)	19.99364 (81120920)
130.0	21.74567 (81062702)	26.13237 (81030821)	25.09567 (81030821)	22.59390 (81030821)	20.01651 (81030821)
140.0	21.74174 (81111423)	26.13187 (81111423)	25.09591 (81111423)	22.59456 (81111423)	20.01740 (81111423)
150.0	21.65433 (81022122)	26.00203 (81022122)	24.95367 (81022122)	22.45306 (81022122)	19.88116 (81022122)
160.0	21.73064 (81111007)	26.12375 (81111007)	25.09134 (81111007)	22.59240 (81111007)	20.01673 (81111007)
170.0	21.75109 (81080102)	26.14023 (81080102)	25.10219 (81080102)	22.59924 (81080102)	20.02097 (81080102)
180.0	21.75000 (81072403)	26.13507 (81072403)	25.09470 (81072403)	22.59274 (81121124)	20.01668 (81121124)
190.0	21.74064 (81110902)	26.13189 (81110902)	25.09678 (81110902)	22.59590 (81110902)	20.01897 (81110902)
200.0	21.75928 (81080404)	26.14797 (81080404)	25.10839 (81080404)	22.60414 (81080404)	20.02495 (81080404)
210.0	21.73792 (81040502)	26.12955 (81040502)	25.09510 (81040502)	22.59470 (81040502)	20.01810 (81040502)
220.0	21.76367 (81101822)	26.15192 (81101822)	25.11138 (81101822)	22.60638 (81101822)	20.02669 (81101822)
230.0	21.72936 (81042102)	26.12197 (81042102)	25.08956 (81111005)	22.59117 (81111005)	20.01586 (81111005)
240.0	21.74836 (81061802)	26.13696 (81110822)	25.09958 (81110822)	22.59717 (81110822)	20.01929 (81110822)
250.0	21.75423 (81110122)	26.14265 (81110122)	25.10368 (81110122)	22.60008 (81110122)	20.02141 (81110122)
260.0	21.74977 (81092823)	26.13645 (81092823)	25.09711 (81092823)	22.59614 (81121422)	20.01947 (81121422)
270.0	21.74650 (81061224)	26.13614 (81111819)	25.09967 (81111819)	22.59781 (81111819)	20.02023 (81111819)
280.0	21.75867 (81081002)	26.14310 (81081002)	25.10312 (81031001)	22.60062 (81031001)	20.02258 (81031001)
290.0	21.77191 (81070505)	26.15916 (81070505)	25.11673 (81070505)	22.61028 (81070505)	20.02959 (81070505)
300.0	21.73220 (81121106)	26.12393 (81121106)	25.09044 (81121106)	22.59089 (81121106)	20.01492 (81121106)
310.0	21.72857 (81120403)	26.12165 (81120403)	25.08954 (81120403)	22.59088 (81120403)	20.01543 (81120403)
320.0	21.73274 (81021423)	26.12345 (81021423)	25.08923 (81021423)	22.58933 (81021423)	20.01320 (81021423)
330.0	21.74450 (81061202)	26.12911 (81061202)	25.08933 (81061202)	22.58606 (81061202)	20.00907 (81101807)
340.0	21.75525 (81092922)	26.14408 (81092922)	25.10520 (81092922)	22.60156 (81092922)	20.02282 (81092922)
350.0	21.80564 (81070323)	26.18810 (81070323)	25.13747 (81070323)	22.62490 (81070323)	20.04012 (81070323)
360.0	21.76746 (81082024)	26.15532 (81082024)	25.11396 (81082024)	22.60832 (81082024)	20.02817 (81082024)

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 4B ***
 INCLUDING SOURCE(S): 4B ,

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.0	183.37440 (81040504)	96.95113 (81040504)	62.27958 (81040504)	44.57628 (81040504)	34.14481 (81040504)
20.0	183.31308 (81010523)	96.91596 (81010523)	62.25521 (81010523)	44.55757 (81010523)	34.12951 (81010523)
30.0	183.34143 (81090304)	96.93221 (81090304)	62.26648 (81090304)	44.56622 (81090304)	34.13658 (81090304)
40.0	183.27606 (81091922)	96.89473 (81091922)	62.24050 (81091922)	44.54627 (81091922)	34.12027 (81091922)
50.0	183.37440 (81071323)	96.95113 (81071323)	62.27958 (81071323)	44.57627 (81071323)	34.14481 (81071323)
60.0	183.20413 (81050501)	96.85346 (81050501)	62.21193 (81050501)	44.52433 (81050501)	34.10233 (81050501)
70.0	183.36105 (81072205)	96.94346 (81072205)	62.27428 (81072205)	44.57220 (81072205)	34.14148 (81072205)
80.0	183.34715 (81011924)	96.93549 (81011924)	62.26875 (81011924)	44.56796 (81011924)	34.13801 (81011924)
90.0	183.34717 (81101322)	96.93550 (81101322)	62.26875 (81101322)	44.56796 (81101322)	34.13801 (81101322)
100.0	183.35234 (81041221)	96.93847 (81041221)	62.27082 (81041221)	44.56954 (81041221)	34.13931 (81041221)
110.0	183.23029 (81080624)	96.86847 (81080624)	62.22232 (81080624)	44.53231 (81080624)	34.10886 (81080624)
120.0	183.30464 (81042505)	96.91112 (81042505)	62.25187 (81042505)	44.55499 (81042505)	34.12740 (81042505)
130.0	183.37332 (81010201)	96.95051 (81010201)	62.27915 (81010201)	44.57595 (81010201)	34.14454 (81010201)
140.0	183.35233 (81021206)	96.93846 (81021206)	62.27081 (81021206)	44.56954 (81021206)	34.13930 (81021206)
150.0	182.36285 (81012701)	96.37106 (81012701)	61.87783 (81012701)	44.26788 (81012701)	33.89264 (81012701)
160.0	183.37332 (81111007)	96.95051 (81111007)	62.27915 (81111007)	44.57595 (81111007)	34.14454 (81111007)
170.0	183.35233 (81080102)	96.93847 (81080102)	62.27081 (81080102)	44.56954 (81080102)	34.13931 (81080102)
180.0	183.36459 (81121124)	96.94550 (81121124)	62.27568 (81121124)	44.57328 (81121124)	34.14237 (81121124)
190.0	183.36462 (81110902)	96.94550 (81110902)	62.27568 (81110902)	44.57329 (81110902)	34.14236 (81110902)
200.0	183.37004 (81021302)	96.94863 (81021302)	62.27785 (81021302)	44.57494 (81021302)	34.14372 (81021302)
210.0	183.36459 (81040502)	96.94550 (81040502)	62.27568 (81040502)	44.57329 (81040502)	34.14236 (81040502)
220.0	183.36761 (81101822)	96.94724 (81101822)	62.27689 (81101822)	44.57420 (81101822)	34.14312 (81101822)
230.0	183.37413 (81111005)	96.95097 (81111005)	62.27947 (81111005)	44.57619 (81111005)	34.14474 (81111005)
240.0	183.37332 (81120304)	96.95051 (81120304)	62.27915 (81120304)	44.57595 (81120304)	34.14454 (81120304)
250.0	183.37003 (81020402)	96.94863 (81020402)	62.27785 (81020402)	44.57495 (81020402)	34.14372 (81020402)
260.0	183.37415 (81121422)	96.95097 (81121422)	62.27948 (81121422)	44.57620 (81121422)	34.14474 (81121422)
270.0	183.37440 (81111123)	96.95113 (81111123)	62.27958 (81111123)	44.57627 (81111123)	34.14481 (81111123)
280.0	183.37196 (81121606)	96.94971 (81121606)	62.27860 (81121606)	44.57553 (81121606)	34.14420 (81121606)
290.0	183.37004 (81121907)	96.94863 (81070505)	62.27785 (81121907)	44.57494 (81121907)	34.14372 (81070505)
300.0	183.35233 (81121106)	96.93848 (81121106)	62.27081 (81121106)	44.56954 (81121106)	34.13931 (81121106)
310.0	183.36757 (81120403)	96.94723 (81120403)	62.27687 (81120403)	44.57419 (81120403)	34.14312 (81120403)
320.0	183.33514 (81021423)	96.92862 (81021423)	62.26398 (81021423)	44.56430 (81021423)	34.13503 (81021423)
330.0	183.29564 (81101807)	96.90595 (81101807)	62.24829 (81101807)	44.55225 (81101807)	34.12516 (81101807)
340.0	183.36456 (81040323)	96.94549 (81040323)	62.27568 (81040323)	44.57329 (81040323)	34.14236 (81040323)
350.0	183.36760 (81070323)	96.94721 (81070323)	62.27687 (81070323)	44.57420 (81070323)	34.14311 (81070323)
360.0	183.37003 (81082024)	96.94863 (81082024)	62.27785 (81082024)	44.57494 (81082024)	34.14372 (81082024)

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 5A ***
 INCLUDING SOURCE(S): 5A

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.0	1.11529 (81032423)	1.95087 (81032423)	2.71452 (81032423)	3.28207 (81032423)	3.69626 (81080402)
20.0	1.17677 (81082821)	2.03023 (81082821)	2.74859 (81071522)	3.32707 (81071522)	3.70348 (81071522)
30.0	1.12440 (81082420)	1.97098 (81082420)	2.74610 (81082420)	3.32352 (81082420)	3.69898 (81082420)
40.0	1.12214 (81110320)	1.96691 (81110320)	2.74073 (81110320)	3.31750 (81110320)	3.69488 (81091922)
50.0	1.12228 (81021419)	1.96735 (81021419)	2.74155 (81021419)	3.31872 (81021419)	3.69945 (81071323)
60.0	1.17253 (81021420)	2.02179 (81021420)	2.70763 (81021420)	3.24028 (81061120)	3.68877 (81050501)
70.0	1.28049 (81040621)	2.19342 (81040621)	2.86411 (81040621)	3.30914 (81070621)	3.69507 (81072205)
80.0	1.57635 (81031314)	2.29506 (81040520)	2.92352 (81090821)	3.35294 (81062521)	3.70221 (81081503)
90.0	1.36855 (81092521)	2.30947 (81092521)	2.93918 (81092521)	3.34738 (81010319)	3.70061 (81090805)
100.0	1.60854 (81031315)	2.30954 (81090220)	2.93943 (81090220)	3.33003 (81091320)	3.70246 (81080321)
110.0	1.29835 (81081401)	2.23158 (81081401)	2.92045 (81081401)	3.32074 (81121319)	3.69963 (81061504)
120.0	1.69922 (81031316)	2.23218 (81081420)	2.92142 (81031421)	3.33937 (81020520)	3.68800 (81120920)
130.0	1.29696 (81010818)	2.23022 (81010818)	2.92002 (81010818)	3.32774 (81110118)	3.69735 (81012324)
140.0	1.36564 (81100319)	2.30354 (81100319)	2.93078 (81100319)	3.31673 (81032701)	3.69322 (81111423)
150.0	1.36241 (81012420)	2.29724 (81012420)	2.92217 (81012420)	3.29318 (81012322)	3.67191 (81022122)
160.0	1.26094 (81012421)	2.15019 (81012421)	2.79889 (81012421)	3.32572 (81071224)	3.70198 (81071224)
170.0	1.36691 (81013021)	2.30729 (81013021)	2.93721 (81013021)	3.31129 (81012422)	3.69486 (81080102)
180.0	1.36784 (81122221)	2.30883 (81122221)	2.93903 (81122221)	3.33027 (81103003)	3.69418 (81072403)
190.0	1.36005 (81042021)	2.29207 (81042021)	2.91452 (81042021)	3.22057 (81110902)	3.69314 (81110902)
200.0	1.12277 (81122208)	1.96865 (81122208)	2.74383 (81122208)	3.32195 (81122208)	3.69844 (81122208)
210.0	1.11803 (81011207)	1.95710 (81011207)	2.72448 (81011207)	3.29534 (81011207)	3.69268 (81040502)
220.0	1.11891 (81041303)	1.96000 (81041303)	2.73011 (81041303)	3.30381 (81041303)	3.69711 (81101822)
230.0	1.04452 (81071303)	1.81270 (81071303)	2.58044 (81042102)	3.21872 (81042102)	3.69118 (81042102)
240.0	1.11936 (81030601)	1.96112 (81030601)	2.73202 (81030601)	3.30646 (81030601)	3.69423 (81110822)
250.0	1.11875 (81022806)	1.95959 (81022806)	2.72939 (81022806)	3.30278 (81022806)	3.69536 (81110122)
260.0	1.20343 (81102001)	2.09218 (81102001)	2.81781 (81102001)	3.32089 (81061901)	3.69650 (81061901)
270.0	1.24984 (81042824)	2.12478 (81042824)	2.76266 (81061902)	3.32084 (81042205)	3.69739 (81042205)
280.0	1.29051 (81042903)	2.21511 (81042903)	2.89640 (81042903)	3.34720 (81102003)	3.69689 (81031601)
290.0	1.13629 (81042906)	1.96446 (81051303)	2.73667 (81051303)	3.31196 (81051303)	3.69854 (81070505)
300.0	1.04394 (81121106)	1.81237 (81121106)	2.58085 (81121106)	3.21917 (81121106)	3.69162 (81121106)
310.0	1.04369 (81120403)	1.81195 (81120403)	2.58032 (81120403)	3.21861 (81120403)	3.69109 (81120403)
320.0	1.10164 (81100102)	1.91779 (81100102)	2.65932 (81100102)	3.21922 (81021423)	3.69160 (81021423)
330.0	1.05059 (81042920)	1.81393 (81061202)	2.58270 (81061202)	3.22096 (81061202)	3.69310 (81061202)
340.0	1.12411 (81043002)	1.91159 (81043002)	2.58410 (81092922)	3.22294 (81092922)	3.69560 (81092922)
350.0	1.20842 (81040421)	2.10406 (81040421)	2.83693 (81040421)	3.32438 (81090922)	3.70432 (81070323)
360.0	1.12344 (81040420)	1.96964 (81040420)	2.74484 (81040420)	3.32273 (81040420)	3.69886 (81040420)

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 5B ***
 INCLUDING SOURCE(S): 5B

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.0	183.20235 (81040504)	96.90202 (81040504)	62.25871 (81040504)	44.56528 (81040504)	34.13820 (81040504)
20.0	183.14108 (81010523)	96.86687 (81010523)	62.23434 (81010523)	44.54658 (81010523)	34.12290 (81010523)
30.0	183.16940 (81090304)	96.88312 (81090304)	62.24560 (81090304)	44.55521 (81090304)	34.12997 (81090304)
40.0	183.10410 (81091922)	96.84566 (81091922)	62.21964 (81091922)	44.53528 (81091922)	34.11367 (81091922)
50.0	183.20235 (81071323)	96.90202 (81071323)	62.25871 (81071323)	44.56527 (81071323)	34.13820 (81071323)
60.0	183.03224 (81050501)	96.80441 (81050501)	62.19107 (81050501)	44.51335 (81050501)	34.09573 (81050501)
70.0	183.18901 (81072205)	96.89436 (81072205)	62.25340 (81072205)	44.56121 (81072205)	34.13487 (81072205)
80.0	183.17513 (81011924)	96.88639 (81011924)	62.24788 (81011924)	44.55697 (81011924)	34.13140 (81011924)
90.0	183.17513 (81101322)	96.88641 (81101322)	62.24788 (81101322)	44.55697 (81101322)	34.13140 (81101322)
100.0	183.18031 (81041221)	96.88937 (81041221)	62.24994 (81041221)	44.55854 (81041221)	34.13269 (81041221)
110.0	183.05836 (81080624)	96.81940 (81080624)	62.20146 (81080624)	44.52132 (81080624)	34.10225 (81080624)
120.0	183.13266 (81042505)	96.86202 (81042505)	62.23100 (81042505)	44.54399 (81042505)	34.12080 (81042505)
130.0	183.20126 (81010201)	96.90140 (81010201)	62.25827 (81010201)	44.56495 (81010201)	34.13793 (81010201)
140.0	183.18030 (81021206)	96.88937 (81021206)	62.24993 (81021206)	44.55854 (81021206)	34.13269 (81021206)
150.0	182.19174 (81012701)	96.32225 (81012701)	61.85708 (81012701)	44.25696 (81012701)	33.88608 (81012701)
160.0	183.20126 (81111007)	96.90140 (81111007)	62.25827 (81111007)	44.56495 (81111007)	34.13793 (81111007)
170.0	183.18030 (81080102)	96.88937 (81080102)	62.24994 (81080102)	44.55855 (81080102)	34.13269 (81080102)
180.0	183.19255 (81121124)	96.89641 (81121124)	62.25481 (81121124)	44.56228 (81121124)	34.13576 (81121124)
190.0	183.19258 (81110902)	96.89640 (81110902)	62.25481 (81110902)	44.56229 (81110902)	34.13575 (81110902)
200.0	183.19798 (81021302)	96.89953 (81021302)	62.25697 (81021302)	44.56394 (81021302)	34.13711 (81021302)
210.0	183.19255 (81040502)	96.89640 (81040502)	62.25481 (81040502)	44.56229 (81040502)	34.13576 (81040502)
220.0	183.19557 (81101822)	96.89813 (81101822)	62.25601 (81101822)	44.56320 (81101822)	34.13651 (81101822)
230.0	183.20207 (81111005)	96.90186 (81111005)	62.25859 (81111005)	44.56519 (81111005)	34.13813 (81111005)
240.0	183.20126 (81120304)	96.90140 (81120304)	62.25827 (81120304)	44.56495 (81120304)	34.13793 (81120304)
250.0	183.19798 (81020402)	96.89953 (81020402)	62.25697 (81020402)	44.56395 (81020402)	34.13711 (81020402)
260.0	183.20210 (81121422)	96.90186 (81121422)	62.25860 (81121422)	44.56520 (81121422)	34.13813 (81121422)
270.0	183.20235 (81111123)	96.90202 (81111123)	62.25871 (81111123)	44.56527 (81111123)	34.13820 (81111123)
280.0	183.19991 (81121606)	96.90060 (81121606)	62.25773 (81121606)	44.56453 (81121606)	34.13758 (81121606)
290.0	183.19800 (81121907)	96.89953 (81070505)	62.25697 (81121907)	44.56395 (81121907)	34.13711 (81121907)
300.0	183.18030 (81121106)	96.88938 (81121106)	62.24994 (81121106)	44.55855 (81121106)	34.13270 (81121106)
310.0	183.19551 (81120403)	96.89813 (81120403)	62.25599 (81120403)	44.56319 (81120403)	34.13650 (81120403)
320.0	183.16312 (81021423)	96.87953 (81021423)	62.24310 (81021423)	44.55330 (81021423)	34.12841 (81021423)
330.0	183.12366 (81101807)	96.85687 (81101807)	62.22742 (81101807)	44.54126 (81101807)	34.11855 (81101807)
340.0	183.19252 (81040323)	96.89639 (81040323)	62.25480 (81040323)	44.56229 (81040323)	34.13575 (81040323)
350.0	183.19554 (81070323)	96.89812 (81070323)	62.25600 (81070323)	44.56320 (81070323)	34.13650 (81070323)
360.0	183.19798 (81082024)	96.89953 (81082024)	62.25697 (81082024)	44.56394 (81082024)	34.13711 (81082024)

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 6A ***
 INCLUDING SOURCE(S): 6A

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

DIRECTION (DEGREES)	DISTANCE (METERS)				
	500.00	750.00	1000.00	1250.00	1500.00
10.0	0.49381 (81032423)	0.82910 (81032423)	1.19191 (81032423)	1.52602 (81032423)	1.80410 (81032423)
20.0	0.51134 (81082821)	0.87230 (81082821)	1.23629 (81082821)	1.54621 (81071522)	1.83009 (81071522)
30.0	0.49722 (81082420)	0.83686 (81082420)	1.20504 (81082420)	1.54472 (81082420)	1.82804 (81082420)
40.0	0.49630 (81110320)	0.83514 (81110320)	1.20254 (81110320)	1.54160 (81110320)	1.82451 (81110320)
50.0	0.49634 (81021419)	0.83528 (81021419)	1.20284 (81021419)	1.54210 (81021419)	1.82522 (81021419)
60.0	0.50971 (81021420)	0.86885 (81021420)	1.23089 (81021420)	1.53521 (81021420)	1.78009 (81061120)
70.0	0.54723 (81040621)	0.95205 (81040621)	1.33976 (81040621)	1.64503 (81040621)	1.85705 (81040621)
80.0	0.57754 (81040520)	1.01112 (81040520)	1.40413 (81040520)	1.69332 (81040520)	1.90164 (81090821)
90.0	0.57993 (81092521)	1.01689 (81092521)	1.41373 (81092521)	1.70642 (81092521)	1.90040 (81090221)
100.0	0.57990 (81090220)	1.01689 (81090220)	1.41379 (81090220)	1.70658 (81090220)	1.90082 (81051721)
110.0	0.55380 (81081401)	0.96732 (81081401)	1.36490 (81081401)	1.67938 (81081401)	1.89942 (81020519)
120.0	0.55390 (81081420)	0.96756 (81081420)	1.36530 (81081420)	1.68001 (81031421)	1.90062 (81031421)
130.0	0.55316 (81010818)	0.96648 (81010818)	1.36422 (81010818)	1.67916 (81010818)	1.89963 (81010818)
140.0	0.57885 (81100319)	1.01444 (81100319)	1.40982 (81100319)	1.70124 (81100319)	1.88822 (81100319)
150.0	0.57762 (81012420)	1.01178 (81012420)	1.40572 (81012420)	1.69594 (81012420)	1.88199 (81012420)
160.0	0.54015 (81012421)	0.93503 (81012421)	1.31111 (81012421)	1.60527 (81012421)	1.82930 (81071224)
170.0	0.57922 (81013021)	1.01576 (81013021)	1.41244 (81013021)	1.70522 (81013021)	1.89833 (81103001)
180.0	0.57960 (81122221)	1.01647 (81122221)	1.41340 (81122221)	1.70634 (81122221)	1.89464 (81122221)
190.0	0.57677 (81042021)	1.00972 (81042021)	1.40227 (81042021)	1.69121 (81042021)	1.87620 (81042021)
200.0	0.49651 (81122208)	0.83575 (81122208)	1.20373 (81122208)	1.54346 (81122208)	1.82707 (81122208)
210.0	0.49482 (81011207)	0.83147 (81011207)	1.19600 (81011207)	1.53193 (81011207)	1.81175 (81011207)
220.0	0.49507 (81041303)	0.83244 (81041303)	1.19806 (81041303)	1.53533 (81041303)	1.81659 (81041303)
230.0	0.47556 (81071303)	0.77284 (81071303)	1.10929 (81071303)	1.43979 (81042102)	1.73639 (81042102)
240.0	0.49523 (81030601)	0.83285 (81030601)	1.19882 (81030601)	1.53647 (81030601)	1.81812 (81030601)
250.0	0.49502 (81022806)	0.83229 (81022806)	1.19778 (81022806)	1.53490 (81022806)	1.81600 (81022806)
260.0	0.52089 (81102001)	0.89594 (81102001)	1.27749 (81102001)	1.60153 (81102001)	1.84742 (81102001)
270.0	0.53620 (81042824)	0.92517 (81042824)	1.29417 (81042824)	1.58141 (81042824)	1.82641 (81042205)
280.0	0.55090 (81042903)	0.96068 (81042903)	1.35408 (81042903)	1.66471 (81042903)	1.88318 (81102003)
290.0	0.49660 (81042906)	0.83705 (81042906)	1.20091 (81051303)	1.53919 (81051303)	1.82133 (81051303)
300.0	0.47526 (81121106)	0.77257 (81121106)	1.10926 (81121106)	1.44002 (81121106)	1.73664 (81121106)
310.0	0.47515 (81120403)	0.77239 (81120403)	1.10901 (81120403)	1.43972 (81120403)	1.73632 (81120403)
320.0	0.48893 (81100102)	0.81682 (81100102)	1.16982 (81100102)	1.49316 (81100102)	1.76058 (81100102)
330.0	0.47568 (81061202)	0.77325 (81061202)	1.11016 (81061202)	1.44104 (81061202)	1.73767 (81061202)
340.0	0.49217 (81043002)	0.82643 (81043002)	1.15805 (81043002)	1.44186 (81092922)	1.73878 (81092922)
350.0	0.52266 (81040421)	0.90843 (81040421)	1.28543 (81040421)	1.61307 (81040421)	1.86232 (81040421)
360.0	0.49680 (81040420)	0.83621 (81040420)	1.20429 (81040420)	1.54403 (81040420)	1.82755 (81040420)

**MODELOPTs:

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CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: 6B ***
INCLUDING SOURCE(S): 6B

*** NETWORK ID: NONE ; NETWORK TYPE: GRIDPOLR ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

Table with columns: DIRECTION (DEGREES), 500.00, 750.00, 1000.00, 1250.00, 1500.00. Rows show concentration values for various directions from 10.0 to 360.0 degrees.

**MODELOPTS:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
1A	1ST HIGHEST VALUE IS	5.37559 AT (	500.00,	0.00,	0.00,	0.00)	GP	NONE
	2ND HIGHEST VALUE IS	4.46035 AT (	492.40,	-86.82,	0.00,	0.00)	GP	NONE
	3RD HIGHEST VALUE IS	3.96496 AT (	492.40,	86.82,	0.00,	0.00)	GP	NONE
	4TH HIGHEST VALUE IS	3.51152 AT (	-500.00,	0.00,	0.00,	0.00)	GP	NONE
	5TH HIGHEST VALUE IS	3.33666 AT (	750.00,	0.00,	0.00,	0.00)	GP	NONE
	6TH HIGHEST VALUE IS	2.97600 AT (	-492.40,	-86.82,	0.00,	0.00)	GP	NONE
	7TH HIGHEST VALUE IS	2.97491 AT (	469.85,	-171.01,	0.00,	0.00)	GP	NONE
	8TH HIGHEST VALUE IS	2.71910 AT (	738.61,	-130.24,	0.00,	0.00)	GP	NONE
	9TH HIGHEST VALUE IS	2.63826 AT (	433.01,	-250.00,	0.00,	0.00)	GP	NONE
	10TH HIGHEST VALUE IS	2.53689 AT (	-492.40,	86.82,	0.00,	0.00)	GP	NONE
1B	1ST HIGHEST VALUE IS	9.09946 AT (	500.00,	0.00,	0.00,	0.00)	GP	NONE
	2ND HIGHEST VALUE IS	7.67954 AT (	-500.00,	0.00,	0.00,	0.00)	GP	NONE
	3RD HIGHEST VALUE IS	7.38600 AT (	492.40,	-86.82,	0.00,	0.00)	GP	NONE
	4TH HIGHEST VALUE IS	6.72212 AT (	492.40,	86.82,	0.00,	0.00)	GP	NONE
	5TH HIGHEST VALUE IS	6.47809 AT (	-492.40,	-86.82,	0.00,	0.00)	GP	NONE
	6TH HIGHEST VALUE IS	5.43923 AT (	-492.40,	86.82,	0.00,	0.00)	GP	NONE
	7TH HIGHEST VALUE IS	4.84370 AT (	469.85,	-171.01,	0.00,	0.00)	GP	NONE
	8TH HIGHEST VALUE IS	4.73226 AT (	383.02,	-321.39,	0.00,	0.00)	GP	NONE
	9TH HIGHEST VALUE IS	4.66836 AT (	-469.85,	-171.01,	0.00,	0.00)	GP	NONE
	10TH HIGHEST VALUE IS	4.58365 AT (	433.01,	-250.00,	0.00,	0.00)	GP	NONE
2A	1ST HIGHEST VALUE IS	1.91993 AT (	500.00,	0.00,	0.00,	0.00)	GP	NONE
	2ND HIGHEST VALUE IS	1.60862 AT (	492.40,	-86.82,	0.00,	0.00)	GP	NONE
	3RD HIGHEST VALUE IS	1.60719 AT (	750.00,	0.00,	0.00,	0.00)	GP	NONE
	4TH HIGHEST VALUE IS	1.44650 AT (	492.40,	86.82,	0.00,	0.00)	GP	NONE
	5TH HIGHEST VALUE IS	1.31850 AT (	738.61,	-130.24,	0.00,	0.00)	GP	NONE
	6TH HIGHEST VALUE IS	1.31043 AT (	1000.00,	0.00,	0.00,	0.00)	GP	NONE
	7TH HIGHEST VALUE IS	1.18594 AT (	738.61,	130.24,	0.00,	0.00)	GP	NONE
	8TH HIGHEST VALUE IS	1.07445 AT (	1250.00,	0.00,	0.00,	0.00)	GP	NONE
	9TH HIGHEST VALUE IS	1.06132 AT (	984.81,	-173.65,	0.00,	0.00)	GP	NONE
	10TH HIGHEST VALUE IS	1.06058 AT (	469.85,	-171.01,	0.00,	0.00)	GP	NONE

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
2B	1ST HIGHEST VALUE IS	9.09459 AT (	500.00, 0.00, 0.00, 0.00)	GP	NONE
	2ND HIGHEST VALUE IS	7.67355 AT (	-500.00, 0.00, 0.00, 0.00)	GP	NONE
	3RD HIGHEST VALUE IS	7.38228 AT (	492.40, -86.82, 0.00, 0.00)	GP	NONE
	4TH HIGHEST VALUE IS	6.71840 AT (	492.40, 86.82, 0.00, 0.00)	GP	NONE
	5TH HIGHEST VALUE IS	6.47305 AT (	-492.40, -86.82, 0.00, 0.00)	GP	NONE
	6TH HIGHEST VALUE IS	5.43508 AT (	-492.40, 86.82, 0.00, 0.00)	GP	NONE
	7TH HIGHEST VALUE IS	4.84136 AT (	469.85, -171.01, 0.00, 0.00)	GP	NONE
	8TH HIGHEST VALUE IS	4.72939 AT (	383.02, -321.39, 0.00, 0.00)	GP	NONE
	9TH HIGHEST VALUE IS	4.66475 AT (	-469.85, -171.01, 0.00, 0.00)	GP	NONE
	10TH HIGHEST VALUE IS	4.58120 AT (	433.01, -250.00, 0.00, 0.00)	GP	NONE
3A	1ST HIGHEST VALUE IS	1.13386 AT (	500.00, 0.00, 0.00, 0.00)	GP	NONE
	2ND HIGHEST VALUE IS	1.09926 AT (	750.00, 0.00, 0.00, 0.00)	GP	NONE
	3RD HIGHEST VALUE IS	0.97146 AT (	1000.00, 0.00, 0.00, 0.00)	GP	NONE
	4TH HIGHEST VALUE IS	0.94956 AT (	492.40, -86.82, 0.00, 0.00)	GP	NONE
	5TH HIGHEST VALUE IS	0.90397 AT (	738.61, -130.24, 0.00, 0.00)	GP	NONE
	6TH HIGHEST VALUE IS	0.86201 AT (	492.40, 86.82, 0.00, 0.00)	GP	NONE
	7TH HIGHEST VALUE IS	0.84052 AT (	1250.00, 0.00, 0.00, 0.00)	GP	NONE
	8TH HIGHEST VALUE IS	0.81555 AT (	738.61, 130.24, 0.00, 0.00)	GP	NONE
	9TH HIGHEST VALUE IS	0.78865 AT (	984.81, -173.65, 0.00, 0.00)	GP	NONE
	10TH HIGHEST VALUE IS	0.72665 AT (	1500.00, 0.00, 0.00, 0.00)	GP	NONE
3B	1ST HIGHEST VALUE IS	9.09069 AT (	500.00, 0.00, 0.00, 0.00)	GP	NONE
	2ND HIGHEST VALUE IS	7.66874 AT (	-500.00, 0.00, 0.00, 0.00)	GP	NONE
	3RD HIGHEST VALUE IS	7.37929 AT (	492.40, -86.82, 0.00, 0.00)	GP	NONE
	4TH HIGHEST VALUE IS	6.71542 AT (	492.40, 86.82, 0.00, 0.00)	GP	NONE
	5TH HIGHEST VALUE IS	6.46900 AT (	-492.40, -86.82, 0.00, 0.00)	GP	NONE
	6TH HIGHEST VALUE IS	5.43175 AT (	-492.40, 86.82, 0.00, 0.00)	GP	NONE
	7TH HIGHEST VALUE IS	4.83948 AT (	469.85, -171.01, 0.00, 0.00)	GP	NONE
	8TH HIGHEST VALUE IS	4.72708 AT (	383.02, -321.39, 0.00, 0.00)	GP	NONE
	9TH HIGHEST VALUE IS	4.66184 AT (	-469.85, -171.01, 0.00, 0.00)	GP	NONE
	10TH HIGHEST VALUE IS	4.57923 AT (	433.01, -250.00, 0.00, 0.00)	GP	NONE

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)				OF TYPE	NETWORK GRID-ID
4A	1ST HIGHEST VALUE IS	2.32565 AT (	500.00,	0.00,	0.00,	0.00)	GP	NONE
	2ND HIGHEST VALUE IS	1.94765 AT (	492.40,	-86.82,	0.00,	0.00)	GP	NONE
	3RD HIGHEST VALUE IS	1.85004 AT (	750.00,	0.00,	0.00,	0.00)	GP	NONE
	4TH HIGHEST VALUE IS	1.74360 AT (	492.40,	86.82,	0.00,	0.00)	GP	NONE
	5TH HIGHEST VALUE IS	1.51791 AT (	738.61,	-130.24,	0.00,	0.00)	GP	NONE
	6TH HIGHEST VALUE IS	1.46256 AT (	1000.00,	0.00,	0.00,	0.00)	GP	NONE
	7TH HIGHEST VALUE IS	1.36169 AT (	738.61,	130.24,	0.00,	0.00)	GP	NONE
	8TH HIGHEST VALUE IS	1.28786 AT (	469.85,	-171.01,	0.00,	0.00)	GP	NONE
	9TH HIGHEST VALUE IS	1.18531 AT (	984.81,	-173.65,	0.00,	0.00)	GP	NONE
	10TH HIGHEST VALUE IS	1.17459 AT (	1250.00,	0.00,	0.00,	0.00)	GP	NONE
4B	1ST HIGHEST VALUE IS	9.09946 AT (	500.00,	0.00,	0.00,	0.00)	GP	NONE
	2ND HIGHEST VALUE IS	7.67954 AT (	-500.00,	0.00,	0.00,	0.00)	GP	NONE
	3RD HIGHEST VALUE IS	7.38600 AT (	492.40,	-86.82,	0.00,	0.00)	GP	NONE
	4TH HIGHEST VALUE IS	6.72212 AT (	492.40,	86.82,	0.00,	0.00)	GP	NONE
	5TH HIGHEST VALUE IS	6.47809 AT (	-492.40,	-86.82,	0.00,	0.00)	GP	NONE
	6TH HIGHEST VALUE IS	5.43923 AT (	-492.40,	86.82,	0.00,	0.00)	GP	NONE
	7TH HIGHEST VALUE IS	4.84370 AT (	469.85,	-171.01,	0.00,	0.00)	GP	NONE
	8TH HIGHEST VALUE IS	4.73226 AT (	383.02,	-321.39,	0.00,	0.00)	GP	NONE
	9TH HIGHEST VALUE IS	4.66836 AT (	-469.85,	-171.01,	0.00,	0.00)	GP	NONE
	10TH HIGHEST VALUE IS	4.58365 AT (	433.01,	-250.00,	0.00,	0.00)	GP	NONE
5A	1ST HIGHEST VALUE IS	0.23875 AT (	1500.00,	0.00,	0.00,	0.00)	GP	NONE
	2ND HIGHEST VALUE IS	0.23492 AT (	1250.00,	0.00,	0.00,	0.00)	GP	NONE
	3RD HIGHEST VALUE IS	0.21563 AT (	1000.00,	0.00,	0.00,	0.00)	GP	NONE
	4TH HIGHEST VALUE IS	0.19107 AT (	1477.21,	-260.47,	0.00,	0.00)	GP	NONE
	5TH HIGHEST VALUE IS	0.18983 AT (	1231.01,	-217.06,	0.00,	0.00)	GP	NONE
	6TH HIGHEST VALUE IS	0.17590 AT (	1477.21,	260.47,	0.00,	0.00)	GP	NONE
	7TH HIGHEST VALUE IS	0.17588 AT (	984.81,	-173.65,	0.00,	0.00)	GP	NONE
	8TH HIGHEST VALUE IS	0.17426 AT (	1231.01,	217.06,	0.00,	0.00)	GP	NONE
	9TH HIGHEST VALUE IS	0.16801 AT (	750.00,	0.00,	0.00,	0.00)	GP	NONE
	10TH HIGHEST VALUE IS	0.16128 AT (	984.81,	173.65,	0.00,	0.00)	GP	NONE

**MODELOPTS:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
5B	1ST HIGHEST VALUE IS	9.09459 AT (	500.00, 0.00, 0.00, 0.00)	GP	NONE
	2ND HIGHEST VALUE IS	7.67355 AT (	-500.00, 0.00, 0.00, 0.00)	GP	NONE
	3RD HIGHEST VALUE IS	7.38228 AT (	492.40, -86.82, 0.00, 0.00)	GP	NONE
	4TH HIGHEST VALUE IS	6.71840 AT (	492.40, 86.82, 0.00, 0.00)	GP	NONE
	5TH HIGHEST VALUE IS	6.47305 AT (	-492.40, -86.82, 0.00, 0.00)	GP	NONE
	6TH HIGHEST VALUE IS	5.43508 AT (	-492.40, 86.82, 0.00, 0.00)	GP	NONE
	7TH HIGHEST VALUE IS	4.84136 AT (	469.85, -171.01, 0.00, 0.00)	GP	NONE
	8TH HIGHEST VALUE IS	4.72939 AT (	383.02, -321.39, 0.00, 0.00)	GP	NONE
	9TH HIGHEST VALUE IS	4.66475 AT (	-469.85, -171.01, 0.00, 0.00)	GP	NONE
	10TH HIGHEST VALUE IS	4.58120 AT (	433.01, -250.00, 0.00, 0.00)	GP	NONE
6A	1ST HIGHEST VALUE IS	0.11397 AT (	1500.00, 0.00, 0.00, 0.00)	GP	NONE
	2ND HIGHEST VALUE IS	0.10175 AT (	1250.00, 0.00, 0.00, 0.00)	GP	NONE
	3RD HIGHEST VALUE IS	0.09112 AT (	1477.21, -260.47, 0.00, 0.00)	GP	NONE
	4TH HIGHEST VALUE IS	0.08377 AT (	1477.21, 260.47, 0.00, 0.00)	GP	NONE
	5TH HIGHEST VALUE IS	0.08180 AT (	1231.01, -217.06, 0.00, 0.00)	GP	NONE
	6TH HIGHEST VALUE IS	0.08171 AT (	1000.00, 0.00, 0.00, 0.00)	GP	NONE
	7TH HIGHEST VALUE IS	0.07514 AT (	1231.01, 217.06, 0.00, 0.00)	GP	NONE
	8TH HIGHEST VALUE IS	0.06610 AT (	984.81, -173.65, 0.00, 0.00)	GP	NONE
	9TH HIGHEST VALUE IS	0.06051 AT (	984.81, 173.65, 0.00, 0.00)	GP	NONE
	10TH HIGHEST VALUE IS	0.05541 AT (	-1500.00, 0.00, 0.00, 0.00)	GP	NONE
6B	1ST HIGHEST VALUE IS	9.09069 AT (	500.00, 0.00, 0.00, 0.00)	GP	NONE
	2ND HIGHEST VALUE IS	7.66874 AT (	-500.00, 0.00, 0.00, 0.00)	GP	NONE
	3RD HIGHEST VALUE IS	7.37929 AT (	492.40, -86.82, 0.00, 0.00)	GP	NONE
	4TH HIGHEST VALUE IS	6.71542 AT (	492.40, 86.82, 0.00, 0.00)	GP	NONE
	5TH HIGHEST VALUE IS	6.46900 AT (	-492.40, -86.82, 0.00, 0.00)	GP	NONE
	6TH HIGHEST VALUE IS	5.43175 AT (	-492.40, 86.82, 0.00, 0.00)	GP	NONE
	7TH HIGHEST VALUE IS	4.83948 AT (	469.85, -171.01, 0.00, 0.00)	GP	NONE
	8TH HIGHEST VALUE IS	4.72708 AT (	383.02, -321.39, 0.00, 0.00)	GP	NONE
	9TH HIGHEST VALUE IS	4.66184 AT (	-469.85, -171.01, 0.00, 0.00)	GP	NONE
	10TH HIGHEST VALUE IS	4.57923 AT (	433.01, -250.00, 0.00, 0.00)	GP	NONE

*** RECEPTOR TYPES: GC = GRIDCART
 GP = GRIDPOLR
 DC = DISCCART
 DP = DISCPOLR
 BD = BOUNDARY

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR	(XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
1A	HIGH 1ST HIGH VALUE IS	75.41996	ON 81070323:	AT (	-86.82, 492.40, 0.00, 0.00)	GP	NONE
1B	HIGH 1ST HIGH VALUE IS	183.37440	ON 81040504:	AT (	86.82, 492.40, 0.00, 0.00)	GP	NONE
2A	HIGH 1ST HIGH VALUE IS	21.88870	ON 81070323:	AT (	-173.65, 984.81, 0.00, 0.00)	GP	NONE
2B	HIGH 1ST HIGH VALUE IS	183.20235	ON 81040504:	AT (	86.82, 492.40, 0.00, 0.00)	GP	NONE
3A	HIGH 1ST HIGH VALUE IS	15.16595	ON 81070323:	AT (	-173.65, 984.81, 0.00, 0.00)	GP	NONE
3B	HIGH 1ST HIGH VALUE IS	183.06404	ON 81040504:	AT (	86.82, 492.40, 0.00, 0.00)	GP	NONE
4A	HIGH 1ST HIGH VALUE IS	26.18810	ON 81070323:	AT (	-130.24, 738.61, 0.00, 0.00)	GP	NONE
4B	HIGH 1ST HIGH VALUE IS	183.37440	ON 81040504:	AT (	86.82, 492.40, 0.00, 0.00)	GP	NONE
5A	HIGH 1ST HIGH VALUE IS	3.70432	ON 81070323:	AT (	-260.47, 1477.21, 0.00, 0.00)	GP	NONE
5B	HIGH 1ST HIGH VALUE IS	183.20235	ON 81040504:	AT (	86.82, 492.40, 0.00, 0.00)	GP	NONE
6A	HIGH 1ST HIGH VALUE IS	1.90164	ON 81090821:	AT (	1477.21, 260.47, 0.00, 0.00)	GP	NONE
6B	HIGH 1ST HIGH VALUE IS	183.06404	ON 81040504:	AT (	86.82, 492.40, 0.00, 0.00)	GP	NONE

*** RECEPTOR TYPES: GC = GRIDCART
 GP = GRIDPOLR
 DC = DISCCART
 DP = DISCPOLR
 BD = BOUNDARY

**MODELOPTs:

CONC URBAN FLAT NOSTD NOCALM NOCMPL

*** Message Summary : ISCST3 Model Execution ***

----- Summary of Total Messages -----

A Total of 0 Fatal Error Message(s)
A Total of 8 Warning Message(s)
A Total of 1120 Informational Message(s)

A Total of 1119 Calm Hours Identified

***** FATAL ERROR MESSAGES *****
*** NONE ***

***** WARNING MESSAGES *****
SO W320 22 PPARAM :Input Parameter May Be Out-of-Range for Parameter DS
SO W320 24 PPARAM :Input Parameter May Be Out-of-Range for Parameter DS
SO W320 26 PPARAM :Input Parameter May Be Out-of-Range for Parameter DS
SO W320 28 PPARAM :Input Parameter May Be Out-of-Range for Parameter DS
SO W320 34 PPARAM :Input Parameter May Be Out-of-Range for Parameter DS
SO W320 36 PPARAM :Input Parameter May Be Out-of-Range for Parameter DS
SO W320 38 PPARAM :Input Parameter May Be Out-of-Range for Parameter DS
SO W320 40 PPARAM :Input Parameter May Be Out-of-Range for Parameter DS

*** ISCST3 Finishes Successfully ***

Attachment C



Environmental Fact Sheet

Air Toxics from Motor Vehicles

What are Air Toxics?

Air toxics are air pollutants that cause adverse health effects. The U.S. Environmental Protection Agency (EPA) has focused most of its air toxics efforts to date on carcinogens, which are compounds that cause cancer. Non-cancer health effects such as reproductive and neurological problems are also of concern to EPA.

How dangerous are air toxics?

It's hard to say. Some air toxics have been proven to cause cancer in humans. However, most air toxics are identified through laboratory experiments in which animals receive very high doses of the compound being studied. People almost never breathe such high doses. But lower exposures may still pose risks. One fact is clear: vehicles are such an integral part of our society that virtually everyone is exposed to their emissions.

Air Toxics from Vehicles and Their Fuels

Motor vehicles emit several pollutants that EPA classifies as known or probable human carcinogens. Benzene, for instance, is a known human carcinogen, while formaldehyde, acetaldehyde, 1,3-butadiene and diesel particulate matter are probable human carcinogens. Studies are underway to determine whether other toxic substances are present in mobile source emissions. For example, EPA and industry are investigating

whether oxygen-containing fuel additives such as methyl tertiary butyl ether (MTBE) cause any adverse health effects. EPA is also working with the vehicle and fuel industries to test motor vehicle emissions for the presence of dioxin.

EPA estimates that mobile (car, truck, and bus) sources of air toxics account for as much as half of all cancers attributed to outdoor sources of air toxics. This estimate is not based on actual cancer cases, but on models that predict the maximum number of cancers that could be expected from current levels of exposure to mobile source emissions.

The models consider available health studies, air quality data, and other information about the types of vehicles and fuels currently in use. Non-road mobile sources (such as tractors and snowmobiles) emit air toxics as well.

How are Air Toxics from Motor Vehicles Formed?

Some toxic compounds are present in gasoline and are emitted to the air when gasoline evaporates or passes through the engine as unburned fuel. Benzene, for example, is a component of gasoline. Cars emit small quantities of benzene in unburned fuel, or as vapor when gasoline evaporates.

A significant amount of automotive benzene comes from the incomplete combustion of compounds in gasoline such as toluene and xylene that are chemically very similar to benzene. Like benzene itself, these compounds occur naturally in petroleum and become more concentrated when petroleum is refined to produce high octane gasoline.

Formaldehyde, acetaldehyde, diesel particulate matter, and 1,3-butadiene are not present in fuel but are by-products of incomplete combustion. Formaldehyde and acetaldehyde are also formed through a secondary process when other mobile source pollutants undergo chemical reactions in the atmosphere.

Reducing Air Toxics from Motor Vehicles

The emissions that come out of a vehicle depend greatly on the fuel that goes into it. Consequently, programs to control air toxics pollution have centered around changing fuel composition as well as around improving vehicle technology or performance. One of the first, and most successful

programs has been the removal of lead from gasoline. The lead phaseout began in the mid-1970s. It will be complete January 1, 1996 when lead is banned from gasoline. The removal of lead from gasoline has essentially eliminated mobile source emissions of this highly toxic substance.

More recent fuel and emission control system changes include:

- Limits on gasoline volatility - Volatility is a measure of how easily a liquid evaporates. As described earlier, some toxics such as benzene are present in gasoline and get into the air when gasoline evaporates. Limits on gasoline volatility have been imposed over the last several years to control evaporative emissions of both hydrocarbon and toxic compounds (most air toxics are hydrocarbons so programs designed to reduce hydrocarbon emissions also reduce air toxics).
- Reformulated gasoline - The 1990 Clean Air Act requires reformulated gasoline to be introduced in the nation's most polluted cities beginning in 1995.
- From 1995-1999, these gasolines must provide a minimum 15% reduction in air toxics emissions over typical 1990 gasolines. This increases to a 20% minimum reduction beginning in the year 2000. The air toxics reductions will be achieved mainly by reducing gasoline volatility and by reducing the benzene content of the gasoline.
- Limits on diesel sulfur - Regulations limiting the amount of sulfur in diesel fuel took effect in 1993. Today's lower-sulfur diesel fuels are important in reducing emissions of particulate matter and other air toxics from diesel-fueled buses and trucks.
- More stringent standards and test procedures - To date, there are no specific standards for air toxics emissions from motor vehicles. However, the 1990 Clean Air Act does set specific emission standards for hydrocarbons and for diesel particulate matter. Air toxics are present in both of these pollutant categories. As vehicle manufacturers develop technologies to comply with the hydrocarbon and/or particulate standards (e.g., more efficient catalytic converters), air toxics are reduced as well.

Requirements under the Act for testing carbon monoxide emissions at cold temperatures will also have an indirect but important effect in reducing air toxics emissions in the critical first moments of vehicle operation.

- Control of emissions in actual customer use - From a pollution perspective, what matters most is not new vehicle emission standards but actual emissions from vehicles on the road. The Clean Air Act establishes several programs to make sure vehicle emission controls are functioning properly in actual use. These include requirements for periodic emission inspections and for computerized diagnostic systems that alert drivers and mechanics to malfunctioning emission controls.

In summary, the many vehicle and fuel changes in the last 25 years have greatly reduced air toxics emissions from highway vehicles. New cars today are capable of emitting 90% less air toxics on a per-mile basis than the uncontrolled models of 1970; new trucks and buses are designed to emit less than half the air toxics of their 1970 counterparts.

Overall air toxics emissions will continue to decrease through the 1990s as older vehicles leave the fleet and as new regulatory programs take effect. However, the number of vehicles on the road and the number of miles they travel is continuing to grow. Without additional controls, growth in vehicle travel will offset progress in reducing air toxics by early in the next century.

What More Can Be Done?

The 1990 Clean Air Act requires EPA to specifically regulate air toxics from motor vehicles in the form of standards for fuels, or vehicles, or both.

Additional hydrocarbon and particulate matter controls such as tightening tailpipe standards even further will reduce air toxics emissions somewhat. California for example, sets tighter hydrocarbon limits for vehicles sold in that state than the federal requirements for vehicles sold elsewhere. Other states can choose to adopt the California standards, which provide some air toxics benefits. Expansion of existing regulatory programs (such as more widespread use of reformulated gasoline or wider requirements for emission inspections) could also help reduce air toxics. Specific vehicle emission standards for one or more toxic compounds are also an option.

Changes in gasoline and diesel fuel composition (such as reducing sulfur, benzene or other aromatic chemical compounds) can also reduce air toxics emissions.

A switch to alternative, non-petroleum fuels that are cleaner than today's gasoline and diesel fuels offers another strategy for reducing air toxics. Choices include alcohols, natural gas, propane, and electricity. These fuels are inherently cleaner than conventional gasoline and diesel because they do not contain toxics such as benzene. In addition, they are made of simpler chemical compounds which yield lower levels of complex combustion by-products such as 1,3-butadiene.

For More Information

You can access documents on air toxics for motor vehicles electronically on the Office of Transportation and Air Quality (OTAQ) Web site at:

<http://www.epa.gov/otaq/toxics.htm>

You can also contact us at:

U.S. Environmental Protection Agency
Office of Transportation and Air Quality
Assessment and Standards Division
2000 Traverwood Drive
Ann Arbor, MI 48105
Voicemail: (734) 214-4636
Email: asinfo@epa.gov

Recd
11-07-03
10:00 am



City of El Segundo

November 3, 2003

Elected Officials:

- Mike Gordon,*
Mayor
- Sandra Jacobs,*
Mayor Pro Tem
- Nancy Wernick,*
Council Member
- John G. Gaines,*
Council Member
- Kelly McDowell,*
Council Member
- Cindy Mortesen,*
City Clerk
- Ralph Lanphere,*
City Treasurer

Appointed Officials:

- Mary Strenn,*
City Manager
- Mark D. Hansley,*
City Attorney

Department Directors:

- Jeffrey Stewart,*
Assistant City Manager
- Bret Plumlee,*
Administrative Services
- James Hansen,*
*Community, Economic and
Development Services*
- Norm Angelo,*
Fire Chief
- Debra Brighton,*
Library
- Jack Wayt,*
Police Chief
- Andres Santamaria,*
Public Works
- Stacia Mancini,*
Recreation & Parks

www.elsegundo.org

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Mr. David Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

**Re: City of El Segundo LAX Master Plan Advisory Commission
Comments Regarding the Draft Supplemental EIS/EIR for the LAX
Master Plan Enhanced Safety and Security Plan**

Dear Mr. Ritchie and Mr. Kessler:

In 1999, the City of El Segundo created the LAX Master Plan Advisory Commission, a citizen advisory panel charged with the task of reviewing and commenting on the EIS/EIR process related to the development of the LAX Master Plan. In September 2001, LAXMAC issued a detailed letter commenting on the Draft EIS/EIR issued in January of the same year. In response to the "Supplement to the Draft Environmental Impact Statement/Environmental Impact Report Los Angeles International Airport Master Plan" released by Los Angeles World Airports (LAWA) in August 2003, LAXMAC offers this comment letter.

LAXMAC is intended as a citizen body that will consider and relate the day-to-day concerns of the residents of the City of El Segundo with respect to the ongoing EIS/EIR process. Accordingly, the comments and opinions stated in this letter are generally non-technical in nature. An additional and more formal comment letter stating the City of El Segundo's technical and legal concerns with the Draft Supplement to the EIS/EIR will be sent under separate cover.

350 Main Street, El Segundo, California 90245-3895
Phone (310) 524-2302 FAX (310) 322-7137

SAL00023

The following is an overview of the concerns identified by LAXMAC during its review of the Supplement:

Proposal to move southern most runway (25L) fifty-feet south will reduce quality of life of El Segundo Residents

Perhaps the most troubling proposal outlined in the Supplement for El Segundo residents is the relocation of the southernmost runway (25L) fifty-feet closer to the northern border of the City of El Segundo. Currently, the western terminus of that runway lies approximately 700 feet from residences in the City. The noise and disruption experienced by those residents is well documented. The proposed relocation of the runway will result in at least 55 additional residents being pushed into the 75 CNEL noise contour. The only mitigation proposed by LAWA to deal with the additional noise appears limited to additional residential sound insulation funding. The members of LAXMAC have determined that proposed mitigation to be a wholly inadequate response to the additional noise issues created by the runway location. Traditionally, the City of El Segundo has not accepted residential sound insulation funds from LAX because of the aviation easement requirement imposed by LAWA as a condition of residents' accepting the money. At a minimum, LAXMAC urges strongly that LAWA reconsider the policy of requiring residents to execute an aviation easement prior to receiving residential sound insulation funding provided by LAX.

In addition, the members of LAXMAC do not fully accept the "safety" justification for relocating the runway. The Supplement indicates that the runway is being relocated to provide additional separation between 25L and 25R for the purpose in constructing additional taxiway space between the two runways. The taxiway space is said to be required because of a series of runway incursions occurring at LAX. While the members of LAXMAC accept that runway incursions may have occurred on the airfield, the commission believes that they are few in number and minor in nature. LAWA has failed to document that any of the incursions are "Class A" near-miss incidents. Accordingly, LAXMAC is on record as disagreeing with the justification stated in the Supplement for relocating runway 25L further south.

Additionally, many El Segundo residents are concerned about the additional noise emanating from cargo carriers as a result of the runway relocation. LAXMAC has determined that a large number of cargo flight operations are conducted during the evening hours, and that a significant percentage of aircraft used for that purpose are pre-Stage III planes that meet the FAA guidelines due the installation of "hush kits." The committee believes the combination of a relocated runway, noisy aircraft and nighttime operations will impact deleteriously

the quality of life in El Segundo. To address those issues, it is imperative to consider such mitigations as restrictions on evening cargo operations and more stringent implementation of Stage III aircraft noise standards.

The members of LAXMAC questioned also why the Supplement did not include an examination of the end around taxiway concept. It may be possible to meet the taxiway requirements of the airfield in the scenario painted by Alternative D by constructing end around taxiways at the western terminus of runways 25L and 25R. In such a configuration, it would likely not be necessary to provide additional separation between the runways, thus eliminating the need to relocate 25L south. The members of LAXMAC have urged the completion of a full noise study, including single event noise issues and end around taxiways. It is a concern of the members of LAXMAC that the noise created by heavy aircraft accelerating to make the grade heading south to north might create even more noise issues for the residents who make their homes near the western terminus of the runways. As mentioned previously, many live within 700 feet of the runway and there is little margin for error with respect to noise created on the airfield. Nonetheless, it is certain that the end around taxiway concept is worth additional study.

1996 Baseline Year not adequate for an EIS/EIR issued in 2003

In its comments forwarded in 2001, the members of LAXMAC expressed serious concerns that the 1996 baseline year established as the benchmark was not adequate for mitigations in an EIS/EIR document published five years later. Those concerns still hold – and in fact become more exacerbated with the passage of time. In addition, the problem seems to be complicated by inconsistencies within the Technical Supplements included within the Supplement. Specifically, in some instances, the baseline year appears to have been updated to the year 2000.

Spot checking throughout the document seems to indicate that the update in baseline year was made in those instances when it benefited LAWA in presenting a plan to properly mitigate known impacts. One example of such is the inclusion of year 2000 noise data in some of the appendices. That is noteworthy because aircraft following the implementation of Stage III noise mitigation measures are generally quieter than they were in 1996. While the members of LAXMAC have not undertaken a thorough examination of the Supplement to determine if such changes in baseline year analysis was made throughout, the Commission does have concerns that changes were made in some cases to conveniently ease the burden of proposed mitigations.

For the record, the members of LAXMAC believe that the baseline year for data analysis in all instances should be more recent than 1996 – irrespective of the impact on the EIS/EIR process.

Supplement does not consider that all proposed measures will not be funded

The members of LAXMAC share the concerns expressed by the County of Los Angeles that the Supplement should indicate that planned mitigations may not be feasible, and that the LAX Master Plan should be approved with overriding considerations if planned transportation projects do not come to fruition. The Supplemental discusses the construction of an off ramp at the 405 Freeway and Lennox Boulevard, improvements adjacent to the Marina Freeway and numerous local traffic signal coordination and intersection improvements. Given this current period of economic malaise, especially at the State level, it is counterintuitive to assume funding will remain available for many of those projects. LAXMAC believes this to be especially true locally with respect to several planned transportation projects. The Supplemental should be clearer in identifying available revenue sources and must included a plan should such the anticipated funding not come to pass. The commission opposes going forward with the construction of Alternative D with sufficient assurances of mitigation not based on what may be illusory future funding.

Alternative D likely to create unanticipated traffic issues

The Supplement states that that an essential component of the plan's congestion relief package is the relocation of almost all passenger-related vehicle traffic to the east of the central terminal via the new ground transportation center, the intermodal transportation center and consolidated rental car facility. The rationale behind the plan is that the new facilities will be located near the I-405 and I-105 freeways, thus encouraging related airport traffic to stay on those major freeways "rather than offload onto adjacent arterial streets." In addition to the potential that several of the improvements necessary to implement the plan (most notably an off ramp at 405/Lennox and a flyover from 405 to 105 east) may not be constructed, it is simply not logical to conclude that traffic headed toward LAX will stay on the freeways.

Consider the following: LAX is currently operating at approximately 60 MAP. The capacity of the airport under Alternative D is asserted by LAWA to be 78.9 MAP. The commute on the I-405 south and the I-105 west near LAX is currently congested during peak travel hours and, of course, holiday travel periods. The City of El Segundo has learned from experience that drivers during those periods

simply exit the freeway during times of congestion and access Sepulveda Boulevard, Aviation Boulevard, Imperial Highway, and other streets seeking access to the airport. Accordingly, it stands to reason that an approximate 30% increase in passenger volume handled at the airport, will lead to increased traffic on the two adjacent freeways and adjacent major arterials. It stands to reason as well, that moving the major vehicle transportation centers closer to the freeways will serve to add to the congestion on those freeways during peak travel hours, thus rendering specious the claim in the Draft Supplement that drivers will be inclined to remain on the freeway for longer periods of time. Ironically, the Supplement itself seems to provide additional evidence supporting that contention by stating that the ground transportation center would have “direct access to Century Boulevard, La Cienega Boulevard, and Imperial Highway.”

The members of LAXMAC seek not to quibble with the technical analysis here, although the City of El Segundo's technical consultant will provide specific critiques of the modeling. Rather, the Commission seeks more tangible and fully funded mitigation measures aimed at reducing traffic in the intersections of the major arterials adjacent to the airport. Those issues will be documented more thoroughly in separate comment letter on behalf of the City of El Segundo.

Supplement does not address impacts created by construction of the project

The Alternative D proposal is an extraordinarily large project, and phasing of the construction will lessen only a portion of the inevitable impacts of the construction itself. It is clear that many of those issues would be addressed on a day-to-day basis when and if construction of the project commences. However, the members of LAXMAC believe that such issues as the re-routing of traffic and the noise of construction equipment on and adjacent to the work site have been addressed inadequately as a part of the EIS/EIR process. Those types of impacts can be anticipated, and thus planned appropriately.

Supplement does not support a truly regional airport plan

Finally, the members of LAXMAC have determined that the Supplement does not seek to seriously promote a regional airport plan despite language to the contrary in the Executive Summary. The Commission believes that the Supplement and LAWA should discuss seriously a scenario in which cargo operations are shifted to outlying facilities in Ontario and Palmdale. LAWA operates airports in those two cities and purports to seek an increase in the capacity and use of those facilities. Yet, curiously, there is no mention in the Supplement of efforts to induce airlines to utilize those facilities in lieu of LAX.

Frankly, it is almost inconceivable that such inducements are not discussed as potential mitigation measures addressing the impacts anticipated following the construction of the Alternative D proposal.

LAXMAC views that omission as evidence of the lack of creative thinking that went into the document. During the past five years, work has been completed on such projects as the Alameda Corridor and it is troubling to note that little effort has been made to incorporate those assets in the Master Planning process. For example, the Commission received information on a plan to build an air cargo facility at the Los Angeles Harbor, wherein goods could be shipped directly from the harbor via the Alameda Corridor. Granted, it is an unconventional proposal that would face significant obstacles prior to implementation. However, it represents the type of "out-of-the-box" thinking that seems so lacking in the Supplement.

Respectfully submitted by:

The City of El Segundo LAX Master Plan Advisory Commission



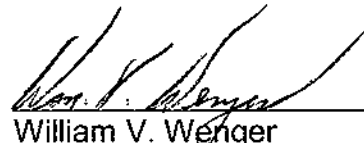
Don Brann, Chair



Adrienne Collis



Michelle Lanphere Green



William V. Wenger



Andy Agle
Assistant Director
Planning & Community
Development Department
1685 Main Street
P. O. Box 2200
Santa Monica, CA 90407-2200

Recd
11-07-03
10:47am

November 6, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan / Room 218
P.O. Box 92216
Los Angeles, CA 90009-2216

RE: Supplement to the Draft Environmental Impact Report / Environmental Impact Statement for the LAX Master Plan

Dear Mr. Ritchie:

Thank you for the opportunity to review the Supplement to the Draft Environmental Impact Report / Environmental Impact Statement ("Supplement") for the Los Angeles International Airport ("LAX") Master Plan Improvements ("Master Plan"). The Supplement includes environmental analysis of Master Plan Alternative D, the Enhanced Safety and Security Plan, which is designed to constrain passenger and cargo capacity at LAX and enhance safety and security.

The City of Santa Monica's August 1, 2001 comment letter regarding the original Draft Environmental Impact Report / Environmental Impact Statement ("Original Report") is enclosed. Our previous letter detailed the Original Report's failure to fully analyze the environmental impacts of the Master Plan and to provide acceptable mitigation for impacts on Santa Monica. The Supplement continues to ignore environmental impacts and appropriate mitigation measures related to surface transportation, general aviation, and induced socio-economic impacts. As these concerns are detailed in our previous letter, we will not repeat them here. However, we would like to emphasize some of the analytical failures of the Supplement.

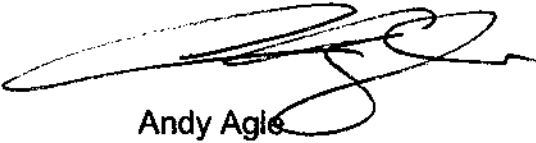
First, the Supplement fails to analyze the surface transportation impacts of Alternative D. As was the case with the Original Report, the Supplement ignores transportation impacts upon any of Santa Monica's intersections, in spite of our early identification of intersections to be analyzed. The Original Report and the Supplement must analyze these intersections and identify appropriate mitigation measures.

As is the case under Alternatives A, B, C, Alternative D proposes a reduction in total acreage committed to General Aviation from the current 14 acres to

approximately 6 acres. As detailed in our previous letter, the continued displacement of General Aviation operations from LAX will have significant environmental consequences for Santa Monica Airport and the City of Santa Monica. The Original Document and the Supplement must evaluate these impacts, especially in the areas of noise, surface transportation, airspace safety and air quality, and propose appropriate mitigation measures. In addition, business concerns about the effectiveness of the security measures proposed under Alternative D could increase the number of business travelers who choose private jet travel, resulting in even greater use of Santa Monica Airport and associated environmental impacts.

Thank you again for the opportunity to review the Supplement. We look forward to your response to our comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Agle", with a large, sweeping flourish extending to the left.

F:\PLAN\ADMIN\MISC\PROJ\LAX\SUP'L EIR COMMENTS.DOC



City of
Santa Monica

Mayor **Michael Feinstein**
Mayor Pro Tempore **Richard Bloom**

Councilmembers

Ken Genser
Robert Holbrook
Herb Katz
Kevin McKeown
Pam O'Connor

August 1, 2001

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan / Room 218
P.O. Box 92216
Los Angeles, CA 90009-2216

Mr. David B. Kessler, AICP
US Department of Transportation
Federal Aviation Administration
PO Box 92007, Worldway Postal Center
Los Angeles, CA 90009-2007

RE: LAX Master Plan and Environmental Impact Report / Environmental
Impact Statement

Dear Mr. Ritchie and Mr. Kessler:

Thank you for the opportunity to review the Draft Environmental Impact Report / Environmental Impact Statement ("DEIR") for the Los Angeles International Airport Master Plan Improvements ("Master Plan"). The Master Plan presents significant environmental consequences for Santa Monica and the entire region.

On July 10, 2001, the Santa Monica City Council adopted a formal position in opposition to the LAX Master Plan due to the significant and unavoidable environmental impacts associated therewith. The DEIR does not fully analyze the environmental consequences of the Master Plan, nor does it provide acceptable mitigation for impacts on Santa Monica. The Master Plan does not provide for guaranteed infrastructure, facilities, and airside acreage to fully support transient business aircraft and fixed-base business operations, which should include a minimum of three fixed-base operations for business jets and an exclusive runway for small to mid-size jets; nor does it provide for appropriate phasing of surface transportation enhancements relative to air transportation enhancements; nor does it include the relocation and expansion of the LAX Transit Center as a Master Plan commitment at a location that will promote the use of transit.

The Westside Cities have sent a joint comment letter regarding the inadequacy of the Master Plan environmental documents. The following provides additional information regarding critical Master Plan and DEIR issues for the City of Santa Monica.

GENERAL ISSUES

Overall, the DEIR provides insufficient analysis of the environmental impacts of the proposed project. On July 25, 1997, the City of Santa Monica submitted comments regarding the Notice of Preparation of the DEIR ("NOP letter"). Several critical issues that we requested be analyzed in the DEIR have not been analyzed, in spite of obvious environmental impacts on Santa Monica. In order to fully understand the environmental impacts of the Master Plan, it is imperative that these issues are adequately analyzed.

SURFACE TRANSPORTATION

Environmental Impacts and Analysis

Figure 4.3.2-4 of the DEIR identifies street segments that will experience more airport traffic with implementation of the LAWA staff-recommended Alternative C. Several street segments in Santa Monica are identified to receive more airport traffic. However, the DEIR fails to analyze any traffic intersections in Santa Monica, in spite of our NOP letter's identification of 22 intersections in Santa Monica for analysis. The DEIR is clearly flawed in this analysis of the surface transportation impacts of the Master Plan.

The DEIR analysis relies upon several Master Plan transportation improvements, including the LAX Expressway, people mover, and Green Line transit extension, to help mitigate the Master Plan surface transportation impacts. However, the creation of new on-site airport facilities, including new terminal facilities, is proposed to occur during Phase 1 of the Master Plan, while the aforementioned transportation improvements occur after Phase 1. This phasing creates a multi-year period where surface transportation impacts will be severely exacerbated prior to implementation of improvements that help mitigate those impacts.

Appropriate Mitigation Measures

The DEIR must fully evaluate the surface transportation impacts associated with the Master Plan, and provide mitigation measure to minimize those impacts. For any Santa Monica intersections that are negatively impacted, mitigation measures that are acceptable to the City of Santa Monica must be proposed.

Any Master Plan improvements that help mitigate the surface transportation impacts of increased passengers and cargo must be implemented prior to development of new terminal facilities.

The DEIR forecasts a 50 percent increase in transit usage as a result of implementation of Phase I, which includes an improved location for the transit center and additional fly-away locations. In order to ensure the maximization of transit possibilities, the siting and development of a new transit center must be identified and approved by bus services providers, including the Santa Monica Big Blue Bus.

GENERAL AVIATION

Environmental Impacts and Analysis

A critical concern for Santa Monica is the impact of any Master Plan changes on the general aviation (GA) facilities and operations at LAX. Reduction of LAX facilities and/or displacement of operations, particularly business jet operations, create a substantial impact on other airports in the basin. This is already a problem that has created significant and unmitigated impacts on Santa Monica because of the congestion and lack of adequate business jet facilities at LAX.

Santa Monica Airport (SMO) has been subjected to increases in transient business jets using our air field due to inadequate air side and landside facilities at LAX. Additionally these aircraft using Santa Monica Airport are also increasingly of a size that appear inappropriate in scale and character for both the airport facility and the surrounding West Los Angeles and Santa Monica community ----- which is tightly situated in densely populated residential areas. This represents a very substantial concern and problem which requires any developments at LAX to not only stop the displacement of business jet aircraft but to, in fact, return this previously displaced traffic to its proper setting.

As the proposed LAX Master Plan repeatedly states, LAX is the "gateway" facility for the region and the hub of economic activity. The re-positioning of LAX as the center of business jet aircraft activity will allow better integration of connections and coordination of business travel and meeting. LAX is the most appropriate setting for business jet aircraft accessing the Southern California area, particularly the westside of the region.

Business jet aircraft are more appropriately served at LAX as it can provide for a higher margin of safety with longer runway surfaces and safety areas, more high speed turn outs and taxiways, dedicated airspace, continuous tower support and a full complement of emergency facilities and services. The re-focusing of

business jet aircraft activity to LAX will provide opportunities for better integration with commercial air operations, rental cars, customs and better maintenance and support services for such aircraft.

The DEIR states that under all the development alternatives, including the LAWA staff-recommended Alternative C, the total acreage committed to GA will be reduced from 14 acres to between 5 and 6 acres. A stunning 62% reduction can only further displace GA operations. Sharing any space with air carrier maintenance activity would likely diminish or overwhelm less financially lucrative GA jet service. The continued displacement of GA operations from LAX has had, and will continue to have, significant environmental consequences for the Santa Monica Airport and the City of Santa Monica. The DEIR must evaluate these environmental impacts, especially in the areas of noise, surface transportation, airspace safety and air quality.

GA has always been a vital part of LAX history and should remain so, particularly the business jet aircraft, which are becoming a significant part of the GA fleet. In all of the alternatives presented in the draft LAX Master Plan, the plan indicates an expansion in GA facilities by increasing total square footage from 144,000 square feet to 244,000 square feet with the addition of a new 100,000 square foot hangar facility at Sepulveda and Century. However this is not analyzed in the DEIR, nor reconciled with the intended reduction of acreage for GA use.

Appropriate Mitigation Measures

The DEIR must fully evaluate the environmental impacts associated with decreased GA facilities, and provide mitigation measure to minimize those impacts. In order to provide adequate opportunities for the basing of business aircraft, as well as to adequately handle transient business, larger areas of unimpaired space are needed for vehicle parking and servicing. We recommend that no reduction in GA-committed acreage be made. LAWA should provide a covenant or land restriction to the permanence of dedicated acreage, expanded facilities and perpetual operating Fixed Base Operations (FBOs) for business jets. LAX should provide for three FBOs, which would truly allow a full range of services and healthy competition.

The proposed airside improvements with additional taxiways and aircraft movement areas are of significant importance to improving GA-business jet services. An existing and rapidly growing problem at LAX is the airfield congestion and related delays resulting in uncertain scheduling. The proposed extensive aircraft taxiway and other movement area improvements could provide readier access to and from runways for GA-business jet aircraft. The improved separation of runways could increase the number of aircraft that can takeoff and land in tandem, allowing for better interposition of GA business jet aircraft ---- if

the additional capacity isn't consumed by "sharing" facilities with air carrier or cargo uses.

The dedication of one runway, exclusive of air carrier service, for small to mid-size jets (small to mid-size in terms of LAX but unquestionably too large for adjacent GA airports) has great potential to not only stem the rate of displacement of GA jet aircraft, but also to be an affirmative support for the operations of GA jet aircraft and to provide a positive basis for the return of those previously displaced to SMO. In order for the business community to make appropriate decisions and investments, such as basing jet aircraft operations, the plan needs to formally dedicate a runway to use by GA jet aircraft in perpetuity, otherwise air carrier and cargo demand will overwhelm the less financially lucrative business jet users.

The provision of a dedicated runway for business aircraft would also enhance operations and safety in the region surrounding LAX. Instrument departures from Santa Monica must be integrated with LAX departures as their pathways intersect. This requires intense coordination between the two air traffic control towers and the region and often results in aircraft having to sit idling for extended periods of time at Santa Monica waiting clearance at LAX. These aircraft should all be operating under the control and guidance of a single tower, which has the essential benefit of direct visual contact and a single voice. In addition, the establishment of a primary business operations center at LAX will also allow for the development of more efficient air space planning and procedures for both departures and arrivals. A dedicated GA runway must also have full operational support services such as a dedicated instrument landing system, approach lights and air traffic control tower.

Total airside acreage committed to general aviation support facilities must expand beyond the current 14 acres in order to fully support general aviation, including business jet operations, with a full compliment of both based aircraft and transit parking spaces, executive terminal facilities, vehicle parking and pick-up/drop facilities and transport to rental vehicle sites and local hotels.

The Master Plan must provide for, at minimum, three full-service fixed-base operators specifically for general aviation. The Master Plan must include expanded and enhanced general aviation capacity, services, and facilities, particularly for jet aircraft. An increase in facility space to at least 244,000 square feet should be accomplished as soon as possible. Enhanced, fully incorporated and dedicated ground transportation improvements, particularly access roadways and services, to and from general aviation facilities, including general aviation / business user exclusive access roadways and entries, should be incorporated in the Master Plan. Parking improvement plans must include enhanced vehicular

Mr. Jim Ritchie
Page 6 of 6
August 1, 2001

parking, as well as dedicated drop off/pick up accommodations at all general aviation facilities.

The development of an operational and business plan is essential for the maintenance and enhancement of general aviation, particularly with regard to GA jet aircraft operations at LAX, including appropriate long-range feasibility and trend studies. A business plan and aggressive marketing program is necessary to attract and recapture general aviation jet aircraft activity at the earliest possible date.

INDUCED SOCIO-ECONOMIC IMPACTS

Environmental Impacts and Analysis

The DEIR finds that the Master Plan alternatives will induce between 13,000 and 30,000 new households in the region, including between 2,600 and 4,800 new households in a 10-mile radius. A significant proportion of these new households are expected to be in need of affordable housing. The DEIR concludes that this is a small amount in comparison to expected total growth in the region. However, given the high cost of housing in the region, and particularly in the Westside areas near LAX, providing affordable housing for these new households will be a critical local and regional impact.

Appropriate Mitigation Measures

The DEIR must identify measures to ensure the creation of affordable housing for new household growth that will be induced by the Master Plan.

Thank you again for the opportunity to review these draft documents. We look forward to your response to our comments.

Sincerely,



Michael Feinstein
Mayor

cc: City Councilmembers, City of Santa Monica

Rec'd
11-07-03
10:00 am



CITY OF RANCHO PALOS VERDES

DOUGLAS W. STERN, MAYOR
BARBARA FERRARO, MAYOR PRO TEM
LARRY CLARK, COUNCILMAN
PETER C. GARDINER, COUNCILMAN
JOHN C. MCTAGGART, COUNCILMAN

November 6, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
PO Box 92216
Los Angeles CA 90009-2216

Mr. David Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
PO Box 92007
Los Angeles CA 90009-2007

RE: Draft Supplemental EIS/EIR for the LAX Master Plan

Dear Mr. Ritchie and Mr. Kessler:

The future of LAX and its impact upon traffic congestion, noise and air pollution, and human safety in the air and on the ground are of great interest to the City Council and residents of Rancho Palos Verdes. The City Council submitted a comment letter dated September 20, 2001 regarding the LAX Master Plan Draft EIS/EIR.

On November 5, 2003 the City Council of Rancho Palos Verdes reviewed key components of the Draft Supplemental Environmental Impact Report for the LAX Master Plan, Alternative "D". On behalf of the City Council and residents of Rancho Palos Verdes, I respectfully submit the following new concerns for consideration in the final EIS/EIR:

1. 1996 Baseline Data Inadequate for EIS/EIR
The draft EIS/EIR document predominately utilizes 1996 data as the benchmark for mitigation considerations and comparisons between Alternatives. However, in some instances the baseline year has been updated to year 2000. We feel the EIS/EIR should establish a consistent baseline year throughout the document and that year should be the most current available.

2. Supplemental EIR Non-Compliance with CEQA
While the City applauds Mayor James Hahn's initiative to develop Alternative "D", in response to the September 11th terrorist attacks, the City believes the proposed plans under Alternative "D" are significantly different from the other LAX Master Plan Alternatives "A", "B", and "C" and therefore incomparable in purpose and vision. The City concurs with the South Bay Cities Council of Governments that a new revised draft EIS/EIR should have

been prepared to review Alternative "D" and it's comprehensive impacts instead of addressing Alternative "D" in a Supplement to the 2001 Draft EIS/EIR.

3. Capping Growth at 78 Million Annual Passengers

The goal of limiting passenger capacity through design control measures seems implausible given that the runway designs of Alternative "D" are similar to Alternative "C". While both Alternatives lengthen both north runways and the separation distance in between, Alternative "D" actually extends one runway (RW 6L/24R) nearly 1,000 feet more than Alternative "C". We believe the capacity of the Alternative "D" runways is underestimated at 78.9 million annual passengers and more comparable to Alternative "C" projection of 89.6 million passengers. In addition, the proposed runway improvements of Alternative "D", unlike Alternative "C", accommodates the new Super Jumbo A380 aircraft with about 600 seats, which will increase the number of passengers per aircraft operation. Considering the capacity growth potential of these runway improvements, the City is unclear how forecasts in 2015 (121.06 passengers per air carrier operation) can be lower than the actual number of passengers per air carrier operation in year 2002 (123.18 passengers).

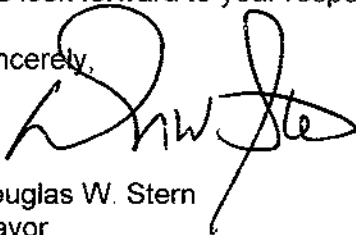
4. Security Measures

The enhanced security measures and improvements advocated by Alternative "D" seem counterintuitive. The emphasis of centralizing major components, such as passenger check-in and parking structures, may potentially create unfavorable conditions for a single point of possible disruption, i.e. the proposed People Mover circulation system. The RAND Corporation conducted an independent study of the proposed security measures and determined that security would not increase from current LAX safety levels. The City requests LAWA and the FAA to take into consideration the RAND Corporation Study findings.

As a member of the LAX Community Noise Roundtable, the City supports the attached comment letter, which more fully addresses the omissions and deficiencies of the Supplement to the Draft EIR. Lastly, the City Council of Rancho Palos Verdes believes a regional solution for addressing increased passenger and air cargo demand is essential for Southern California and again requests LAWA and the FAA to consider a regional airport system as a viable alternative in the discussion of the LAX Master Plan.

We look forward to your response to our comments.

Sincerely,



Douglas W. Stern
Mayor

Enclosure

CITY OF LOS ANGELES
CALIFORNIA

WAYNE K. TANDA
GENERAL MANAGER



James K. Hahn
MAYOR

DEPARTMENT OF
TRANSPORTATION
221 N. FIGUEROA ST, SUITE 500
LOS ANGELES, CA 90012
(213) 580-1177
FAX (213) 580-1188

November 7, 2003

Jim Ritchie, Deputy Executive Director
Los Angeles World Airports
1 World Way
Los Angeles, CA 90045

**Re. LAX MASTER PLAN SUPPLEMENT TO THE DRAFT ENVIRONMENTAL IMPACT
STATEMENT / ENVIRONMENTAL IMPACT REPORT
(CLEARINGHOUSE NO. 199 706 1047)**

Dear Mr. Ritchie:

The City of Los Angeles Department of Transportation (LADOT) has reviewed the Supplement to the Draft Environmental Impact Statement / Environmental Impact Report (DEIS/DEIR) for the LAX Master Plan project. LADOT has worked closely with Los Angeles World Airport (LAWA) staff and their consultants to develop an acceptable off-site traffic impact analysis for the preferred project alternative (Alternative D) and to prepare a transportation mitigation program designed to address the anticipated traffic impacts of the proposed modernization of the Los Angeles International Airport. Also, LADOT will continue to work with LAWA staff, their consultants and Caltrans in the development of any necessary Project Study Reports for the proposed freeway system improvements.

Since this is a supplement to a Program DEIS/DEIR, several detailed design matters will be evaluated and finalized at a later date. It is during the development of the engineering plans that the feasibility of several of the key infrastructure improvement proposals can be determined. For these reasons, LADOT and the Department of Public Works should be consulted in the preparation and evaluation of the final designs of the key transportation elements of the preferred LAX Master Plan alternative, including the proposed:

- Automated People Mover System
- Internal Airport Roadway System
- I-405 Freeway / Lennox Boulevard Interchange
- Inter-Modal Transportation Center
- Ground Transportation Center
- Commercial Vehicle Holding Area
- Consolidated Rental Car Facility

LADOT offers the following comments on the LAX Master Plan DEIR/DEIS:

GENERAL COMMENTS

1. MITIGATION PHASING PLAN

To ensure that the full build-out of the LAX Master Plan project does not take place until all of the required transportation improvements are implemented, a mitigation implementation plan showing when transportation improvements will be guaranteed and constructed commensurate to the level of development has been developed (Table S4.3.2-13 on page 4-284 of the Main Document) was prepared in consultation with LADOT. Any changes to the phasing plan shall require approval by LADOT.

2. PROJECT DESIGN / QUEUING ANALYSIS

LADOT should be consulted early in the advanced planning and design process of the key infrastructure features of Alternative D. It is recommended that queuing analyses, subject to review and approval by LADOT, be conducted before the final designs of the new internal airport roadways that provide access to/from the Intermodal Transportation Center, the Ground Transportation Center, the consolidated Rental-Car facility, and the Commercial Vehicle Holding Area. The queuing analyses will assist in determining the need for future traffic signals, intersection turn lanes, acceleration and deceleration lanes, and necessary transition lengths. The private airport roadways shall be designed in a manner to provide adequate merge/weave distances, lane storage capacities and turn radii to avoid queuing and spill-over problems onto the public roadway system.

The automated people mover (APM) system should be designed and constructed to minimize disruption and vehicle delay on the public roadway and transit system. The APM system should be elevated above street level and there should be no at-grade crossing of public roadways.

The parking and driveway plans for the consolidated Rental-Car (RAC) facility should be designed to comply with LADOT standards and to minimize any possible conflicts between users of the RAC facility and users of the abutting street system. The site plans for the RAC facility are subject to review and approval by both LADOT and the Bureau of Engineering.

3. RELATED PROJECTS - PLAYA VISTA

The Notice of Preparation for the second phase of the Playa Vista project was released in November 2002. The proposed land use for this project is now significantly reduced from an earlier project description. The traffic forecasts for the LAX Master Plan traffic impact analysis assume the earlier, larger Playa Vista Phase 2 land use definition. In doing so, the LAX Master Plan traffic analysis may significantly and conservatively overstate the projected traffic volumes along the I-405 Freeway, Jefferson Boulevard, Lincoln Boulevard, Centinela

Avenue, and Sepulveda Boulevard. It is recommended that an additional traffic model assignment be prepared to reassess the anticipated LAX Master Plan project impacts along these key corridors and at the Alternative D study intersections. This would require that the future environmental baseline and Alternative D scenarios be re-analyzed to include the correct project definition for Playa Vista Phase 2.

4. **LINCOLN CORRIDOR TASK FORCE**

The Lincoln Corridor Task Force (LCTF) was formed to join several agencies in an effort to address the increasing congestion along a five-mile stretch of Lincoln Boulevard between Manchester Avenue and the Santa Monica (I-10) Freeway and to determine the long-term transportation needs of the corridor. The LCTF includes representatives from Caltrans, the County of Los Angeles, the Cities of Los Angeles, Culver City and Santa Monica, the Los Angeles County Metropolitan Transportation Authority, the Southern California Association of Governments, and the California Coastal Commission. Ultimately, the LCTF's goal would be, with consensus from the participating agencies and input from the public, to develop a mutually agreeable transportation improvement plan for Lincoln Boulevard which may include an array of capacity enhancing measures, transit enhancement strategies, and improved corridor aesthetics.

If and when the agencies of the LCTF are successful in adopting a mutually agreeable set of transportation improvements for the Lincoln Boulevard corridor, the proposed LAX Master Plan improvements along the corridor should be reexamined to explore the option of constructing some or all of the LCTF improvements in lieu of the LAX Master Plan improvements if it is determined by LAWA and LADOT that (1) the LCTF improvements are regionally superior, and (2) they fully or partially mitigate the project-related traffic impacts of the LAX Master Plan project. By contributing to the implementation of the improvement plan developed by the LCTF, the LAX Master Plan can address the project-related impacts along Lincoln Boulevard by fully or partially reducing traffic impacts with the improvements developed by the LCTF.

5. **AVIATION BOULEVARD RIGHT OF WAY**

The proposed reconfiguration of the airport should preserve the right-of-way for the existing BNSF rail structure along the west side of Aviation Boulevard. To allow for future connectivity of transit rail lines, preserving this right-of-way would maintain the opportunity for MTA or other agency to connect rapid transit corridors to the north.

6. **TAXICAB GENERAL PRIORITIES FOR THE COMMERCIAL VEHICLE HOLDING AREA**

LADOT staff should be consulted early in the design process of the Commercial Vehicle Holding Area (CVHA). Key elements that should be considered when planning and designing the CVHA are:

- The taxicab holding lot should have a capacity of at least 125 vehicles.
- To operate effectively and efficiently, the taxicab holding lot and dispatching booth must be in close proximity to the taxi stands serving LAX.
- Taxi stands must be in close proximity to baggage claim area exits.
- Currently, there are fewer than 60 vehicle spaces for taxicabs in the CTA. We recommend no fewer than 75 spaces - either in the CTA or, if required to use the Ground Transportation Center, in close proximity to passenger exit areas.
- There must be adequate (i.e., easily discernable and strategically placed) signage inside and outside the terminal building(s) directing passengers to taxicabs.
- There should not be any co-mingling (i.e., there must be separation) of private vehicles and taxicabs.
- There should be separation of vehicles of the different types of commercial ground transportation operators. Buses, limousines, vans, hotel/motel and rental car courtesy vehicles and taxicabs must each have their own separate locations for picking up passengers - which they can enter and exit without conflicting with each other. Note: buses, limousines and vans can coexist peacefully, as they do now, in a general holding lot area.
- There should be a phone line(s) from the taxi stands to the taxicab holding lot facility for potential off-peak passenger service.

In addition, special consideration should be made to allow City-franchised taxicabs limited access to the Central Terminal Area (CTA). With extensive driver background checks and a state of the art screening system for each taxicab entering the CTA, the overall project goal of safety and security can be achieved. Allowing secure City of Los Angeles taxicabs to serve the CTA may further reduce traffic demands at the Ground Transportation Center (GTC) and at the Intermodal Transportation Center (ITC).

7. **PROJECT TRIP GENERATION - THRESHOLD**

The amount of airport traffic generated during peak commuter hours, not airport Million Annual Passengers (MAP), is the indicator used by LADOT to determine significant traffic impacts and surface street congestion levels. If Alternative D is approved, LADOT recommends that LAWA staff, in consultation with LADOT, develop "trip monitoring and management" strategies to: (1) further reduce the airport-bound vehicle trips; and/or (2) provide additional transportation improvements when established peak hour trip generation threshold levels are exceeded. These strategies can include additional Fly-Away Shuttle locations, Intelligent Transportation Systems improvements, intersection improvements, and/or Transportation Demand Management (TDM) strategies promoting ride-sharing for airport

employees. To efficiently and accurately monitor the threshold levels, pavement embedded detector loops or equivalent should be installed to electronically record vehicle entry/exit rates at key entry/exit points to airport facilities including, but not limited to, the Ground Transportation Center (GTC), Intermodal Transportation Center (ITC), Rental Car Facility, etc.

8. INTELLIGENT TRANSPORTATION SYSTEMS

To enhance the transportation infrastructure improvements associated with the proposed project, Intelligent Transportation Systems (ITS) should play a key role in the overall modernization of the airport. ITS strategies (including computerized signal and surveillance systems, changeable message signs, and highway advisory radio) can provide improved incident management and route guidance for airport-bound motorists. Also, an effective ITS program can help to appropriately direct airport-bound traffic on the principal roadways designed to carry heavy volumes of traffic and off of the local residential streets.

COMMENTS ON CHAPTER 4 (MAIN DOCUMENT)

9. ALTERNATIVE D LEVELS OF SERVICE

Some of the intersection level-of-service (LOS) results summarized in Table S4.3.2-4 (page 4-254 to 4-258) do not match with the results that were approved by LADOT prior to the release of this report. LAWA staff and traffic consultants should work with LADOT to remedy these discrepancies.

10. CONGESTION MANAGEMENT PROGRAM

Starting on page 4-261, in the Congestion Management Program (CMP) Analysis, the report identifies the CMP arterials and the CMP Freeway Monitoring Locations. However, the CMP Arterial Monitoring Stations are not listed. These intersections should be identified in the CMP Analysis and should be analyzed consistent with the CMP guidelines for transportation impact analysis. This comment also applies to the Technical Report 2b and is repeated below.

11. TRANSIT ENHANCEMENTS

In Tables S4.3.2-11 and S4.3.2-12 (pages 4-275 to 4-284), it is indicated that several of the significant traffic impacts resulting from Alternative D can be mitigated through a fair-share contribution to MTA's Metro Rapid Bus Program or to other regionally significant transit enhancements. Many of these significant traffic impacts are expected along Lincoln and Sepulveda Boulevards, which are two corridors included in MTA's 5-year plan for deployment of the Metro Rapid Bus Program. Expansion of the existing transit system, through additional buses and improved signal operations providing priority treatment for buses, can serve as an effective vehicle trip-reduction measure. However, it is unclear if the proposed transit enhancements would augment existing bus routes operated by other providers, by new service

offered by the airport, or by a combination of the two. LAWA should work with MTA, LADOT and with the other local-area bus service providers to investigate these options.

A key aspect of the proposed Alternative D project is the expansion of the LAX Fly-Away program. New remote locations are being evaluated in Downtown Los Angeles, Norwalk, and in the Cities of Long Beach and Inglewood. Also, a second Fly-Away terminal is being considered in the San Fernando Valley area. Since Alternative D would restrict CTA access to all vehicles other than the Fly-Away buses, there is a clear incentive for airport-bound travelers to travel to LAX via the Fly-Away buses. Therefore, should the proposed fair-share transit enhancements described above not be implemented, expansion of the Fly-Away program, beyond the proposed remote terminals described above, can serve as a reasonable substitute mitigation measure to provide an attractive alternative for airport-bound passengers through limited-stop service using buses equipped with luggage racks that travel along the Lincoln and Sepulveda corridors.

It should be noted that the future transit mode-split assumptions in the development of the year 2015 Alternative D traffic forecasts are conservative. With the door-to-door convenience afforded to the passengers of the Fly-Away buses, the true trip-reduction benefit of the program may be higher than assumed in the traffic impact analysis.

12. MITIGATION PROPOSAL FOR FACILITY #45

In Table S4.3.2-11, on page 4-276, the mitigation proposal for the intersection of the I-105 Freeway ramp/Continental City and Imperial Highway (facility #45) includes the upgrade of the traffic signal to operate under LADOT's Adaptive Traffic Control System (ATCS). However, the implementation of ATCS at this location is already programmed by LADOT and is, therefore, not an available mitigation measure. The proposal of ATCS should be removed from the mitigation description.

13. 2015 ALTERNATIVE D MITIGATION PLAN

In Section 4.3.2.10.2, on page 4-295, it is indicated that three of the study intersections are expected to remain unmitigated after implementation of the proposed transportation mitigation program. However, upon review of the traffic impact analysis in the report, six intersections would still remain significantly impacted. While mitigations are proposed for these six locations, the project impacts, although reduced, still exceed LADOT's significant impact threshold. The volume-to-capacity ratios are appropriately disclosed in the report; however, it appears that the results were incorrectly summarized in this section. This comment also applies to the Technical Report 2b and is repeated below. The six intersections that would remain significantly impacted are:

- Airport Boulevard & Century Boulevard
- Centinela Avenue & Sepulveda Boulevard
- I-105 Freeway/Continental City Drive & Imperial Highway
- Lincoln Boulevard & Jefferson Boulevard

- La Cienega Boulevard & Imperial Highway
- La Cienega Boulevard & Century Boulevard

COMMENTS ON TECHNICAL REPORT 2b

14. MITIGATION MEASURES FOR ALTERNATIVE D

In Section 5.2, on page 36, it is indicated that three of the study intersections are expected to remain unmitigated after implementation of the proposed transportation mitigation program. However, upon review of the traffic impact analysis in Attachment E of Technical Report 2b, six intersections would remain significantly impacted. While mitigations are proposed for these six locations, the project impacts, although reduced, still exceed LADOT's significant impact threshold. The volume-to-capacity (V/C) ratios for the intersections are correctly reflected in the individual intersection V/C worksheets in the report; however, it appears that the results were incorrectly summarized in this section. These intersections are listed in comment #13 above.

15. CHAPTER 6 - CONGESTION MANAGEMENT PROGRAM

Starting on page 45, in the Congestion Management Program (CMP) Analysis, the report identifies the CMP arterials and the CMP Freeway Monitoring Locations. However, the CMP Arterial Monitoring Station are not listed. These intersections should be identified in the CMP Analysis and should be analyzed consistent with the CMP guidelines for transportation impact analysis.

16. ATTACHMENT C - LOS SUMMARIES FOR ALTERNATIVE D

It should be noted that the intersection volume-to-capacity (V/C) ratios summarized in Attachment C do not match the V/C ratios listed in the report. By year 2015, all of the study intersections within the City of Los Angeles will operate under the Adaptive Traffic Control System (ATCS). The V/C ratios listed in Attachment C do not reflect the 0.03 credit (V/C reduction) afforded by the ATCS traffic signal operating system.

17. ATTACHMENT E - PROPOSED TRANSPORTATION IMPROVEMENTS

In the report, it is indicated that the project would result in a significant traffic impact at the intersection of Sepulveda Boulevard and Centinela Avenue (facility #22). An intersection improvement has been proposed to mitigate the impact. However, the report does not disclose that while the mitigation does reduce the project impact, it does not reduce it to a level of insignificance. To fully mitigate the impact at this intersection, LADOT recommends that, in addition to the proposed intersection improvement, a fair-share contribution to MTA's Metro Rapid Bus Program or other transit enhancement be provided by LAWA. Since there are several impacted intersections along the Sepulveda Corridor that are already proposed to be

mitigated through expansion of the existing transit system providing service to this roadway, the residual impact at the intersection of Sepulveda Boulevard and Centinela Avenue can be fully mitigated. Doing so will reduce the number of intersections that remain significantly impacted after implementation of the mitigation program from six to five.

The V/C results shown in the table for the intersection of the I-105 Freeway ramp/Continental City and Imperial Highway (facility #45) are not consistent with the results that were reviewed and approved by LADOT before release of the DEIR supplement, nor are the results consistent with the V/C ratios that are presented in the individual level-of-service worksheets in Attachment I of Technical Report 2b. The intersection improvement proposed for this intersection does not fully mitigate the project's traffic impact. Also, since the implementation of ATCS is already programmed by LADOT at this intersection, it is not an available mitigation measure. The proposal of ATCS should be removed from the mitigation description. Therefore, to account for the incorrect V/C ratios reported and the unavailability of ATCS as a mitigation, the report should disclose that the intersection of the I-105 Freeway ramp/Continental City and Imperial Highway would remain significantly impacted even after implementation of the mitigation program.

CONCLUSION

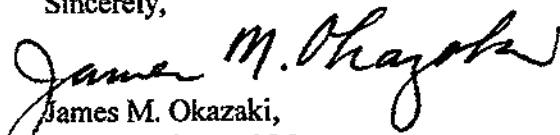
We look forward to working with LAWA in the further development of a comprehensive ground access plan to the Los Angeles International Airport, and in the advance planning process for Alternative D. During this process, we recommend that LAWA, in consultation with LADOT and Caltrans, address the results of the Congestion Management Program analysis by investigating regional solutions to freeway mainline congestion. In the event that freeway mainline improvements above and beyond what have already been explored or programmed (like the I-405 High-Occupancy-Vehicle Lane project) cannot be identified, it may be necessary to explore improvements to key regionally-significant roadways to provide airport-bound motorists with additional and enhanced arterial route choices. One example may be grade-separating key intersections along the La Cienega corridor, which may help to relieve the delays that are expected to increase along the I-10-to-I-405 route to the airport.

Also, during the advance planning of Alternative D, LADOT requests that LAWA investigate the possibility of also allowing taxicabs into the Central Terminal Area (CTA) to pick-up arriving passengers only. This can serve to reduce the number of vehicles at the Ground Transportation Center (GTC) and the Intermodal Transportation Center (ITC), which would further reduce traffic congestion and improve the overall operation of these terminals. Taxicabs, as the only form of commercial ground transportation at the airport that is franchised and thoroughly regulated by the City, deserves

special consideration, along with the Fly-Away buses operated by LAWA, to be allowed access to the CTA. Authorized Taxicab Management, the current taxicab dispatching and supervising company at LAX is ready and willing to work with LADOT and LAWA to establish a state of the art screening system for every driver and vehicle dispatched into the CTA to insure that the security goals of Alternative D are not compromised.

If you have any questions, please call Jay Kim or Tomas Carranza of our West Los Angeles Development Review Office at (213) 485-1062.

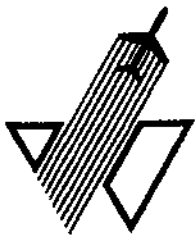
Sincerely,


James M. Okazaki,
Assistant General Manager

TC:tc

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c: Councilmember Cindy Miscikowski, Eleventh Council District
Gordon Hamilton, Department of City Planning
Pat Tomcheck, Los Angeles World Airports
Keith Wilschetz, Landrum & Brown
Allyn Rifkin, LADOT



**JOHN WAYNE
AIRPORT**
Orange County, California

Alan L. Murphy
Airport Director

November 5, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P. O. Box 92216
Los Angeles, CA 90009-2216

**Subject: Comments on July 2003 LAX Master Plan Supplement to the Draft
EIS/EIR**

Dear Mr. Ritchie:

Based upon our review of the above-referenced document, we provide the following comments on behalf of John Wayne Airport.

Document reference location:

- Document: Appendices A, B, C, D, E, F, G and H
- Section: S-B. Existing Baseline Comparison Issues – 1996 to 2000
- Sub-section: 2.2 Regional Trends
- Page: 3
- Table: S1 bottom half which lists "Aircraft Operations and Market Share" for SNA (John Wayne Airport)

Comment:

- The 1996 SNA Aircraft Operations count of "468,811" is incorrect. The correct count is "452,955." This revised 1996 count results in a change to the SNA percentage for "AAG" (Average Annual Compound Growth Rate) from the incorrect value of "-4.6%" to the correct value of "-3.8%." And, this correct 1996 operations count also results in a change to the SNA percentage for "1996 Market Share" from "19.7%" to "19.1%."

Thank you for the opportunity to comment on this important environmental document. If you have any questions or need any additional information, please contact my staff representative John Leyerle at (949) 252-5239.

Sincerely,

for
Alan L. Murphy
Airport Director

cc: Mr. David B. Kessler, Federal Aviation Administration

3160 Airway Avenue
Costa Mesa, CA
92626-4608
949.252.5171
949.252.5178 fax
www.ocair.com



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BARBARA RAUCH
Mayor
JUDY MITCHELL
Mayor Pro Tem
JOHN C. ADDLEMAN
Council Member
SUSAN SEAMANS
Council Member
STEVEN ZUCKERMAN
Council Member
DOUGLAS R. PRICHARD
City Manager



THE CITY OF
ROLLING HILLS ESTATES

4045 PALOS VERDES DRIVE NORTH • ROLLING HILLS ESTATES, CA 90274
TELEPHONE---(310) 377-1577 FAX (310) 377-4468

November 6, 2003

Mr. Jim Ritchie
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. David Kessler, AICP
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Re: Draft Supplemental EIS/EIR for the LAX Master Plan

Dear Mr. Ritchie and Mr. Kessler:

The City Council of the City of Rolling Hills Estates, located on the Palos Verdes Peninsula just south of Los Angeles International Airport (LAX), is pleased to be given the opportunity to provide comment on the Draft Supplemental EIS/EIR for the LAX Master Plan.

While the City of Rolling Hills Estates may not be directly impacted by LAX, in terms of direct impacts that are associated with ground-related adjacencies, the City *is* often impacted from air traffic overhead, including but not limited to aircraft noise, air pollution, and potential safety concerns with smaller aircraft from Torrance airport.

The City Council of Rolling Hills Estates has taken a position to state that any improvements to LAX must carefully consider flight patterns over the Palos Verdes Peninsula, such that aircraft must not "cross" over the Peninsula, particularly at relatively low altitudes, as is presently often the case.

The City Council has also taken a position to support the comments and questions submitted to you by both the County of Los Angeles (report prepared by A.C. Lazzaretto and Associates, dated October 2003) and by the South Bay Cities Council of Governments (SBCCOG). Further, the City of Rolling Hills Estates is in support of the comments and questions submitted to you by adjacent Peninsula Cities and other south bay cities.

Lastly, the City Council agrees with others who have stated that the document is inadequate to understand the full scope of impacts to ground access surrounding the airport, to the communities adjacent to the airport and in the flight path and to demonstrating enhanced safety and security. Additionally, we join with those who favor a binding agreement to cap the airport's growth at 78 MAP.

Mr. Ritchie and Mr. Kessler
Page two

We understand that LAX needs to be modernized. We do not oppose these efforts. However, we want to be assured that the safeguards delineated in the plan are realistic and achievable.

We look forward to your response to our comments.

Sincerely,



Barbara Rauch
Mayor

Lax.deir.ltr4



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): KEN, A. TORRES Date: 7/17/03

Address: 914 PEPPER ST.

City: EL SEGUNDO State: CA Zip Code: 90245

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title: ONE MAIN TERMINAL

Comments:

Office Use Only

THERE SHOULD BE ONE MAIN TERMINAL FOR THE WEST SIDE + ONE FOR THE EAST.

THIS TERMINAL SHOULD BE MANY LEVELS (MALL, CHECK IN, ARRIVAL, DEPARTURE). THE OUTER TERMINALS SHOULD NOT HAVE RESTURANTS BUT ONLY FOR BOARDING. MOVING WALKWAYS TO + FROM THE TERMINALS INTO THE MAIN TERMINAL. SUBWAY (LONDON TYPE) DIRECTLY UNDER MAIN TERMINAL.

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Daylight Time, MONDAY, AUGUST 25, 2003



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print:

Name (First MI Last, or Organization): KEN A. TORRES Date: 7/17/03

Address: 914 Pepper ST.

City: EL SEBUNDO State: CA Zip Code: 90245

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: LONDON TYPE SUBWAY

Comments:

Office Use Only

THE GREEN LINE DOES NOT WORK
AND THEREFORE L.A. SHOULD HAVE
A LONDON TYPE TUBES SYSTEM
THAT RUNS DIRECTLY INTO THE
AIRPORT. THIS SUBWAY COULD
BE AN EXTENSION OF THE GREEN LINE
BUT GO NORTH, UP PERKINS
AND FOLLOW THE WATERWAY
BETWEEN PLAYA & MARINA.

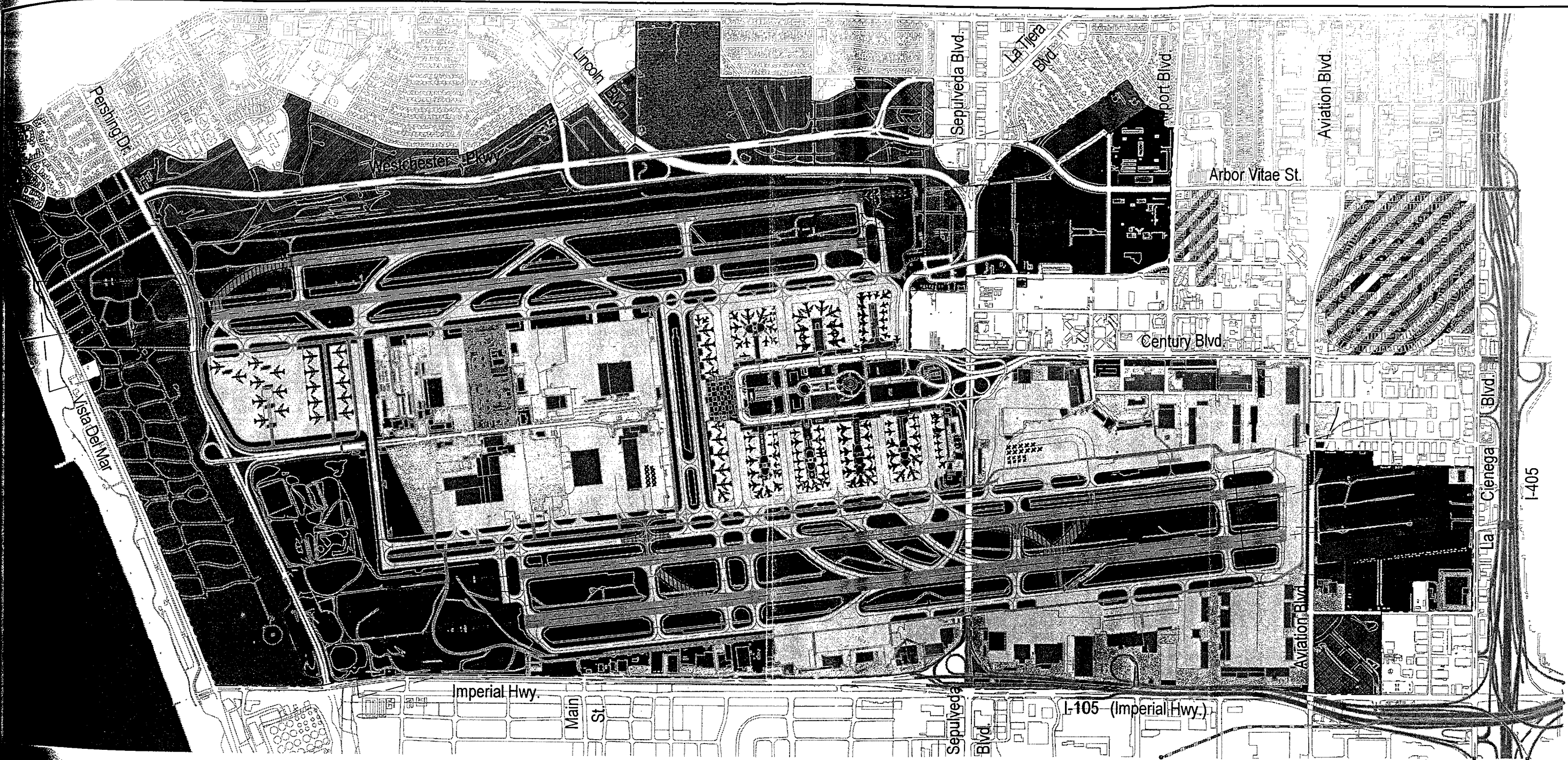
SEE # 2 ATTACHMENT
(LONDON TYPE SUBWAY)

LONDON TUBES GO TO WHERE
TOURISTS/WALKERS WANT TO GO.

Attach additional sheets if necessary.

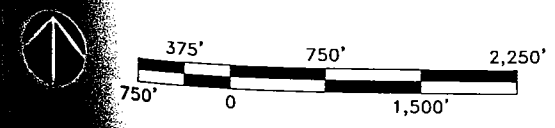
Official comments must be received by 5:00pm, Pacific Daylight Time, MONDAY, AUGUST 25, 2003

2 SUBWAY (LONDON TYPE)



LEGEND

- | | | | | | |
|--|---|--|------------------------------------|--|---|
| | Airport Property | | Existing Ancillary Facilities | | Proposed Cargo Buildings |
| | Existing El Segundo Blue Butterfly Preserve | | Existing Maintenance Facilities | | Proposed Public Parking Facilities |
| | Existing Runways | | Existing Fuel Farm | | Proposed Taxiway Improvements |
| | Existing Taxiways/Aircraft Aprons | | Existing Short-Term Public Parking | | High Density Mixed Use (Hotel, Office, Retail) |
| | Existing Terminal Buildings | | Existing Long-Term Public Parking | | Medium Density Commercial (Hotel, Office, Retail) |
| | Existing Cargo Buildings | | Existing Employee Parking | | R/D Business Park |
| | Existing Roadways | | Existing Rental Car | | Airport Related |
| | Existing Light Rail Transit | | Existing Collateral Development | | Golf Course/Open Space/Recreation |
| | Airport Landside/Parking | | | | ANMP Acquisition Area |



Landrum & Brown
October 28, 1999

Los Angeles International Airport Master Plan

2015 No Action/No Project Alternative

Figure 2.0-2



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): **KEN A. TORRES**

Date: **7/17/03**

Address: **914 PEPPER ST**

City: **EL SEGUINDO**

State: **CA**

Zip Code: **90245**

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title: **ROADS BETWEEN SEPULVEDA + PERSHING**

Comments:

Office Use Only

THERE SHOULD BE A ROAD THAT
ALLOWS FOR CARS TO TRAVEL
FROM SEPULVEDA TO PERSHING DR.
UNDER THE TAXIWAY.

THIS WOULD ALLOW FOR MORE
AIRCRAFT PARKING, LESS AIRCRAFT
CONGESTION, AND FOR CARS
TO TRAVEL ~~TO~~ IMPERIAL HWY
& WESTCHESTER PKWY TO THE
AIRPORT. SEE ATTACHMENT
(#1 ROADS-ADDITIONALS)

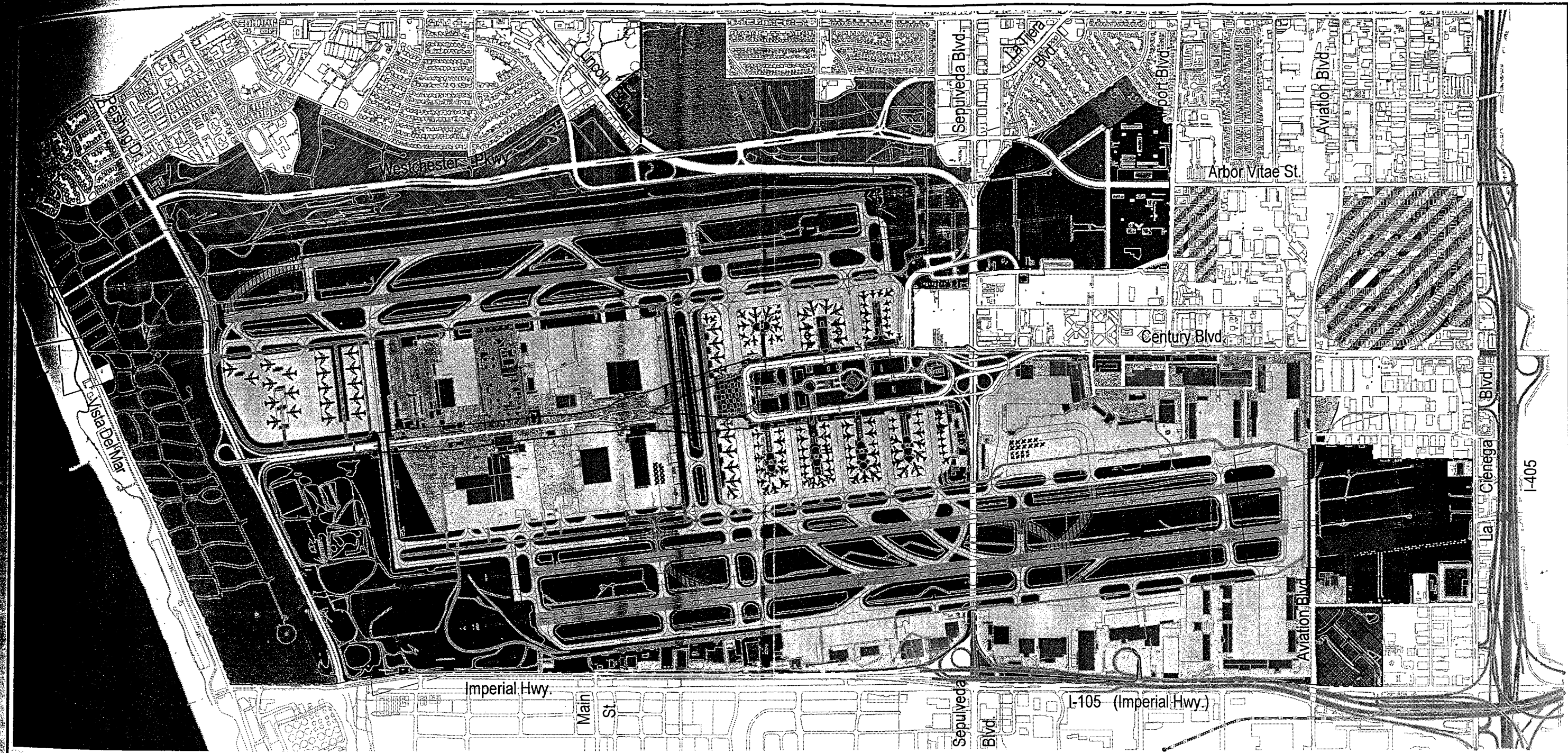
Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Daylight Time, MONDAY, AUGUST 25, 2003



























SPC00003

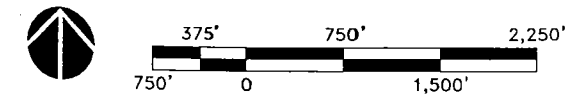
00003

1 ROADS (ADDITIONAL)



LEGEND

- | | | |
|---|--|---|
|  Airport Property |  Existing Ancillary Facilities |  Proposed Cargo Buildings |
|  Existing El Segundo Blue Butterfly Preserve |  Existing Maintenance Facilities |  Proposed Public Parking Facilities |
|  Existing Runways |  Existing Fuel Farm |  Proposed Taxiway Improvements |
|  Existing Taxiways/Aircraft Aprons |  Existing Short-Term Public Parking |  High Density Mixed Use (Hotel, Office, Retail) |
|  Existing Terminal Buildings |  Existing Long-Term Public Parking |  Medium Density Commercial (Hotel, Office, Retail) |
|  Existing Cargo Buildings |  Existing Employee Parking |  R/D Business Park |
|  Existing Roadways |  Existing Rental Car |  Airport Related |
|  Existing Light Rail Transit |  Existing Collateral Development |  Golf Course/Open Space/Recreation |
|  Airport Landside/Parking | |  ANMP Acquisition Area |



Prepared by: Landrum & Brown
Draft: October 28, 1999



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization):

Date: 7.21.03

Address: 1172 S. POINT VIEW ST.

City: LOS ANGELES

State: CA

Zip Code: 90035

Document: Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number:

Title:

Comments:

BEVERLY HILLS PUBLIC LIBRARY DOES NOT
HAVE APT-D ADDENDUM ON FILE.

Office Use Only

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Daylight Time, MONDAY, AUGUST 25, 2003

00004

SPC00004

CITY OF LOS ANGELES LIBRARIES			
Central Library 630 W. Fifth Street Los Angeles, CA 90071	Eagle Rock Branch Library 5027 Caspar Avenue Los Angeles, CA 90042	Exposition Park Regional Library 3665 S. Vermont Avenue Los Angeles, CA 90007	Francis Howard Goldwyn/ Hollywood Regional Library 1623 N. Ivar Avenue Hollywood, CA 90028
Mid-Valley Regional Library 16244 Nordhoff Street North Hills, CA 91343	N. Hollywood Regional Library 5211 Tujunga Avenue North Hollywood, CA 91601	San Pedro Regional Library 931 S. Gaffey Street San Pedro, CA 90731	Venice Abbot Kinney Library 501 S. Venice Blvd. Venice, CA 90003
Westchester Branch Library 8946 Sepulveda Eastway Westchester, CA 90045	W. Los Angeles Regional Library 11360 Santa Monica Blvd. West Los Angeles, CA 90025	West Valley Regional Library 19036 Vanowen Street Reseda, CA 91335	
OTHER LOCAL LIBRARIES			
Alma Reaves Woods Watts Library 10205 Compton Avenue Los Angeles, CA 90002	Beverly Hills Library 444 N. Rexford Drive Beverly Hills, CA 90210	Carson Library 150 E. 216 th Street Carson, CA 90745	Claremont Library 208 North Harvard Avenue Claremont, CA 91711
Compton Library 240 W. Compton Blvd. Compton, CA 90220	Culver City Julian Dixon Library 4975 Overland Avenue Culver City, CA 90230	East LA College Helen Miller Bailey Library 1301 Avenida Cesar Chavez Monterey Park, CA 91754	El Monte Library 3224 Tyler Avenue El Monte, CA 91731
El Segundo Library 111 W. Mariposa Avenue El Segundo, CA 90245	Gardena Mayme Dear Library 1731 West Gardena Blvd. Gardena, CA 90247	Hacienda Heights Library 16010 La Monde Street Hacienda Heights, CA 91745	Hawthorne Library 12700 Grevillea Avenue Hawthorne, CA 90250
Hermosa Beach Library 555 Pier Avenue Hermosa Beach, CA 90254	Huntington Park Library 6518 Miles Avenue Huntington Park, CA 90255	Inglewood Library 101 W. Manchester Blvd. Inglewood, CA 90301	Lancaster Library 601 W. Lancaster Boulevard Lancaster, CA 93534
Lawndale Library 14615 Burin Avenue Lawndale, CA 90280	Lennox Library 4359 Lennox Blvd. Lennox, CA 90304	Lomita Library 24200 Narbonne Avenue Lomita, CA 90717	Malibu Library 23519 West Civic Center Way Malibu, CA 90265
Manhattan Beach Library 1320 Highland Avenue Manhattan Beach, CA 90266	Marina del Rey Lloyd Taber Library 4533 Admiralty Way Marina del Rey, CA 90292	Montebello Library 1550 West Beverly Boulevard Montebello, CA 90640	Mt. San Antonio College Learning Resources 1100 N. Grand Avenue Walnut, CA 91789
Palmdale Library 700 E. Palmdale Boulevard Palmdale, CA 93550	Redondo Beach Library 303 N. Pacific Coast Hwy Redondo Beach, CA 90277	San Dimas Library 145 North Walnut Avenue San Dimas, CA 91773	Santa Monica Library 1343 6 th Street Santa Monica, CA 90401
Torrance Katy Geissert Civic Center Library 3301 W. Torrance Blvd. Torrance, CA 90503	UCLA Henry J. Bruman Library Maps & Gov't Information Young Library, Bldg. A4510 Los Angeles, CA 90095	View Park Library 3854 West 54 th Street Los Angeles, CA 90043	West Hollywood Library 715 North San Vicente Blvd West Hollywood, CA 90069
Willowbrook Library 11838 Wilmington Avenue Los Angeles, CA 90059	Wisburn Library 5335 West 135 th Street Los Angeles, CA 90059	Woodcrest Library 1340 West 106 th Street Los Angeles, CA 90044	

OTHER COUNTY LIBRARIES			
County of Orange Public Library Administrative Headquarters 1501 E. Saint Andrew Place Santa Ana, CA 92701	County of Riverside Public Library 3581 Mission Inn Avenue Riverside, CA 92701	County of San Bernardino Public Library 104 W. Fourth Street San Bernardino, CA 92415	County of Ventura Public Library E.P. Foster Library 651 E. Main Street Ventura, CA 93001
AIRPORTS			
John Wayne Airport 3160 Airway Avenue Costa Mesa, CA 92626	Ontario International Airport Admin. Bldg/Terminal One Public Affairs Section Ontario, CA 91764	Palmdale Regional Airport 39516 N. 25 th Street East Palmdale, CA 93550	Van Nuys Airport 16461 Sherman Way, Ste. 300 Van Nuys, CA 91406
OTHER LOCATIONS			
Federal Aviation Administration Office of the Airports Division 15000 Aviation Blvd. Hawthorne, CA 90261	Los Angeles County Clerk EIR Desk 12400 Imperial Highway Norwalk, CA 90650	Los Angeles City Clerk 200 N. Spring Street, Rm. 360 Los Angeles, CA 90012	South Bay Council of Governments 3031 Torrance Blvd. Torrance, CA 90503

The Supplement to the Draft EIS/EIR can also be viewed at www.laxmasterplan.org.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): <u>Theresa M. Hayes</u>		Date: <u>7/22/03</u>
Address: <u>8818 So. Wilton Place</u>		
City: <u>Los Angeles</u>	State: <u>CA</u>	Zip Code: <u>90047</u>

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
 Number: ~~30~~ Title:

<p>Comments:</p> <ul style="list-style-type: none"> • What steps are being taken to include the sound proofing project - East of Van Ness into the South Los Angeles areas which have seen increased noise levels. The homes in the current program were based on a 1992 study of the 25 monitors stippled for the current program, only one monitor is located in L.A. @ Van Ness & 96th St Carbon Vista on Inglewood side homes beyond that to the east are suffering with excessive noise levels. • What construction & long term plans will be required as part of the AFP's to provide opportunities 	<p>Office Use Only</p>
---	------------------------



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): Cecelia M. Barnes Date: 07-23-03

Address: 403 W. 102nd St.

City: Los Angeles State: ca Zip Code: 90003

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: _____

Comments: Office Use Only

I, Cecelia M. Barnes at 403 W. 102nd St. observed that I am not considered in your map enclosing LAX sound proof Area but I experience same noise as others listed in sound proof area. I therefore am here by requesting your reevaluation of my residence.

There are two Houses on one corner Lot. They are:

1. 403 W. 102nd St.
2. 10115 So Grand Ave

L.A. 90003

Both are in noise path.

Cecelia M. Barnes

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): ERICA GOMEZ Date: 07/23/03

Address: 9221 So. Harvard Blvd

City: Los Angeles State: CA Zip Code: 90047

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):

Number: Title:

Comments: Office Use Only

Sub: Noise, Program Boundaries

As I look at the map I'm right outside the boundaries of the map that is draft. But the big problem is I'm right in the location of the noise it self, and it needs to be looked into. The map needs to be revised.

Attach additional sheets if necessary.

0007



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): Michelle Y. Pigford Date: 7-23-03

Address: 7815 S. Dalton

City: L.A. State: CA Zip Code: 90047

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: _____

Comments:	Office Use Only
<p>I want to make sure my voice is heard regarding the airplane noise over my home. It is so loud, I often need to close doors + windows just to hear the TV or converse with friends. Even then, the noise is LOUD and intrusive.</p> <p style="text-align: right;">Michelle Pigford 323 751-4042</p>	

Attach additional sheets if necessary.

0008



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): James WINN		Date: 7-28-03
Address: 9106 S. DENKER AVE		
City: LA	State: CA	Zip Code: 90047

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):

Number: Title:

Comments:

Air plane are flying so low. you can see the name of the company on the plane my window rattle. I have spend over ten thousand dollar on my level window. Door rattling, wall is cracking inside in outside. The impact on the noise in my home and neighbor hood. I cannot afford to have my window doors. or house fix with my income

Office Use Only

Attach additional sheets if necessary.

0009

Official comments must be received by 5:00pm, Pacific Daylight Time, MONDAY, AUGUST 25, 2003

SPC00009



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): Serina Cannon Date: 7/23/03

Address: 8807 S. Wilton Place

City: Los Angeles State: CA Zip Code: 90047

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: _____

Comments: my deed says that my property is in the flight path. Every day I experience the sound of loud noises and pray that a plane doesn't fall on my house. At times, I have to ask the person over the phone to hold on until the plane flies by. I see a lot of plane flying digital and not straight. I feel that this Master Plan (LAX) should be evaluated in terms of the noise level. It appears that this will increase the number of flights. It is unfair for you to expect us to adopt this plan and not consider working with the community to reduce noise by sound proofing homes that are in the flight path. Appealing to the community in terms of how this would be a benefit. I request that my property be placed on this list among others in my neighborhood for sound proofing. What are you giving back to the community, noise and constant traffic?

Office Use Only

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): ANTHONY MCGINNIS Date: 7-23-03

Address: 7811 DALTON AVE

City: LOS ANGELES State: CA Zip Code: 90047

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):

Number: Title:

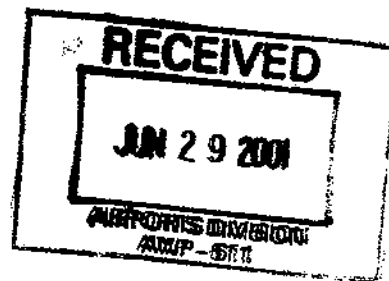
Comments: Office Use Only

There is a need to re-evaluate the sound proofing program. Even though the 2002 data was taken, residents like myself, north of target area, are still subject to excessive jet noise. Please respond to this community concern, at large member southwest neighborhood council
323 778 3131
THANK YOU

Attach additional sheets if necessary.

Russell Stone
7713 Emerson Ave.
Westchester, CA 90045
(310) 337-0827

June 24, 2001



David B. Kessler
U.S. Department of Transportation
Federal Aviation Administration
AWP-611.2, P.O. Box 92007
Los Angeles, CA 90009-2007

Dear Mr. Kessler:

Airport Commission president John Agoglia doesn't know how someone can look at the report on LAX's nation-leading number of near-misses and say that we don't need to upgrade the airport. I ask how someone can look at the report and say we should bring more planes into an airport that is already far beyond its safe capacity. Everyone wants a safer LAX. We can start by putting a cap on the number of flights. Palmdale and inland empire facilities can take up the slack.

Similarly we are told that the airport master plan, while greatly increasing the number of flights, will help relieve traffic around LAX. If you believe that, I've got a bridge I'd like to sell you.

Sincerely,

Russell Stone
Russell Stone

SPC00012



July 21 2003

Mr. David Kessler, AICP
U.S. Department of Transportation
P.O. Box 92007
World Way Postal Center
Los Angeles, CA 90009-2007

Dear Mr. Kessler

I own apartment buildings near Arbor Vitae and Airport Boulevards and support plan 1 the "No Action/No Project Alternative". I am very opposed to "Alternative D". I feel this will not enhance public safety, and will have the opposite effect. I believe concentrating all passengers in one central screening area subjects them to a large-scale terrorist attack. The Rand study recently confirms this.

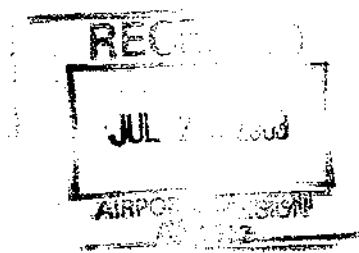
The estimated costs of 9 billion dollars for Alternative D is way too expensive and will result in higher fees for the airlines, taxpayers and air travelers. Lower cost alternative must be explored first, before taking this extreme measure.

Implementation of Alternative D will have a significant impact to the environment. Traffic congestion will increase. Currently, many of our tenants walk to work from their apartments. Demolishing our apartment building and others in the area will eliminate affordable housing for airport workers and create more commuter traffic from tenants forced to drive into LAX.

Please submit this letter for the record during the public hearings.

Sincerely,

Ansho Uchima



00017

Lawrence Lurvey
7545 Whitlock Avenue
Playa Del Rey, CA 90293
323-857-3719

Mr. David B. Kessler, AICP
US Dept of Transportation
FAA
PO Box 92007
World Way Postal Center
LA, CA 90009-2007

Dear Mr. Kessler,

I am writing in support of Alternative D for LAX. Specifically, I am in favor of the cap on passenger activity level to 78.9 MAP in 2015 comparable to current levels. This would force a regionalization of transportation that needs to happen. Further, alternative D would link the airport to current public transportation specifically the Green Line.

Please register my support for Alternative D in your decision making.

Sincerely,



Lawrence Lurvey
Playa Del Rey Homeowner

00018

FIVE

23 20

FAA
AWP-612

SPC00014



July 21 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Dear Mr. Ritchie,

I own apartment buildings near Arbor Vitae and Airport Boulevards and support plan 1 the "No Action/No Project Alternative". I am very opposed to "Alternative D". I feel this will not enhance public safety, and will have the opposite effect. I believe concentrating all passengers in one central screening area subjects them to a large-scale terrorist attack. The Rand study recently confirms this.

The estimated costs of 9 billion dollars for Alternative D is way too expensive and will result in higher fees for the airlines, taxpayers and air travelers. Lower cost alternative must be explored first, before taking this extreme measure.

Implementation of Alternative D will have a significant impact to the environment. Traffic congestion will increase. Currently, many of our tenants walk to work from their apartments. Demolishing our apartment building and others in the area will eliminate affordable housing for airport workers and create more commuter traffic from tenants forced to drive into LAX.

Please submit this letter for the record during the public hearings.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ansho Uchima', with a long, sweeping horizontal stroke extending to the right.

Ansho Uchima

Lawrence Lurvey
7545 Whitlock Avenue
Playa Del Rey, CA 90293
323-857-3719

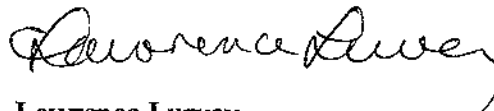
Mr. Jim Ritchie
City of Los Angeles
LAWA
LAX Master Plan Office
PO Box 92216
Los Angeles, CA 90009-2216

Dear Mr. Ritchie,

I am writing in support of Alternative D for LAX. Specifically, I am in favor of the cap on passenger activity level to 78.9 MAP in 2015 comparable to current levels. This would force a regionalization of transportation that needs to happen. Further, alternative D would link the airport to current public transportation specifically the Green Line.

Please register my support for Alternative D in your decision making.

Sincerely,



Lawrence Lurvey
Playa Del Rey Homeowner

SPC00016



NATURAL RESOURCES DEFENSE COUNCIL

July 16, 2003

David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
World Way Postal Center
Los Angeles, CA 90009-2007

Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Re: Request for Extension of Time to Comment on the Supplement to the Draft EIS/EIR for the LAX Master Plan

Dear Mr. Ritchie and Mr. Kessler:

On behalf of the Natural Resources Defense Council ("NRDC") and its members, we are writing to request an extension of ninety days for the public to comment on the Supplement to the Draft Environmental Impact Statement/Environmental Impact Report ("EIS/EIR") for the Draft Los Angeles International Airport Master Plan.

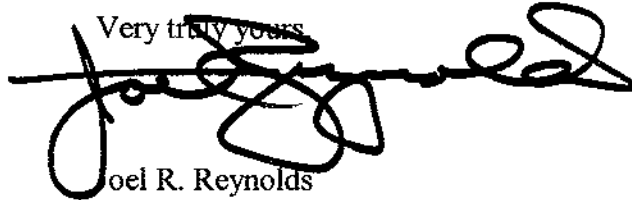
Expansion of Los Angeles International Airport continues to be a matter of significant public concern. Because we believe that the short comment period of 45 days is insufficient to allow meaningful public comment, we request that Los Angeles World Airports extend the public comment period and reschedule the public hearings accordingly. This request is necessitated both by the importance of this matter and the fact that the end of summer is a difficult time for many members of the public to participate in hearings and submit comments. Currently, all of the public hearings are scheduled between August 11 and August 23, a period when many affected community members may be away on vacation or otherwise preoccupied with family matters. An extension of the comment period deadline is necessary to improve the public's opportunity to provide comment on this important matter.

David B. Kessler
Jim Ritchie
July 16, 2003
Page 2

In addition, although we anticipate preparing additional comments based on our review of the Supplement, we are attaching to this letter for your consideration the comments that we previously submitted in 2001 regarding the Draft Los Angeles International Airport Master Plan and Draft EIS/EIR.

Thank you for your consideration of this request.

Very truly yours,

A handwritten signature in black ink, appearing to read "Joel R. Reynolds", written over the typed name below.

Joel R. Reynolds
Senior Attorney

SPC00017



NATURAL RESOURCES DEFENSE COUNCIL

November 8, 2001

Jim Ritchie, Deputy Executive Director
Los Angeles World Airports
LAX Master Plan / Room 218
P.O. Box 92216
Los Angeles, CA 90009-2216

David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
World Way Postal Center
Los Angeles, CA 90009-2007

Re: Comments on the Draft Los Angeles International Airport Master Plan and Draft Environmental Impact Statement/Environmental Impact Report

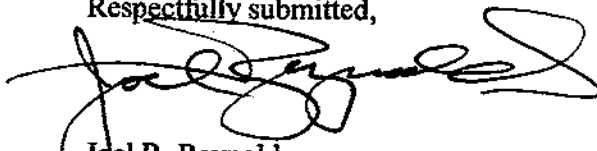
Dear Mr. Ritchie and Mr. Kessler:

On behalf of the Natural Resources Defense Council ("NRDC") and its over 500,000 members, we submit these comments on the documents cited above.

In light of significantly changed circumstances since the draft EIS/EIR was circulated for public comment, we believe that the document should be withdrawn and a new EIS/EIR prepared. In the alternative, we request that a supplemental environmental impact report/statement addressing the implications of the September 11 attacks for the planned expansion of LAX be prepared before any decision on the project is made. Without any doubt, this extraordinary event constitutes significant new information that may fundamentally alter the plan as proposed and, indeed, may ultimately dictate a changed result. The implications of the attack for air travel and security issues are fundamental, as is the importance of meaningful public input on a project as significant as the proposed LAX expansion. Under these circumstances, additional environmental review and public comment is unquestionably required.

Without waiving these requests, we submit as an Attachment brief comments on the air quality and health assessment portions of the draft EIS/EIR as previously circulated for public comment.

Respectfully submitted,



Joel R. Reynolds
Senior Attorney

ATTACHMENT

The Air Quality and Human Health Risk Assessment portions of the LAX EIS/EIR raise a number of concerns:

LAWA Should Not Take Credit for Mitigation Measures It Cannot Ensure

LAWA cannot include or take credit for measures over which it has no control or enforcement, such as a requirement of all construction deliveries to be made with clean fuel vehicles. The modification of airplane operating procedures, which would contribute some of the largest emissions reductions, requires FAA approval. Other proposed measures, such as Intelligent Transportation Systems and traffic management programs require cooperation from MTA and Caltrans. LAWA's commitment to and control over the list of mitigation measures needs to be clarified. Finally, the Technical Report 4, Attachment X, which contains details about air quality mitigation measures, should be redone in a legible electronic rather than scanned form.

The No Action/No Build Scenario Does Not Necessarily Mean Greater Public Risk

We disagree that the No Action/No build scenario would generate greater air quality risks to the public. Most of the air quality improving measures included in the mitigation and Environmental Action plans could be implemented under this scenario without any changes to current runways. Therefore, the EIS/EIR statements, such as "All of the Master Plan build alternatives would be better, producing lower overall emissions, than the No Action/No Project alternative,"¹ are misleading and false. The appropriate comparison would be with a project that included air quality improvement measures but did not add any changes to the current runways.

The Human Health Risk Assessment goes one step further and states that the No Action/No Project Alternative "would cause maximally exposed individual cancer risks and non-cancer hazards to increase in all areas near LAX in both horizon years."² This statement could only be true if the mitigation measures were only applied to the three build alternatives. Again, most of those mitigation efforts could also be implemented without any new runway construction or expansion. In fact, health risks from the No Action/No Project Alternative may be significantly over stated, if the recent Fleet and Commercial Airport Ground Access rules were not incorporated into the emission inventory projections.³

1997 Air Quality Standards Should Be Included in the Analysis:

¹ On-Airport Emissions Key Conclusions, page 4-460, LAX EIS/EIR

² 14a Human Health Risk Assessment Technical Report (HHRA), page 2, LAX EIS/EIR

³ http://www.aqmd.gov/news1/Fleet_Rule_Home.htm and <http://www.aqmd.gov/rules/rulesreg.html>

The air quality analysis in the EIS/EIR should include the ozone and fine particulate standards passed by the US EPA in 1997. The standards were unanimously upheld by the Supreme Court in February of this year. Regardless of the previous uncertain legal status of these standards, LAWA should have included analysis under the more protective standards, as a conservative precaution. Now that these standards are slated for implementation, they must be used in the EIS/EIR.

Though the EIS/EIR included California Ambient Air Quality Standards (CAAQS), which are slightly more stringent than older national standards, the new national standards are even more protective of human health. Additionally, LAWA should be more sensitive to these concerns given the current "Extreme" nonattainment status of the Los Angeles area with respect to ozone and "Serious" status with respect to particulates.⁴

The "Preferred Alternative" Would Violate Standards for Particulate Matter

In the General Approach and Methodology section, it is stated that the current method to account for PM_{2.5} is to use PM₁₀ as a surrogate.⁵ If this is so, then both the construction and operational unmitigated emissions from all alternatives would exceed the new PM_{2.5} standards by significant amounts ranging up to 550% for Alternative A during the peak of construction.⁶ With the menu of mitigation efforts in place, all alternatives are still predicted to violate the new particulate standards. The preferred alternative is predicted to be at more than twice the standard during construction and full operation.⁷ Nowhere in the EIS/EIR are these issues addressed.

Proposed Mitigation for Particulate Matter and Ozone is Utterly Insufficient

Despite the large problems with particulate emissions without mitigation, the mitigation efforts included in the plan reduce particulates the least of all the criteria pollutants, a nominal 5 to 7 percent compared to the up to one third reductions in carbon monoxide (CO). Estimates of particulate reductions are conspicuously missing from Table 4.6-16, which lists the reductions of NO_x, VOC, and CO from mitigation measures. According to Table 4.6-6, stationary sources at LAX contribute significantly to total particulate emissions, accounting for 54 of the 159 tons per year of baseline (1996) emissions, however no mitigation measures are offered to address this large source category. LAWA should focus more attention on mitigation measures that lower particulates.

⁴ "PM10" or PM with average diameter less than or equal to 10 microns.

⁵ PM_{2.5} are particulates with diameters less than or equal to 2.5 microns; page 4-462, LAX EIS/EIR

⁶ Based on Table 4.6-13, LAX EIS/EIR; Calculation: (98 ug/m³ - 15 ug/m³)/15ug/m³, Annual Arithmetic Mean (AAM)

⁷ Based on Table 4.6-20, LAX EIS/EIR; 39 ug/m³ and 34 ug/m³ versus 15ug/m³, AAM

The EIS/EIR also fails to address the impacts of any alternatives on ozone, a major air quality problem in Los Angeles, in terms of meeting state and federal standards.

Conformity Budgets Should Be Included:

The emission levels predicted in the EIS/EIR from the preferred alternative are stated to trigger conformity requirements. However, the conformity analysis including these figures will not be available to the public for some time. Without this analysis, it is impossible to assess the feasibility of any alternatives. LAWA should, at a minimum, include in the EIS/EIR the conformity emissions budget listed in the California State Implementation Plan (SIP), and compare the overall emissions projected in the LAX Master Plan to this budget.

Questionable Emission Estimates for Toxic Air Pollutants:

Although the consultants used a wide variety of referenced sources to construct emission profiles for all of the sources at LAX, the “surveys” that were used to obtain operational factors for all of the equipment were not referenced. It is unclear why a phase I set of emissions estimates was constructed for all sources and then later revised as phase II, only changing emission estimates for aircraft.

The report states that the Phase II emission estimates were “refined based on inspections at LAX and interviews with LAX tenants identified by LAWA.” It is not clear how these inspections and interviews could cause emission estimates for some of the most toxic chemicals, such as 1,3-butadiene, acetaldehyde, acrolein, arsenic, benzene, cadmium, formaldehyde, lead and styrene to be adjusted downward, while other less toxic chemicals such as hexane, copper, nickel and zinc were increased. Lead, for example, was adjusted from an estimated 1,253 kilograms emitted per year from aircraft to 29 kg per year, with no footnoted explanation of anticipated jet fuel changes or any other such possibility. It is implausible that operational parameters could drastically decrease emission estimates for certain chemicals while increasing others.

Emissions of Lead from Airport Activity Must Be Better Addressed:

In the state of California, airports are the largest source of lead, accounting for 149 of the estimated 175 to 182 tons emitted per year.⁸ Lead was listed by the state as a Toxic Air Contaminant (TAC) in 1997, and the Office of Environmental Health Hazard Assessment (OEHHA) recently selected lead as one of five TACs that may cause infants and children to

⁸ Proposed Identification of Inorganic Lead as a Toxic Air Contaminant, California Air Resources Board, March 1997.

be especially susceptible to illness.⁹ OEHHA is currently reviewing lead standards to determine whether they are protective of children's health. The agency has already concluded that even airborne lead levels at one third of the current state standard could result in 10 percent of children having lead blood levels above official levels of concern set by the Center for Disease Control and Prevention.¹⁰

Considering these developments, the exclusion of lead from the air quality and human health risk assessment (HHRA) portions of the EIS/EIR is inappropriate. The EIS/EIR states that emissions of lead are "relatively low and would not contribute to a violation of the Pb NAAQS or CAAQS."¹¹ However, it is known that harmful effects of lead can occur from exposures below the ambient air quality standard. Since the lead standard was put in place over 20 years ago, it has become clear that lead is a potential human carcinogen and a strong neuro- and developmental toxicant at low levels.¹²

The screening report attached to the HHRA actually named lead as a "significant community health concern... released in significant quantities (2,941 kg/yr) from LAX."¹³ It also stated that lead would be "retained as a TAP of potential concern," and the Air Quality report directs the reader to the HHRA for further analysis of lead. However, there it is stated that lead is predicted to be below the ambient standards and therefore eliminated from the analysis.¹⁴ Because lead does not have a Reference Exposure Level (REL), as with other chemicals for which "toxicity criteria are not available," a quantitative toxicity screen was not conducted.¹⁵ In fact, The California Air Resources Board has not yet set a REL for lead because they could not identify a threshold value below which exposure to lead is safe.¹⁶

The final risk analysis completely excludes noncancer effects of lead as well as cancer risks from lead despite the availability of cancer potency factors.¹⁷ The EIS/EIR for LAX is unacceptable without further analysis of such a major threat to public health.

Health Risks are Underestimated:

⁹ Under the Children's Environmental Health Protection Act (Senate Bill 25, Escutia; chaptered 1999) and (Health and Safety Code Sections 39669.5(a)); the five TACs were reviewed and endorsed by the Scientific Review Panel.

¹⁰ OEHHA, Lead: Evaluation of Current California Air Quality Standards With Respect to Protection of Children, September 2000.

¹¹ Section 4.6.6 Environmental Consequences, page 4-482, LAX EIS/EIR

¹² Agency for Toxic Substances and Disease Registry, ToxFaqs, June 1999

¹³ HHRA, Appendix B, Page 19, LAX EIS/EIR

¹⁴ HHRA, page 12, LAX EIS/EIR

¹⁵ HHRA, Appendix B, Page 18, LAX EIS/EIR

¹⁶ Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values, July 2001.

¹⁷ Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values, July 2001.

The Executive Summary of Human Health Risk Assessment states that “methods are used that are more likely to overestimate than underestimate possible health risks” and “risk estimates represent upper-bound predictions of exposure, and therefore health risk, that may be associated with living near, and breathing emissions from, LAX during and after implementation of the Master Plan.” The risk assessment, however, upon closer examination, actually underestimates risk in many instances.

The assessment states “cancer risks were estimated for people who grow up and spend most of their adult life near the airport.”¹⁸ Consequently, the analysis was based on exposure durations of 30 years for adults and six years for children. This is counter to common risk assessment guidance recommending exposure durations of 70 years for lifetime cancer risk.¹⁹ The resulting assessment, based on these low exposure duration values, underestimates exposure by over one half.

Inhalation Rates used in the analysis were also at the low end of the spectrum. The US EPA Exposure Factors Handbook²⁰ recommends an average inhalation rate of 1.07 m³/hr, more than 70 percent higher than the 15 m³/day rate used in this assessment. The assessment also selected the highest average adult body weight, 70 kilograms (kg), which leads to further underestimates in weight-adjusted exposure. Guidance indicates that lifespan exposure analysis (0 to 70 years) should use an average body weight of 62-63 kg, depending on the source.²¹ Additionally, if this assessment represents the most sensitive populations, it should use body weight factors for adult females, which range from 62-68 kg, according to EPA’s Exposure Factor Handbook.

Health Risk Assessment Based on Alternative C May Underestimate Risks from Other Alternatives

The risk was also underestimated for the build alternatives under 2005 post-mitigation conditions, because it was based on Alternative C, which the assessment states is “essentially identical” to alternatives A and B.²² Alternative C, however, would include the least construction activity of the three alternatives and therefore would represent the lowest risk of any alternative. Pre-mitigation analysis for 2005 did not state which alternative the modeling was based on; it was simply noted that all three build alternatives were “predicted

¹⁸ HHRA, page 19, LAX EIS/EIR

¹⁹ Office of Environmental Health Hazard Assessment, Exposure Assessment and Stochastic Analysis Technical Document, Chapter 11: Exposure Duration, December, 1996; California EPA, Practices, Needs and Methodologies for Human Exposure Assessment at Cal/EPA, Table 4-4, February, 2001; US EPA Exposure Factors Handbook, ORD, August, 1997.

²⁰ Chapter 5, Table 7

²¹ The CalTOX Model uses a body weight of 62 kg for child/adult combined analysis; OEHHA’s Exposure Assessment and Stochastic Analysis uses 63 kg for age 0-70 analysis, according to Practices, Needs and Methodologies for Human Exposure Assessment at Cal/EPA, Table 4-4, February, 2001

²² HHRA, Page 54, LAX EIS/EIR

to be similar.”²³ Alternative B seems to produce the highest modeled concentrations of TAPs in 2015 for both pre- and post-mitigation conditions. Therefore, it would seem to be the logical choice as a conservative estimate for all three alternatives.

Particulate Emissions from Aircraft Must Be Included

Particulate emission estimates from aircraft should have been considered in the HHRA. It is merely mentioned that their exclusion leads to “uncertainty in the risk estimates presented”;²⁴ it should have been clearly acknowledged that it led to a significant underestimation of risk. The Air Quality analysis stated that “The major sources of PM₁₀ emissions are aircraft engines (32 percent)...” while the HHRA states that aircraft are expected to emit “relatively little” PM.²⁵ This later statement is a contradiction and serves to minimize the impacts of the build alternatives which would include more aircraft activity.

Finally, the last section of the HHRA concedes that “incremental cancer risks after mitigation could be underestimated by about 60 percent.” This is inconsistent with previous statements that this assessment represents the upper-bound of risk. Assumptions regarding mitigation measures should have been the most conservative, eliminating the uncertainty of underestimation of risk on such a large scale. Uncertainty regarding risk from diesel particulates, which account for a majority of the cancer risk, was not directly addressed. In fact, assumptions were buried in footnotes to two tables.²⁶

²³ HHRA, Page 29, LAX EIS/EIR

²⁴ HHRA, Page 82, LAX EIS/EIR

²⁵ Page 4-479 and HHRA Page 82, LAX EIS/EIR

²⁶ Conversion rates noted in Pages 4-517 and 4-519, LAX EIS/EIR



Leonard Kranser, Website Editor

<http://www.eltoroairport.org>

75 Monarch Bay Drive, Dana Point, CA 92629

Phone: 949-499-5567 Fax: 949-499-5567

E-mail: Editor@eltoroairport.org

July 22, 2003

**Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007**

**Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216**

RE: Comments on LAX Master Plan EIS/EIR

1. Planning horizon and job loss

The Executive Summary of the Supplement to Draft EIS/EIR, Impact Comparison ES-11, indicates that LAX-Related Jobs for Entire LA Region in 2015 will be 350,557 for Alternative D versus 448,083 for Alternatives A and B. This is a loss of 97,526 jobs.

2015 is a short planning horizon for a major long-lived infrastructure project such as an airport. Furthermore 2015 is not used consistently. For example, the DEIS/EIR Section 1.3 Meeting the Demand for Transportation in the Region discusses freeway congestion in 2020. Section 1.1.3.3 Future Demand also looks at 2020.

Section 1.3.4 Telecommunications and Video Conferencing discusses those technologies' impact on air travel in 2030.

The Southern California Association of Governments employs a 2030 time line for evaluating aviation demand in the region.

- Calculate the disparity in jobs under the several Master Plan alternatives for 2020 and 2030.

SPC00018

- For each of the years 2015, 2020, and 2030 identify the loss of jobs under Alternative D versus A or B by city, county, and ethnic group.
- Incorporate this loss of jobs by ethnic group in the DEIS/EIR discussion of environmental justice.
- Justify adopting the Alternative D with the greatest number of lost jobs.

2. Planning horizon and economic loss.

The Executive Summary of the Supplement to Draft EIS/EIR, Impact Comparison ES-10, shows LAX-Related Economic Activity for Entire LA Region in 2015 will be \$63.7 billion under Alternative D versus \$83.7 billion for Alternatives A and B. This is a loss of \$20 billion of economic activity.

2015 is a short planning horizon for a major long-lived infrastructure project such as an airport. Furthermore 2015 is not used consistently. For example, the DEIS/EIR Section 1.3 Meeting the Demand for Transportation in the Region discusses freeway congestion in 2020. Section 1.1.3.3 Future Demand also looks at 2020.

Section 1.3.4 Telecommunications and Video Conferencing discusses those technologies' impact on air travel in 2030.

The Southern California Association of Governments employs a 2030 time line for evaluating aviation demand in the region.

- Calculate the disparity in economic activity under the Master Plan alternatives for 2020 and 2030.
- For each of the years 2015, 2020, and 2030 identify the loss of economic activity under Alternative D versus A or B by city and county.
- Justify adopting Alternative D with the greatest loss of economic benefit.

3. Failure to provide sufficient regional airport capacity.

An April 11, 2003 memorandum from Los Angeles Deputy Mayor Troy Edwards and Airport Commission President Ted Stein to U.S. Department of Transportation Secretary Norman Mineta states that failure to provide sufficient aviation capacity will have a detrimental effect on the economy of the region and the State of California.

- Justify reducing the number of gates at LAX in Alternative D and restricting the airport's capacity for providing passenger and cargo service in terms of Edwards and Stein's analysis. Quantify the detrimental effect of Alternative D versus Alternatives A and B on the economy of the region and the State of California.

- Calculate the loss of jobs and economic benefit associated with the Alternative D reduction in the number of airport gates at LAX.
- Justify the selection of Alternative D over A or B, both of which provide for more of the capacity which the referenced memo says is needed.
- Identify any studies that show that the region can meet its aviation capacity needs in 2030 by utilizing existing airports (LAX, LGB, BUR, SNA, PSP, ONT, PMD, and SBD) under the capacity constraints of Alternative D. For this purpose, consider only existing or currently authorized regional airports with Airport System Master Plans and with approved passenger service.
- According to the minutes of the January 16, 2003 meeting of the Southern California Association of Governments Aviation Task Force, Mr. Jim Ritchie, Director of Long-Range Planning of LAWA stated that the runway capacity of LAX will be 89 million annual passengers under Alternative D. Explain why the airport is to be limited to 78 MAP under Alternative D if a potential shortage of airport capacity is predicted.
- Calculate the loss of jobs and economic benefit associated with the Alternative D failure to utilize the 89 MAP capacity of the runways.

4. Reliance on inclusion of MCAS El Toro.

The DEIS/EIR assumes the use of the former MCAS El Toro to meet the region's aviation needs. See for example, Table 1-13 LA Region Airport System Scenarios for 2015. The voters of Orange County, the County of Orange Board of Supervisors, and the Department of Navy have stated that El Toro will be reused for non-aviation purposes and will not be a commercial airport. The Southern California Association of Governments has signed an agreement with the federal government to discontinue planning for an airport at El Toro and is in the process of removing that former military base from its 2004 Regional Transportation Plan.

The Supplement fails to update the DEIS/EIR Regional Context, Section 1.2.2.4 MCAS El Toro, and related maps, tables and narrative sections to eliminate use of El Toro.

- Revise the Supplement to reflect the removal of El Toro airport from consideration.
- Recalculate all job and economic data in the Supplement to the DEIS/EIR to reflect the fact that El Toro will not be a commercial airport.
- Using data from the Southern California Association of Governments modeling for the Regional Transportation Plan, show the effect of using LAX Master Plan Alternative D versus Alternatives A or B on regional aviation capacity.

5. Failure to use latest planning data.

The DEIS/EIR and Supplement utilize outdated planning data. For example, 1996 passenger data is used when Los Angeles World Airports conducted extensive passenger surveys at LAX and Ontario airports in 2001. Over 20,000 passenger surveys were collected in order to determine the domestic and foreign destinations of passengers and the California counties of origin for passengers using those airports.

- Revise the DEIS/EIR and Supplement to use LAWA's 2001 data on passengers in lieu of 1996 and other outdated data.

6. Failure to incorporate technological advances that will increase airport capacity.

No increase in capacity has been included for improvements in airfield capacity arising from technological factors such as improved weather forecasting and new air traffic control procedures. For example the FAA Airports Capacity Benchmarks Report - 2001 states:

"Technology and procedural improvements are expected to improve the Los Angeles capacity benchmark by 11% (165-167 flights per hour) over the next 10 years, while the adverse weather capacity benchmark will increase by 4% (132-133 flights per hour)."

- Calculate the capacity of the airport under the physical conditions of Alternative D but without artificial constraints on the number of passengers served. Consider technological factors such as the above and the likely trend in aircraft seating.

7. Failure to consider the trend to quieter and less polluting aircraft.

Alternative D seeks to limit the number of passengers to 78 Million per Year. With newer aircraft this cap will result in a decrease in the amount of noise and air pollution over time.

- Calculate the noise and air pollution impact of Alternative D in 2015, 2020 and 2030 versus baseline conditions.

Very truly,



Leonard Kranser



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): EYES OF Justice Date: 08/02/03

Address: 3403 West 113th Street

City: Inglewood State: CA Zip Code: 90303

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: _____

Comments: _____ Office Use Only

1) A full accounting and review of the City of Inglewood's Residential Sound Insulation Program re the following:

- a) Funding Appropriated over 30 years ago through LAX from the FAA, etc., and how it has been used
- b) Why the program has not been fully implemented;
- c) Remaining funding and added funding available to complete the program on an absolute, unequivocal deadline

2) That the federal government via the EPA, etc, be approached to

Office Use Only

(1)

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): EYES OF JUSTICE Date: 08/02/03

Address: 3403 West 113th Street

City: Inglewood State: CA Zip Code: 90303

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

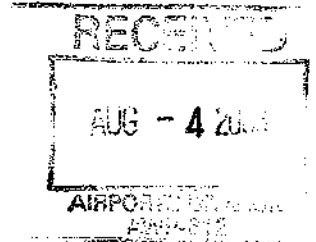
Subsection (If applicable):
Number: _____ Title: _____

Comments:
Continuation of Comment 2);
commit to building a mass
transportation route via the
405 freeway/San Diego using
either above ground or ~~BELOW~~
~~GROUND~~ (this idea was conceived
by me, PROUDY, at this meeting)
The contributing congestion from
the 405 north (and south) would
make mitigation at the airport
(however well planned, commendatory,
but considerably ineffective) #
The EPA has set environmental
mandates for us, let them
contribute to a VARIABLE SOLUTION
UNDER GROUND - I like it!!! (2)

Office Use Only

Attach additional sheets if necessary.

Mae Wallace
8229 So Mariposa Ave.
Los Angeles, Ca, 90044
7-30-63



Mr. David B. Kessler A/C P
U.S. Dept of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, Ca, 90009-2007

So whom this concerns I received this card
from you. I don't quite understand. will you
please write me or call me. 323-759-3611
I haven't received no letter or form. so please
contact me and explain this to me.
you said recently mailed me a h AS
Master plan of notification (NOA)
please let me hear from you soon?
So I can understand what this is about.
is this about the planes that flying over
our house?
hope to hear from you soon.

Thank you

Mae Wallace
323-759-3611

CYNTHIA STEVENS

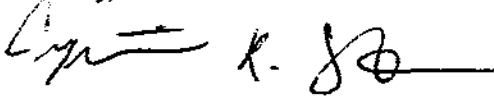
August 2, 2003

To Whom It May Concern,

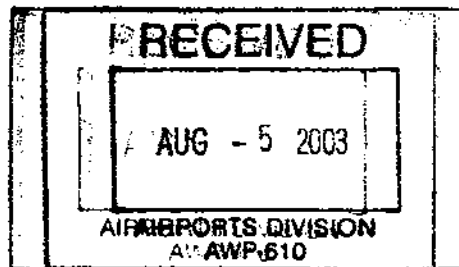
I recently received a postcard stating that I should have already received an LAX Master Plan Notification of Availability. I am writing to inform you that I don't recall having received any such thing.

Please resend the information and/or respond by e-mail detailing what the NOA is and how it effects me. Thank you.

Sincerely,



Cynthia R. Stevens



SPC00021

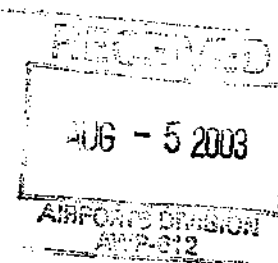
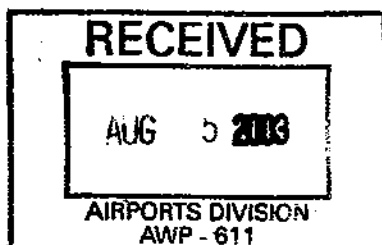
COMMENTS FROM AN OLD TIMER

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
LAX Master Plan Office
P.O.Box 92007
Los Angeles, CA 90009-2007

In reviewing LAX (D) and LAX (E) I find them full of holes and VERY EXPENSIVE.

1. Leave the terminals and existing access as is. This allows people to drop off and pick up the elderly and handy capped right at their terminals. This scatter of terminals is safer than the proposed concentration.
2. Moving runways and putting a taxiway between them has not improved wing tip clearance versus 45 degree holding between existing runways. Nobody shows which way the airplanes would be going in those center taxiways. This very unsafe.
3. The time and cost moving a runway will effect a shortage of operational runways for a long time and with the existing air traffic will cause a real problem.
4. The location of the new tower solved the visibility problem that occurred on the north runway and taxiway that one time. NO PROBLEMS SINCE.
5. With the financial shortage in Federal, State and City, leave as is except to improve the security in the existing terminals.
6. I went to the library to review the airport plan D and was shocked by the extent of the environmental study. About 6 feet of books full of GOBBLED- GOOK. When there wasn't an acceptable plan to evaluate. What a waste of taxpayer funds.
7. Cargo truck traffic mixed with passenger traffic could be solved by utilizing Ontario airport where the truck traffic can come and go in all directions and not restricted to approach only in one direction.

John S. Ehret
8219 Calabar Ave.
Playa Del Rey, CA 90293
Retired McDonnell Douglas 79", Retired from FAA 89", continued as a constant with McDonnell Douglas until Boeing took over.





P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): John Robert, Wilshire Center Neighborhood Center Date:

Address: 531 1/2 S. Normandie Ave

City: LA

State: CA

Zip Code: 90020

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):

Number: Title: Plan D

Comments:

Office Use Only

Support Major Halin's Alternative D plan on behalf of our neighborhood center, the largest in LA with 100,000 members.

Have the following concerns:

- ① How will it affect businesses on Century Blvd
- ② How will it affect taxis
- ③ Looks like I will be walking under new plan
- ④ Do I have to go through full security to visit passengers

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): YOUNG S. KIM Date: 8/4/03

Address: 3250 WILSHIRE BLVD., #1910

City: L.A. State: CA Zip Code: 90010

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: _____

Comments:	Office Use Only
<p>ALTERNATIVE D IS A TESTAMENT TO MAYOR HAHN'S COMMITMENT TO THE CITY OF LOS ANGELES.</p> <p>BY DEVELOPING LAY TO A STATE OF THE ART FACILITY, IT WILL CREATE A NEW FACE FOR THE CITY OF L.A.</p> <p>IN THE PROCESS, IT WILL IMPROVE THE QUALITY OF LIFE FOR THE CITIZENS OF L.A. AS A WHOLE, & FOR THE 49,000 WORKERS RECEIVING PREVAILING WAGES FOR THEIR WORK.</p> <p>THE CITIZENS OF THE CITY OF L.A., THE COMMUNITY, & THE WORLD WILL BENEFIT FROM ALTERNATIVE 'D'</p>	

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): ERICA M. KIM (PRESIDENT OF KOREAN American Chamber of Commerce of Los Angeles) Date: 8-11-03

Address: 8530 Wilshire Bl Suite 1655

City: Los Angeles State: CA Zip Code: 90010

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: _____

Comments:

I am here to support the Mayor's Alternative D of the LAX Master Plan. I am currently the President of Korean American Chamber of Los Angeles.

The development of the alternative is a significant accomplishment for the City of Los Angeles.

I do not need to emphasize the importance of LAX to Greater Los Angeles, and to our Korean American Community. This air port has been the gate way to Pacific Rim, which has greatly and positively impacted Los Angeles business Community.

It is very critical to continue to attract foreigners, mainly but not limited to Pacific Rim, by having a much more efficient, safe and secure airport.

Office Use Only

Attach additional sheets if necessary.



P.O. Box 92216
 Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): Frederick Piedmont Brown Date: 8-11-03

Address: 2057 South Atlantic Blvd.

City: L.A. State: CA Zip Code: 90040

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
 Number: _____ Title: _____

Comments:
 LAX : Los Angeles sets the trend
 For this great country and the world. In
 my opinion and experience we are the only
 major airport without a people
 mover rail system. LAX greatly needs
 to take the next step in the modernization
 of the airport. For safety, for our
 culture, and our economy.

Office Use Only

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): Dana C. Gabbard **Date:** 8-11-03

Address: 3010 Wilshire Bl #362

City: Los Angeles **State:** CA **Zip Code:** 90010

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: **Title:**

Comments:	Office Use Only
<p>Support consolidating rental car outlets. Design of remote sites shouldn't prevent Northern extension of Green Line in I405 corridor. (connecting to eventual Expo light rail line) LAX should fund all costs associated with Green Line connecting with People Mover (BART SFO extension provides precedent for airport funds spent in adjacent transportation facility of regional significance). Design should take into account possible future LAX connection with proposed statewide High Speed Rail network.</p>	

Attach additional sheets if necessary.

Annette Mercer
2647 Glendon Avenue
Los Angeles, CA 90064

Aug. 11, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

RE: LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal. A recent Rand Corp. study has indicated that congregating all commercial passengers in one location increases the risk and harm to a greater number of people by a terrorist attack. In addition, the added inconvenience of additional time required to be screened and transported to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. These general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation airport in the area.

Los Angeles World Airports (LAWA) must address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, more space should be given to general aviation uses in order to avoid "spillover" GA traffic into Santa Monica Airport.

LAWA and the City of Los Angeles should also do what they can to encourage airlines to promote the use of regionally diverse airports such as Ontario, John Wayne, and Burbank. I do not believe that LAX needs to be larger and that increasing the capacity of the airport will only adversely affect our roadways and air quality. Development of airport capacity should follow regional housing development, i.e., in the Inland Empire and eastern portions of the county.

I do not like the concept of everyone going to the Manchester Square facility. RAND says it is unsafe. I also think it would add considerably to the time required to get from home/hotel to your airline gate. It would also require several changes of travel modes which (1) is a disincentive, and (2) is hard with children, baggage, or disabilities. It seems like the potential for lost luggage, missed connections, etc. would be increased. I suggest that a direct rail/LRT connection be made to the airline terminals so that if you use the train you get right into the terminal (an incentive!). If you drive to the airport, you need to do a remote check in at a Manchester Sq. facility. But some parking needs to be available near the terminals. And some check in facilities will still be available in the terminals (for connecting flights if nothing else) and problem solving for missed flights, etc. will be easier and congestion will be less if there are various facilities to choose from.

Finally, I encourage the separation of the runways/taxiways as required for safety reasons but I disagree that we should be building the airport only for super sized planes. A balance of sizes would seem to be more appropriate and more generally useful in the long run. I think we want this design of the airport to be good well past 2015, which is coming right up – and may be past by the time construction is done. Let's plan for 2050!

Sincerely,



Annette Mercer

SPC00028

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: MARK L. Crosby
108 1/2 Dudley Ave
Venice CA 90291

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

A recent Rand Corp. study has indicated that congregating all commercial passengers in one location increases the risk and harm to a greater number of people by a terrorist attack.

The added inconvenience of additional time required to be screened and transported to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. These general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation airport in the area.

I urge Los Angeles World Airports (LAWA) to thoughtfully consider the risks of this proposal and to address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

Additional Comments: _____

If implemented as planned I would
NEVER AGAIN USE LAX FOR MY
PERSONAL OR BUSINESS TRAVEL!





P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): BERNARD LOUBERSAC, NILL Date: 08/15/03

Address: 6751 W. IMPERIAL HWY.

City: LOS ANGELES State: CA Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):

Number: Title:

Comments:

Office Use Only

→ WOULD LIKE TO FIND OUT MORE SPECIFIC ON WHAT WILL HAPPEN TO EXISTING ANCILLARY FACILITIES ON THE SOUTH SIDE OF 25L R.W. (IMPERIAL HWY).
- :
- 405 & 105 WHAT WILL BE DONE TO IMPROVE TRAFFIC.
- SURFACE STREET: WHAT WILL BE DONE TO IMPROVE TRAFFIC (SETUP ADA....).
B. LOUBERSAC

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): MARTHA WHITAKER Date: 8-18-03

Address: 9447 S. HOBART BLVD

City: LOS ANGELES State: CA Zip Code: 90047

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: _____

Comments: To whom this may concern,
I ask that my house get soundproofed due to the loud noises from the airplanes. I am 81yrs old and the noise is so loud that I am not able to relax at times. I cannot hear when I watch television not can hear when I am on the phone. But most importantly is I lose a lot of sleep. I can't rest during the day as my doctor ask because the planes make my house tremble and are so very loud. when I do fall asleep the noise awakes me and it scares me. I try to go to bed at 7:30pm but I can't fall asleep as I should until several hours later, basically once the planes calm down and are not coming over my house anymore at night. Again I am an elderly woman and I am in desperate need of this work being done to my home. In concern of my age ~~and health~~ so that I may rest as I should. I would kindly appreciate it if my comments would be taken into deep consideration.

Thankyou kindly,
Martha Whitaker

Office Use Only

Attach additional sheets if necessary.

Martha Whitaker



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): Ms. BYRD E. YOUNG Date: 8/18/03

Address: 9416 S. HOBART BLVD

City: LOS ANGELES State: CA Zip Code: 90047

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: LAX MASTER Plan

Comments: (we)
Would like for you to extend
the contract of coverage for
repair of home on Hobart Blvd,
We still have high noise level,
with results/proper damage from fly
over of planes.

Office Use Only

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): RUTH H. WIGGINS Date: 8/18/03

Address: 3855 THORNCROFT LN # 1 Inglewood CA 90305

City: IN State: CA Zip Code: 90305

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: _____

Comments:	Office Use Only
<p>My concern is the noise and pollution in the area that I live. In spite of discussions on noise abatement and pollution is still evident. I was told that one report states "the noise that I experience in Carlton Sq. is from the the vehicle traffic on Century Blvd." This is hard to accept when the the debris that falls on my flowers and trees come from above.</p>	

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): Annie Franklin Date: 8-18-03

Address: 3767 Danbury Lane

City: Inglewood State: CA Zip Code: 90305

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: _____

Comments:

I am a resident of Carlton Square
And my livelyhood, health and
Inconvenience has been impacted by
LAX. Carlton Square Community
does not qualify for soundproofing.
Day and Night I can watch and hear
planes that fly directly over my home.
I am not against improvement
and new technology.
Please, help me!
I cannot grow fruit or flowers
because of the residue from planes
and traffic. I have to turn my
TV or radio up loud in order to
enjoy a program.

Thanks,

Office Use Only

Attach additional sheets if necessary.

Lawrence Teeter

Attorney at Law
3580 Wilshire Blvd #1700
Los Angeles, California 90010
213-387-4512

August 18, 2003

City of Los Angeles, Department of City Planning
Federal Aviation Administration

RE: DSEIR/DSEIS for LAX Proposed Master Plan Improvements

I write on behalf of the Coalition Against the Pipeline and Michele Grumet in opposition to the project.

1. The DSEIR/DSEIS, ("EIR") fails to define a true no project alternative. The document does not discuss the existing status quo. Manchester Square is still inhabited by many apartment dwellers as well as some occupants of single family dwellings. Most structures in Manchester Square are viable and occupied. The EIR treats the no project alternative as though under that alternative, residential structures in Manchester Square have been demolished, but this is not the case. The City claims that such demolition is necessary as a noise mitigation measure and will occur in any event. But there is no substantial evidence to support a finding that insulation would not address the problem. Indeed, residents who have requested insulation were told that they were not eligible for insulation because their area had been targeted for acquisition. This means that the use of Manchester Square has been decided upon by the City even before the environmental review process is complete. In other words, the EIR is a sham post-hoc rationalization for a preconceived policy decision. This violates the very core of CEQA and NEPA.

CEQA and NEPA require that the agencies analyze the existing status quo and compare the various proposed alternatives with the existing situation, which is characterized by the existence of Manchester Square as a viable residential community the occupants of which are eligible for insulation as offered to other communities not targeted for acquisition.

2. CEQA and NEPA require the agencies to analyze a reasonable range of feasible alternatives.

(a) Alternative E has been proposed by some area residents but has been improperly dismissed by the agencies without meaningful analysis.

(b) Moreover, the agencies failed to consider use of people movers from the existing parking lots to speed the arrival and departure process as an alternative to the acquisition of Manchester Square.

(c) Nor have the agencies considered building multi-story parking structures in the presently available off-site lots, including lot C.

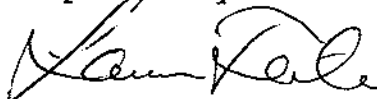
The EIR's alternatives analysis is colored by prejudgment and is illegal.

3. Adoption of a Statement of Overriding Considerations is illegal unless all feasible alternatives and mitigation measures have been considered and properly rejected. This has not been done for reasons described above.

4. The EIR fails to comply with the Government Code's requirement of assuring correlation and consistency between growth and transportation infrastructure. This project will have substantial growth-inducing impacts outside the project area. No mechanism has been considered for limiting such growth so that it does not outstrip the area's ability to expand its transportation infrastructure to keep pace with such growth. The EIR does not consider the adequacy of existing infrastructure outside the project area.

5. The agencies have failed to consider the impact of airport expansion in promoting an increase in airport noise outside areas already impacted by heavy take-off and landing traffic.

Respectfully Submitted,



Lawrence Teeter, Esq.



**P.O. Box 92216
Los Angeles, CA 90009-2216**

Public Comments

Please print.

Name (First MI Last, or Organization): DWIGHT ABBOTT **Date:** 8/14/03

Address: 1825 VIA ESTUDILLO

City: PALOS VERDES ESTATES **State:** CA **Zip Code:** 90274

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: **Title:**

Comments:

REVIEW OF LAX MASTER PLAN

Office Use Only

This review finds deficiencies in three important areas: passenger convenience, safety and security, and costs.

Passenger Convenience

The purpose of airports is to serve the using passengers and the airlines. This plan fails to address passenger convenience, and, instead, imposes great inconvenience.

The FAA now recognizes passenger convenience as an important airport design factor and defines it in terms of time to move the passenger from the parking lot of the departure airport to the parking lot of the arrival airport - not simply airline gate to airline gate as previously defined. The LAX Master Plan will greatly increase the parking lot to parking lot time required over that of the current LAX configuration.

The proposed Ground Transportation Center (GTC) is nearly a mile removed from the terminal area. It is connected via a train (people mover) that passengers must ride between the ticket counter and the terminal. The passengers must carry any carry-on baggage and packages by hand or with a cart on the train. This will be a great inconvenience to any mobility-challenged passengers. The current LAX configuration imposes no such inconvenience.

The proposed new Intermodal Transportation Center (ITC) is even more inconvenient. For a Green Line rail passenger to get from the ITC to the new west terminals requires taking a moving sidewalk, then the train (people mover) that

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Daylight Time, MONDAY, AUGUST 25, 2003

stops at the Rental Car Facility, then to the new Central Terminal Area, then to the underground people mover to the new west terminals. This is inconvenience at its worst. And what of the non-passenger(s) accompanying the passenger that has to immediately retrace this route?

This master plan clearly needs to be replanned with a criterion to minimize parking lot to parking lot time for the using passengers.

Safety & Security

Aircraft collisions during taxi, takeoff and landing can result in more casualties than any terrorist attack. Avoiding such collisions must be first priority. The proposed reconfiguration of the runways is aimed at this goal. NASA Future Flight Center simulations of aircraft operations with the new position of runways 25L and 24L and a new center taxiway indicate that the proposed reconfiguration is better than the current LAX configuration. I do not believe studies have been so complete as to conclude that the proposed reconfiguration of runways is the best. I believe that the proposal to move the runway 25L only 50 feet to the south is short sighted. Moving it farther south would provide greater aircraft separation, less wake turbulence interference between runways, and provide growth potential to handle larger aircraft on the southern runways (25) as will the northern runways (24).

The location of the new Rental Car Facility very near the end of the newly positioned runway 24L is unsafe. This is a runway configured to handle the new super-jumbo size aircraft (Airbus A380). An aircraft landing short of the runway or not successfully taking off when the runways are operating in an easterly departure pattern will risk impacting with the proposed Rental Car Facility.

The master plan puts high importance on security as it should, but the importance is way over balanced with all other important factors. It apparently assumes that security will always be dependent on today's technology and procedures. As security technologies and procedures mature, a future-thinking plan will provide an airport that can benefit from them.

The master plan has several factors that appear to reduce security. Centralizing passenger check-in at the proposed Ground Transportation Center provides a single location that if incapacitated will shut down the entire airport operations. The current multi-terminal, decentralized check-in configuration does not have this weakness. Incapacitation could come from earthquake, fire, electrical outage, and other factors as well as from terrorist activity.

The train (people mover) is also a potential single point failure that can shut down airport operations. A small bomb, bomb scare, mechanical failure, or even protestors on the tracks could bring the airport operations to a halt.

Any airport plan with centralized features will have inherent vulnerabilities to potential full shutdowns from these features. Such major vulnerabilities are not existent in decentralized designs.

The proposed greatly expanded physical size of the airport presents a much greater area that must be secured.

A RAND Corporation study of the security afforded by the proposed LAX Master Plan found that the proposed changes would not increase security compared to the current LAX configuration.

Cost

The proposed cost at \$9 billion is high and many sources indicate that the real cost is even higher. Reports indicate that the following costs have not yet been included:

- Buying houses and moving 6,000 people out of a Westchester neighborhood
- Financing costs, interest and insurance on revenue bonds
- Tax revenue loss after buying up 77 acres of commercial property
- Purchasing property and the rights to build 2 freeway interchanges
- Cost of the FlyAway lots and service included in the plan
- Environmental mitigation that could require up to one quarter of the budget

The high cost should provide some major benefits. The only claimed major benefit is security - and issues of the foregoing discussion compromise that promise. There is no proposed benefit in airport capacity expansion. The proposed airport is designed to handle 78 million passengers per year, the same as the current LAX configuration. Certainly, the passenger convenience is diminished. The parking lot to parking lot time is lengthened.

The plan totally ignores the great economic value in getting passengers to/from homes and offices quickly. The economic costs of inefficient passenger service can outweigh the benefits of costly and ineffective security measures. Because the City of Los Angeles is not bearing these high costs, airport users will ultimately pay them through fees and higher ticket costs. It does not appear that sufficient benefit to the passenger will be returned for the cost.

Summary

The foregoing points indicate that the LAX Master Plan is not well conceived. Media reports state that the airlines don't favor it. The communities near the airport do not favor it. Certainly the user passengers can not favor it due to the high costs it will impose on them, the lengthened parking lot to parking lot time, the greater inconvenience, and the dubious added security.

Los Angeles County Supervisor Don Knabe has called the LAX Master Plan unacceptable. Congresswoman Jane Harmon also does not support the plan. These and other officials who have done studies of the proposed plan find it unacceptable.

A lower cost alternate is preferred. This alternative should be based on the runway reconfiguration for added safety and on utilizing most of the existing terminal infrastructure with added modifications for enhanced security. It is believed that such an alternative could add security, little, if any, passenger inconvenience, be more acceptable to local communities, have less environmental impacts, and be accomplished with half the costs or less.

Conclusion

The proposed LAX Master Plan is unacceptable.

The proposed LAX reconfiguration will add great inconvenience and cost to the using passengers.

The added security is dubious. The proposal includes vulnerabilities from centralized facilities not existent in the current LAX configuration.

The anticipated costs are not justified by the potential benefits.

Other lower cost, more effective alternatives are believed to exist.

Submitted by:

Dwight Abbott

1825 Via Estudillo

Palos Verdes Estates, CA 90274

Phone: 310/373-5618



P.O. Box 92216
 Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): TOM MOXLEY Date: 8-14-03

Address: 2057 SO ATLANTIC

City: LOS ANGELES State: CA Zip Code: 90040

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
 Number: _____ Title: _____

Comments:	Office Use Only
<p>I SUPPORT PLAN "D" - IT'S TIME WE BRING LAX UP TO DATE AS AN AIRPORT. SECURITY, SAFETY IS A MAJOR CONCERN OF MINE. PLANE ARE BIGGER, TODAY THE WAY THE AIRPORT WAS BUILT, IMPROVING TO FLOW OF PASSENGERS IN & OUT IS GREATLY NEEDED. NOW SINCE 9/11 SECURITY IS A MAJOR ISSUE. WE HAVE STALLED TO LONG. LET'S GET GOING</p>	

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): BRENDA WNEGR Date: 8/14/03

Address: PO BOX 123

City: SAN PEDRO State: CA Zip Code: 90733

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):

Number: Title:

Comments:	Office Use Only
<p>PLEASE TAKE INTO CONSIDERATION PERIMETER SECURITY OF LAX WHICH (RIGHT NOW) IS LIKE SWISS CHEESE...</p> <p>Have you taken into consideration staffing + training for additional law enforcement (LAX LAPD)</p> <p>How will this IMPACT STAFFING OF TSA SECURITY PERSONNEL?</p>	

Attach additional sheets if necessary.

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Erin & Matthew King
1127 Ashland Avenue
Santa Monica, CA 90405

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

A recent Rand Corp. study has indicated that congregating all commercial passengers in one location increases the risk and harm to a greater number of people by a terrorist attack.

The added inconvenience of additional time required to be screened and transported to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. These general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation airport in the area.

I urge Los Angeles World Airports (LAWA) to thoughtfully consider the risks of this proposal and to address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

Additional Comments: Please make all passengers, both
commercial and general aviation passengers
go through all the proper screening
procedures at the off-site screening
location.

General aviation passengers usually are ^{the} wealthy
elite - that shouldn't preclude them
from following the same security
procedures as commercial airline
passengers!

Thank you,

Erin King
SPC00039

MAXINE WATERS

MEMBER OF CONGRESS
35TH DISTRICT, CALIFORNIA

CHIEF DEPUTY WHIP

COMMITTEES:
FINANCIAL SERVICES

SUBCOMMITTEE ON HOUSING AND
COMMUNITY OPPORTUNITY
RANKING MEMBER

JUDICIARY

SUBCOMMITTEE ON COURTS,
THE INTERNET AND
INTELLECTUAL PROPERTY

SUBCOMMITTEE ON CRIME, TERRORISM
AND HOMELAND SECURITY

Congress of the United States
House of Representatives
Washington, DC 20515-0535

PLEASE REPLY TO:
2344 RAYBURN HOUSE OFFICE BUILDING
 WASHINGTON, DC 20515-0535
(202) 225-2201
FAX: (202) 225-7854

DISTRICT OFFICE:
10124 SOUTH BROADWAY
SUITE 1
 LOS ANGELES, CA 90003
(323) 757-8900
FAX: (323) 757-9506

Statement of
Congresswoman Maxine Waters
August 20, 2003

Public hearing held by Los Angeles World Airports and the Federal Aviation Administration

Joslyn Community Center Auditorium
1601 Valley Drive
Manhattan Beach, CA

Thank you for the opportunity to speak and submit a statement regarding the Draft Environmental Impact Statement/Environmental Impact Report for Alternative D Enhanced Safety and Security.

As the Member of Congress for the 35th Congressional District, I represent over 638,000 constituents who live in the cities and communities of Inglewood, Westchester, Playa del Rey, Gardena, Hawthorne, Lawndale and portions of South Los Angeles. Since the release of the prior Master Plan in January 2001 and the release of the new Supplement to the Master Plan Alternative D, the views and concerns of my constituents have not changed.

Thousands of residents are still heavily impacted by airplane noise on a constant basis. Thousands of residents are still impacted by pollutants and toxins from aircraft emissions that fly overhead. Thousands of residents have suffered the consequences of increased traffic congestion in their neighborhoods. Thousands of residents are still suffering from hearing loss, sleep deprivation, hypertension, respiratory ailments, anxiety and stress. Residents should not have to live under such conditions.

With the release of Alternative D, new issues of concern have arisen. I have talked to many residents and elected officials regarding Alternative D. The primary focus of the plan is enhanced safety and security imposed as a result of the possible threat of terrorism in the aftermath of the September 11th attacks.

SPC00040

Although I am highly in favor of ensuring all passengers and employees at LAX and other airports are as safe as possible, there are evident flaws in Alternative D. Specifically, my objections to the proposed plan hinge on the following:

1) The new alternative increases the passenger cap from 78 million annual passengers (MAP) to 78.9 MAP as illustrated in the Table ES-1 of the Executive Summary, Supplement to the Draft EIS/EIR Volume 1. This is a clear deviation and violation of the Mayor's promise and pledge to constrain passenger capacity within LAX to the existing facilities which he signed on March 26, 2001.

On July 16, 2002, I introduced The Careful Airport Planning (CAP) for Southern California Act (H.R. 5144). This legislation would cap LAX traffic at 78 million passengers a year and prevent LAX from expanding beyond its current capacity. The County Board of Supervisors and the Los Angeles City Council has supported this legislation which is currently pending.

2) Alternative D sounds more like expansion than safety and security given the fact part of the plan is to utilize the Manchester Square area as a Ground Transportation Center (GTC). If LAWA is relocating residents out of the Manchester Square area and clearing the land of over 568 properties to build this new Center, I would definitely call that expansion. This site has been opposed by the community, elected officials and there is no substantive proof that it will make the airport more secure.

3) Based on a recent analysis completed earlier this year by the RAND Corporation, to simply reconfigure the airport does not mean the airport is safer than before. It would actually make the airport less safe in certain instances. The RAND analysis states that "The greatest risks are in high density areas such as lines for ticketing, baggage claim and the security check points. These risks are not likely to be reduced by Alternative D, which simply moves these targets of opportunity to the Ground Transportation Center (Manchester Square) and the people mover."

4) During these tough economic times, it is not prudent to increase passenger facilities charges and to use any surplus funds on untested ideas. We must take a lesson from the State of California and not allow ourselves to create a deficit in the billions of dollars on plans and ideas of uncertainty.

There are major airlines who are also opposing Alternative D due to the current decline in air travel and the increased costs that would be incurred such as landing fees, to pay for much of the project.

Alternative D is simply a ploy and continuation of former Mayor Richard Riordan's plan to expand the airport under the name of safety and security. In addition, Alternative D provides Los Angeles World Airport (LAWA) Commission President Ted Stein and Mayor Hahn an opportunity to assist their fat cat developer friends in securing large city contracts in return for re-election campaign contributions.

I am opposed to Alternative D. I believe that now is the time to seriously look at developing a more regional approach to air travel so that airports such as Ontario International and Palmdale Regional can begin to accept their fair share of air traffic.

I am asking all constituents of the 35th Congressional District and the South Bay communities to oppose Alternative D.

MAXINE WATERS

MEMBER OF CONGRESS
35TH DISTRICT, CALIFORNIA

CHIEF DEPUTY WHIP

COMMITTEES:
FINANCIAL SERVICES

SUBCOMMITTEE ON
FINANCIAL INSTITUTIONS
AND CONSUMER CREDIT
RANKING MEMBER

JUDICIARY

CHAIR, DEMOCRATIC CAUCUS
SPECIAL COMMITTEE ON
ELECTION REFORM

Congress of the United States
House of Representatives
Washington, DC 20515-0535

PLEASE REPLY TO:
2344 RAYBURN HOUSE OFFICE BUILDING
 WASHINGTON, DC 20515-0535
(202) 225-2201
FAX: (202) 225-7854

DISTRICT OFFICE:
10124 SOUTH BROADWAY
SUITE 1
 LOS ANGELES, CA 90003
(323) 757-8900
FAX: (323) 757-8806

For Immediate Release
August 21, 2003

CONTACT: Ron Dungee
(323) 757-8900

Congresswoman Waters: Security and Public Safety Must Come First at LAX

Lawmaker Introduces Legislation to Prohibit Construction of a Remote Check-in Facility at Manchester Square Unless It Provides Increased Security, Public Safety

Washington, D.C.—Immediately prior to adjournment of Congress for the August recess, Rep. Maxine Waters (D-CA) introduced H.R. 2985, a bill to prohibit construction of a new Ground Transportation Center (GTC), a remote passenger check-in facility at Los Angeles International Airport (LAX), unless it has been determined that such a facility would improve the safety and security of the public.

“The safety and security of LAX is an issue of tremendous importance to me and the people I represent,” said Congresswoman Waters. “I am deeply concerned that the proposed GTC at Manchester Square will actually make the airport less secure than it is now.”

Supporters of Los Angeles Mayor James Hahn’s \$9.6 billion LAX modernization plan claim the proposed GTC will improve airport security and make LAX less vulnerable to terrorist attacks. However, a recent study by the RAND Corporation concluded that reconfiguring LAX will do nothing to improve public safety; it will only relocate the target of an attack to the remote check-in facility.

“According to the Rand Study, passengers and airport personnel would be more vulnerable to terrorist attacks because of the concentration of passengers at the GTC,” Waters explained. “Moreover, the study found that by consolidating passengers and vehicles at a check-in center a mile from the airport, the mayor’s plan could greatly increase the number of casualties that result from firearms or small bombs concealed in luggage if such attacks were to occur.”

Waters' bill would prohibit the construction of the GTC unless there is a determination that such a remote check-in facility will, in fact, improve public safety and security. The bill would require a review of the proposed facility by the Department of Homeland Security prior to its construction. If the Secretary of Homeland Security determines that the facility will not protect the safety and security of air passengers and the general public more effectively than the existing facilities at LAX, the Federal Aviation Administration (FAA) would not be allowed to approve its construction.

"LAX is the third largest airport in the United States and a potential target for terrorists," said the Congresswoman. "I will not support an LAX modernization project that compromises public safety and security."

On July 23, 2003, Congresswoman Waters sent letters to the Chairman and Ranking Member of the House Appropriations Committee to request that the Transportation-Treasury Appropriations Act for Fiscal Year 2004 include a provision to condition the construction of the proposed remote passenger check-in facility on a security determination. On the same day, she sent letters to the Chairman and Ranking Member of the House Transportation Committee to request that the conference report for H.R. 2115, the FAA Reauthorization Act, include a comparable provision.

"Security must come first," Waters said. "I will continue to use every available opportunity provided by the legislative process to ensure that this controversial LAX expansion project does not compromise the safety and security of LAX and the surrounding community."

###

Los Angeles Times
Sunday, July 20, 2003

Firms With LAX Ties Aid Hahn *Some critics see a conflict of interest in fund-raisers set up by possible contractors.*

By Patrick McGreevy
Times Staff Writer

Two weeks after Mayor James K. Hahn proposed spending \$9 billion to modernize Los Angeles International Airport, contractors likely to benefit from the massive public works project are lining up to raise money for his reelection campaign.

Airport contractors have scheduled Hahn fund-raisers for Monday, Tuesday and Wednesday, with admission set at \$1,000 per person.

Critics of the LAX renovation and advocates of new ethics rules at City Hall said they were troubled that airport contractors would help Hahn raise money so soon after the release of his plan.

"It is no surprise that the mayor is developing an opportunity to dole out \$9 billion worth of favors to people who are contributing to his campaign," said Denny Schneider, an officer of the Westchester-Playa del Rey Neighborhood Council. "It's a pay-to-play system at this point. I feel very frustrated and betrayed."

Rep. Maxine Waters (D-Los Angeles), who opposes the project, also said she believes there is a link between the plan and Hahn's political ambitions.

"As far as I am concerned, this is about contracts and the exercise of power by the mayor to create more opportunity for his contributors," Waters said.

Bill Carrick, a political advisor to Hahn, denied any connection between the modernization plan and the fund-raisers.

"There isn't any link," Carrick said. "The fund-raising operation has been planning these events for a while, long before the mayor's plan was announced."

Other observers said that Hahn's plan for LAX faces an uphill battle for approval, so the mayor may not be able to deliver the large public works contracts, even if he wants to. The proposal, including reconfiguration of the central terminal area and construction of a new passenger check-in facility a mile east of the airport,

SPC00040

would need approval from the city Airport Commission, the City Council and the Federal Aviation Administration after a 45-day public comment period.

"If the mayor's plan is D.O.A., then the quid in quid pro quo goes away," said a political consultant, Larry Levine, who is not affiliated with the Hahn campaign.

Contractors said they had scheduled the fund-raisers well before Hahn released details of his airport plan July 9, and they maintained that they support the mayor for reelection because of his broader vision for improving Los Angeles.

Many contractors see the airport overhaul as a significant part of that vision, however.

In an invitation to Monday's reception at its One Bunker Hill headquarters, the engineering firm HNTB said Hahn's reelection is important "so the city can continue developing its focus upon" issues that include "modernization, safety and security enhancements for LAX."

HNTB already has contracts worth \$8.1 million with the city airport department, known as Los Angeles World Airports, including one to help expand Ontario International Airport and another to improve airfields that would be affected by the LAX modernization plan.

The company also was a subcontractor to Bechtel-JGM for a security study on the LAX perimeter and was a subcontractor on a study of passenger ground-transportation service.

HNTB officials did not return calls for comment.

On Tuesday, public relations firm Fleishman-Hillard will host a luncheon for Hahn at the exclusive City Club in downtown Los Angeles.

The firm has an \$800,000 contract with the city airport agency to help with marketing Ontario International Airport.

"I can tell you unequivocally, my raising money for the mayor has absolutely nothing to do with Fleishman-Hillard's relationship" with the airport agency, said Doug Dowie, the firm's general manager. He said the company had no plans to bid for additional airport work created by the modernization plan.

Hahn's Wednesday fund-raiser is a reception at Union Station hosted by the heads of airport contracting firms, including Psomas and Associates, Daniel Mann Johnson and Mendenhall and G & C Equipment Corp.

One of the hosts, Tim Psomas, is chairman of the board of an engineering firm that has received work worth more than \$2 million through January 2004 as a subcontractor on the LAX master plan.

Another co-host of the event is Gerald Seelman, a corporate vice president with Daniel Mann Johnson and Mendenhall, an engineering company that has a \$5.2-million city contract to design the new Flyaway Bus Terminal at Van Nuys Airport, where passengers will board buses for LAX.

Another co-host for Wednesday's reception is Gene Hale, the president of G & C Equipment Corp., which provides rental equipment to the city airport agency.

Hale said he supports Hahn for many reasons, and he also hopes to get a piece of the LAX work.

"I will submit my bid just like everybody else to the prime contractors," he said.

Hale also is chairman of the Greater Los Angeles African American Chamber of Commerce, which two weeks ago became one of the first business groups to endorse Hahn's modernization plan.

"We think the revised plan would be economically viable for the city and will create a lot of jobs," Hale said.

Supporters who have been asked by Hahn's campaign to help raise money say they have been told by mayoral advisors that the goal is to raise enough money to dissuade potential challengers to the incumbent.

"Clearly we want to send a message to anyone thinking of running that the reelect Jim Hahn campaign will be well-funded," Carrick said.

"That's how you keep people out. You scare them with money," added political consultant Joe Cerrell, who has submitted a bid for an LAX community relations contract and said he would raise money for Hahn "if asked."

Hahn recently reported that he had reached the \$200,000 threshold in fund-raising, even though no one has filed papers to challenge him yet and the election will not be until March 2005.

"He is going to be fully prepared to run a vigorous and competitive campaign," Carrick said.

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: MAR VISTA GROUP

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

A recent Rand Corp. study has indicated that congregating all commercial passengers in one location increases the risk and harm to a greater number of people by a terrorist attack.

The added inconvenience of additional time required to be screened and transported to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. These general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation airport in the area.

I urge Los Angeles World Airports (LAWA) to thoughtfully consider the risks of this proposal and to address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

Additional Comments:

ELIMINATE JETS

||

|| POLLUTION

||

|| NOISE

HEAVY AIRCRAFT

BETTY TOMEIO

1038 BAY STREET

SANTA MONICA, CA 90405

Phone: 310-452-3411

August 12, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

RE: Mayor Hahn's LAX Master Plan Proposal

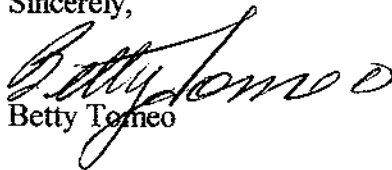
Mayor Hahn's recent proposed LAX Master Plan Alternative is supposed to address "Safety and Security" issues, however I am extremely concerned about the exception of general aviation airport users who would continue to be allowed unscreened access to the runway from the Imperial Highway entrance.

I am always worried about the private planes that fly over my house -- that neither the plane, the pilot nor the passengers have been screened for anything by anyone.

The Los Angeles World Airports is urged to consider the risks of this proposal and address the lack of security at the general aviation passenger access at the Imperial entrance.

In addition, encourage the FAA to increase security standards nationwide not only for access to all general aviation areas but also for screening of the pilot, plane and passengers for security purposes at all airports, like ours, with general aviation traffic.

Sincerely,


Betty Tomeio

SPC00042

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Irene Alimaneshian
226 Third Ave
Venice CA 90291

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

A recent Rand Corp. study has indicated that congregating all commercial passengers in one location increases the risk and harm to a greater number of people by a terrorist attack.

The added inconvenience of additional time required to be screened and transported to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. These general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation airport in the area.

I urge Los Angeles World Airports (LAWA) to thoughtfully consider the risks of this proposal and to address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

Additional Comments:

Living under a flight path in these
times of uncertainty is unsettling.
We do not want increased traffic at
The Santa Monica Airport, especially if
The security is not heightened at these
smaller airports.

SPC00043



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): LAX
JOHN T. RUIZ - VICE CHAIRMAN TWU LOCAL 564 Date: 8/20/03

Address: 873 AVENUE "A"

City: REDONDO BEACH State: CA. Zip Code: 90277

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: _____

<p>Comments:</p> <p>IN THE CURRENT LAX MASTER PLAN, I NOTICED THERE ARE PLANS TO ADD TO THE CURRENT INTERNATIONAL TERMINAL BY CREATING AN ADDITIONAL AREA WEST OF THE TOM BRADLEY TERMINAL. THERE ARE TWO ^{THREE} SEPARATE AMERICAN AIRLINES AIRCRAFT MAINTENANCE FACILITY HANGARS GEOGRAPHICALLY POSITIONED NEAR THIS PROPOSED LOCATION. THIS LOCATION CURRENTLY EMPLOYS 600 PERSONNEL. WHAT IS GOING TO HAPPEN TO THIS FACILITY? IN THE EVENT THE HANGARS ARE DEMOLISHED, WHERE WILL A NEW FACILITY BE ERECTED TO ACCOMODATE THE AND ENSURE SAFE MAINTENANCE CAN BE PERFORMED ON OVERNIGHT AIRCRAFT? FINALLY, WHO WILL</p> <p><small>Attach additional sheets if necessary.</small></p>	<p>Office Use Only</p>
--	------------------------

FOOT THE BILL, IN THE EVENT NEW HANGARS
ARE REQUIRED TO BE ERECTED?



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): Andreas E. Koch Date: 8/20/03

Address: 1812 N. Ardmore Ave

City: M.B. State: CA Zip Code: 90266

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: _____

Comments:

Support a public transportation system that allows the metro Green ~~light~~ line to connect to a transporter ("people mover") directly to the terminals.

IE. similar to Atlanta, etc.

Also suggest No further AIR traffic growth due to environmental & Living Quality standards for neighboring city residents that will be negatively affected.

Office Use Only

Attach additional sheets if necessary.



P.O. Box 92216
 Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): GREGORY F. CASTLE Date: 8/20/03

Address: 3808 THE STRAND

City: MANHATTAN BEACH State: CA Zip Code: 90266

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
 Number: APPENDIX H Title: CONCEPT DEVELOPMENT

Comments:

- SUPPORT THE RECOMMENDED MODIFICATIONS
 IN THE CTA AS DESCRIBED IN
 FIGURES H-22 AND H-23.

- SUPPORT ALTERNATIVE D7B AS
 DESCRIBED IN FIGURE H-32.

THANK YOU.

Office Use Only

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): *R. JOHNSON* Date: *20 AUG 03*

Address: *436 9th ST.*

City: *MAN. BCH.* State: *CA* Zip Code: *90266*

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: Title:

Comments:	Office Use Only
<p><i>This comment is limited to a sincere thanks to the staff attending today's public meeting in Manhattan Beach.</i></p> <p><i>Not only are staff members comprehensively knowledgeable concerning the diverse aspects and impacts of the proposed plans, but they are courteous, and solicitous of lay community members.</i></p> <p><i>A fine staff!</i></p>	

Attach additional sheets if necessary.



P.O. Box 92216
 Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): ANDREW SHADDOUC Date: 8-20-03

Address: 425 29TH ST

City: MANHATTAN BEACH State: CA Zip Code: 90266

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments: Office Use Only

I LIKE THE PLAN VERY MUCH.
 RE: GROUND TRANSPORTATION
 IT IS IMPORTANT TO ME THAT THE PLAN
 DOES NOT PRECLUDE A RAIL CONNECTION
 (GREEN LINE OR OTHER) FROM THE ITC
NORTH UP THE EXISTING RAIL RIGHT-
 OF-WAY.

A DIRECT CONNECTION UP THE MTA
 HARBOE SUBDIVISION FROM THE ITC
 TO UNION STATION WOULD SIGNIFICANTLY
 MITIGATE THE IMPACT OF LAX BOUND
 OR ORIGINATING TRAFFIC ON LOCAL STREETS
 AND FREEWAYS.

TRANSPORTATION OPTIONS TO/FROM LAX
 ARE VERY IMPORTANT.

Attach additional sheets if necessary.



P.O. Box 92216
 Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): *Al Remetch* **Date:** *9/21/03*

Address: *431 Fantasy St*

City: *Palmdale* **State:** *CA* **Zip Code:** *93551*

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: **Title:**

Comments:

Trying to institute an airport in Palmdale right now is like putting the cart in front of the horse. Palmdale should build a great community like Valencia and the airport would become a necessity.

Please consider the homeowners in creating schedules, access to the airport, and other construction.

Every community that has an airport hates it. Palmdale should take a cue from this and preserve the tranquility of our valley

Office Use Only

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): MARIO ESTRADA Date: 8-21-03

Address: 3122 TWINCREEK AVE

City: PALMDALE State: CA Zip Code: 93551

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments: AS A 14 YEAR RESIDENT OF PALMDALE, I SUPPORT THE REGIONAL AIRPORT. IT WILL GENERATE JOBS FOR THE AREA, ON TOP OF RELIEVING THE FLOW OF HEAVY TRAFFIC FROM THE ANTELOPE VALLEY TO L.A.I.
 IF YOU ONLY KNEW THE NIGHTMARE OF DRIVING THE 14FWY, TO THE 405 INTO LAX. YOU WOULD FULLY SUPPORT SUCH REGIONAL AIRPORTS.
 DURING THE '94 NORTHRIDGE EARTHQUAKE, THE WHOLE ANTELOPE VALLEY WAS ISOLATED WITHOUT THE 14FWY. WOULD OF BEEN NICE TO HAVE A GOOD ECONOMY AT A LOCAL LEVEL.

Office Use Only

Attach additional sheets if necessary.

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Jose & Maria Zepeda
12101 National Bl
LA CA 90064

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

A recent Rand Corp. study has indicated that congregating all commercial passengers in one location increases the risk and harm to a greater number of people by a terrorist attack.

The added inconvenience of additional time required to be screened and transported to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. These general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation airport in the area.

I urge Los Angeles World Airports (LAWA) to thoughtfully consider the risks of this proposal and to address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

Additional Comments: _____

Security is a major issue for us. Pls support us in the safety of us & our children living in this area when implementing future policies.



America's Favorite Truck Camper

August 19, 2003

David B. Kessler, AICP,
U. S. Dept. of Transportation
Federal Aviation Administration
World Way Postal Center
Los Angeles, CA 90009-2007

Dear Mr. Kessler,

I am writing you in reference to the Regional Airport in Palmdale. The communities of the high desert now have over a quarter of a million inhabitants. The city of Santa Clarita has even more. Both areas are growing at an astonishing rate. In the future it is where all northern Los Angeles growth will come.

For residents of either community to get to LAX over the constant congestion is almost unbearable. In fact, it is easier to get to either Long Beach or Ontario from Palmdale than to go to LAX for a morning flight. Of course there is Burbank if you are flying the west coast corridor. Those flights however are often full with no plans for expansion there.

With the City of Los Angeles wanting to expand and upgrade LAX, they should consider or be mandated to sell the Palmdale property to a consortium of interested communities so we can develop our own airport.

Palmdale and Lancaster are at an extreme disadvantage to be able to entice white-collar businesses to our area without local air service. New air service need not connect through LAX. Flights going east could connect in Las Vegas or Phoenix.

Our company, Lance Camper Mfg., goes through the time-wasting experience of having to bring people up to our factory through LAX for business meeting and training. Between the up and back trips we waste almost a day and add to the congestion. We are planning our regular dealer meeting with 230 people. It would be best of we had it locally with a visitation to our factory. That is hardly an option because of the lengthy drive.

Those council members who are opposed to either opening up Palmdale Regional Airport or selling it need to make the trip from Palmdale to LAX to catch an 8:00 am flight. You need to leave at 4:30 am and hope there are no accidents along the way. It is easier to leave in the evening and overnight at an airport hotel.

Lance Camper Mfg. Corp.
43120 Venture St. Lancaster, CA 93535
661-949-3322 FAX 661-949-1262

SPC00052



America's Favorite Truck Camper

2 of 2

It's hard to understand why any authority would want to make LAX more congested than it already is. If the Palmdale Regional Air Park could provide air service for the high desert and the Santa Clarita area it would be another step toward getting a high-speed train and a stop in Palmdale. Even now, rail service to Palmdale is excellent. From the Palmdale stop to the airport is a three-minute cab ride.

Let's override the political issue and start considering the people who are affected by not having our own air service.

Thank you for considering our message.

Sincerely,

A handwritten signature in black ink that reads "Norman Jacobson". The signature is fluid and cursive, written over the printed name and title.

Norman Jacobson
Director, Sales & Marketing

✓ Cc: Jim Ritchie
Mayor James Hahn



FROM
Willy-Pierre DUPONT

DATE
11 August 2003

PHONE
+33 5 62 11 03 12

FAX
+33 5 61 93 35 86

E-MAIL
willy-pierre.dupont@airbus.com

OUR REFERENCE
L00ME0310101

YOUR REFERENCE

Mr. Jim Ritchie
Deputy Executive Director
Los Angeles World Airports
P.O. Box 92216
Los Angeles, CA. 90009-2216
USA

Comments on the Supplement to the DEIS/EIR and Master Plan

Dear Mr. Ritchie,

Please find attached Airbus comments regarding the Supplement to the LAX DEIS/EIR and Master Plan.

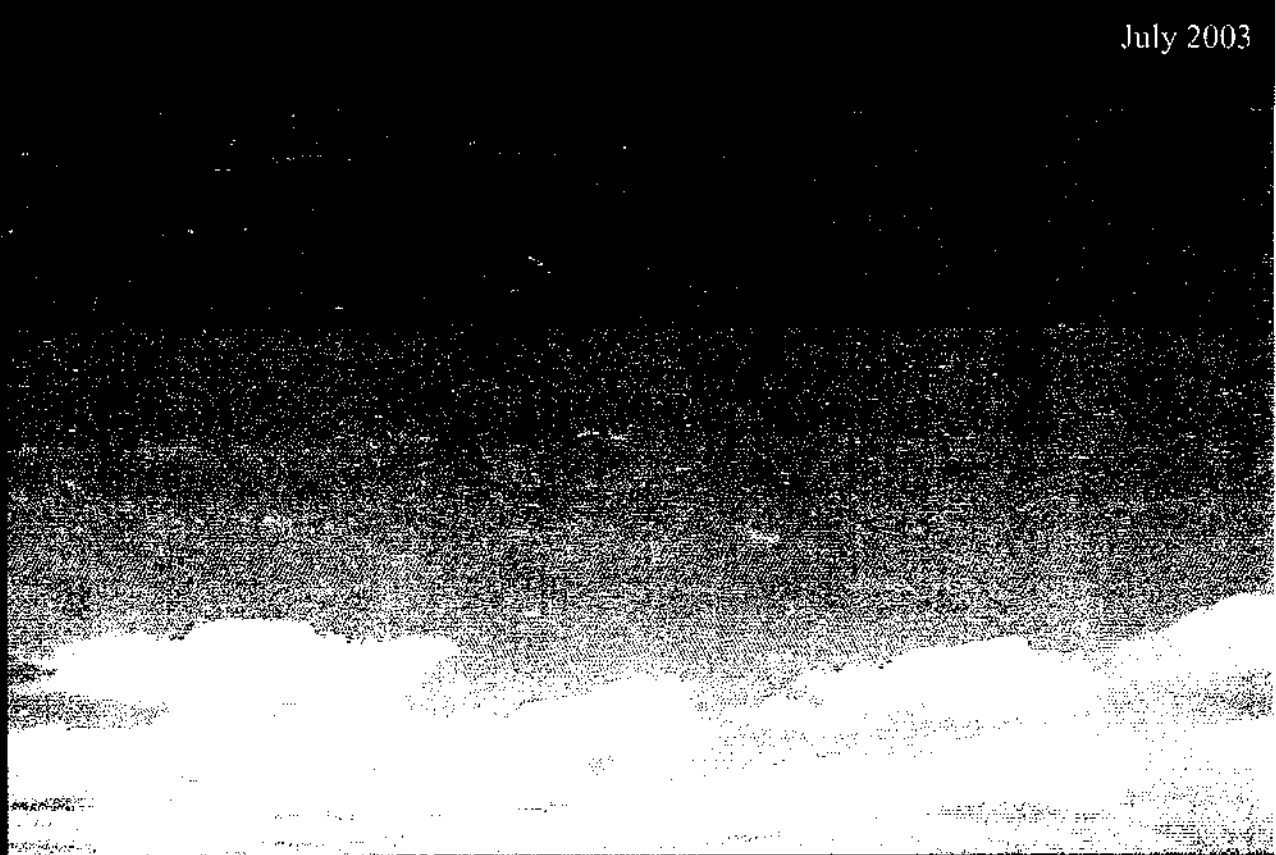
We are looking forward to providing you with any information you may need.

Yours sincerely,

Willy-Pierre DUPONT
Director Infrastructure & Environment
A380 Programme
Airbus

July 2003

*Willy-Pierre Dupont
Director Infrastructure & Environment
A380 Programme*



Comments to Los Angeles master plan

July, 2003



SPC00053

Release of LAX Master Plan on the 9th of July 03

- **The LAX master plan has been officially released on the 9th of July by LA Mayor Hahn:**
 - ▶ **Address passenger security and airport safety.**
 - ▶ **Keep LAX as major international gateway.**
 - ▶ **Limited growth assumed (78 million versus 56 today) with alternative D.**
 - ▶ **Traffic growth at other local airports questionable (ONT, BUR and LGB capability to get 20 million additional pax).**
 - ▶ **International traffic to more than double.**
 - ▶ **Minimize environmental impact.**
 - ▶ **\$9.6 billion to be spent from 2004 to 2015.**
 - ▶ **Would create 49000 construction jobs**
 - ▶ **Carriers will pay a significant part of the bill.**
 - ▶ **Airside and terminals will be heavily modified.**
 - ▶ **New satellite to be built.**
 - ▶ **Most of CTA will be transformed with no vehicle access and with a secured train system.**
 - ▶ **Construction timescale and priorities to be clarified.**
 - ▶ **Star alliance approves the plan. ATA and domestic carriers are against.**
 - ▶ **Public comments within 45 days (3rd week of August).**

Airbus proposal for LAX plan

- This proposal is based on Airbus knowledge of the LAX situation and of the A380 performance.
- Proposal aim to improve airside safety (runway incursions) while providing A380 capability (international traffic growth without movement and noise increase) and to minimize costs.
- Proposal aim to link short/medium plan with long term master plan
- Proposal to be agreed/validated by the carriers.
- Joint agreed proposal to be discussed with LAWA and possibly presented to the LAWA board of commissioners, the carriers and to the LA council

Proposal for LAX runways

- Assume primary departure runways for group VI aircraft operations: 6R/24L (150x10285ft) and 7L/25R (150ftx12090ft).
- Assume primary arrival runways for group VI aircraft operations: 6L/24R (150x8925ft) and 8R/25L runways (200x11095ft).
 - ▶ Rem: A380 can takeoff at MTOW (QFA) on 10000ft and on 9000ft for other carriers. Landings ranging from 7000 to 8000ft.
- Adapt shoulders/lights where needed.
 - ▶ Rem: 25L as primary group VI departure until taxiway C is upgraded for group VI aircraft operations.
- Do not move any runway to the South.
- Shift runways 24R (1500ft) and 25L (3000ft) to the West. It would reduce noise exposure, improve the runway incursion issue and allow an increase of the South cargo area (with runway 25L limited to 10000ft).
- Ban general aviation and helicopters traffic (types primary involved in fatal accidents).
- Limit commuter traffic to 19 seaters and above.

Proposal for LAX taxiways

- Assume taxiways A, C West and E West as main parallel group VI taxiways. Minimum separations ranging from 450ft (E), 500ft (A) to 648ft (C).
- Create:
 - ▶ 2 interim taxiways for aircraft up to group III (separations from 350ft to 372ft), between the two pairs of runways.
 - ▶ 1 new taxiway for group IV to VI at 500ft (or more if possible) North of runway 24R.
- Adapt taxiways D/E East area to allow 24L departures or 6L arrivals.
- Restrict taxiway B to group III and relocate Taxiway C East 238ft North of B, for group IV to VI operations, with 146ft clearance to a new Service road adjacent to apron area.
- Assume AA and S as main North/South group VI taxiways.
- Replace taxiway Q by a new taxiway T designed for group VI operations.
- Increase TWY to object (service road) distances on main group VI taxiways to 146ft (or 160ft wherever possible).
- Strengthen existing parts as required (Sepulveda tunnels).

Proposal for apron and terminals (2006/2008)

- Upgrade TBIT and T2 for 2006:
 - ▶ 3 A380 TBIT stands as baseline (investigate terminal mods and dual pax bridge feasibility. 3rd pax bridge whenever possible.
 - ▶ 1 stand at T2 as a basis. 2nd stand after another A380 carrier decides to use T2. NWA to be in the loop.
 - ▶ Loss of gates to be compensated by additional gates at AAL maintenance area (2 A380 or 4 group III aircraft). This area to be the first phase of the new satellite.
- Investigate:
 - ▶ 1 T4 stand with access from taxiway C and evaluate impact of a Twy C clearance increase to 146ft. DAL in the loop.
 - ▶ Additional stands at T6/T7 with relocated taxiway C. UAL in the loop.
- Adapt West pad with 3 A380 stands (2 pax bridges) . Improve bussing service (7 bus lanes with priority on premium pax) and minimum facilities (toilets...)
- Reduce service roads widths to increase either Twy separations or useable apron.

Proposal for LAX apron and terminals (2009+)

- Upgrade TBIT West
 - ▶ Mix of A380, A346 and 773 new stands (8 to 9). Create West new international satellite with adequate mix of stands (20 to 25).
- Suppress all existing terminal gates at ends (North and South) to create a new buffer zone (push back area) and to restore adequacy of existing terminal facilities (mostly undersized).
- Prepare adequate remote and cargo stands at East and South East areas (increased areas).
- Assume 24 A380 passenger flights a day with 12 contact stands by 2012. Assume mix of 777 and A330/340 for other gates. Total number of International gates to double.

August 20, 2003

Dear Mr. Ritchie:

Our family feels the LAX Master Plan is just another way for LAX to expand. The communities around the airport have suffered with noise, pollution, and traffic for years. Now is the time to build regional international airports here in Southern California.

Thank you.

Sincerely,

J. A. Hyra

10/10/03 10:10:10 AM

SPC00054

KRISTOPHER J. WIGGS
4037 SUNGATE DRIVE
PALMDALE, CA 93551
(661) 722-7179

Date: August 18, 2003
To: Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216
Subject: Palmdale Regional Airport

To Whom It May Concern:

I would like to comment on the greater Los Angeles Airport plan as described recently in various news accounts.

Having recently relocated from Northern California, I find it troublesome at best that the Palmdale Region Airport sits without scheduled airline service yet is able to accommodate the heaviest and largest commercial aircraft in the world. Being one of the 300,000+ residents in the Antelope Valley, I am forced to commute to Ontario, Burbank, or LAX to catch a flight, helping to further clog the already overloaded and busy highway 14 freeway.

I would like to encourage the decision makers at large, yourself included, to reinstate airline service to Palmdale and relieve the citizens and environment of unnecessary traffic, hassle, and inconvenience.

Sincerely,



Kris Wiggs
Palmdale, CA

SPC00055

August 20, 2003

Dear Mr. Kessler:

Our family feels the LAX Master Plan is just another way for LAX to expand. The communities around the airport have suffered with noise, pollution, and traffic for years. Now is the time to build regional international airports here in Southern California.

Thank you.

Sincerely,

J. S. [unclear]

SPC00056

To whom it may concern

I am a resident of 5401 W. 93rd Street Apt. #2 Los Angeles, CA. 90045.

The building is owned by the Cadman Group.

I have notice that several buildings on my block are empty including the building next door which has 60 days to move.

I would like to know if the above address will be effected by the LAX expansion and if so when. I received the enclosed letter in the mail, but

I have never received a master Plan (NOA) either have the other tenants.

The reason I am notifying you is because I have been a resident at the above address for 3 years pays \$895 monthly for rent and I just received a notification from the owner 60 days or quit over some hear say and I am not fighting the owner because Consumer Affairs says they are legally right without giving me a written reason on why I have to leave.

REC

I would like to know if I am entitled to any wages by the LAX due to the fact that I had occupied the residency for 3 years paying full rent. If you believe I am entitled to any relocating wages or if you believe my building is on the market before 10/07/03 please let me know in writing, phone or e-mail I will greatly appreciate it. If I am contacting the wrong department please forward to the correct department or mail me the correct information.

Sincerely
Jacinda Shiplay - Green

Jacinda Shiplay - Green
5401 w. 93rd st. #2
Los Angeles, CA 90045

E-mail - Jacgreen93@aol.com
Phone - 310-910-4225

Public Comments Regarding LAX Master Plan Alternative D

August 19, 2003

Robert L. Rodine
The Polaris Group
Sherman Oaks, California
818-789-7319
polarisrlr@juno.com



I most heartily endorse the adoption of a program to modernize LAX.

LAX Medium Growth demand embodied in the SCAG Regional Transportation Plan, driven by fundamental regional demographics at 2020, is 94.2 Million Annual Passengers ("MAP"), and 4.2 Million Tons of Cargo Annually. This is 59.8 % of the forecasted regional load of 157.4 MAP.

Under Alternative D, emphasized to be part of a Regional Plan, the loads planned for LAX are 78.9 MAP and 3.1 Million Annual Tons of Cargo. This reduction in the LAX portion of the regional volumes is 15.3 MAP and 1.1 Million Annual Tons of Cargo. If this reduction in volume is retained within the region through diversion to other regional airports there would be no net negative impact. If, however, it is not, the negative impact is the loss of approximately \$33 BB of turnover annually and some 222,000 jobs inclusive of the effects of induced economies (exclusive of construction related expenditures.) If we are to avoid the above losses, it seems that specific arrangements for diversion would necessarily be in place before leaping off on a \$9 BB public works project, however, the EIR seems to be mute on this aspect of the plan. What, if any specific arrangements have been formalized to insure that the proposed diversion of traffic doesn't result in any negative economic impact for the region? Absent a prearranged plan with specific agreements to accommodate the displaced LAX passengers within the region, I am abjectly opposed such a plan based on the supposition of such a large phantom backup element.

I am also vitally concerned about security a LAX for both passengers and employees. Using a very simple blast radius analysis, it is clear that the proposed CTA has a much higher concentration of passengers on an hourly basis than does the current dispersed terminal arrangement. Quantified, the current terminal arrangement results in a blast exposure factor of approximately 1,509 passengers per hour, while the proposed passenger arrival facility will result in and exposure factor of 7,425 passengers per hour. I think that increase in risk renders the proposed plan unacceptable as defined.

Thank you very much.

SPC00058

Central Terminal Risk Analysis
Comparison of Numbers of People Exposed to Blasts of Equal Size
Given New Passenger Arrival Center vs. Old CTA

Current

	Start	Stop	Total Hours/Day
Airport Operating Hours	600	2300	17 Hours
Passenger Flow Distributed Equally Throughout Days of the Week			7 Days
Weekly Hours of Operation			119
Yearly Hours of Operation			6188
Total Passenger Throughput			57,000,000
Hourly Terminal Occupancy			9,211.38

**Average Max Pass Distance
from Center of Existing
CTA - EXPOSURE TO UNSCREENED BAGGAGE**

		1/2	
Length	3849	1924.5	
Width	2727	1363.5	
Average Max Distance		1644	
Square Feet		10,496,223	
People per Square Foot		0.0008776	
Exposure Area (Blast Circle)	1,720,336.1		Using Scale of New Arrival Station Assuming Circle with Radius = Avg Distance
Persons Exposed to Blast/Hour	1,589.7		

**Average Max Pass Distance
from Center of New
Arrival Station - EXPOSURE TO UNSCREENED BAGGAGE**

		1/2	
Length	1717	858.5	
Width	1243	621.5	
Average Max Distance		740	
Square Feet		2,134,231	
People per Square Foot		0.0043160	
Exposure Area (Blast Circle)	1,720,336.1		Using Scale of New Arrival Station Assuming Circle with Radius = Avg Distance
Persons Exposed to Blast/Hour	7,425.0		

Prepared by: Robert L. Rodino
The Pularis Group
25-Jul-03

Nino Lacunza
5336 W. 99th PL #107
Los Angeles, Ca, 90045

Dear Mr. David B. Kessler,

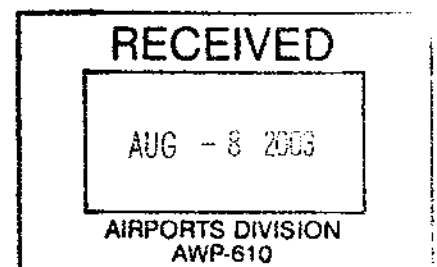
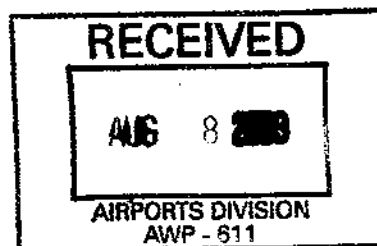
I recently recieved a postcard in the mail regarding the LAX Master Plan. The post card was short and it read:

“Dear Stakeholder,

Recently you were mailed an LAX Master Plan Notification of Availability (NOA). The address listed in the NOA for the Federal Aviation Administration (FAA) ha changed. Please us the new address listed below....”

I never recieved an LAX Master Plan Notification of Availibilty (NOA). I would appreciate it if you would please resend me one.

Sincerely,
Nino Lacunza



SPC00059

KRISTOPHER J. WIGGS
4037 SUNGATE DRIVE
PALMDALE, CA 93551
(661) 722-7179

Date: August 18, 2003
To: David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
World Way Postal Center
Los Angeles, CA 90009-2007
Subject: Palmdale Regional Airport

To Whom It May Concern:

I would like to comment on the greater Los Angeles Airport plan as described recently in various news accounts.

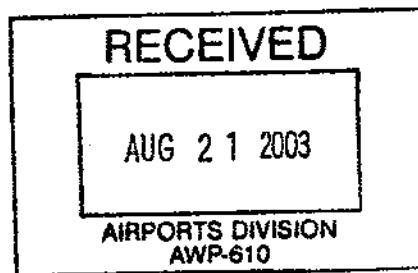
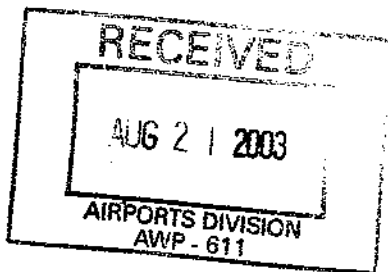
Having recently relocated from Northern California, I find it troublesome at best that the Palmdale Region Airport sits without scheduled airline service yet is able to accommodate the heaviest and largest commercial aircraft in the world. Being one of the 300,000+ residents in the Antelope Valley, I am forced to commute to Ontario, Burbank, or LAX to catch a flight, helping to further clog the already overloaded and busy highway 14 freeway.

I would like to encourage the decision makers at large, yourself included, to reinstate airline service to Palmdale and relieve the citizens and environment of unnecessary traffic, hassle, and inconvenience.

Sincerely,



Kris Wiggs
Palmdale, CA



SPC00060



AUG 10 2003

P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): ROYCE H. JACQUET Date: Aug. 8, 2003

Address: 9431 So. Hobart Blvd.

City: Los Angeles State: CA Zip Code: 90047

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: Soundproofing, Noise Impact

Comments:

I'm requesting again for a noise monitoring. The airplanes fly over lower days & night they suppose to fly starting at 5:00 am, but they don't. At bad weather they take off from West to East Coast. They fly so low the house vibrate the house. They interfere with the television & satellite. I have to wait until one pass before we can see the picture again. We can hear when they slow the plane. When the windows are open we cannot hear the telephone or television. I have a heart condition, asthma and allergies. Between the soot & dust, I'm having a hard time.

Thank You,
Royce H. Jacquet

Office Use Only

Attach additional sheets if necessary.

Mayor Mike Gordon
City of El Segundo
Comments on the
LAX Master Plan Draft EIS/EIR Supplement
August 20, 2003

- **Good Evening. I am Mayor Mike Gordon, representing the City of El Segundo.**
- **Given the length and complexity of the Master Plan and environmental documents, our full comments on technical issues will not be ready for some time, therefore the City's comments tonight are preliminary.**
- **The City of El Segundo continues to oppose LAX Master Plan Alternatives A, B, and C for the many reasons the City expressed orally and in writing during the public review and comment period for the initial Draft EIS/EIR in 2002.**
- **While we feel the stated objectives of the new plan supports a regional aviation approach — an issue that Mayor Hahn and I continue to work side by side on—the City of El Segundo has not yet taken an official position on Alternative D, nor have I.**
- **Specifically, the City supports a regional approach alternative that makes proper use of Inland Empire airports.**
- **The City supports an alternative with fewer environmental impacts. We would like to see the adverse impacts of the airport minimized and mitigated to the greatest extent feasible.**
- **The City of El Segundo supports enhanced safety and security at LAX.**
- **And the City supports an alternative that by design will accommodate passenger and cargo levels no greater than the physical capacity of the airport as it exists today, approximately 78 million annual passengers.**
- **Limiting LAX's capacity to its current capacity has always been our number one goal. We believe limiting LAX's capacity will allow other**

airports in the region to develop and handle a fair share of future regional aviation demand.

- . This approach will result in fewer environmental impacts,**
- . and will improve safety and security at the airport.**
- . However, the City is greatly concerned about the impacts of proposed southside airfield changes that move the southernmost runway 50 feet closer to El Segundo.**
- . LAWA has stated that it believes these changes are necessary to improve runway safety.**
- . However, we are currently studying the impacts of the reconfiguration, and other options for the southern runway complex.**
- . In particular, we urge a full public consideration of end-around taxiways as an alternative that could provide greater safety sooner, at lower cost and with fewer new burdens on local communities.**
- . Safety at LAX must be a priority for all of us.**
- . The City is prepared to support measures necessary to enhance safety, even if those measures increase our burden, but only if we are assured, through an independent expert, that other alternatives are not equally effective.**
- . In conclusion, we are grateful for Mayor Hahn's responsive leadership and his pledge to constrain growth at LAX and foster a regional approach to meeting future aviation demand.**
- . It is our hope that the ultimate outcome of this Master Plan process will be a regional airport approach that ensures that LAX does not exceed its current capacity.**
- . Thank you.**

A Preliminary Review of Issues Associated with the LAX Master Plan Supplement to the Draft EIS/EIR

*Prepared for the Los Angeles County Board of Supervisors
by A.C. Lazzaretto and Associates
August 2003*

INTRODUCTION

The Federal Aviation Administration (FAA) and Los Angeles World Airports (LAWA) made available for public comment in early 2001 a Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) addressing three build alternatives, a no-build alternative, and the existing setting for the Los Angeles International Airport (LAX) Master Plan. In response to considerable public comment and the terrorist attacks that occurred on September 11, 2001, a fourth alternative -- Alternative D, the Enhanced Safety and Security Plan -- has been added to the LAX Master Plan. A Supplement to the Draft EIS/EIR was made available for public comment in July of 2003 to update information presented in the Draft EIS/EIR and to integrate Alternative D into the environmental review process.

Alternative D includes a number of airfield facility modifications. Although LAX would continue to operate with 4 runways, 2 of the existing runways would be moved, two would be lengthened, and all would be further separated from one another. The existing parking structures would be relocated and replaced by new centralized passenger terminals. The existing Terminals 1 through 7 would be reconfigured, including a new north/south linear concourse at the Tom Bradley International Terminal, flanked on the west by a new satellite concourse. A new ground transportation center and intermodal transportation center to be built east of Aviation Blvd. would serve as the primary access for all passenger drop-off and pick-up and vehicle parking. Some cargo facilities would be modified, although overall square footage would be equivalent to the No Action/No Project Alternative.

A brief preliminary review has been conducted to assess changes between the original Draft EIS/EIR and the 2003 Supplement to the Draft EIS/EIR for the LAX Master Plan, as well as consistency and accuracy of information within the documents. The initial review points to several issues requiring further comment and discussion.

One of these issues was central to County comments on the earlier LAX Master Plan review, and remains an area of potential concern for the current document: although LAWA indicates that its goal is to limit growth, improvements proposed as part of Alternative D would in reality serve to reinforce LAX as the preeminent airport of the southern California region, and may undermine attempts to strengthen the role of outlying airports. In addition to this thematic concern, there are a number of additional points that merit further consideration. The preliminary findings are outlined briefly in the discussion below.

DISCUSSION

1. The Proposed Master Plan Alternative D May Not Constrain Growth at LAX

The stated goal of Alternative D is to limit growth at LAX to 78 Million Annual Passengers (MAP) and induce growth at other regional airports. The primary means to accomplish this is to limit aircraft gates to 153 which is the same number of gates that exist in the No Project Alternative (NPA). However, the NPA includes 48 remote gates that are simply aircraft parking spaces on concrete. Alternative D provides 153 fully

County comments - LAX [Attach I]

functional and high capacity gates and does not remove the concrete which will remain available for aircraft parking. The true number of gates is therefore over 200. Furthermore, the design of the new gates is a linear configuration as opposed to the existing cul-de-sac configuration. The linear configuration is more flexible and has more capacity. Also, space in the western portion of the airport will remain available for future consideration of a new west terminal, as proposed in Alternatives A, B and C. Therefore, the gate limitation is not an effective constraint on passenger levels.

Alternative D includes other improvements that would support growth beyond the 78 MAP level. In particular, the new remote terminal in the Manchester Square area provides 6.5 million square feet of terminal space -- more than 50% greater than the 4 million square feet proposed in the 98 MAP Alternatives A, B and C. Further, many of the proposed improvements to the north airfield are designed to accommodate the new generation of larger aircraft.

Orientation of new LAX facilities to the new larger aircraft could have long-term, pervasive effects. Because the new larger aircraft require many smaller connecting flights to fill its 600 seats, these improvements will strengthen the "confluence of connections" that reinforce LAX as the preeminent airport of the southern California region, and at the same time reduce the incentive for airlines to utilize other regional facilities. A true constraint on the growth of LAX would be to make it inhospitable towards the new larger aircraft, coupled with improvements to serve new larger aircraft at another regional airport, and transit links to join the two facilities.

2. Airport Security May Not be Fully Achieved by Alternative D

Preliminary review suggests that the Supplement to the Draft EIS/EIR may fall short of an adequate review of airport security issues. Although the Executive Summary to the Addendum refers the reader to Appendix I 'for a detailed assessment of the security and safety features of Alternative D,' Appendix I offers a heavily conceptual and theoretical document that falls significantly short on detail. Anomalies include contradictory content and a lack of clarity expected of a public information document.

3. Environmental Justice May Not be Well Served by Alternative D

Presidential Executive Order 12898, issued in February 1994, requires all federal agencies to analyze environmental justice impacts when proposing public projects. The analysis is intended to determine whether minority and low-income communities are unfairly burdened by project impacts, with the goal of using mitigation measures to create a level playing field. In 1999, Senate Bill 115 was passed making environmental justice a requirement of CEQA as well.

Despite the importance of this subject, the original Draft EIS/EIR was found to lack even the most elementary NEPA requirements for environmental justice. Preliminary review suggests that the Supplement to the Draft EIS/EIR has corrected some but not all of the earlier deficiencies. In particular, the Supplement to the Draft EIS/EIR again limits the area of analysis (reviewing only those census tracts surrounding LAX), improperly omits assessment of many effects due to the preparers' inability to quantify or analyze the impacts, and defers a determination of significance pending completion of the mitigation program.

The assessment does not appear to consider the trade-offs between environmental protection and environmental justice pertaining to the placement and length of LAX runways: runway extension to the west would have significant adverse impacts on biological resources (particularly the El Segundo Blue Butterfly), but would serve

County comments - LAX [Attach I]

environmental justice through a significant lessening of noise, air quality and traffic impacts on Lennox, Inglewood and other disadvantaged communities around LAX. Nor does the assessment apply rigorous standards in assessing the proportionality of impacts and mitigation measures between the wealthier northside area and communities east of LAX including Lennox and Inglewood. These relevant issues require further review as part of the Supplement to the Draft EIS/EIR.

4. The Baseline Year of 1996 is Not Adequate for a 2003 Impact Assessment

It appears that the Supplement to the Draft EIS/EIR continues to use 1996 data to establish baseline conditions for a number of topical issues. This outdated reference point was considered inadequate for the original EIS/EIR, and remains unsuitable for use in the current Supplement to the Draft EIS/EIR.

5. The No Project Alternative does not offer a Consistent Yardstick for Measuring Project Impacts

The original EIS/EIR provided an incomplete discussion of the No Project Alternative by incorporating improvements that were then only in the "planning stages" and overstating the service levels and capacity of the existing facilities. This approach made it difficult to draw meaningful comparisons with project alternatives. Preliminary review indicates that the Supplement to the Draft EIS/EIR may also provide an incomplete picture of impacts associated with the No Project Alternative. In particular, the Supplement to the Draft EIS/EIR appears to substantially overstate passenger and cargo handling capacity under the no-build scenario, while understating both for the build scenarios.

Additionally, the No Project Alternative has not represented passenger capacity in a consistent manner. In the original 1997 Notice of Preparation, the No Project Alternative was linked to a range of 68-72 MAP whereas the 2001 and 2003 EIS/EIR documents increased this estimate to 71.2-78.7 MAP. Based on communications provided by LAWA at the Environmental Justice Workshop held in Inglewood, the increase between 1997 and 2001 reflected actual increases in passenger demand during that period. However, there was no equivalent adjustment for the period from 2001-2003, when passenger demand has fallen by almost one-third.

The Supplement to the Draft EIS/EIR states that the No Project Alternative is provided as a benchmark for comparison of the four build alternatives. However, use of a higher baseline passenger number minimizes the extent of the difference between existing and future conditions at LAX, which in turn affects comparative impact assessments throughout the EIS/EIR. Use of a *worst-case scenario*, in which the baseline was based on a low estimate of existing passenger demand, would have better served the goals of CEQA and NEPA, and given a more realistic picture of the changes between current and future conditions at LAX. The County believes that LAWA should revisit key impact findings in light of actual 2003 passenger demand, instead of the estimates developed for 2001.

6. Traffic, Noise and Air Quality Impacts have been Shifted Eastward

The revised Master Plan represents a major shift of improvements away from neighboring areas north and south of LAX and toward communities to the east. The unincorporated community of Lennox and the City of Inglewood now appear to bear the brunt of added traffic, while Manchester will be the primary location for passenger processing. This shift heightens the need for close scrutiny of the proposed mitigation plan and the analysis of Environmental Justice.

County comments - LAX [Attach I]

7. **Major Changes in the Project Call for Preparation of a Comprehensive Revised Draft EIS/EIR**

CEQA Guidelines require that a Subsequent EIR for a project must be completed if the Lead Agency determines that changes in a project will require major revisions to a previous EIR; a Supplement to an EIR may be prepared if changes in the project are not considered major (§15162(a)). Both Subsequent and Supplemental EIRs are subject to the same notice and public review requirements as the original EIR, but Subsequent EIRs must make available all the information in the environmental evaluation, whereas Supplemental EIRs only need circulate new or revised information. Discussion provided in the CEQA Guidelines indicates that both types of review are intended for use in connection with *previously certified or approved* environmental documents.

In the present case, there is no previously certified or approved document. Furthermore, preliminary review of the Supplement to the Draft EIS/EIR indicates that changes to the proposed project are major. Thus, even an adaptation of the Guidelines (i.e., to encompass a document that has not been previously certified or approved) would indicate the project should have been addressed through preparation of a comprehensive revised Draft EIS/EIR, in which the full record of information was consolidated in an effort to facilitate public review.

Public review and lead agency decision-making would also have been better served by providing copies of the comment letters submitted during public review of the original EIS/EIR. Instead, the Supplement to the Draft EIS/EIR makes no effort to present or even summarize the earlier comment letters. This approach creates a process that is confusing and cumbersome for reviewing agencies and organizations, and thwarts an opportunity to advance public participation.

8. **Growth-Inducing Impacts May Be Significantly Greater than Stated**

The Supplement to the Draft EIS/EIR bases its analysis of growth inducement on projected cargo and passenger activity. It concludes that by 2015, Alternative D would yield a direct economic output of \$63.7 billion and 350,500 jobs, plus an indirect economic output of \$93.8 billion and 629,000 jobs through a multiplier effect of 1.5. The EIS/EIR assumes that all of the jobs would be within the 5-County SCAG region, 78% of the jobs would be within a 20-mile radius, and 40% within a 10-mile radius of LAX. Finally, it concludes that Alternative D would be similar in terms of job formation to the No Action/No Project Alternative, differing by an increase of about 1%. With respect to collateral development, the EIS/EIR finds Alternative D impacts equivalent to the No Project Alternative for LAX Northside¹, Westchester Southside and Belford, and less than the No Project Alternative for Continental City and Manchester South.

In taking this approach, the document ignores the cumulative synergistic effects that would result if LAX Northside is constructed in tandem with the LAX improvements. The increase in cargo will create corresponding increases in off-airport services and place extraordinary pressures on commercial and residential land uses in the immediate neighborhood. The Growth-Inducing Impact Analysis does not appear to address these more localized impacts at all, even though the past history of LAX shows them to be potentially significant.

¹ LAX Northside is approximately 330-acres of land located on the north side of LAX (bisected by Westchester Parkway) and owned by LAWA. Tentative Map #34836, approved for this site during the mid-1980s, would allow development of about 4.5 million square feet of office, hotel, restaurant, retail, research and airport-related land uses.

Speaker 2



CINDY MISCIKOWSKI

City of Los Angeles
Councilwoman, Eleventh District
Assistant President Pro Tempore

Committees
Chair, Public Safety

Vice-Chair, Rules, Election &
Intergovernmental Relations

Member, Budget and Finance

Member, Personnel

August 23, 2003

Mr. David Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 920007
Los Angeles, CA 90009-2009

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Dear Msrs. Kessler and Ritchie:

Under the proposed Alternative D of the Los Angeles International Airport Master Plan, the airport will undergo substantial changes which will impact a variety of sectors, including the communities, the airline industry, and the region. The plan is referred to as the "Safety and Security Plan" which reduces substantially the expansion in capacity and site footprint as proposed in Alternatives A, B and C.

While Alternative D has improved based on requests from the communities and from other constituents, it nonetheless raises some important questions. I have reviewed the Supplemental Draft Environmental Impact Report for the Master Plan and have determined that there are some specific issues that need to be further analyzed and addressed.

Transportation Issues:

Mitigation measures are unfunded, uncertain, & underevaluated: Alternative D

Page 1 of 7

Westchester Office
7166 W. Manchester Boulevard
Westchester, CA 90045
(310) 568-8772
(310) 410-3946 Fax

City Hall
200 N. Spring Street, Room 415
Los Angeles, CA 90012
(213) 485-3811
(213) 473-6926 Fax

West Los Angeles Office
1645 Corinth Avenue, Room 201
Los Angeles, CA 90025
(310) 575-8461
(310) 575-8305 Fax



shifts the majority of the traffic impacts from the current central terminal area to the area now known as Manchester Square. While there are some traffic mitigations included in the Supplemental EIS/EIR, one of the main features of this proposal requires building an off-ramp from the I - 405 freeway at Lennox Blvd. directly into the new Ground Transportation Center (GTC). The vast majority of these mitigations are directly tied to the availability of airport-related funds and to the availability of funding from other agencies, like the Metro Transit Authority and the State of California. There is also a reliance upon "future" expansion of various programs outside of the airport's jurisdiction like the MTA's Rapid Bus service. There seems to be no analysis of the traffic impacts of Alternative D should these mitigations not materialize nor are there any alternatives presented.

Furthermore, there has been no analysis done of the impacts of the new freeway offramp from the I-405 freeway at Lennox Blvd. on the I-405 freeway, both North and South Bound. Currently, access to the airport via the I-405 is accessible via at least 3 freeway exits, both North and South bound. Alternative D concentrates the freeway access to one point from the I-405 freeway into the GTC. The draft document comparison states that under Alternative D, freeway speeds would be "faster than the No Action/No Project" alternative based on what appears to be an analysis of current traffic patterns. However, given that the proposal in Alternative D creates an entirely different traffic pattern, it is hard to imagine how the comparison is a valid one. Furthermore, there seems to be little hard evidence provided to back up the claims of faster freeway speeds and reduced traffic.

Cargo impacts could be further mitigated: DOT and LAWA have previously analyzed the extension of Avian Blvd. directly into the airport to provide a dedicated cargo road. This option has been fully designed and is likely ready to be implemented. This option would have a positive effect on current airport operations and traffic patterns.

Public transportation connectivity: The plan calls for the Green Line light rail to be connected to the Intermodal Transportation Center (ITC) located at the former Continental City site by way of a moving sidewalk or other device. Furthermore there is an existing EIR for expansion of the Green Line northward past LAX and into Westchester. Green Line project remains in the jurisdiction of the Los Angeles Metropolitan Transportation Authority (MTA), and the MTA owns the existing heavy rail right-of-way that proceeds northward along Aviation Blvd. into Westchester. Nonetheless, the plan should more explicitly call for the preservation and enhancement of the existing right-of-way for a future expansion of the Green Line. This is most sensitive in the area along Aviation adjacent to Runway 25/7, where it is subject to competing interests: light rail, heavy rail, automated people mover, street widening and FAA flight signaling infrastructure.

Security Issues:

Alternative D is billed as the "Safety and Security" plan for LAX. The premise upon which the security proposals have been designed is to protect the "primary function" of the airport, which, presumably, is the take-off and landing of aircraft. Therefore, the separation of passengers and vehicles from the Central Terminal Area was a primary design component of Alt D to prevent against bomb or other dangerous activity which would stop air traffic at LAX. While the specifics of the technologies required to implement the security provisions have not been detailed in the Supplement, additional information presented in the accompanying SAIC report relies upon a series of assumptions which lead to the ultimate conclusion that Alternative D is safer than the no project alternative and safer than all of the other alternatives previously presented.

As in other areas of the Supplemental EIS/EIR, Alternative D leads to more questions than answers, particularly in the realm of security. First, the premise of protecting the "primary function" of the airport is one that deserves greater consideration. Alternative D, while claiming to diffuse passengers through separate entry points at the Ground Transportation Center (GTC), the Consolidated Rental Car Facility (RAC) and the CTA, actually makes those locations easier targets for terrorists or others wishing to maximize the loss of life in any one incident. This leads to the question of whether enough will be done to protect airport patrons versus airport operations? In addition, one well-placed explosive device on the automated people mover could just as easily debilitate airport operations and create additional risk to area hotels and businesses located on Century Blvd. just below the people mover. There are any number of scenarios that could be imagined that seem to be ignored by the security proposals contained within the current document.

Further, it is worth noting that the current environmental documents do not fully elaborate upon the technology and construction specifics of the proposed security enhancements. LAWA's own security consultants have acknowledged that their analysis is based on technology that does not yet exist. The electronic scanning of automobiles and trucks upon entrance to parking facilities, face recognition technology, and fast baggage screening at the point of entry at the CTA are components of the security plan that are required to make Alternative D work. If any one of these component parts is not yet developed, is too costly once developed to implement or is not commercially available at the time of construction then the plan does not work and security risks are imminently greater.

SAIC consultants have also stated that while costs for implementation of the security plan are unknown at this time, ultimately the airport would achieve savings through the reduction in security personnel required since technology would replace them. However, the Supplemental EIS/EIR states clearly that there would be "no cost savings for law enforcement personnel" in fact, estimates that security personnel would increase by 162 for airport police and that 12 additional LAPD officers will be required. Is the baseline for this analysis security staffing at LAX pre- or post-9/11? Given that

the technologies do not yet exist, how do we even know what will be required to staff and maintain them?

Furthermore, LAWA's original intent was to create a security review after the approval of the EIR. However, the publication of the RAND study was an incentive to accelerate that review and incorporate the SAIC study into the plan release. If the security review was to come after the EIR approval by City Council, that suggests that any terminal structure can be made to be reasonably secure regardless of what was on the land use document. Otherwise, the security review by SAIC would have been incorporated at a very early date. Finally, should this be the case, it begs the fundamental question of why the plan calls for such aggressive construction and development of areas like the GTC to be located at Manchester Square, a mile away from the existing terminals.

There is also no discussion of how phasing of construction will affect the overall security elements. Since the CTA, people mover, and baggage transport facility are among the last components of the plan, how will the airport be protected, assuming the premise adopted by Alternative D, in the interim?

These discrepancies and the lack of detail for the actual implementation of the necessary security technologies are of grave concern. Other risk scenarios must be evaluated in this process.

Concerns over Growth Potential:

The Supplemental EIS/EIR acknowledges that under Alternative D, every single terminal function area will be substantially increased - in many cases doubled. This leaves the only restriction on growth the number of aircraft that can be accommodated by the physical gate structures. Regardless of the number of gates that will be constructed, there still exists the ability to expand gate capacity with portable gates, as are in use today in the western portion of the facility.

Given that ability, what will true capacity be at LAX following the implementation of Alternative D? Furthermore, what, if any, environmental or other review is required to move a portable gate onto the western tarmac? Finally, what constraints, if any, which exist for future elected officials in Los Angeles who may see fit to enact a true capacity expansion at LAX to 98 MAP or higher, even at the expense of a truly regional air transportation system?

Manchester Square:

Because of the uniqueness and prominence of the proposed GTC at Manchester Square, its discussion deserves special attention. Ground traffic impacts remain a question for the GTC. The community has been assured to a certain point at forums such as the LAX Working Group that traffic impacts would be minimized through the Westchester community because access points to the GTC are limited to the 405/105

freeways, Lennox Blvd. and other points south.

If, however, access to the GTC is largely expected from the 405/105 freeways, then those freeways which already experience overcapacity from non-airport uses will incur additional traffic impact. This suggests that some airport-bound vehicles will approach from north via other routes, like Sepulveda, Lincoln, Centinela, La Tijera, and La Cienega, much as they do today, even though the explicit design of the GTC is to make this access inconvenient for travelers.

The site footprint of the GTC as outlined in the land use plan raises further questions. If passengers are just moving through the GTC with no concessions or amenities, does it need to be of the large size as suggested on the plan's maps? What uses are called for in a facility the size of the GTC other than security devices? Alternative D is unclear on this. And if efficient passenger throughput can be achieved in a smaller facility, can it occupy either a smaller footprint in Manchester Square, or can it be located elsewhere? All of these issues raise the question of whether the GTC as located at Manchester Square will provide truly adequate security mitigation consistent with the costs associated with this aspect of the project.

OTHER ISSUES:

The draft documentation provided on Alternative D raises some significant additional concerns. One issue that appears to be under-addressed are the potential environmental impacts of the construction of the underground baggage transport facility. Some areas of the plan refer to the baggage facility as a part of the current proposal while others identify it as a potential future development. It seems that regardless of whether it is in or out of the current proposal, it should be evaluated as a part of the Master Plan. Placing a baggage transport system underground will have significant impacts - both during and after construction. How far below grade would this system need to be? What are existing physical limitations - both man made and natural that would affect the feasibility of this system? If the system is never implemented, how and where do the TSA requirements of 100% baggage screening get addressed? Currently there is little to no discussion of the myriad of issues including construction impacts, geological impacts, impacts of the water table, impacts on public utilities, relocation of public and other utility lines, and excavation requirements just to name a few.

Environmental Justice:

The Supplemental EIS/EIR, while identifying that the majority of affected communities are minority, clearly states that there are no Master Plan commitments related to environmental justice. It merely states that there will be continued input through the ongoing Environmental Justice Program. This is not sufficient given the serious impacts this project will have on the surrounding communities.

Cost:

The \$9 billion cost of Alternative D is no doubt a substantial fiscal impact on several sectors. While it is difficult to compare the LAX Master Plan with those of other U.S. airport remodeling plans and their local realities, the cost differences with those projects are nonetheless striking:

Atlanta:	\$5.4 billion
New York JFK:	\$1.2 billion
Chicago O'Hare:	\$6 billion
San Francisco:	\$2.4 billion

If the LAX Master Plan calls for limited or no capacity expansion plus safety and security improvements, then a cost of \$9 billion is inconsistent with the basic goals of the "Safety and Security Plan". Surely these laudable goals could be accomplished at a lower cost. Could not basic security and safety measures be implemented at LAX for \$2 billion, while reducing gates to limit capacity, increasing airfield safety, improving connectivity to public transportation and making LAX the crown jewel of a truly regional air transportation system?

The airline industry will be a substantial source of funding for this project. Assessments to the airlines will come in the form of passenger facility charges (PFCs) and sources. Currently, airlines at LAX enjoy low cost-per-enplanement (the cost of putting one passenger onto an airplane) as compared to other airports, due in part to the fact that LAWA has less debt service that it is currently passing on to the carriers. Cost-per-enplanement will nonetheless quadruple or quintuple at LAX as these assessments are incurred.

After the events of September 11, 2001 and due in part to the general economic downturn and subsequent reduction in business and pleasure travel, the airline industry is facing devastating economic impacts. As an industry that inherently has very high operating costs and capital investment requirements, the airlines are highly sensitive to fluctuations in their revenues.

Some airlines are currently in bankruptcy proceedings while others hover perilously close. Furthermore, some of the airlines currently operating at LAX, who represent a significant portion of the U.S. domestic and international travel markets, have expressed concern that they cannot incur these costs over the project's horizon and continue to provide service at LAX as their customers demand. While there has been some communication between the airlines and the planners, the airlines still feel that their concerns over project cost are unheard.

Other Alternatives Should be Examined:

Of all the project iterations to date, one concept that has never been given enough

thought is improving and enhancing the airport within the current physical layout. Creating transportation improvements like adding ATCS systems to more intersections, improving connectivity with public transportation, making security upgrades that will need to be done in the interim anyway, making runway modifications such as the South runway proposal, and terminal changes within the current physical layout can all be accomplished quickly and will have a real impact. These changes, combined with a consolidated transportation access location and a rental car facility could ultimately lead to a safer, more efficient airport that works better in the context of the surrounding community, truly caps growth, and costs significantly less than the soaring costs for Alternative D.

The RAND analysis of security identifies significant infrastructure improvements that can be done now, with existing technology, that will have a direct impact on the safety of airport patrons and airport operations. There are other proposals, such as the previously mentioned extension of Avion Blvd. as a dedicated cargo road and consolidated rental car facility that will significantly improve transportation access to LAX. The rental car facility alone will decrease over 1 million shuttle trips currently occurring because there are multiple rental car locations in and around the airport today.

By ignoring other options and issuing comparisons based on a "do nothing" alternative, we do a disservice to everyone. There is no question that "doing nothing" is not an option. This Master Plan should be one that achieves something real, at a reasonable price and not one that seems to raise more questions than it answers.

I urge your further consideration of these issues as you work to complete a true Master Plan for the future of LAX.

Sincerely,

Cindy Miscikowski
Councilmember, 11th District

**LAWA MASTER PLAN EIS/EIR
PUBLIC MEETING – FURAMA HOTEL - 23 AUGUST 2003
COMMENTS BY YVONNE BRATHWAITE BURKE CHAIR, LOS ANGELES
COUNTY BOARD OF SUPERVISORS**

Good morning! On behalf of the Los Angeles County Board of Supervisors, thank you for the opportunity to offer preliminary comments on the SUPPLEMENT TO THE DRAFT EIS/EIR for LAWA's Proposed LAX Master Plan. In reviewing the extensive materials presented in the original EIS/EIR of 2001 and the supplement of 2003, we recognize the enormity and importance of the challenge faced by LAWA, we acknowledge the extensive effort that has been made, and we thank LAWA for responding to public demand in extending the review period into November. HOWEVER, THESE CONSIDERATIONS DO NOT DIMINISH THE VERY REAL CONCERNS OF THE LOS ANGELES COUNTY BOARD OF SUPERVISORS CONCERNING THE PROPOSED MASTER PLAN and the INADEQUACIES OF THE SUPPLEMENT TO THE DRAFT EIS/EIR. I would like to touch briefly on a couple of the key issues at this time.

TRAFFIC, NOISE AND AIR QUALITY IMPACTS HAVE BEEN SHIFTED EASTWARD

The revised Master Plan as presented in new Alternative D reshuffles airport improvements away from neighboring areas north and south of LAX, and toward communities to the east. As a result, the unincorporated community of Lennox and the City of Inglewood now appear to bear the brunt of added traffic. The community adjacent to Manchester will now face a host of impacts related to the new passenger processing facility. Compared with the previously considered Alternative C, this proposal places even a heavier impact burden on communities to the north and east. I have serious concerns about the disproportionate impact of Alternative D on these communities, all of which are in my district. The City of Inglewood and the unincorporated community of Lennox will continue to be the most impacted by the operation of LAX.

Although Alternative D is presented as the alternative that will “constrain” passenger growth to 78.9 million annual passengers based upon the number of available gates, even the eye of a lay person can see that Alternative D provides LAWA with a footprint larger than the prior alternatives. This footprint, along with the new air terminal layout, provides the opportunity of future expansion of LAX with resulting increases in already intolerable air quality, noise, traffic and safety impacts on the communities of Inglewood and Lennox.

The residents of these communities already suffer inordinately from the current operation of LAX. *I personally believe it's high time we address whether LAX, an airport surrounded on three sides by urban development, shouldn't be scaled back rather than improved, enhanced and enlarged, unless the present impact from noise is mitigated.* The Los Angeles County Board of Supervisors has been on record for some time in support of a strong regional airport system which focuses on outlying airports such as Ontario or Palmdale, airports which are not surrounded by development . We expressed this position in our comments on the Draft EIS/EIR in 2001. Although Mayor Hahn has voiced his support for a regional airport system, Alternative D continues to reinforce **LAX as the preeminent airport for the Southern California region. Consequently, the concept of strengthening the role of outlying airports in order to avoid adversely impacting the lives of tens of thousands, if not millions, of people, is seriously undermined.**

ENVIRONMENTAL JUSTICE MAY NOT BE WELL SERVED BY THE EIS/EIR EVALUATION

The requirement to consider Environmental Justice has been in place for almost 10 years now, originally signed into law by President Clinton in 1994. And yet, the original Draft EIS/EIR prepared by LAWA in 2001 -- 7 years after Executive Order 12898 -- lacked even the most elementary analyses of this topic. Our preliminary review indicates that LAWA has not yet achieved a fair and complete assessment of the critically important issue of Environmental Justice.

In my earlier remarks concerning noise, air quality and traffic, I noted that Alternative D appears to shift the burden of airport improvements away from the wealthier communities on the north and south, and toward the more economically disadvantaged communities east and northeast of LAX. I believe that this Supplement to the Draft EIS/EIR will not be adequate until it provides an honest assessment of the trade-offs between environmental protection and environmental justice. In designing runway extensions and facilities to the east, this plan appears to protect biological resources -- particularly the El Segundo Blue Butterfly -- at the expense of residents -- children and families -- in the communities of Lennox, Inglewood and Manchester. Can such a trade-off be justified? I see no assessment that provides the evidence. This EIS/EIR is the right time to take a hard look at the human costs that will be incurred in order to protect a limited habitat area on the coast. We ask that the analysis be performed *now*, as part of the Environmental Justice assessment, before the opportunity is lost.

Thank you for your consideration of these comments.

TESTIMONY

Good morning, I'm Don Knabe, Los Angeles County
Supervisor for the Fourth District which represents LAX.

Thank you for the opportunity to speak this morning about
the future of Los Angeles International Airport and our
regional air transportation needs.

I appreciate Supervisor Burke's comments and support her
concerns about environmental justice issues, etc.

I'd like to begin by saying I agree with Mayor Hahn that
something must be done to make LAX more secure and
more efficient in handling passengers while balancing the

concerns of the local community and the need to create additional jobs.

Alternative D indicates that it is designed to accommodate a passenger activity level of 78.9 million annual passengers by reducing the number of existing gates and by foregoing the creation of the new terminal facilities and runway extensions that had previously been considered.

I support the mayor's stated goal of providing for more manageable limits on the passenger volumes at LAX given the well-documented impacts that the airport has had on the surrounding communities and the surrounding infrastructure.

The County of Los Angeles is in the process of reviewing the LAX Master Plan materials to get a better understanding of

just how the mayor intends to assure the region that the 78.9 MAP capacity will not be exceeded once Alternative D is implemented.

In May of this year our County Counsel provided us with their opinion that the City and Los Angeles World Airports could legally place deed restrictions on the LAX property restricting the future development of the airport in order to benefit nearby properties owned by other nearby public entities or private parties.

I believe limiting development is a way to keep a passenger cap in place. I have submitted a motion for consideration by the Board of Supervisors to call on the City of Los Angeles to deed restrict the land until 2020 to ensure that LAX does not exceed 78 MAP

I encourage Mayor Hahn and LAWA to follow through on efforts to limit LAX growth to a manageable level to the greatest extent possible through a commitment to place deed restrictions on certain portions of the LAX property until 2020 to prevent those portions from being used to expand facilities to serve passenger volumes beyond the intended 78.9 MAP level.

Specifically, it would be appropriate for LAWA and the City to commit that the portion of LAX generally located on the west side of the airport easterly of Pershing Drive between the north and south pairs of runways and westerly of the proposed Redeveloped Central Terminal Area (Area 1); and the portion generally located on the northeast corner quadrant of the LAX property and currently used for parking

lot and rental car purposes depicted as the site of the proposed Consolidated Rental Car Facility (Area 2) would be deed restricted through 2020.

The deed restrictions should provide that those two areas will not be developed with airport passenger terminal, airport runways, or other improvements intended to increase airport passenger capacities beyond Mayor Hahn's stated 78.9 MAP activity target levels.

Such a firm commitment may be crucial in obtaining the support of Mayor Hahn's Alternative D from at least some of the significant interested agencies and groups who will so directly be affected by the development at LAX.

While I've have spoken this morning about limiting growth, I do want to say that the security aspect of this plan is a major concern of mine. While the County is reviewing the security aspects of this plan and will comment on it in a written report as part of your official record, I still have strong security concerns with the Manchester Square passenger check in facility. I want to make sure that we ^{give} ~~consider~~ the same safety concerns to the passengers as we do the infrastructure of the airport.

Again, thank you for the opportunity to speak with you today and I hope that we can move forward in a productive way at achieving our common goals for the redevelopment of LAX; Limiting growth and protecting people through viable safety enhancements.

- * Good morning. I am Councilman Kelly McDowell, representing the City of El Segundo.
- * Given the length and complexity of the Master Plan and its environmental documents, our full comments on technical issues will not be ready for some time. Therefore my City's comments today are preliminary.
- * El Segundo continues to oppose Alternatives A, B, and C for the many reasons we expressed orally and in writing during the public review and comment period for the initial Draft EIS/EIR in 2002.
- * El Segundo has not endorsed Alternative D--but we feel its stated objectives are consistent with a regional aviation approach.
- * Specifically, the City of El Segundo supports a regional approach alternative that makes proper use of Inland Empire airports.
- * We support an alternative with fewer environmental impacts. And we would like to see the adverse impacts of the airport minimized and mitigated to the greatest extent feasible.
- * El Segundo supports enhanced safety and security at LAX.
- * And my City supports an alternative that by design will accommodate passenger and cargo levels no greater than the physical capacity of the airport as it exists today.

* Limiting LAX to its current capacity has always been our number one goal--and we believe that limiting LAX's capacity will:

** allow other airports in the region to develop and handle a fair share of future regional aviation demand;

** result in fewer environmental impacts; and

** improve safety and security at the airport.

* But my City is greatly concerned about the impacts of proposed southside airfield changes that would move the southernmost runway 50 feet closer to El Segundo.

* LAWA has stated that it believes these changes are necessary to improve runway safety.

* However, we are currently studying the impacts of the proposed reconfiguration, and the options for the southern runway complex.

* In particular, we urge full public consideration of end-around taxiways as an alternative that could provide greater safety at lower cost and with fewer added burdens on nearby communities.

- * Safety at LAX must be a priority for all of us.
- * El Segundo is prepared to support measures necessary to enhance safety--even if those measures increase our burden--but only if we are assured, by an independent expert, that other alternatives would not be equally effective.
- * In conclusion, we are grateful for Mayor Hahn's responsive leadership and his continuing pledge to constrain growth at LAX and foster a regional approach to meet future aviation demand.
- * It is our hope that the ultimate outcome of this Master Plan process will be a truly regional airport approach that ensures that LAX does not exceed its current capacity.
- * Thank you.

23 AUGUST 2003 LAWA MEETING
Furama Hotel, 8601 Lincoln Boulevard; 310.670.811; 9:00-1:00
TOPICS : Supplement, Baseline, Cumulative

- S. Bauer, here in assn. w/ AC Lazz, to Speak on Behalf of Co of L.A.

- In allotted 3 minutes, I will touch briefly on just a few key points:
 - - Use of Supplement to the Draft EIS/EIR
 - Baseline Data Assessment
 - Security Analysis for Alternative D

USE OF A SUPPLEMENT TO THE DRAFT EIS/EIR

CEQA Gdlns state that a *SUPPLMNT to an EIR may be prepared IF CHANGES IN A PROJ ARE NOT SIG.* Where **MAJOR REVISIONS** have occurred ... *the proper type of document is a SUBSEQNT EIR* that presents ALL info ... instead of only the CHANGD info. **BOTH types of review are intended for use in conjctn w/ prevsly certified docs.**

In present case, THERE IS NO PREVIOUSLY CERTIFIED or approved document. And FURTHERMORE, *the changes to this project are MAJOR – an entirely NEW ALT* has been introduced as the preferred project!

Thus EVEN AN ADAPTATION of CEQA -- to encompass a document that HASN'T BEEN CERTIFIED – would indicate the project should have been addressed through preparation of a comprehensive revised Draft EIS/EIR.

- **In this context, WHY DID LAWA NOT PREPARE A COMPHENSV REV. DR EIS/EIR THAT PRESENTED a FULL SET OF INFO for REVIEW w/ THE NEW ALT D?** } out

We have a 2ND SERIOUS CONCERN w/ this process: **In 2001**, Co. of L.A. devoted considerable **time, FUNDS & effort** to review & submit comments on *extnsive documntn* released by LAWA at that time. **I am CERTAIN a similar effort was spent by MANY OTHERS HERE TODAY.**

There is **NO QUESTION** that a *resp to the earlier comments* would have served to ADVANCE PUBLIC DISCOURSE, strengthen the opportunity for **ENV. PROTECTN**, and facilitate ^{an} UNDERSTANDING OF THE LEAD AGENCY'S THINKING on a wide range of KEY ISSUES...

current review + present insight into

→ **WHY, THEN**, did LAWA not take this opportunity to present ... or *EVEN SUMMARIZE* ... **ISSUES-RAISED** during the 2001. EIS/EIR review? *COMMENT OFFERED*

ADVANCE PUB DISCOURSE

FACILITATE CURRENT REVIEW

STRENGTHEN ENV. PROT.

PROVIDE INSIGHT INTO LD. AG. THINKING

INCONSISTENT AND OUTDATED BASELINE DATA

The 2003 Supplmt makes *cont'd widespread use of 1996 baseline data -- that was outdated even in 2001.* Instead of actually UPDATING the baseline, individual Sectns offer **BRIEF** discns comparing '96 data w/ data from 2000 (also 3 yrs out of date). Several ~~assmts actually conclude that the 96 base data is more useful~~ because the 'lower volumes would result in a larger change' (p.4-221) comp w/ current LAWA proposals.

What we **DO NOT SEE** is an **ANAL** of the **SIG.** baseline **SHIFT** that occurred following 9/11, and how that **SHIFT CHANGED** the **BENCHMARK** for understndg proj imps.

GIVEN that condns at LAX have ***changed dramatically*** since 2000 (much less '96) ... and ... GIVEN that LAWA developed an ENTIRELY NEW ALT D in resp. to the **MAGNITUDE** of those very changes, and designated ALT D as their **PREFERRED ALT** ...

→ ~~Given these things,~~ **WHY did LAWA NOT CONSIDER IT WORTHWHILE TO PROVIDE THE PUBLIC - & its own DECISION MAKERS - w/ a BASELINE REFLECTNG CONDNS AT LAX AS OF 2003?** *THAT ALSO*

SECURITY

The Suppl EIS/EIR presents Alt D as the "**Enhanced Safety & Security Plan.**" However, our review of Appdx I (*Comp of NA/NP Plan w/ Alt D*), indicates that LAWA has relied on a theoretical assmt that falls **SGNFCNTLY SHORT** on detail.

~~Our review of this KEY TOPIC is still in the early stages — we expect to significantly expand our comments on security when the anal is complete.~~
~~—~~ **However,** considerable adv media attn has already focused on LAWA's proposed use of *UNPROVEN SECURITY TECHNOLOGIES*. **I'd like to offer JUST 1 EXAMPLE to illustrate the potential impact of this approach.**

Why this is a valid concern

Apdx I mentions possible use of 'face-in-the-crowd' technology. On Aug 20 '03 -- just this past week -- the **Tampa, FLA Police Dept.** announced it has **DISCONTINUED** use of facial-recognitn surveillance after 2 yrs. This software product **failed to make a SINGLE positive identifiactn** from a database of more than 24,000 'mugshots'.

ALSO

~~Though Alt D is presntd as 'Safety & Security Alt', our anal indicates~~ this plan FOCUSES on 'hardening' security for ^{gateway ELEMENTS} ~~frontal~~ aspects of LAX while **largly IGNORING** perimeter, cargo areas, maintnce & fuel farm fac.. We've found **NO DISCN in Apdx I that specifically addresses backside security.**

We undrstd that MANY SECURITY FEATURES are TOO *sensitive* for public disclosure. However, the ~~apparent absence of detail,~~ **lack of sound analysis & ABSENCE OF CLARITY** – these flaws suggest that Alt. D is fundamentally flawed -- and in the very area of security that it was created to address.

Thank you for opportunity to share these comments on BEHALF of Co of LA



Speakers 19

P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First, MI Last, or Organization): FREDDY CORREA Date: 8/23/03

Address: 1840 W Pacific Coast Hwy.

City: Loyd Beach State: CA. Zip Code: 90810

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments: I'm a Mechanical Engineer also a member of Local 250 The Steam Fitters ~~Local~~ Local.

Office Use Only

My point of view is this: I feel ~~IT~~ ~~is~~ imperative that LAX be renovated. Due to all the ~~and~~ congestion, ~~and~~ the ~~unneeded~~ ~~problems~~ that this airport is affected. also.

I'll stimulate this stagnant local economy and I'll put LAX on the TOP AIRPORTS in the world.

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

SPC00089

GOOD MORNING NADIA AND GENTLE

for every one

10/20
ARRIVAL
LENNOX
ON
9/23/06

My name is Jose Luis Acosta. I have lived in Lennox for 23 years, in the flight path of LAX. Together my wife and I have raised 2 children in Lennox. My sons are 13 and 17 years old I've worked in tourism for 17 years as a Bartender in the Manhattan Beach Marriott.

~~TOURISM~~

Speaker 31

It is not easy to live in Lennox and raise children here. Our community is poor. We have traffic. Our schools are crowded and noisy from the planes flying overhead. But one thing that makes it worthwhile for me to raise my family here is that I have a good, stable job in the tourism industry.

(TOURISM)

Modernization will effect us in Lennox. It can hurt us, or it can help us. Modernization could cause more traffic, more noise, more pollution, without giving anything in return. Or, the city can do everything possible to make sure that modernization benefits our community and provides good jobs with living wages and health care. If modernization can benefits our community, then we are willing to support it.

health care

My name is Emma Worthington and I live in Inglewood. I also work at the airport and have worked there for almost 30 years. Like myself many people who work at the airport live in the surrounding communities. We live in Inglewood, Lennox, Hawthorne, El Segundo and Westchester. We understand the connection between good quality jobs and a quality life. We need ^{more} new jobs but we don't minimum wage jobs. What we need is jobs that provide a livable wage and affordable family health coverage. The companies at the airport provide those types of jobs and that is how I have been able to raise ^{as a single mom} my family and not be on welfare. ^{We Need} In order to insure that this modernization plan provides good employment opportunities for our communities, we encourage the mayor to include in his plan a local hiring program so that others in my communities can also raise their families and our youths can strive to emulate their parents. When we talk about modernization we say we are bringing the airport and Los Angeles into the 21st Century. Well we the workers would like to be able to bring our communities into the 21st Century along with the airport and the rest of Los Angeles. That is why we urge the mayor to ensure that his plan provides good paying jobs with good benefits and a community packet that will ensure we are along for the ride. **NOT LEFT BEHIND.**

Good Morning (Or Afternoon)

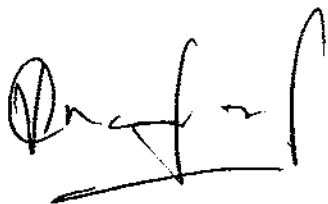
My name is Victor Crawford, **and I live at**
416 E. Regent St, **in the City of**
Inglewood Ca. 90301

I wanted to give my support to the proposal for Alternative D of the Airport Master Plan.

With Alternative D providing facilities for 78 million annual passengers and 3.1 million tons of cargo a year it supports the idea of Regional Airports. In past plans LAX was expected to have to handle as many as 98 million passengers a year and this was totally unexceptable to residents of the surrounding cities. Mayor Hahn has lived up to the commitment that he made before he was elected, that the modernization plan would limit airport usage.

Alternative D, according to the Environmental Impact Report, will provide the best design, including safety and security concerns, with the lest impact on area residents and I support that ideal.

Thank you for listening to my statement.



Hello. My name is Kevin Norton. I live at _____, in the City of _____.

I came today to let you know that I support the modernization of LAX. Mayor Hahn's design with Alternative D will fulfill the concerns that many area residents have had, especially in regard to the number of passengers that will be able to use the airport.

Mayor Hahn signed a letter that he would not support any airport design that allowed more than 78 million passengers a year to fly into or out of LAX. Alternative D, by design caps the number of passengers and cargo as well. This will push other airport sites to build airport facilities and redirect flights there.

A regional approach to air travel and cargo handling will be required when Alternative D is constructed and other area residents will realize that they should provide airport sites. This is a great plan and it should move forward as soon as possible.

Thank you.

My name is Maria Verduzco-Smith, my address is 10927 Grevillea Ave. Lennox, CA. 90304. I Serve as President of the Lennox Coordinating Council.

The Community of Lennox is severely impacted by airport operations but we feel we are mainly neglected. We have schools that jets fly directly over on their approach to the airport and most homes have not been sound proofed to protect against jet noise, as part of the sound mitigation program. Many of our residents can feel the oil and see the soot from the jets. Our children lose hours of education time yearly due to interruptions caused, each time a plane is landing.

There are many things to be taken into consideration when a community is located as close to an airport as Lennox: There is the health of the children, the quality of life for the residents and the impact of noise and traffic the airport causes. If the airport is going to modernize, then it is time for our community to modernize also. This plan must have some real community benefits in it so that future health problems can be alleviated, our schools can be safer, our community can be protected and measures are putⁱⁿ place to ensure that the people of Lennox are treated fairly.

Community benefits means that our community is not forgotten in the modernization process. It means that with \$9 billion being spent for airport modernization, there is money actually being spent in our community to make those infra-structural changes needed to accommodate the expected increase of noise and traffic. While there is a push for modernization, we also want to push for increased and visible benefits in our community of Lennox.

Thank you.

Good Morning (Or Afternoon)

My name is Robert Watson, and I live at _____, in the City of _____

Thank you for the opportunity to speak about the proposed LAX Modernization Plan.

Mayor Hahn has provided an excellent proposal for LAX and with his commitment to cap the airport passengers at 78 million a year, I think that he has satisfied many of the concerns of the residents who live and work near the airport. The idea that other areas, like Palmdale and Orange County will need to take some of the future airline passenger burden is a good one. Mayor Hahn's support for a Regional Approach should be commended as well.

We absolutely need to modernize LAX, not only for the economic and safety concerns that we have, but also so that the area residents will find solutions to their quality of live issues. I think that Alternative D provides many of these solutions, especially with the expanded use of the Green Line Light Rail system that will have a stop a the airport.

Thank you for holding these hearings.

In prior hearings such as this and numerous news paper articles regarding Alternative D, many factors as passenger caps, traffic, noise, jobs and security have been raised. Yet the major impetus behind alternative D continues to be security ^{regardless of the security initiated no security at all} so I'd like to address that ^{subject} particular issue. And frankly, it's not easy to assess the value of Alternative D in that light by reviewing the EIR document.

I offer these direct quotes from various sections of that document.

1. From the comparative analysis section of D vs No Action Page 34

***“Vehicular traffic in the Central Terminal area results in crowded terminal areas that create attractive targets for terrorists & allows baggage containing potentially significant explosive devices into passenger congregation areas.” AND
“People approach all facilities with unsecured baggage until they reach the TSA checks.”***

2. “Security screening stations at the Ground Transportation Center and the Intermodal Transportation Center will protect the Central Terminal area from attack by persons armed with weapons.”

By moving arrival & departure passengers rapidly through the entry point, only a small number of people would be clustered as a potential terrorist target.

3. From the Development & Refinement Sectionparagraph 2.2.8

“First level screening at the Ground Transportation Center will be random baggage and passenger checking and use of video surveillance and sniffing dogs.”

4. Same Sect 2.2.8

“The architectural design intent for the GTC is to create a partially climate controlled open-air structures to help diffuse potential blast impacts at the curb front by eliminating glass curtain walls.”

5. Again, from the comparative analysis section:

“The people mover presents a problem as it is unsecured and subject to attack – but, this can be partially mitigated by use of technology”

6. Again from Development & Refinement Section Paragraph 2.2.81

“Passengers not using skycap services may carry baggage on the Automated People Mover to the Central Terminal area where screening will be made by the appropriate airline.”

So =

- 1). If unsecured baggage in the Central Terminal is a current problem it doesn't appear this multi-BILLION dollar Alternative D solves that.**
- 2). All passengers spread out through 8 terminals currently & you've seen lines all out down the sidewalk – Here all passengers must do through this one entry point but they will move rapidly so as not to present but a small number as a potential terrorist target?**
- 3). The 6 car people mover really sounds like an exciting entry to the “world class” LAX with baggage carts being rolled in & out among the travelers as well as the meeters and greeters, who are able to ride to the central terminal area.**
- 4). Of course, in a curbside blast, one would want nothing but “partially climate controlled air” between them & the explosion.**

A security solution?

NO – A JOKE !

**Submitted by Marvin D. Walter
7015 S. Sepulveda Private
Westchester, CA 90045-1512**

SPC00076

Good morning (or Good Afternoon)

My name is Romeo Gonzalez. I live at _____, in the City of _____.

I would like to show my support for the LAX Master Plan and Alternative D. After almost 8 years of planning and dozens of hearings and testimony Mayor Hahn has introduced a plan that takes into account all of the concerns that have been raised.

With the heightened awareness of the possibility for airport disaster, either by accident or by human hand this plan will reduce and consequences. With the remote passenger and baggage handling facility, the flying public should have much more confidence in LAX security. This design, with the early scanning of passengers, carry-ons and baggage, makes the Central Terminal area and airline gates much safer.

I also like the use of people movers and trams in the design. Moving around LAX today is very difficult. The only way to get from airline to airline or different terminals is to walk or wait for a bus. Alternative D's transportation system saves time and confusion.

I hope Alternative D is adopted, and soon.

Thank you for taking my comments.

Good Morning (Or Afternoon)

My name is HOMER ANDERSON, and I live at 15824 S. WESTERN Ave., in the City of Gardena, CA 90247

All of us here today use airports at some time or another and if you have been at LAX lately, you know how difficult it can be to get through the check in procedures or even to pick-up someone.

That's why I support the new proposal for the Master Plan. As it is indicated on the boards that are set up outside, there will be new passenger ticketing and baggage handling building built away from the central terminals and gates. With the larger area for passenger drop-off and pick-up and the baggage checking facilities being expanded, passengers should be processed much faster.

Getting the people in and out of the drop-off area faster will also give us a safer and more secure airport. The chances that someone will be injured in any disaster will be greatly reduced with the new design.

Thanks

AFTERNOON

Good ~~morning~~ and welcome to Westchester. My name is Harry Rose, 7725 Hindry Avenue, Westchester 90045. I come before you today on behalf of Osage Neighbors Association, representing approximately 3600 homes in Osage Park and Westport Heights.

Because it would seem that none of our City officials have noticed, we would like to point out that most modern airports operate on a much larger footprint than LAX and are not located in densely populated urban areas. Denver had the vision to build a world-class airport on 53 square miles in a rural area and actually close their old airport. Total cost? Less than half the price of Alternative D. Los Angeles, where is the vision?

While we love a good Public Works boondoggle just as much as anyone else, this one is ill conceived and a violation of Mayor Hahn's election pledge to our community. Airport use of residential property violates his pledge to operate the airport within its current boundaries. The capacity of 78.9 MAP stated in the EIS violates the Mayor's election pledge to us by nearly 1 million passengers a year.

Alternative D would dramatically enhance flight field throughput and lay the groundwork for vastly increased ground transportation infrastructure setting the stage for future expansion of LAX operations. We have heard that the FAA is currently studying the feasibility of simultaneous landings on three runways under the new configuration. Do LAWA and FAA plan to visit this practice upon us in the future?

Alternative D would move airport bound traffic two miles to the east subjecting East Westchester, Lennox and Inglewood to increased vehicular air pollution and noise. How does this even begin to comply with the environmental justice provisions of CEQUA?

Alternative D locates a Ground Transportation Center in a tract of land currently zoned R1. The EIS clearly states that no residential property is to be acquired for the project. This leads us to assume that LAWA plans to use property acquired through an ongoing and supposedly Voluntary Noise Mitigation Acquisition program. This method of residential property acquisition for airport use ignores FAA guidelines in Order 5100.37A, Chapter 3, Section 9 implementing the Uniform Act of 1970. We would like a complete explanation as to how LAWA's acquisition and conversion of this property to airport use approaches any semblance of legality.

Thank You
Harry Rose, Osage Neighbors Association

Thank's for the opportunity to speak:

My name is Malcolm Joseph **I live at**
_____, **in the city of**
_____.

LAX has been a very large factor in the daily lives of all of us in Los Angeles County. Those who live near the airport have special concerns, even though the airport is an economic boon to us all. Obviously, traffic and noise have to be dealt with and I think that the LAX Master Plan with Alternative D does that.

The traffic plan, with improvements being proposed for intersections, extra lanes on La Cienega Boulevard and the improvement to the cargo delivery accesses roads will aid the flow of traffic in the airport's immediate area. But, the greatest change to increased traffic will be the connection of the Green Line Light Rail to the Transportation Center. Finally, a public transportation system will be available from Fly Away Parking facilities or Stations where passengers and be dropped off at over 50 sites throughout Los Angeles County.

Alternative D is my choice and I hope that the FAA and the City will approve the plan

Thank you.

LAX MASTER PLAN - SPENDS \$ 9 BILLION PLUS TO:

- * **Tear Down Airport Structures Possibly Not Yet Even Paid For**
- * **Concentrate Airport Congestion in Single Vulnerable Location**
- * **Promote Traffic Gridlock around LAX and Provide No New Rail Transit Access to LAX**
- * **Make LAX the Most Inconvenient Airport in the World**

Simply moves Airport Congestion & Likely Point of Terrorist Attack to another more congested site without equal replacement parking and still further away from Green Line to Blue Line to Red Line and Urban Destinations. Is it really convenient to go to Park and Ride Lots in Long Beach, Norwalk or Inglewood and ride busses to Manchester Square Airport Security Center ?

Our past leaders were visionary in buying a large airport site at Palmdale. Tokyo, Seoul, Hong Kong and Washington D.C. all built new larger International Airports far from their cities. Most now use old airports for Domestic Flights Only. Transit Links to other Airports and Cities.

HOW TO SPEND LESS AND GET MORE.....a possible Alternative Plan

LOS ANGELES AIRPORTS AND RAIL TRANSIT SCHEME * *

As Illustrated with Detailed Map - Plans & Text shown on Large Display Boards.
(Prevented from Showing at Airport Public Hearing. Want to See ? Contact Me.)

*** New Secure Los Angeles International Airport at Palmdale**

With all passenger and baggage screening and check -in features now in LAX Master Plan Using only a small portion of this vast site. Passenger Drop-Off at Tram-Transit Link.

Links Palmdale Metrolink Station (uc) with one-mile Elevated Airport Tram connecting to Security Center for Passenger and Luggage Screening, Flight Check-In and Baggage Check.

Continuing Tram to Huge International Terminal and on to even larger Domestic Terminal for Connecting Flights.

2.5 Mile Elevated Tram Loop from Terminals to Parking, Bus, Taxi and Car Rental Lots; to Security Center; and Metrolink Station.

Vehicle Entry Security Check Points. 500 acres of Open Parking Lots with approximately 50 to 70 thousand Car Capacity. 180 acres for Bus and Taxi Terminals and Car Rental Lots.

Existing Metrolink Travel Time from Union Station to Lancaster is 1 hour and 40 minutes. Would be less from Red Line/Metrolink Station to Palmdale Airport and even less by car on 14 Freeway.

Transit Travel Time to Airport could be greatly reduced by (1) Better Track Alignment (2) Improved Rail Roadbed (3) Grade Separation (4) Double Tracking and (5) Electrification.

*** Los Angeles Westchester Domestic Airport at LAX**

Linked by Terminals Tram to Metro Rail Line.

Passenger Drop Off and Security Check Point at Transit-Tram Entry Station

Security Check Stations at all Vehicle Entry Points.

Airport Conference Center & Corporate Jet parking at now Tom Bradley International Terminal.

Retain all LAX Terminals, Parking Structures and Runways as they now exist.

LAX Flights Actually Reduced. No Homes or Businesses Taken.

*** Easy Rail Transit to ALL Los Angeles Airports.**

Including Direct Metro Rail between LAX and Burbank Airports.

Only 15 miles of new Metro Rail lines could link Green Line and LAX to Burbank Airport and Metrolink Rail Line to Palmdale Airport.

Two mile Red Line Valley Metro Rail Extension to Burbank Airport Terminal. Then one mile more to new Antelope Valley Metrolink Station and Rail Transit Service to L.A. Int. Airport at Palmdale. Also increases low income workers access to large nearby affordable housing stock.

Ebony Metro Rail Line from Union Station to Wilshire-Western Stub. Then 12 miles to LAX. Subway down Crenshaw Blvd. and Elevated on MTA owned railroad right-of-way to Century/Aviation Station Link with LAX Airport Terminals Tram. Ending at Green Line Light Rail Aviation Station. Bay Area BART elevated everywhere except in Downtown City Areas.

Long Beach Airport Alternative Terminal Transit Links to Long Beach Blue Line Light Rail.

Now no direct rail access to Ontario Airport. Alternative Plan has new Ontario Airport Stations on Riverside and San Bernardino Metrolink Lines with Transit Links to Airport Terminal.

Tony Neil Kom - Environmental Planner

(323) 221 1415 KomCepts@aol.com

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May not be Copied or Used in Any Way Either in it's Entirety or in Any Part Without Prior Written Approval of Tony Neil Kom or Heirs. Dated August 1, 2003. Los Angeles, California

Creating jobs is a good thing, and keeping ALL of our U.S. airports modern and maintained is always a good thing.

But I have to say NO, emphatically, to the mayor's Alternative "d".

Mayor Hahn's PR machine keeps repeating that the 9 billion dollar plus LAX "Alternative d" will be safer and more secure. Experts from the Rand Corporation, in a study requested by Congresswoman Jane Harman, disagree. After studying the plan they found that the airport would, in fact, be less safe and less secure than the existing LAX.

In fact, the study concluded, modernization could be accomplished at a much lower cost than alternative d.

Concentrating all the travelers into one check-in just creates an even more attractive target for any terrorist activities. We all will be put at tremendous risk if we allow Mayor Hahn to create one giant bull's-eye at what once was Manchester Square.

Not safer, nor more secure, certainly not more convenient. and unnecessarily expensive.

Alternative "d" is not good community planning, Mr. Mayor, and it's not good governance.

Andrea Davis

7352 Vista del Mar Lane
Playa del Rey, CA 90293

310-823-8927

Speaker 54

DANNA COPE
8219 Reading Avenue
Westchester, CA 90045
Phone: (310) 641-2503
FAX: (310) 396-8437
e-mail: dcope@stjosephctr.org

August 23, 2003

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
AWP-611.2
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Dear Sirs:

While Alt. D is a definite improvement over Alts A, B, and C, it does not achieve its stated purpose: to provide safety and security.

Alt. D would cost over \$9 billion, exacerbate the traffic and air pollution problems, expand the boundaries of LAX, and provide very little in mitigation measures.

By expanding LAX into the Manchester Square area, Alt. D would merely transfer the dangers from the facilities in the Central Terminal Area out to the community, thereby leaving the traveling public and the residents still at risk. Gathering a large number of people into one area would create a terrorist target - and that is what a Ground Transportation Center in Manchester Square would be.

Concrete, metal and plastic would get protection; people would not.

Extending LAX boundaries into Manchester Square sends the message that LAWA intends to just keep expanding LAX and it can handle all the Southern CA traffic - no regional approach is needed. Other counties and communities should be taking on their share of the air traffic, not told they can rely on LAX.

SPC00083

There have been very few Category A runway incursions at LAX - certainly not enough to warrant a \$9 billion renovation which includes moving runways. Adequate safety precautions could be instituted with the cooperation of FAA, LAWA, and the airlines.

Air traffic has not rebounded to pre-9-11 levels. This gives us the luxury of taking time to reexamine the assumptions previously made that air travel would return to and increase from those levels. There is no reason to rush to prejudgement. There is time to explore more options on bringing other airports into compliance with a regional approach to air traffic.

I will be making written comments on specifics of the proposal prior to the November deadline.

Sincerely,

Danna Cope

Quoting from the supplement to the draft EIR/EIS --

“As of October 31, 2002, progress in acquiring properties under the Voluntary Residential Acquisition/Relocation Program for Manchester Square and Belford indicates that 62 percent of the property owners (351 properties and 1130 dwelling units) have volunteered to participate in the acquisition program.” What about the other 38 percent? What about the people who lived there for over fifty years and DON'T want to move? I guess no one from LAWA or L.A. city really cares, but then why should they?

Then, as I was randomly leafing through the EIR/EIS, I found an interesting report on the residences which will be most impacted with the plans. Guess which city is impacted most -- Inglewood of course!

At more than 120 “Newly Exposed Residential and Noise -Sensitive Uses Outside of the 1992 CNEL Noise Contour” for the Alternative D, and over 2,000 listed under “Alternative D 2015 dBA SEL Noise Contours Listing of Newly Exposed Residential Uses Outside of the 1992 65 CNEL Noise Contour”, we -- Inglewood -- are the most impacted area in the communities surrounding LAX.

But I guess that really doesn't matter. We -- Inglewood residents -- are just low income NIMBY's who want to stop this “Modernization” -- or is it expansion? -- plan.

Also in the Supplement to the Draft EIR/EIS was that wonderful interchange on Arbor Vitae ST. -- which our beloved L.A. Co. Supervisor pushed for -- under the title:

“Model Update Information -- Regional Roadway Improvements.”

Our county supervisor had once mentioned that the Arbor Vitae Interchange has nothing to do with Airport Related issues -- at least that is what I remember.

Even worse though, a LAWA staff member had once said it was for our -- now nonexistent -- Kmart!

I don't think so!

Councilmember Kelly McDowell,
City of El Segundo
Comments on the
LAX Master Plan Draft EIS/EIR Supplement
August 2003

- Good Evening. I am Councilmember Kelly McDowell, representing the City of El Segundo.
- Given the length and complexity of the Master Plan and environmental documents, our full comments on technical issues will not be ready for some time, therefore the City's comments tonight are preliminary.
- The City continues to oppose Alternatives A, B, and C for the many reasons the City expressed orally and in writing during the public review and comment period for the initial Draft EIS/EIR in 2002.
- *ES* ~~We feel the stated objectives of preferred Alternative D support a regional aviation approach that makes proper use of Inland Empire airports.~~ *not endorsed alt. D, but*
- *MY* ~~The City supports an alternative with fewer environmental impacts. We would like to see the adverse impacts of the airport minimized and mitigated to the greatest extent feasible.~~ *(i+s)*
- *ES* ~~The City supports enhanced safety and security at LAX.~~
- *MY* And the City supports an alternative that by design will accommodate passenger and cargo levels no greater than the physical capacity of the airport as it exists today.
- Limiting LAX's capacity to its current capacity has always been our number one goal and we believe limiting LAX's capacity will allow other airports in the region to develop and handle a fair share of future regional aviation demand,
- will result in fewer environmental impacts,
- and will improve safety and security at the airport.

- However, the City is greatly concerned about the impacts of southside airfield changes that *would* move the southernmost runway 50 feet closer to El Segundo.
- LAWA has stated that it believes these changes are necessary to improve runway safety.
- However, we are currently studying the impacts of the reconfiguration, and the options for the southern runway complex.
- In particular, we urge a full public consideration of end-around taxiways as an alternative that could provide greater safety at lower cost and with fewer new burdens on local communities.
- Safety at LAX must be a priority for all of us.
- The City is prepared to support measures necessary to enhance safety, even if those measures increase our burden, but only if we are assured, through an independent expert, that other alternatives are not equally effective.
- In conclusion, we are grateful for Mayor Hahn's responsive leadership and his pledge to constrain growth at LAX and foster a regional approach to meeting future aviation demand.
- It is our hope that the ultimate outcome of this Master Plan process will be a regional airport approach that ensures that LAX does not exceed its current capacity.
- Thank you.

Jart Reed

Subject: FW: Talking points for LAX EIR hearings with respect to rail/airport connections

Sent: Sunday, August 10, 2003 1:59 PM

Subject: Talking points for LAX EIR hearings with respect to rail/airport connections

To All:

The following "talking points" below are the result of many meetings and discussions of rail advocates, the latest of which was last Thursday evening's Friends of the Green Line (FoGL) Meeting in El Segundo.

Key: Since the MTA has no money to pay for a Green Line extension to Westchester, the notion of a Green Line extension should fall under traffic and/or environmental mitigation, with a final EIR of any Alternative D including a specific design--preferably one that has the written blessing of the FAA.

More talking points:

1) Our goal is for the Green Line to connect to the GTC, wherever it ends up.

Manchester Square is being discussed as a site for the GTC solely because it's on the drawing board as the current site--FoGL is neutral on where the actual location should be..

2) A Green Line Westchester extension would enhance the usefulness of the People Mover by connecting it to local hotels and businesses.

FoGL supports the LAWA People Mover for airport transportation purposes, but not a People Mover that would harm future regional transportation efforts.

3) FoGL recommends a direct connection of the Green Line to the GTC as an alternative to a potentially-superfluous Intermodal Transit Center adjacent to the Aviation/Imperial Green Line station.

A direct Green Line/GTC connection would not interfere with the People Mover designed to connect Parking Lots C and D with the GTC, but would instead separate rail- and car-bound LAX traffic.

4) Federal funding for both a rail connection from the south (along the MTA Harbor Subdivision Line to the GTC), as well as funding for rail connections from the north and Downtown, might be a better argument for LAX-related traffic mitigations than "a Green Line extension to Westchester".

The northern connection would be from the previously-planned Westchester extension, and from Downtown and Inglewood via the MTA Harbor Subdivision Line to the GTC.

5) The Bay Area just established a rail/airport connection, and Orange County has just started looking into its own airport/rail connection via its Centerline--L.A. County should strive for nothing less than its own rail connection(s).

The nine Public Hearings for the Supplement to the Draft EIS/EIS and Draft Master Plan Addendum are scheduled as follows:

Date

Location

8/10/03

SPC00086



I want to make Southern California more livable by joining The Transit Coalition which allows us to maintain and expand our valuable activities.

Please Print

Name (First, Last) _____

Organization / Affiliation _____

Title _____

Mailing Address _____ Suite / Apt. # _____

City _____ State _____ Zip Code _____

E-mail Address _____

Home Phone (_____) _____

Work Phone (_____) _____

Cell Phone (_____) _____

Fax Number (_____) _____

How did you hear about us?

Annual Membership / Support Donation

- Fixed Income \$ 20 To subscribe to our free e-mail list which provides
- Individual \$ 75 details about volunteering,
- Family \$ 125 funding, transit meetings,
- Partner \$ 250 projects and other key information, go to The
- Organization \$ 500 Transit Coalition website:
- Corporation \$ 1,000 www.transitcoalition.org
- Patron \$ 2,500 Click on CONTACT US to
- Sponsor \$ 5,000 register to receive our
- Supporting \$ 10,000 regular e-mail updates.
- Other \$ _____

Activities of The Coalition

What ideals do we stand for?

The Transit Coalition is a grass roots volunteer organization that advocates a balance of bus, subway, commuter rail, light rail, bike, airport access, goods movement, physically challenged access and automobile transportation to get Los Angeles Region moving again.



What issues do we advocate?

Short term: We deal with improving the quality of the existing rail and bus systems such as hours and frequencies of service, working facilities and improved signage.

Long Term: We work with political officials and staffers to encourage continued and increased Operating and Capital Funding. We work with the media to provide facts and to correct myths, misinformation and misperceptions. We work with the community and transit users to demonstrate and mobilize a solid base of support to expand bike, bus and rail systems.

Programs we are involved in:

- Meetings with Elected Officials and their staffs in Washington, DC, Sacramento, CA and Southern California.
- Community Outreach meetings to garner public support.
- Dinner Meetings with Key Speakers.
- Websites and Discussion Boards to educate and evaluate issues.
- Effective E-mail and Letter Writing Campaigns to Officials and Media.
- Assembly of large supportive crowds at public hearings.

Who Are We?

Mission Statement

The Transit Coalition is a broad based group of concerned citizens mobilized to passionately demonstrate community support for the economic development and continuing operation of improved transportation in Southern California.

Objectives and Vision Statement

Education and outreach activities will highlight congestion relief opportunities and mobility alternatives that will allow the area to move forward to reach full potential as a dynamic, culturally advanced and livable world-class region.

How Can You Help?

The Transit Coalition is a 501 [c] (3) non-profit organization. Please contact us if you would like to attend our meetings, make a tax-deductible contribution, volunteer your time or help in any other way.



www.transitcoalition.org

www.friends4theredline.com

www.fog1.org • www.labikecoalition.org

www.railadvocates.org • www.bruttruth.com

www.railpac.org • www.metroilverline.com

www.friends4expo.org

Please make your donation payable to:

SEE/The Transit Coalition

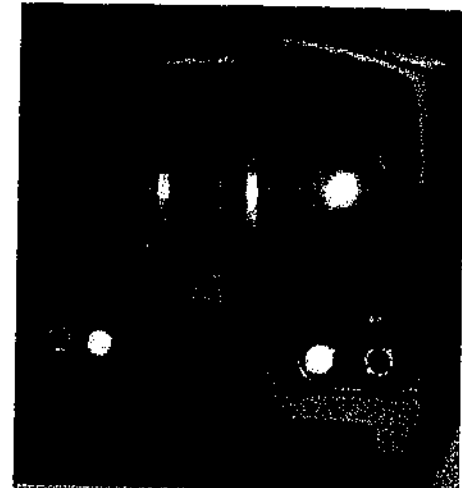
12463 Telfair Avenue

Sylmar, CA 91342-3736

transitcoalition@earthlink.net

Voice: 818-367-1661 • Fax: 818-362-7997

Would You Like To See Transportation Improved In Southern California?



A Range of Coalition Objectives:

The Coalition works to develop a safe, integrated, cost effective and environmentally sound public transportation system for the greater Los Angeles Region. The Transit Coalition realizes that government must not only look at the tangible cost of running and building a public transportation network, but also the intangible benefits that such a system provides, such as better health, less pollution, reasonable travel time, ease of use, coordinated schedules with a minimum amount of transferring between routes.

Varieties of Transportation Modes

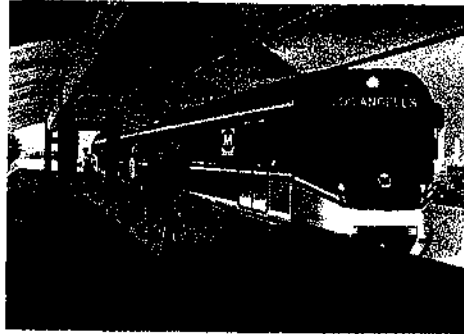
Los Angeles has many different modes of public transportation. Commuter Rail, Heavy Rail (Subway), Light Rail, Rapid and Express Bus, Local Bus and Shuttle Bus. Even with the opening of the Gold Line, Los Angeles still has much work ahead to make our Public Transportation System even better than we have today.

What Specific Actions has The Transit Coalition Done For You?

- Converted the EXPO Bus Rapid Transit project to a Light Rail Line.
- Influenced increased bus service, new routes, additional service hours in the San Fernando Valley and Los Angeles.
- Met numerous times with Elected Officials and their staff in Washington and Sacramento to discuss transportation funding.
- Testified on a continuing basis before the MTA, Metrolink and OCTA Board of Directors and before Public Meetings regarding various transportation issues.
- Public Outreach programs for EXPO and other large public events such as Festival of Books, Mobility 21, MTA service hearings and the Gold Line Opening.

Transit Projects in the Works

Preliminary Engineering of the EXPO Light Rail from downtown Los Angeles to Santa Monica.
 Metro SFV Rapidway connecting the North Hollywood Red Line to Warner Center using Bus Rapid Transit opens August 2005.
 Rapid Bus Lines to be implemented by 2008.
 Gold Line extensions to East Los Angeles and to Claremont / Montclair.
 Implementation of the SmartCard fare system.
 New Metrolink line from Riverside to Perris.
 Straighten and add additional double track on Metrolink Routes.
 Improve transit stations and shelters.



New Breda Light Rail Vehicles on order by the MTA

Projects The Coalition Supports

Extend the Red Line to the North and West Valley. Continue the Red Line west along Wilshire Blvd. to Santa Monica. Extend the Green Line to Westchester via LAX, to the Norwalk Metrolink Station and to the South Bay.

Provide rail service between LAX and Union Station, rail service between downtown Los Angeles and Whittier, rail service along the Lincoln Blvd. corridor, along the I-405 corridor between LAX and San Fernando Valley and rail service between Silver Lake and El Monte.



Enhanced Quality of Life

Support the initial CenterLine adopted route and proposed extensions to serve most Orange County residents.

Provide bike paths and walking trails along transit Rights-of-Way, coastal areas and other Southern California scenic locations.

Provide more bike rack capacity on buses and trains and adequate bike storage lockers at transit stations and other popular spots.

Provide noise and weather protection for freeway bus and rail transit stations.

Install benches and functional transit shelters along bus and rail routes.

Develop additional Park-and-Ride locations and expand overflow parking lots.

Provide intelligent, accurate signage and current schedules at transit stations.

Provide better bus and rail scheduling at transfer hubs to minimize waiting time.

Keep the momentum going for projects to prevent delays, cancellations and increased construction costs.

Provide landscaping, art and comfort stations as appropriate at key transit stations.

Improve rider safety and security at stops and onboard transit vehicles

Encourage Transit Oriented Development for a more pedestrian friendly environment and less orientation towards the automobile.



The Coalition is dedicated to improving and expanding all modes of transit in Los Angeles and throughout Southern California.

The Transit Coalition (a project of SEE) is a non-profit public charity exempt from federal income tax under Section 501(c)(3) of the Internal Revenue Service.

Mail this completed form with your tax deductible contribution payable to:

SEE / The Transit Coalition

12463 Telfair Avenue

Sylmar, CA 91342-3736

Please check one category that best describes your career:

- | | |
|--|---|
| <input type="checkbox"/> Architect | <input type="checkbox"/> Nonprofit |
| <input type="checkbox"/> Planner | <input type="checkbox"/> Academic |
| <input type="checkbox"/> Engineer | <input type="checkbox"/> Elected Official |
| <input type="checkbox"/> Landscape Architect | <input type="checkbox"/> Journalist |
| <input type="checkbox"/> Developer | <input type="checkbox"/> Researcher |
| <input type="checkbox"/> Broker | <input type="checkbox"/> Student |
| <input type="checkbox"/> Finance | <input type="checkbox"/> Citizen Activist |
| <input type="checkbox"/> Public Agency | <input type="checkbox"/> Other: _____ |

Yes I want to help:

- | | |
|--|---|
| <input type="checkbox"/> I want to receive free email updates. | |
| <input type="checkbox"/> I want to volunteer: | |
| <input type="checkbox"/> Fundraising | <input type="checkbox"/> Meeting Host |
| <input type="checkbox"/> Brochure Design | <input type="checkbox"/> Make Phone Calls |
| <input type="checkbox"/> Public Speaking | <input type="checkbox"/> Newsletter Production |
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| <input type="checkbox"/> Data Conversion | <input type="checkbox"/> Circulate Petitions |
| <input type="checkbox"/> PowerPoint Design | <input type="checkbox"/> Training |
| <input type="checkbox"/> Meeting Planner | <input type="checkbox"/> Meet Elected Officials |



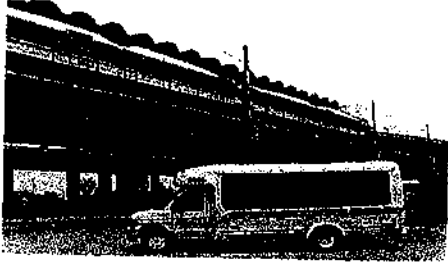
www.transitcoalition.org
transitcoalition@earthlink.net

Why The Green Gap?

Extending the Green Line 2.5 miles north to Westchester with stations at LAX would save 15-30 minutes per trip by eliminating the walking and shuttle transfer currently needed to get from the Green Line to LAX.

Extending the Green Line 2.5 miles east to the Norwalk Metrolink Station would save 15-45 minutes per commute by not having to use the current shuttle bus system.

Extending the Green Line 2.5 miles south to the South Bay Galleria would move the terminus to an existing transit hub, a busy shopping mall and provide a friendlier pedestrian environment.



Commuters on this Shuttle bus will miss the East Bound Green Line Train by seconds and have a 15-minute wait for the next mid-day train to arrive.

Save Our Health

Traffic noise at all I-105 freeway median Green Line stations frequently reaches the 85 to 90 db range.

This is not only uncomfortable but also unhealthy. Prolonged exposure to noise levels over 85 db may gradually lead to some hearing loss. Simple measures such as sound barriers can significantly reduce noise levels at the station platforms.

Protection from noise and weather is urged at all Green Line Stations.

Friends Of The Green Line Goals

- ❶ Extend the Green Line thru LAX to Westchester to allow access from the North and the South
- ❷ Provide Express Train Service between LAX and Union Station
- ❸ Extend the Green Line South to the South Bay
- ❹ Extend the Green Line East to the Norwalk Metrolink Station
- ❺ Provide shelter from noise and weather at Green Line Stations

Conceptual Westside Rail



Who Are We?

Friends of the Green Line (FoGL) is an all-volunteer organization of frustrated commuters and transit users working for improved mobility and less pollution in the Greater Los Angeles Region. FoGL is not affiliated with the MTA or LAWA.

FoGL recognizes the Green Line as a form of mass transit that is positioned to improve ground and air transportation throughout Southern California, in particular because of its proximity to LAX, the Westside, the South Bay and the Norwalk Metrolink Transit Center which would link MetroRail to Orange, Riverside and San Diego Counties.

How Can You Help?

The Transit Coalition is a 501 (c) (3) non-profit organization. Please contact us if you would like to attend our meetings, make a tax-deductible contribution, volunteer your time or help in any other way.



www.transitcoalition.org

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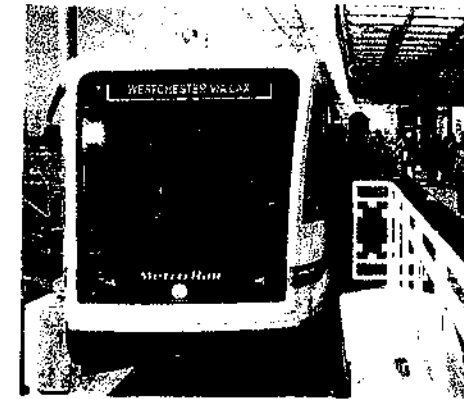
SEE/The Transit Coalition

12463 Telfair Avenue

Syomar, CA 91342-3736

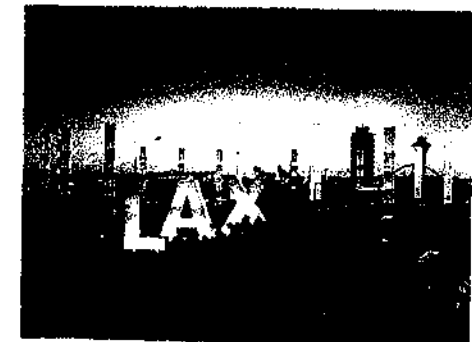
transitcoalition@earthlink.net

Voice: 818-367-1661 • Fax: 818-362-7997



Green Line Extensions:

The Ones That Got Away!

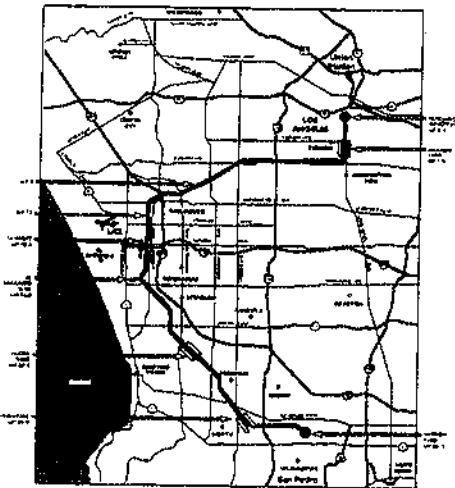


Friends of the Green Line

LAX Express Proposal

Most world-class airports offer direct rail service to the heart of their cities. Friends of the Green Line (FoGL) advocates the LAX Express with rail service between Los Angeles International Airport (LAX) and downtown Los Angeles Union Station.

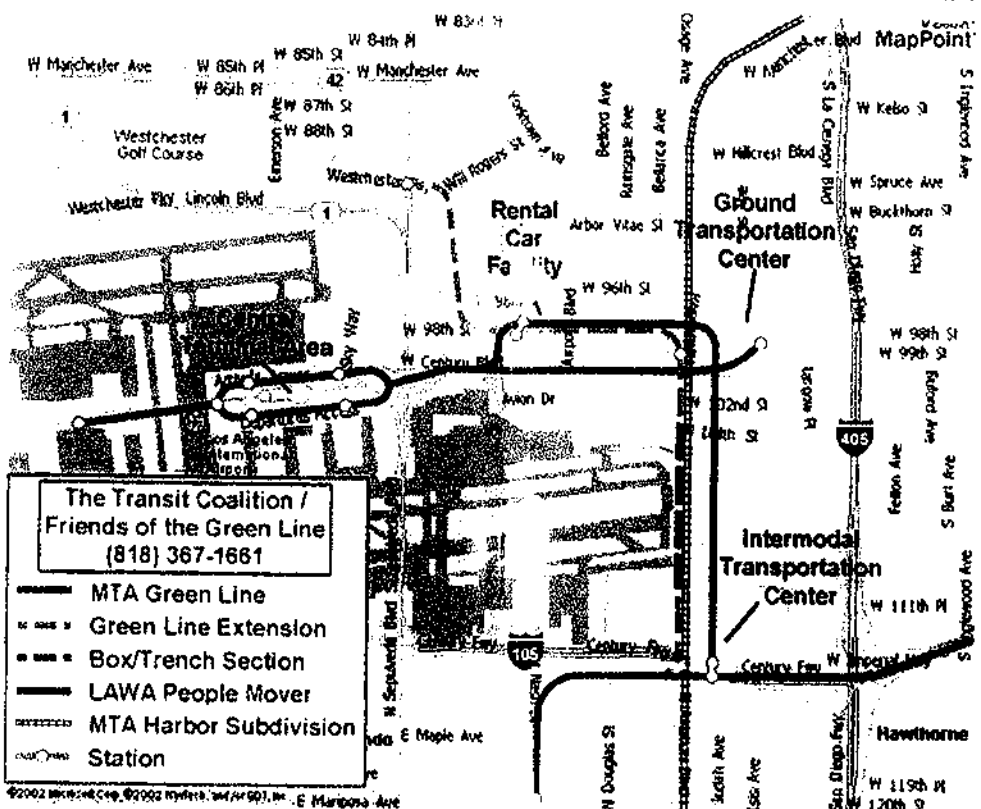
The Metropolitan Transportation Authority owns a lightly used existing Right-of-Way known as the MTA Harbor Subdivision.



This map shows the complete Right-of-Way, which runs northwest from San Pedro, past LAX, then continuing northeast on to Redondo Junction, a rail interchange with connections to Los Angeles Union Station (LAUS). At LAUS there are connections to existing rail lines and future proposals like the High Speed Rail to the Bay Area.

The LAX Express proposal could provide Local and Crosstown Express service for South Bay and West Los Angeles residents between transit hubs at LAX and LAUS.

Green Line Rail Access To Westchester Via LAX



Friends of the Green Line (FoGL) recommends that any plan for improvements in security, noise abatement and traffic include the FoGL LAX Express proposal and the FoGL Green Line extension proposal to Westchester via LAX as an integral part of the overall LAX Master Plan and not just a connection to the Green Line on the outskirts of LAX. By reducing the number of transfers, more passengers will utilize public transit and this will reduce traffic congestion, air pollution and noise around LAX.

FoGL recommends a regional airport system, and the LAX Express can be modified for direct transit between most of the major Airport in the Los Angeles Region. The above map shows the Green Line as originally adopted by the MTA, and includes the Los Angeles World Airport (LAWA) proposed People Mover. FoGL remains neutral on any LAWA proposal and supports efforts to regulate passenger capacity at LAX.

Light Rail and Airports A Perfect Match

Construction of the Green Line past LAX was halted in the 1990's due to concerns about interference from the trains' overhead power collectors interfering with airplane landing systems. An exhaustive study showed a shallow trench, which lowers the light rail trains below the line of sight of the radar beacons, solves the problem.

The Santa Clara Valley Transportation Authority (VTA) Light Rail system in San Jose California was extended past the end of the runways at NAS Moffett Field with its highly sensitive electronic equipment without any problems, using the same exact configuration recommended by the Green Line Interference study.



This photo shows the train's overhead wires—the source of the potential interference—just above the level of the fence and just feet from the end of the runway as a VTA Light Rail train passes under the flight path in a trench that helps shield any interference from the train.

FoGL advocates extending the Green Line in a trench, similar to the one shown in the above photo, past LAX's south runways and continuing on to Westchester.

Redstone Plaza
3515 Wilshire

Notes Re LAX

I'm.....

Speak in support of the Masterplan that's before you.

Our organization represents an industry:

~~\$11.8 billion~~ ^{10 billion}

23 million visitors

240K jobs

LAX is the shelf from which our customers buy LA.

The MasterPlan, Option D has 100's pages of detail.

There is and will be lots of discussion of those details.

But, I am here to ask that the strategic ~~vision~~ ^{perspective} reflected in this plan not get lost the discussion of details.

There are three ^{parts} parts to this ^{strategic perspective} strategy:

1. Building a Safe and Secure facility: This is elemental to the future on a both practical and perceptual dimension. *Sadly,*
2. Designing an airport that maintains LA's status as an international gateway: The international customer is the most sought after in the world. Either we build a user-friendly facility for this customer or they will go elsewhere.
3. Last, this plan recognizes a truth that Southern California's demand for air-travel cannot be built on the backs of the citizens of single city. This plan addresses the truth that there must be a regional solution to regional demand.

Thank you.

not exact

Speaker 11

Good afternoon, my name is Richard Slawson and I am the Executive Secretary of the Los Angeles/Orange Counties Building and Construction Trades Council. Our Council represents over 130,000 Craftsmen and women who live and work throughout Los Angeles. We enthusiastically support Mayor Hahn and his master plan alternative for LAX.

When this plan gets underway, besides moving forward the needed modernization of our airport, nearly 49,000 construction-related jobs will be directly generated during the entire construction phase.

Statement #4

This is welcome news for our regional economy because putting 49,000 men and women to work, at good wages, is a boost not only to those on the job but throughout Southern California. This many new jobs will have a tremendous ripple effect that will in fact support 100,000 jobs around the region and \$11 billion to total economic activity.

This region desperately needs the economic stimulus from this LAX Master Plan.

Our other concerns are also being met by the Alternative D Plan. As in the case of many other world class airport, including Washington Dulles International Airport , Orlando International Airport and Denver

International Airport, their terminals are linked by the use of trams, people movers and trains. Washington Dulles uses what they call movable lounges. Orlando uses trains and Denver uses a combination of moving walkways and an underground train.

All of these are similar to the Ground Transportation Center and the Intermodal Transportation Center included in alternative D in the LAX Master Plan.

These then connect with the main or Central Terminal Area by the automated people mover. With the heightened security measures that are needed today, this makes absolute sense.

I would also like to commend Mayor Hahn for the commitment that he made to hold

LAX to 78 Million Annual Passengers. We all know that LAX must be modernized, but it must also meet the needs and concerns of the residents of Los Angeles and surrounding communities and especially those residents who live near the airport. This plan addresses, traffic, security and noise in its design and regulations.

We support the LAX Master Plan and asked that you give it your approval.

Thank you.

Testimony by Mayor James K. Hahn

Joint Hearing of the Federal Aviation Administration and
The City of Los Angeles/Los Angeles World Airports
Radisson Plaza Hotel
3525 Wilshire Blvd.
Los Angeles, California
5 p.m., Monday, August 11, 2003

Good evening. My name is Mayor Jim Hahn of the City of Los Angeles.

I am here to voice support for the Enhanced Safety and Security Plan - Alternative D. I believe this alternative that has evolved over the past year breaks new ground in airport design and planning for the 21st century and can serve as a model for airports throughout our nation and the world.

This plan designs the future LAX to accommodate approximately 78 million annual passengers and 3 million annual tons of cargo. Modernizing LAX in this way will help to secure LAX's role as the airport of choice for long haul operations - both passengers and cargo.

78 million annual passengers is consistent with the goals established in the Southern California Association of Governments Regional Transportation Plan. These goals promote growth of underutilized airports in outlying areas and allow us to achieve a more decentralized distribution of future air traffic around the region. It is also fair for the surrounding communities who will also have to bear a burden with increased traffic. Previous proposals that called for up to 98 million annual passengers were unrealistic.

I am pleased that support for my plan is growing. As people learn more about it, they come to understand that my plan is the environmentally superior alternative of all the concepts and plans studied over the past decade. They also realize that my plan incorporates leading-edge technology and design standards to provide travelers and airport workers with unmatched safety and security at the world's largest origination and destination airport.

LAX Master Plan means improved airport safety.

- Alternative D modernizes the airfield to improve safety for aircraft, traveling passengers, and airport workers.
- Center taxiways will provide additional protection against runway incursions.
- Parallel taxiways and full taxiway spacing improve aircraft movement and reduce taxiing times, improves safety and reduces delays for passengers.

LAX Master Plan means improved airport security.

- Alternative D provides for multiple layers of security protection for the traveling public, airport workers and the surrounding communities.

- Alternative D eliminates the high concentration of people as a potential terrorist target - it disperses the passengers and moves them rapidly among four separate and secure entry portals.
- Alternative D eliminates roadway traffic in the Central Terminal Area and significantly reduces the chance of an oversized vehicle explosive device being delivered to the Central Terminal Area.
- Alternative D permits early observation and assessment of passengers and baggage.

LAX Master Plan supports a regional transportation plan.

- Alternative D addresses community interests and concerns; Alternative D supports only LAX's fair share of the total regional air service market.
- Alternative D allows other regional airports to accommodate a greater share of the air traffic demand.

LAX Master Plan means a modern airport.

- Alternative D offers a redeveloped Central Terminal Area that provides for increased security screening and enhanced passenger conveniences.
- Alternative D will have new passenger terminals that provide for improved ticketing, baggage processing, circulation and concessions
- An Automated People Mover offers convenient access from the new facilities to the Central Terminal Area every two minutes
- The Automated People Mover trains will be modern, designed to easily accommodate rolling luggage and baggage carts.

LAX Master Plan improves ground transportation.

- Alternative D provides key improvements to the ground transportation system in and around LAX.
- Alternative D reduces thousands of private vehicles and commercial shuttle buses from the roadways and significantly reduces the impacts on surface streets and freeways.
- Alternative D designs convenient, easy access to the new facilities and proposes mitigation measures that provide direct access to and from the I-405 and I-105 Freeways to discourage residential street use.
- Alternative D means a direct connection to the Metro Green Line and encourages the use of mass transit.
- An expanded FlyAway Program encourages the use of high-occupancy vehicles and eliminates thousands of vehicles from the region's roadways.

LAX Master Plan sustains a region's key economic engine.

- LAX Master Plan means jobs; 351,000 jobs in the region by 2015, 295,000 jobs in LA County and nearly 139,000 jobs in the City of Los Angeles.
- LAX Master Plan means LAX will contribute \$64 billion to the regional economy in 2015, \$22 billion annually to the City of Los Angeles.

- Alternative D means nearly 49,000 construction-related jobs.

In conclusion, I want to emphasize that the goal of creating the Enhanced Safety and Security Master Plan is to modernize LAX to protect one of Los Angeles' key economic engines. At the same time, the plan addresses community interests and concerns by designing the facility to serve only LAX's fair share of the total regional air service market.

I thank the staffs of the Federal Aviation Administration and Los Angeles World Airports for your dedication and support of the master plan process. I look forward to the process continuing so that we can begin the long-overdue modernization of LAX as soon as possible. Thank you.

Speaker 1615

Testimony for LAX Master Plan Hearing
August 11, 2003

I am here to support the Enhanced Safety and Security Plan for LAX – also known as Alternative D. I believe this alternative breaks new ground in airport design for the 21st century and can serve as a model for airports throughout the world.

My staff and I have briefed thousands of stakeholders on this plan, including community residents, airlines, labor, and local business leaders. I believe that this plan incorporates many of their suggestions and addresses their concerns with the other alternatives.

Alternative D puts safety and security first. It includes modernization of the airfield, including the addition of center taxiways, to improve **safety** for aircraft, traveling passengers, and airport workers.

It also provides for multiple layers of **security** for the passengers, airport workers and the surrounding communities. It disperses travelers and moves them rapidly through four separate and secure entry points. It also allows security screeners to make assessments of passengers and baggage before they get into the Central Terminal Area.

Most importantly, this plan significantly reduces the opportunity for a vehicle with an explosive device to get close to the Central Terminal Area by eliminating traffic through the area. Security experts believe that the Central Terminal Area and its impact on our economy – not passengers – are the key targets for terrorists.

Alternative D also supports my goal of creating a regional air transportation plan. It designs LAX to accommodate approximately 3 million annual tons of cargo and 78 million annual passengers, which is consistent with the goals established in the Southern California Association of Governments Regional Transportation Plan. We are also working to promote use of our other regional airports to meet demand.

Alternative D also means a more modern and convenient LAX for our passengers. The plan includes new passenger terminals with improved ticketing, baggage processing, circulation and concessions. An Automated People Mover designed to easily accommodate rolling luggage and baggage carts will offer convenient access to the Central Terminal Area every two minutes.

Alternative D also provides key improvements to the ground transportation around LAX to reduce congestion and pollution. It will finally provide a direct connection from the Metro Green Line and direct access to and from the 405 and 105 freeways. Approximately 36 new lane-miles and improved curb access will improve passenger access and reduce traffic congestion on surface streets. An expanded FlyAway Program will eliminate thousands of vehicles from the region's roadways.

Finally, Alternative D means jobs and is expected to contribute \$64 billion to the regional economy.

As people learn more about Alternative D, I have found that they support the leading-edge technology and design standards that will provide travelers and airport workers with unparalleled safety and security. They also find that this plan is the environmentally superior alternative compared

with the other plans that have been studied over the past decade.

I want to thank all of the community leaders, business leaders, airline representatives, labor leaders, and others who shaped Alternative D. I want to acknowledge Deputy Mayor Troy Edwards and Patricia Torres of my staff. And I want to especially thank the Federal Aviation Administration and Los Angeles World Airports staffs for your dedication and support of the master plan process. I look forward to the process continuing so that we can begin the long-overdue modernization of LAX as soon as possible.

Thank you.

Today, the Los Angeles World Airports continues to celebrate 75 years of connecting Southern California to the World. Commonly known as LAWA, the Los Angeles World Airports actually consists of FOUR airports...VAN NUYS is the world's BUSIEST general aviation airport. ONTARIO INTERNATIONAL serves the Inland Empire, the fastest growing region in Southern California. The PALMDALE REGIONAL has its' 25 year Master Plan for residents in Antelope & Santa Clarita Valleys, plus portions of San Bernardino/Inyo Counties. And the fourth one, LAX, where travelers throughout the world think of LAX as not only a ~~an~~ airport but an ^{entire} city, LOS ANGELES. True, LAWA has had a spectacular past BUT now we must ^{now} prepare for a SAFE future.

Prior to 9/11, LAX contributed \$60 BILLION per year in economic output, contributed 59,000 JOBS at or near LAX, plus 408,000 JOBS in the southern California region.

~~The~~ LAX security is of major importance to not only our state, but ^{our} the nation. Since California has the 5th largest economy in the world, we ^{must begin} ~~must start~~ improving security NOW; not ^{Please} waste time on a Master Plan that will be out dated in 15 years, when the war will be over. The terrorists will have been hunted down. ^{is just too long to wait} Just think in 15 years, ~~this project may be nearing completion.~~ ^{for alternative D.}

With TSA/Home Land Security, the walls came tumbling down in the terminals, moving in a 100 huge explosive scanners, costing ^{million dollars} ~~1.9 MILLION~~ each, plus a ^{yearly} \$100,000 maintenance fee. Unfortunately, these monsters had ^{with a} 25% false positive readings with food being a problem! ^{far too many}

* WHO PAYS for Alternate D? We're told a major part will be passed on to airlines via landing fees, etc. NOW that sounds like just what airlines need, especially those who are either in or fighting off bankruptcy!! Besides, the small businesses & hotels around LAX will have a very difficult time for many years and some may not survive. This plan was said to cost 9.1 BILLION, then 9.6. How many billions more will it be?

^{Honestly,} * Proponents like to couch this whole scenario around "security" as cars and LAX facilities DON'T MIX! Now how do they think people are going to get to this Ground Transportation Center? If you were a terrorist wanting to inflict major loss of life and damage, would you rather have the passenger load widely distributed around 9 different terminals or where EVERYONE for ALL flights congregated at 1 check in/drop off site?

Speakers 18/17

STATEMENT BY ALAN B. WAYNE
REGIONAL DIRECTOR - GOVERNMENTAL AND PUBLIC AFFAIRS
UNITED AIRLINES / LOS ANGELES

SUPPLEMENT TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT/
ENVIRONMENTAL IMPACT REPORT
LOS ANGELES INTERNATIONAL AIRPORT MASTER PLAN

MONDAY, AUGUST 11, 2003
RADISSON PLAZA HOTEL, LOS ANGELES

FOR THE RECORD, MY NAME IS ALAN WAYNE. I AM DIRECTOR OF
GOVERNMENTAL AND PUBLIC AFFAIRS FOR UNITED AIRLINES' WEST
REGION.

I AM APPEARING TONIGHT ON BEHALF OF NOT ONLY UNITED, BUT
ALSO TEN OTHER FELLOW MEMBERS OF THE STAR ALLIANCE, THE
LARGEST AIRLINE CONSORTIUM OPERATING AT LOS ANGELES
INTERNATIONAL AIRPORT. IN ADDITION TO UNITED, WHICH OPERATES A
HUB AT LAX, THE STAR MEMBERS INCLUDE AIR CANADA, AIR NEW
ZEALAND, ALL NIPPON, ASIANA, LUFTHANSA, MEXICANA, SINGAPORE,
THAI, VARIG AND U.S. AIRWAYS.

THOSE ELEVEN CARRIERS, PLUS UNITED'S REGIONAL MARKETING
PARTNER SKYWEST, WHOSE 133 DAILY DEPARTURES ARE THE MOST OF
ANY CARRIER AT LAX, WISH TONIGHT TO UNDERScore OUR COLLECTIVE
SUPPORT FOR MAYOR HAHN'S ONGOING EFFORT TO CRAFT A MASTER

PLAN FOR LAX THAT WOULD ULTIMATELY IMPROVE AND MODERNIZE THIS CRITICAL, BUT SADLY ANTIQUATED FACILITY.

UNITED AND THE STAR CARRIERS, PLUS SKYWEST, WHO ACCOUNT FOR 30 PERCENT OF THE FLIGHT ACTIVITY HERE, ARE WORKING WITH THE CITY TO ADDRESS THE AIRFIELD SAFETY, AIRPORT SECURITY, GROUND ACCESS, AND PASSENGER TERMINAL ENHANCEMENTS THAT MUST BE ACHIEVED IF THIS AIRPORT, WHICH IS SO IMPORTANT TO THE REGION'S ECONOMIC COMPETITIVENESS, AND THE THOUSANDS OF JOBS THAT DEPEND ON IT, IS TO REMAIN IN THE FOREFRONT OF COMMERCIAL AVIATION.

TO DO NOTHING, OR TO NOT DO THIS PROJECT REALISTICALLY, IS NOT ACCEPTABLE. THIS PROJECT IS OVERDUE AND MUST GET UNDERWAY. OTHER AIRPORTS - SEATTLE, PORTLAND, SAN FRANCISCO, LAS VEGAS, DENVER, PHOENIX - TO NAME A FEW, HAVE MODERNIZED OR ARE ADVANCING PROGRAMS TO DRAW BUSINESS AWAY FROM LAX.

UNITED AND THE STAR CARRIERS BELIEVE THAT THIS PLAN FOCUSES ON THE ISSUES AND ELEMENTS THAT WILL MOVE LAX FORWARD, AND WE PLAN TO CONTINUE OUR COLLABORATION WITH THE CITY AND THE AIRPORT TO MEET THESE FUTURE REQUIREMENTS.

THANK YOU.

SPC00091

It seems to me that too much is ^{being} concentrated in one area. This project, as proposed would increase traffic congestion in that one small area. There is no room for another freeway, and increased traffic in the immediate area will overwhelm the surface streets with people getting off the freeway looking for alternative ways to ~~get to~~ by pass the freeway congestion.

What about the mitigation studies done to address the traffic? Well, complex studies have been done ~~for~~ for the 405 Fwy expansion. Yet, after the expense and long years of construction, it is just as congested as if no work were done to reduce the congestion.

← I believe the same results will be likely for the current traffic mitigation plan for ~~the~~ Alternative Plan D.

To mitigate traffic and improve security for people arriving and returning to their cars, I think the parking should be spread out in smaller lots through out ~~the~~ ^{the} region. From those parking areas have shuttles ^{transport} ~~move~~ the passengers to the people ^{rovers}.

As people buy their air line tickets, ^{they} ~~people~~ can be ^{assigned} ~~directed~~ to the various parking facilities. ~~We control the flow of~~ ~~traffic by spreading it out~~ This would be an effective means by which to spread the traffic ~~out~~ through out that area and prevent large concentrations of traffic.

Many are concerned with a car bomb going off in the terminal area, but a giant parking structure full of thousands of travelers is just as juicy a target ^{terrorist's} for a car bomb.

~~By creating~~ ^{more} smaller parking facilities

By creating smaller, more numerous parking structures, the attractiveness of such a target is reduced, and even if such an ~~one~~ attack occurred at one structure the loss of life and injuries would be reduced.

There would also be plenty of other structures to fall the increased ^{parking} demand of a lost structure

It would also be easier to distribute the loss of one or two lost structures among the remaining parking structures, than if one giant structure were lost.

ARSAC

Alliance for Regional Solution to Airport Congestion
8055 W. manchester Ave. #710
Playa del Rey, CA 90293
(310) 827-7411

David B. Kessler, AICP
U.S. Dept. of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Jim Ritchie
City of Los Angeles
LAWA, LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Dear Mr. Kessler

ARSAC is a community grass roots organization representing members from Playa del Rey to Whittier, and Van Nuys to Redondo Beach. We played an integral role in the last Mayoral election by getting every Mayoral candidate to sign the "ARSAC Pledge" committing to a regional approach to air commerce for Los Angeles and Southern California.

We acknowledge Mayor Hahn's attempt to abide by the ARSAC pledge he signed to constrain capacity at LAX while establishing a regional approach to support air transport in Southern California.

We thank Mayor Hahn for eliminating Alternative C concepts from Alternative D that were especially troublesome such as: A western terminal; the ring road incorporating Imperial Highway, Pershing Drive, Westchester Parkway and Lincoln and Sepulveda Boulevards for exclusive use as airport ingress and egress; and 98 MAP.

First, the 45 day public comment period is much too short for public review of some 5,000 pages of the Draft EIR/EIS of the Master Plan. We ask that the FAA confirm extension of the comment period to 120 days. Can we count on you to support extension of the public comment period? We are still in the process of reviewing all 5,000 pages of Alternative D.

Will FAA and the City of Los Angeles' responses to public comment and inquiry will be canned responses or actually address specific issues addressed by members of the public?

Mayor Hahn touts Alternative D as a "safety and security plan." I had the opportunity to participate on a "Blue Ribbon" panel appointed by Mayor Hahn to review Alternative D (without having been given anything in writing while on that panel). During those months, panel members asked pointed questions about safety and security issues. Representatives of LAX and LAX's consultants did not have answers for many basic concerns, many of which had not even been considered when asked by panel members and which remain unanswered by the EIR/EIS. I urge you to consider the following:

SPC00093

1. We appreciate the fact that Mayor Hahn limits capacity to "78.9" MAP (the MAP agreed to was actually 78 MAP) by limiting the number of gates at LAX. However, Mayor Hahn fails to live up to the ARSAC pledge he signed on March 26, 2001 which states that "LAX should be constrained to operate safely within the capacity of its existing facilities."

Mayor Hahn has violated the ARSAC pledge by attempting to expand the footprint of the airport to incorporate the area of Manchester Square into Alternative D as the Ground Transportation Center(GTC). LAX is in the process of purchasing lots piece by piece from homeowners in Manchester Square. How is it possible that Alternative D cites Manchester Square for usage in Alterative D when it only owns about 40% of Manchester Square as of this date?

2. Our Community Plan designates Manchester Square as residential; doesn't LAX have to obtain a zone change before they could even use Manchester Square for airport use?

3. Remarkedly, Alternative D does not provide for screening at the Ground Transportation Center (GTC). Removing parking and check-in from the Central Terminal to the GTC appears to protect buildings, not passengers and other people in the GTC. To prevent terrorists from targeting the GTC, since remote check-in and parking are located in one area, if this is truly a safety and security plan, shouldn't there be baggage screening (as well as screening of all cars entering the GTC) at the GTC *before* people and their baggage get on the people mover to go to the terminals?

4. The studies and information used to prepare this EIR/EIS is old information, some of it dating back to at least 1996. Wouldn't it be a more reliable study if the information compiled relied on current information incorporating data relating to current environmental conditions rather than outdated information?

5. The plan fails to specifically identify which airports will be used to meet regional demand. Shouldn't the plan address ways of directing air travelers and traffic to regional airports to encourage regional use of other airports?

6. Shouldn't Alt D address noise and health risk mitigation recommendations?

7. Proponents of Alt D, mainly labor unions, support Alt D as it will create jobs. No matter where air commerce is supported, jobs will be created. The creation of jobs is not particular just to the development of LAX.

We all want LAX to be safe and secure for our family, friends, tourists flying in and out of LAX as well as safe for our surrounding community. But Alterative D does not achieve safety or security. Therefore, for these and many other reasons, we do not support Alterative D and

ask that you send LAWA back to the drawing board to devise a truly safe and secure plan that establishes a regional approach to air transport.

Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Valeria C. Velasco". The signature is written in a cursive style with a large initial "V".

Valeria C. Velasco
President

IF LAX REMAINS THE PREPONDERANCE OF AIR COMMERCE CAPACITY IN SOUTHERN CALIFORNIA THE ECONOMY WILL BE CONSTRAINED AND HURT

- Aircraft passenger and cargo needs are increasing. Currently all eggs are in one basket—LAX. A natural or terrorist catastrophe can devastate the Southern California economy if LAX has a major incident. We need a regional solution.
- Two of the prime runways at LAX (including the longest which is used for fully loaded cargo flights) have a major highway running beneath. One truck bomb can close both.
- LAX is the third busiest airport. Even since 9/11 cargo demand continues to grow and be concentrated at LAX. It has one of the smallest land masses of any large airport. The corresponding sky above it is also limited and can become a severe safety risk.
- LAX is situated in the inner city where the population is highly concentrated. It thereby impacts many more people than airports situated in outlying areas.
- Transportation infrastructure around LAX is already over stressed. People travel two or three hours to use LAX. This traffic gridlock wastes large amounts of energy and creates pollution in addition to one of the largest polluters, LAX.
- It takes about 10 years to expand an airport. If capacity remains concentrated at LAX the next time more capacity is needed there will be no alternatives but to constrain the economy. Slack capacity in outlying airports is currently available but will disappear if action is not taken soon. Further, population (incompatible land uses) will grow around the other airports if not addressed now.
- Los Angeles World Airports, a Department of the City of Los Angeles, owns four airports including outlying ones. It is only now starting to address building their capacity because the City derives taxes from the businesses surrounding LAX.

**CONTACT YOUR STATE AND FEDERAL GOVERNMENT OFFICIALS.
WE NEED A COALITION IN CONGRESS TO PROTECT OUR COMMERCE.
DEMAND A REGIONAL SOLUTION TO PROTECT THE ECONOMY AND TO
ENSURE FUTURE GROWTH IS UNHAMPERED.**

Alternative E

- ④ *World events reduces the urgency for increasing capacities and allows the opportunity for extended time to review this proposal.*
- ④ *It will be a far less expensive alternative to implement and have less negative impacts on surrounding communities.*
- ④ *Two areas are designated for passenger security and check in at Century/Airport to Aviation and Lot C—both within or adjacent to the LAX perimeter (more conducive to safely operating under red alert).*
- ④ *Baggage to be inspected at check in and transported along secure routes without digging a \$1 billion tunnel.*
- ④ *Supports Green Line access and improves bus access at Century location.*
- ④ *Plan is based on the Westchester-Playa del Rey Community Plan Update that is in the approval process.*
 - *It creates park areas in Manchester Square to help fight pollution.*
- ④ *Creates a convention center and associated green belt and encompasses ideas derived from the Gateway to LA Business Improvement District. Enhances business area, mobility access, and beautifies the area.*

Alternative E (2)

- ④ *The consolidated rental car area has been moved to the Continental City area right off the freeway so that navigation is simplified and the traffic is not directed through a residential community.*
- ④ *Additional dedicated roadways to reduce neighborhood traffic and to encourage airport entrance via the freeway.*
- ④ *Many roadway improvements and people mover ideas of Alternative D are retained to benefit from the work done on Alternative D.*
- ④ *Runway 25L remains unchanged; 25R (inboard) moved north to accommodate new centerline taxiway.*
- ④ *Northern runway complex and terminals remain intact as is thereby saving substantial, unwarranted expense for restructuring north complex terminals.*

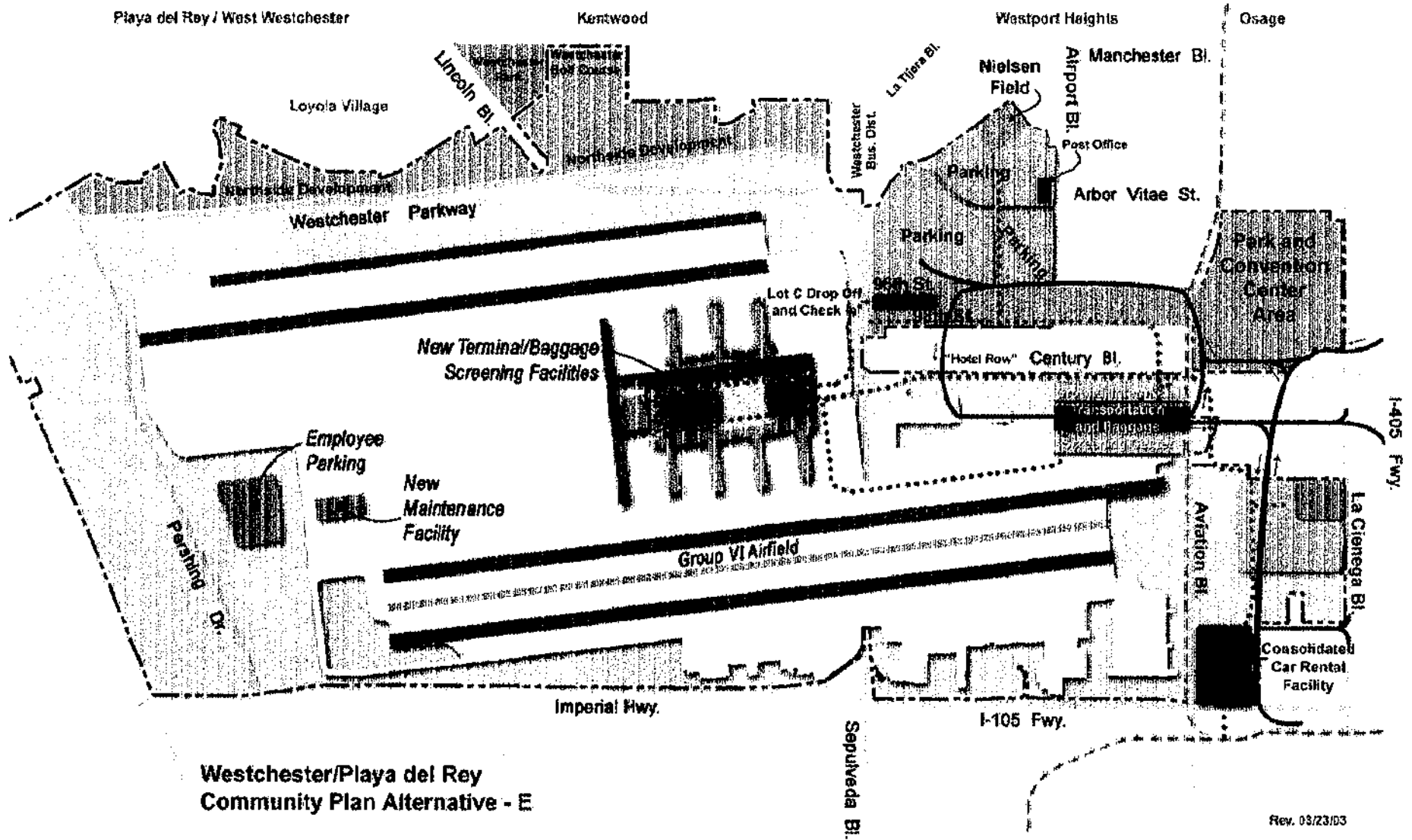
Comparing Alternatives

Alternate C	Alternative D	Alternative E
Creates Ring Road disturbing community	Eliminates Ring Road	Eliminates Ring Road
Adds Western Terminal Complex	Adds smaller complex; eliminates some gates	Gates unchanged in CTA;remotes removed
Auto access to Central terminal areas	Manchester Square check in	Redundancy-Check in & security on Century & Lot C
Adds traffic & congestion	External people mover and baggage handling	Check in Adjacent to LAX; ↑ security control
Lengthens runways adds taxiways; expands north & south	Lengthens runways & adds taxiways; moves south	Lengthens runways & taxiways on exist position South; No N.
Increases Capacity for passengers & adds cargo up to 405 fwy	Potential increase; states passenger limits; some cargo	Maintains current status

Summary of Alternative D Deficiencies

- ④ *Continues consolidation of air passenger and cargo in one location for all of Southern California.*
- ④ *Manchester Square GTC potential single point failure.*
- ④ *Difficult for safety equipment to access off LAX site areas.*
- ④ *Manchester Square GTC in place of the City Council promised park.*
- ④ *Increases runway capacity while plan is purported to limit growth.*
- ④ *Doesn't resolve safety for passengers or community.*
- ④ *Fails to mitigate traffic and adds more pollution in a concentrated area near residential areas.*
- ④ *Doesn't resolve alternate transportation interface issues.*
- ④ *While the North complex would be modified to accommodate new larger aircraft, only the south runway meets the takeoff length requirements of a loaded A380 per the Airbus website.*
- ④ *Realigns and widens spacing of runways prior to finalization of Group VI requirements.*
- ④ *Unwarranted expenditure of public funds.*

LAX Master Plan Alternative E



Westchester/Playa del Rey
Community Plan Alternative - E

Rev. 03/23/03

(310) 673-0789 Maria Cardon
4145 Lennox Bl
Lennox, CA 90304

I am a resident of the community of Lennox. Every day I and thousands of other Lennox residents are subject to a tremendous amount of air and noise pollution because of the planes landing at LAX. Right now over 50 million passengers go through LAX every year—this number under the modernization plan is set to expand up to 78 million passengers per year. Undoubtedly the problems being faced by the Lennox community as a result of its proximity to the airport will only get worse.

Lennox and Inglewood, unfortunately, have to bear the brunt of the problems associated with LAX, as most planes fly over these two communities when landing. Right now a plane can be heard over Lennox every 45–90 seconds—this will increase under the modernization plan. The noise generated by the night time flights will also get worse because after its modernization LAX will be able to handle more planes and bigger planes. Already many of these cargo planes take off heading east during the night. The noise generated during take-off, as you know, is tremendous. Lennox residents, every night, are subject to this noise—many are jostled from their sleep every night because of these planes taking off directly over the community. Despite our efforts to reduce this practice LAWA has made it clear that they cannot compel these cargo planes to take-off westward like other passenger planes. The carriers flying these cargo planes use the excuse that taking off westward would impose a significant extra cost as they would have to circle around to go eastward. This practice cannot be allowed to increase---it must either be stopped or used only in extenuating circumstances.

Despite the problems engendered by the airport the community does realize that LAX is a vital component of the region's economy. However, LAWA has not taken minimal measures to ensure that airport related damage to Lennox is minimized. LAWA's attempts to address airport related problems in the community have been perfunctory at best. Also, there has been no dialogue with the community to explore ways for LAX to become a better neighbor; or to discuss what LAWA can do to compensate the Lennox community for bearing a disproportionate share of the burden associated with LAX.

We have come up with a list of steps that LAWA can take to become a better neighbor and to address the negative externalities associated with LAX.

LIVING

- **Meaningful Soundproofing: Lessening of the code stipulations, free inspections; no signing of easements.**
- **Moratorium on Flights between 11:00pm and 5:30am (part 161 of the EIR)**
- **Sound Wall along the 405 Freeway**
- **Ongoing funding for Healthy Start**
- **Air conditioners and purifiers for homes and school classrooms**
- **Special Emergency Response Unit (make community aware of disaster plan)**

Lennox
(310) 673-0789

RECREATION

- **Enclose Lennox Pool. Provide for Staff and Life Guard presence throughout the year**
- **Youth Activity League (YAL)—funding to help with the conversion of the Sheriff's Station**
- **Skate Park that is covered by insurance**

BEAUTIFICATION

- **Road and sidewalk improvements. Reconstruct 104th, 111th, Inglewood, and Lennox Blvd.**

JOBS

- **Training or apprenticeship program with on-site job placement**
- **Airport employers must show evidence of community outreach**
- **New hires from the community are tracked for promotion**
- **Shuttle/Van Pool to and from LAX for new hires**
- **Land for St. Margaret's Center.**

SCHOOL DISTRICT

- **Land to build a High School for Lennox Students**
- **Permanent indoor PE facility.**
- **Support School District's lobbying efforts for placement of billboards on Schools adjacent to 405 freeway**
- **Periodic school painting (maybe every 10 years)**
- **Finance School District Emergency AID kit**
- **Tours of LAX for kids, a career day at LAX**



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): YUOWANE WILLS Date: 8/23/03

Address: 224 W. ARACIA AVE

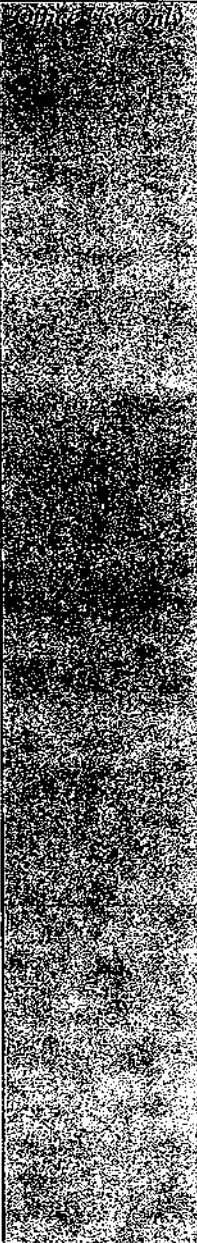
City: EL SEQUENDO State: CA Zip Code: 90245

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments: See attached letter.



Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

COPY TO: ~~DAVE HAHN, CONGRESSMAN~~
UNITED STATES HOUSE OF REPRESENTATIVES
2321 E. Rosecrans
El Segundo, Ca. 90245

TO:
Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
PO Box 92007
Los Angeles, Ca. 90009-2007

TO:
Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
PO Box 92216
Los Angeles, Ca. 90009-2216

I challenge Mayor Hahn's claim that moving the southern runway 50 feet closer to El Segundo homes improves safety or security. Safer for whom? I now experience daily near overflights at my home of 48 years. Living in fear is not living! My quality of life has been destroyed by the fear of "what if", noise and air pollution. The black contaminants falling from above demands undue property maintenance plus the unknown of what we are breathing. I cannot plant anything that could be edible. A new environmental impact report needs to be made. The old lumbering cargo airplane pilots (FEDX is the most blatant) and the larger capacity airplane foreign carriers are the cause of my fear. The airplanes MUST stay north of Imperial Highway. "DRIFT" is NOT an excuse! And specifically, the 1:30 AM to 4:00 AM cargo flights over our homes are also my concern. El Segundo residents have an intolerable airplane problem currently--moving the runway 50 feet closer to our homes will exacerbate the NOW occurring safety issue. PLEASE, DO NOT COMPOUND THIS PROBLEM. And one last comment--it is obvious that those of us who are detrimentally impacted, El Segundo, were not given a forum convenient to our area--why? I respectfully request the courtesy of your reply.

Mrs. Yvonne Wills
224 W. Acacia Ave.
El Segundo, Ca. 90245

SPC00096



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): IAN SCOTT Date: _____

Address: 300 CONTINENTAL BLVD #500

City: EMERSON State: CA Zip Code: 90281

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable): _____
Number: _____ Title: _____

Comments:

I AM IN SUPPORT OF ALTERNATIVE D

LAX IS IN DESPERATE NEED OF MODERNIZATION

LOS ANGELES IS A WORLD CLASS CITY WITH

A THIRD WORLD AIRPORT.

CONSIDERATIONS TO SURROUNDING COMMUNITIES

MUST BE TAKEN INTO CONSIDERATION BUT

THE AIRPORT MUST KEEP PACE WITH

THE REST OF THE WORLD IF THE CITY

IS TO MAINTAIN ITS ECONOMIC AND

SOCIAL STANDING GLOBALLY.

THANK YOU!



Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization):

Date:

Address:

6340 W. 81st

City:

Westchester

State:

CA.

Zip Code:

90045

Document:

Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

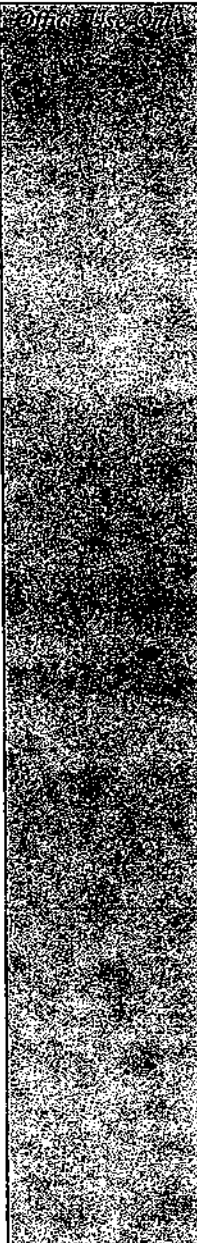
Subsection (if applicable):

Number:

Title:

Comments:

Support the HAN PLAN.



Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

SPC00098

COMMENTS ON LAX MASTER PLAN

Name: Dwight Abbott, 1825 Via Estudillo, Palos Verdes Estates, CA

Background includes: ASEB, Univ degree in Aero Engr, licensed pilot, freq user of LAX & other major airports.

My review finds deficiencies in three important areas: 1) passenger convenience, 2) safety and security, and 3) costs.

Passenger Convenience

This master plan imposes great inconvenience on the passengers that will use it.

The FAA now recognizes passenger convenience as an important airport design factor and defines it in terms of time to move the passenger from the parking lot of the departure airport to the parking lot of the arrival airport - not simply airline gate to airline gate as previously defined. The LAX Master Plan will greatly increase the parking lot to parking lot time required over that of the current LAX configuration.

The proposed Ground Transportation Center (GTC) and Intermodal Transportation Center (ITC) are nearly a mile removed from the terminal area. They are connected via a train (people mover) that passengers must ride to the terminal. The passengers must carry any carry-on baggage and packages on the train. The current LAX configuration imposes no such inconvenience.

Safety & Security

Aircraft collisions during taxi, takeoff and landing can result in more casualties than any terrorist attack. I believe that the proposed reconfigured runways are an improvement, however, I believe that the proposal to move the runway 25L only 50 feet to the south is short sighted. Moving it farther south would provide greater aircraft separation, less wake turbulence interference between runways, and improve safety.

The location of the new Rental Car Facility very near the end of the newly positioned runway 24L is unsafe. An aircraft landing short of the runway or not successfully taking off when the runways are operating in an easterly departure pattern will risk impacting with the proposed Rental Car Facility.

The master plan puts high importance on security as it should, but it includes several factors that appear to reduce security.

Centralizing passenger check-in at the proposed Ground Transportation Center provides a single location that if incapacitated will shut down the entire airport operations. Incapacitation could come from earthquake, fire, electrical outage, and other factors as well as from terrorist activity. The current multi-terminal, decentralized check-in configuration does not have this weakness.

The proposed train (people mover) is another single point failure that can shut down airport operations. A small bomb, bomb scare, mechanical failure, or even protestors on the tracks could bring the entire airport operations to a halt.

An independent RAND Corporation study of the security afforded by the proposed LAX Master Plan found that the proposed changes would not increase security compared to the current LAX configuration.

Cost

The proposed cost of about \$10 billion is simply too high. My written statement explains this conclusion.

Summary

The proposed LAX Master Plan is unacceptable.

Los Angeles County Supervisor Don Knabe has called the LAX Master Plan unacceptable.

Congresswoman Jane Harmon also does not support the plan.

Media reports state that the airlines don't favor it.

The communities near the airport do not favor it.

Certainly the user passengers can not favor it due to the high costs it will impose on them, the lengthened parking lot to parking lot time, the greater inconvenience, and the dubious added security.

A new plan is needed. That plan should have 4 features:

- 1) minimize parking lot to parking lot time for travelers
- 2) improve aircraft safety
- 3) not include centralized facilities that when incapacitated can cause shutdown of the entire airport
- 4) reduce development costs to a level half or less of those proposed.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): _____ Date: 8-20-03

Address: 9460 S Hobart

City: L.A. State: _____ Zip Code: 90047

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable): _____
Number: _____ Title: Noise / Fairness

<p>Comments:</p> <p>Do the right thing. For thirty years we've had to put up with the noise from the planes and the vibrations. Extend the coverage of the homes in the area 9400 + 9500 we wake up to planes. The same noise that's heard in the house 4 doors from me. I hear it.</p> <p><i>Sheela Clark</i></p>	<p>Office Use Only</p>
--	------------------------

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): FRANK VALENTI FLOE #12 Date: 8-21-03

Address: 301 AQUEDUCT CT

City: PACENTIA State: CA Zip Code: 92870

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments:

I ~~have~~ am for THE PROJECT.

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

THOMAS F BRANDS

6739 West 87th Place
Los Angeles, CA, 90045-3729

Telephone (310) 670 3633

FAX (310) 670 3633

August 21, 2003

The new plan for LAX upgrading, is still faulty for much the same reasons as the old one is:

1. SAFETY

Even though safety has acquired a new dimension since Sept 11, 2001, the safety hazards that existed prior to that time have yet to be addressed.

The air space around LAX is already over saturated. Witness the Cerritos accident of a few years ago and various near misses of midair collisions over the Los Angeles area. LAX should be limited to the traffic for which it was designed, about 48 MAP, not the 78 MAP that currently exists and is being used for the security plan, even though this number is a rollback from the 98 MAP that was proposed previously. Development of the Palmdale facility would alleviate the currently existing safety hazard. The safety problem is not just an LAX problem, it is a Los Angeles and vicinity problem. Airplane crashes are equal opportunity killers, both for passengers and those on the ground, regardless of which part of town gets devastated. These have nothing to do with terrorism, but could be just as devastating.

2. GROUND TRANSPORTATION

The existing ground transportation congestion has the potential for real gridlock. I have recently been driving to Claremont from Westchester about once per week in the early morning and each time that I see the traffic crawling West on the I105 and the I210 I am thankful that I am headed East. Expansion of various venues around LAX such as Playa Vista can only make these traffic jams worse, all over town, not just in the vicinity of LAX, and not just on those particular freeways. The proposed traffic mitigation plans do not address these situations.

3. BUSINESS

How many businesses will get displaced by LAX acquiring additional real estate for the planned security improvement? That's job loss. However, at Palmdale, jobs are just as important as they are around LAX, and the potential for growth is much greater.

4. AIRPORT ACCESS

A significant percentage of the population, and business, in Los Angeles is North of the Santa Monica mountains, and recent projections show that the fastest growth in the near future will be North of that, in the Santa Clarita valley. People in these areas can get to Palmdale just as easily; if not easier than to LAX. This will get even more true as traffic congestion increases and Palmdale access improves.

5. AIR QUALITY

Los Angeles already can not meet federal air quality standards. Pollution is a problem for the entire city of Los Angeles since the prevailing wind tends to send Westside pollution to other parts of town. Development of Palmdale should decrease overall pollution by reducing traffic congestion both on the ground and in the air.

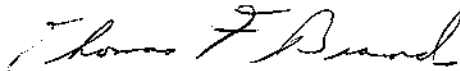
6. COST

The proposed security plans I hear are estimated at about \$9.5 billion. The new facility at Palmdale could be designed from the ground up for maximum safety and still save money over any existing LAX upgrade proposal.

Besides, when we hear an estimate as high as 9.5 billion dollars, based on virtually all previous experience, that number is just for starters. It will inevitably go up from there. How much more money will then be required to alleviate the problems caused by additional traffic jams and pollution?

7. CONSTRUCTION

During the construction phase, the current LAX capacity will be reduced as existing runways and terminals are razed. What kind of safety and other problems will that situation engender? Development of Palmdale obviates this concern.



Thomas F. Brands

**Roberta Trousdale
321 Fowling Street
Playa Del Rey, California 90293
310-306-0073 Direct
310-306-1309 Fax
r.trousdale@gte.net Email**

August 22, 2003

LAX Hearing
Furama Hotel
8601 Lincoln Boulevard
Los Angeles, Ca. 90045

Re: LAX Expansion

I am totally opposed to further expansion to the airport based on security and safety measures as referenced in Mayor Hahn's Alternative D proposal. The Regional Solution needs to be fully explored before any further expansion for security and safety measures are determined.

Right now Alternative D plans are to relocate 6,000 homeowners and renters where the check in terminal is planned. This would be a true dismantling of Westchester, a viable active community. This recommendation is for LAX to create jobs, so people can travel, perhaps, 20 to 100 miles from their homes and further congest the freeway. Why, because there is no place affordable to live.

Our freeways are already jammed specifically at the airport juncture, and there are no current plans to easily change this problem which will only be magnified in the near future. The proposed interchanges would be a present time bottleneck that cannot be considered, as we have overloaded freeways and this construction will only hamper travelers with time delays, accidents and more frustration of driving on the 405 freeway. This would also cause greater noise, traffic and air pollution with further deterioration to an already over-whelmed Westchester/Playa Del Rey/Inglewood community.

Existing property tax revenues would be lost from removing homes and rental properties as well as commercial properties and existing parking lots, just to increase the size of the project. This planning process has already cost the tax payers multi-millions of dollars, while the airport looks horrible with filthy and dilapidated bathrooms, functionally obsolete and dirty terminals with poor signage. It is a passenger's worst nightmare instead of what is expected from a world class city. What a shame our money has not been spent to make the existing interiors and passage ways more comfortable, safe, clean and inviting.

The airport is responsible for the surrounding vacant land by LAX all along the Eastern part of Vista Del Mar and Pershing. It has become an eyesore with trash, graffiti marked toilets in a "park" area with decaying streets left in total abandon. There should be a fine to the airport for

SPC00103

its active neglect of a once pristine area that has caused surrounding property values to be reduced because this vacant LAX owned area has been left in decline.

No mitigation fees have been anticipated in the report for removing natural habitat which again will increase the budget and dismantle an established eco system.

The temporary security measures that has been in effect could have been improved instead of spending money for additional new plans for the airport. The "barricades" on Pershing and on Westchester Parkway are totally useless, and could be removed easily, by terrorists or those seeking to harm people. There is a North Outfall abandoned access point Project on airport grounds on Vista Del Mar. That is a prime target which should be removed. Instead it is left totally unsecured, instead of being removed. This access point could do untold damage to the underground sewer system and the surrounding area by a terrorist. I do not feel my security has been enhanced. What has been done is merely a band aid, and a poor one at that.

All security measures to date, could have been enhanced, but, Mayor Hahn decided to spend more money on new designs to enlarge the airport venue, instead of keeping the existing footprint and truly working to enhance security, comfort and safety of passengers and neighbors.

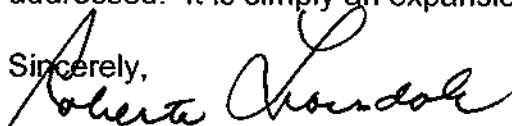
My sense is that we can keep the airport with its present footprint, remove cargo and have it relocated at the Palmdale Airport, and let the airport facilities expand south, where existing cargo facilities are located. This would make the necessary improvements in an existing open area, with accessible buildings making it more functional, less expensive and fully utilizing the area.

Airlines do not want to spend anymore money than is necessary now, with their own future in abeyance, and enlarging the airport at this time is not good for the Los Angeles residents and neighbors. LAX neighbors have long been besieged with building of Playa Vista, Loyola Marymount, airport parking facilities, the 105 offramp, Howard Hughes Center and other building which has caused its own increased traffic, pollution and noise.

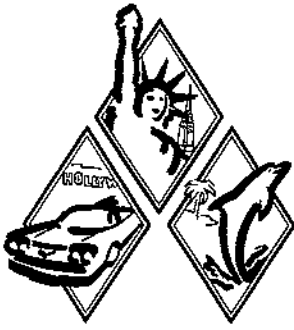
All other counties, particularly Orange County residents should be charged an access fee to use this airport, as this will promote the desire to have their own airport facility in the south counties which need more access. By charging an access fee, they may choose to fully utilize John Wayne, Ontario and Long Beach airports. These LAX access fees should be completely audited and used directly to improve the existing LAX interior space like Vancouver Airport, which is truly a world class facility.

I am opposed to the present proposed Mayor Hahn Alternative D proposal, and do not feel that the basis for this project, security and safety, for its neighbors and passengers has been addressed. It is simply an expansion project under this false label.

Sincerely,


Roberta Trousdale

SPC00103



New World Travel

The America Specialists

August 22, 2003

Re: Public **Hearing on August 23 / LAX Masterplan**

To whom it may concern:

Unfortunately, I will not be able to attend the public hearing at the Furama Hotel on August 23 to voice my opinion on the LAX Masterplan, but am thankful that I may submit my opinion in writing.

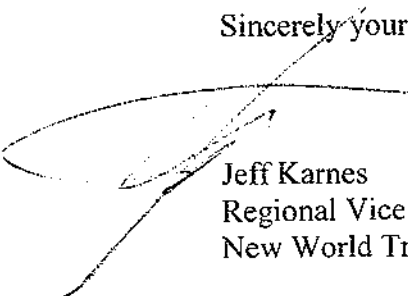
New World Travel is a receptive operator, handling contracting, and group arrangements and representation for international clients traveling to the United States. Our clientele stems from Europe, including Germany, Holland, Italy, France, Switzerland, Austria and the United Kingdom as well as Brazil, Mexico, Tahiti, Australia and New Zealand. We currently bring over 75,000 passengers annually to the United States through LAX.

Los Angeles serves as one of three major gateways into the United States for our passengers, the other 2 being Miami and New York. When our clients package and sell US travel products to their passengers, the gateway city and airport experience is important to them and is the first impression that the passenger has of the city. It must be perceived as safe, well organized and efficient.

The tenets of the LAX Masterplan assure that LAX is and is perceived as safe, well organized and efficient for our arriving passengers and maintains LAX's status and reputation as a modern and relevant airport for the international passenger.

Please consider our opinion and, should you have any questions, feel free to contact me.

Sincerely yours,



Jeff Karnes
Regional Vice President & General Manager
New World Travel



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): *Peggy McElroy* Date: *8-22-03*

Address: *771/2 Hindry Ave*

City: *Los Angeles* State: *CA* Zip Code: *90015*

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

Comments:
Against proposals.
I am a frequent business
travel out of a LAX
traveling on a flight a
minimum of 2-3 days/wk
I will no longer use LAX
if the proposed separate
passenger section is
put into place.
Additionally, the proposed plan
will adversely effect the environment
& traffic, + property values

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

In the communities surrounding LAX

SPC00105

DR. NIMROD ERECH MELCHIZEDEK CHRIST NIMROD
PSYCHOLOGIST, PRESIDENT & CO-FOUNDER
SELF-ESTEEM & WORLD PEACE ASSOCIATION
14002 PALAWAN WAY
PENTHOUSE #17
MARINA DEL REY, CA 90292
NIMRODWORLDPEACE@AOL.COM
310/754-3840 310/285-6738 FAX 310/574-3840



August 23, 2003

LAX MASTER PLAN MEETING AT FURAMA HOTEL:

Last year at this time and for the two years I have been living in Marina Del Rey there was no plane noise. None. Nothing. Now it seems as if I am living on an LAX runway! My left ear was hurt by an insane overflight bang on the night of July 16, 2003. To whom do I send my doctor bills? Since June 21, 2003 I have been attacked by noise from LAX but I am told by the FAA that nothing has changed!?

I received a letter from Mr. Swanson, the FAA Operations Unit Supervisor which said that pilots of aircraft must operate their aircraft in accordance to Title 14, Code of Federal Regulations (CFR), Part 91.119 of the General Operating and Flight Rules in airspace controlled by the FAA. He wrote that these rules state that:

“such aircraft, except for take off and landing, cannot fly over congested areas at an altitude of less than 1,000 feet above the highest obstacle within a 2,000 foot radius of the aircraft except over open water or sparsely populated areas. In those cases, aircraft may not operate closer than 500 feet to a person, vessel, vehicle or structure.”

He also wrote that “These regulations address safety of aircraft operation and not noise abatement. Our investigation was unable to substantiate any violation of the Federal Aviation Regulations.”

My questions are: (1). is this Marina Del Rey area and the adjacent areas considered “*sparsely populated areas*”? Is the water encompassing Marina Del Rey and Playa Del Rey still considered “*open water*”? In “*sparsely populated areas*” and “*open water*” aircraft can legally operate within 500 feet of a person, vessel, vehicle or structure. The Regulations are probably antiquated and out of date.

Concerning “*take off and landings*” which are exempt from the above rules, my major problem is with departures as I presently see it.

(2). Has LAX and/or the FAA moved the “*landings and take offs*” to a runway(s) closer to me or changed the flight patterns of “*take offs and landings*” so that the aircraft fly lower and/or come closer to me, especially since June 2003? As I comprehend it, there are no boundaries for “*take offs and landings*.” Aircraft can fly within *less* than 500 feet of a building or person.

SPC00106

The noise has thankfully subsided somewhat. (3). I am wondering was the big change at LAX since June 21, 2003 a security measure to secure air space for Air force 1, for the President's visit which just took place? Are things returning to normal?

But now a problem has arisen that has overshadowed the noise problem!

Since the trees where I am living were just pruned back drastically on August 1, 2003, I taste, smell and feel the immense pollution from LAX. Talk about Hell! I don't know whether to close my windows and suffer indoor pollution or keep my windows open! My skin is irritated from the pollution. I gargle constantly! Looking at the AirportMonitor Internet Flight Tracking System is depressing. It shows how the planes converge on the Marina and have really polluted the whole coast line from nearly Hunting Beach to nearly Malibu.

I moved to the Marina for the quiet and fresh air. I now realize that I was in a "fool's paradise" all along living this close to LAX. The pruned trees have really brought the message home now that there is no barrier to abate the cancer causing pollution. I have not slept in my apartment for nearly two weeks! It is costing me a lot of money to have nightly lodgings. I need help to move from my apartment. I need help from the agencies within the city of L.A., the FAA and the LAWA.

The FAA does not care about the subsequent noise, because noise abatement is not their concern. Well noise abatement should be their concern and added to the updated Regulations that are sorely needed. Pollution should be a major priority!!!!!! People are dying from it!!!!

(4). Is aircraft exhaust pollution the responsibility of the FAA or is that left to the city of Los Angeles just like the aircraft noise pollution is left to the city?

(5). Is the FAA required to have less loud and filthy engines, like automobiles? When?

(6). Are there agencies in the city of L. A., the FAA and the LAWA that assist people to move if they are affected by the noise and pollution from LAX? I need that assistance now!

I continue to fight the GOOD fight of FAITH. *Please respond* quickly. I am suffering physically and monetarily.

Thank you.

Dr. Nimrod.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): *Marykim O'Brien, Santa Monica Convention & Visitors Bureau* Date: *8/23/03*

Address: *520 Broadway, Suite 520*

City: *Santa Monica*

State: *ca*

Zip Code: *90401*

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments:

Santa Monica Convention & Visitors Bureau recognizes that in order to increase travelers to the Los Angeles County area, we need to support ~~DAX being modernized~~ the modernization of DAX. We may not agree with every detail of the Masterplan, however, we do agree with the value of two, mutually supporting segments of LA's visitor economy: the transcontinental domestic market and its linkage with the international travel customer. In order to maintain its standing as a viable international gateway, LAX must be able to provide passengers with direct connections to the primary domestic carriers. This plan understands that to be a gateway DAX, we will need to protect its access to the primary USA markets.

Official Use Only

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First, M, Last, or Organization): WILL HARADA JALPAK INTERNATIONAL AMERICA Date: 8/23/03

Address: 1201 W. 190th ST.

City: GARDENA

State: CA

Zip Code: 90248

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: An Improvement LONG Overdue

Comments:

- ① Present facility is outdated & CROWDED.
- ② Needs Newer Customs, Immigration, Quarantine facilities.
- ③ Incoming International guests are unnecessarily held for longer times because of lack of proper screening Customs/Immigration facilities.
- ④ The congestion created from transiting guests & L.A. incoming guests should be controlled with more & better facilities to lessen International passenger arrival wait times.

⑤ Conclusions:

New Mayor proposal will solve the above & we believe and hope it will allow smoother more efficient and quicker International guest arrivals & departures.

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): *(LA Local 250) Myron Staffelbach* Date: *9/23/03*

Address: *8200 BOLSA AVE #15D*

City: *Midway City* State: *CA* Zip Code: *92655*

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

Comments:

I have attended several of the LAX community meetings — none had the Pledge of Allegiance. Should not any public meetings of this type include the plodge of allogiance + the American flag? Please correct this oversight ~~at~~ At any other of your public meetings

Myron Staffelbach 9/23/03

Official Use Only

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Elee Otten, Login Consulting		Date: 8/23/03
Address: 300 Continental Blvd, #530		
City: El Segundo	State: CA	Zip Code: 90245

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
 Number: Title:

Comments:

Support alternative D

- LAX is a global airport designed/enhanced approximately 25 years ago.
- We need to improve LAX as the other regional airports, i.e. Burbank, John Wayne, Ontario, Long Beach, are not global airports and cannot support a global system.

This will:

- create high paying jobs.
- improve & streamline traffic, creating efficiency.

We must continue to improve LAX!

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): *Douglas P. Williams IronWorkers #433* Date: *8-23-03*

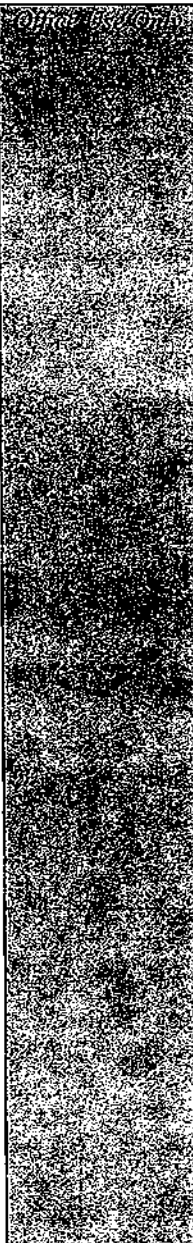
Address: *2057 So. Atlantic Blvd.*

City: *Los Angeles* State: *CA.* Zip Code: *90040*

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

Comments:
I would like to comment on my support for PLAND. It is time we made the airport safer for the passengers and employees. The new runway configuration will accommodate the large planes which is ^{needed} needed. The security system will address the modern world situation making it more secure.



Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): RUSSELL INGHAM (IRONWORKERS #433) Date: 8-23-03

Address: 5119 CARMEN ST

City: TORRANCE State: CA Zip Code: 90503

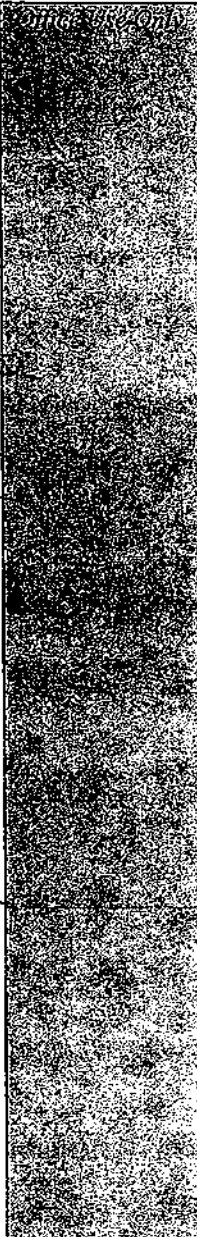
Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: _____

Comments:

I would like to say that the Lax Modernization Plan D is a very good plan and should be implemented as soon as possible. We need to get LAX updated for better security, safety and the plethora of jobs it will open up. We must get on board and get this modernization going. It will greatly help the economy of L.A. a surrounding area; we need the jobs and of course the revenue.

Respectfully,
Russell Ingham



Attach additional sheets if necessary.



P.O. Box 92216
 Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Joy C. Yang Date: 8/23/07

Address: 6370 W. 80TH PL.

City: Los Angeles State: CA Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

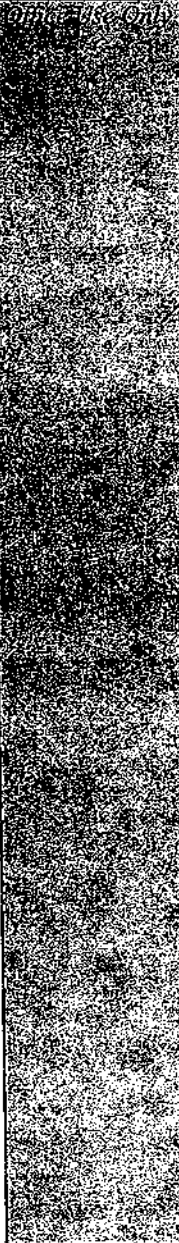
Subsection (if applicable):
 Number: _____ Title: _____

Comments:

I have ~~my~~ concerns about Plan D. It seems it would be very inefficient for residents of the LAX area who drop off people or want to wait with people who are departing from LAX. Right now it takes me 5 minutes to drop off someone at the curb from my home. With Plan D, it would take 5-10 minutes to get to the parking area, and an additional 8 minutes to get to the terminal on the people mover. If it's inefficient for one who lives only 5 min. away, it will ~~be~~ likely be more time-consuming for others, who are coming from further away.

Plan C seems to be a more reasonable & efficient plan - maintaining people movers w/in the airport.

I'm concerned that Plan D ~~would~~ ^{as drafted} primarily ~~be~~ satisfy special interests, instead of the public interest of Los Angeles, particularly airport area residents.
 (union, contractors)



Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Edson Smith Date: 8/23

Address: 7808 El Manor Ave.

City: Los Angeles State: CA Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

Comments:

General Comments:

I've been fortunate to be able to travel to many of the world's great cities: London, Paris, Rome, Tokyo, & Amsterdam. The one thing these cities have in common is that they've located their international airports far outside the urban area. Travel is fast and efficient, and there are plenty of airport related jobs.

In light of this, it's just plain nutty that Los Angeles wants to refurbish its urban airport rather than migrate operations to Antelope Valley outland it already owns. Expansion of LAX is contrary to both trends and logic, and I am not in favor of it.



Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): GRACE HUTN Date: 08/23/03

Address: 8732 ELMANOR AV

City: LA State: CA Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments:

your efforts for a new LAX Extension are not welcome by the surrounding communities. Please, one and for all try to find a regional solution -

And Mr. Kan should remember all the promises he made and signed to be elected.

Official Use Only

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization):

Jeanne Young

Date: 8/23/03

Address:

5870 W 78th S

City:

State:

CA

Zip Code:

90045

Document:

Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (If applicable):

Number:

Title:

Comments:

I am against the Plan for changing LAX. I am definitely against building another structure 1 mile away from the airport.

I am for building + expanding Ontario, Orange County, and Lancaster.

If they build another structure near LAX I will fly out of Long Beach.



Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

SPC00116



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization):

Date: 8-23-03

Address: 9456 S. Hobart Blvd

City: Los Angeles

State: Ca.

Zip Code: 90047

Document: Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (If applicable):

Number:

Title: Aircraft noise Exposure

Comments:

Office Use Only

I live at 94th + Hobart Blvd. I am five houses off of 96th st. The plan for the program ^{Aircraft noise Exposure} stops at 96th + Hobart Blvd. there is no 95th on Hobart Blvd. I am asking for expansion of the plan to include 94th + Hobart. I have lived here for thirty-six ~~the~~ ^{at} years. We get the same noise and the same planes fly over our house as on 96th st. Every year it gets worse you can't hear your T.V. or talk on the phone. Sometimes in bad weather they are much lower. I would like to see the expansion of the program.

Thank you
Dora Fortuna

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): *ERMA J. Hill* Date: *8-23-03*

Address: *9441 So. Hobart Bl*

City: *L.A.* State: *CA* Zip Code: *90047*

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title: *AIRCRAFT NOISE EXPOSURE*

Comments:
*I live at 9441 So Hobart Bl
I've been living in area for over 30 yrs,
The noise from the air planes are so noisy
you can't talk on phone without closing your door.
There have been many times the noise is
at such level you need to go outside to see
if the planes are going to fall, we need
to be considered in the expansion in our
block for windows and what ever else
thats needed in our area as the residents
on 96th and Hobart*

Thank you

Office Use Only

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): SUDHIR DAMLE Date: 8/23/03

Address: 19308 Tombe Avenue

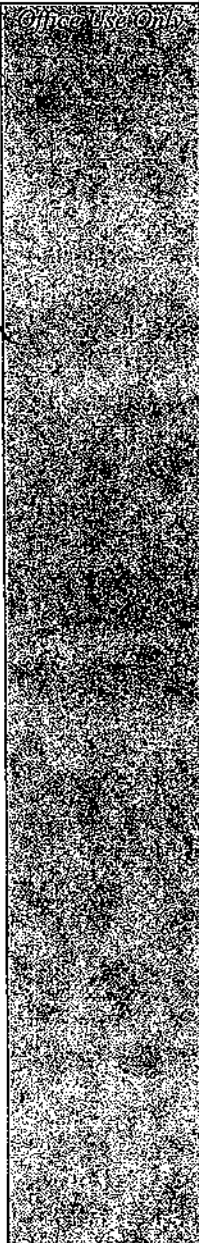
City: Torrance State: CA Zip Code: 90502

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: Title:

Comments:

I am in support of the reconfiguration ~~expansion~~ of LAX for reasons of safety. I also support the Mayor's plan for regionalization of airports. In line with that I encourage the Mayor to surcharge 20% ^{on ticket} on all Orange County residents who use LAX. This would force them to open up their airports to expansion & help the Mayor contain the capacity of LAX to 78.9 million.



Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): CHARYL PARISI, AFSCME COUNCIL 36 Date: 8/23/03

Address: 514 Shatto Place

City: LA

State: CA

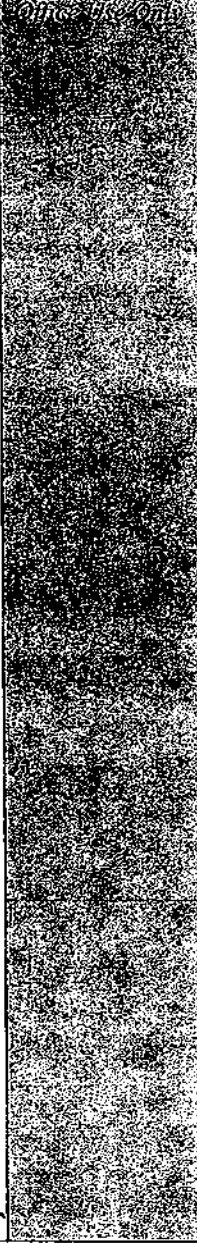
Zip Code: 90020

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: Alternatives Plan D

Comments:

AFSCME Council 36 urges
strong support for Plan D -
It's integrated approach to
transit @, enhancing the use of
the Green Line & planned
expansion of the Flyaway System
will improve air quality &
reduce individual auto trips
into the LAX surrounding
communities - included in
the plan
The Job Creation will be the
best form of assistance &
improvement for the quality of
life in surrounding
communities of LAX.



Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): PATRICIA A DOWNING		Date: 8/23/03
Address: 8326 GONZAGA AV		
City: LA	State: CA	Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: Title:

Comments:

MY SUPPORT IS FOR
ALTERNATIVE C
PARTICULARLY BECAUSE OF
LOCATING CAR RENTAL, ETC.
LOCATIONS TO THE WEST SIDE.
THERE IS SO MUCH SPACE THERE,
WHY NOT USE IT INSTEAD OF
TAKING RESIDENTIAL PROPERTY ON
EAST SIDE? MANCHESTER SQ
IS TOO CENTRALIZED!
I ALSO CONTINUE TO THINK WE
NEED TO USE/IMPROVE PALMDALE
MORE AND PROMOTE IT FOR SF VALLEY
FLYERS

Office Use Only

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Virginia Barahona Date: 8/23

Address: 143 W 67 Th Way

City: Long B. State: Ca. Zip Code: 90805

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):

Number: Title:

Comments:

Por favor Necesitamos Union en los trabajos Compañias que respeten a los Empleados, y que den Sueldos razonables y Servicios de Salud y Dentista. Son muy Caros para Empleados que ganamos poco. Es una forma de Ayudar al Ouelter para que ahorren dinero en otras cosas más importantes. Gracias Por darte la Oportunidad a Nuestro hijos de trabajar Aquí en L.A.

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): John Casey Date: 8/23/03

Address: 7875 Airline Avenue

City: Los Angeles State: CA Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable): _____
Number: _____ Title: 8/23/03 Hearing

Comments:

~~I believe~~
I am opposed to expansion of LAX.
I believe congestion, noise and other impacts outweigh the economic benefits. Travelers can be served through the development of other facilities such as Ontario. This letter action will also provide a more diverse economic base for the greater LA/SoCal area.



Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Karim R. Zaman		Date: 8/23
Address: 3660 Lennuce Ave #3		
City: Los Angeles	State: CA	Zip Code: 90016

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments:

As a local minority, small business owner and Board member of the Greater Los African American Chamber of Commerce I give full support to LAX Master Plan as proposed by Mayor Jim Hahn. Additionally, with the increased population growth of LA whether or not LAX is expanded Southern California needs to increase its trade, ^{a commerce} ~~this~~ a major step in this disection is the modernization & growth of LAX

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

SPC00124



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization):

MARY CARLEY

Date:

Aug. 23, 2003

Address:

400 W. Sycamore Ave

City:

Los Angeles

State:

CA

Zip Code:

90036

Document:

Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

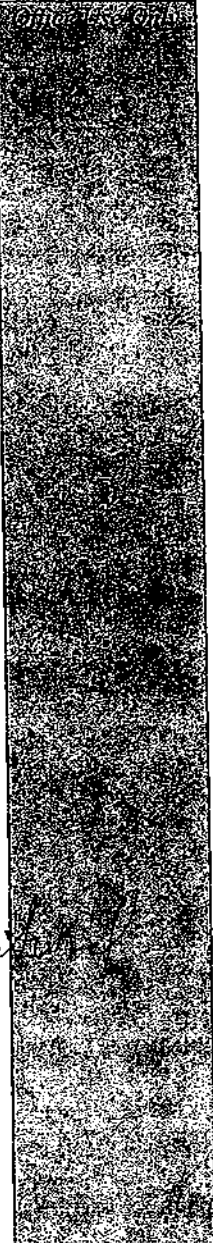
Subsection (if applicable):

Number:

Title:

Comments:

As a frequent traveler both nationally and internationally I support the efforts of the LAX Masterplan to effect modernization and security of Los Angeles Intl. Airport. The economic benefits of a modern and efficient LAX will have a long term effect on the city's fiscal health. Without it LAX will no longer be the largest international gateway on the western US. which will result in lost jobs and revenue.



Attach additional sheets if necessary.

Yes to the LAX Masterplan



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): NESTOR AMIGO - ARCADE Date: 8-23-03

Address: 844 COLORADO BLVD STE 201

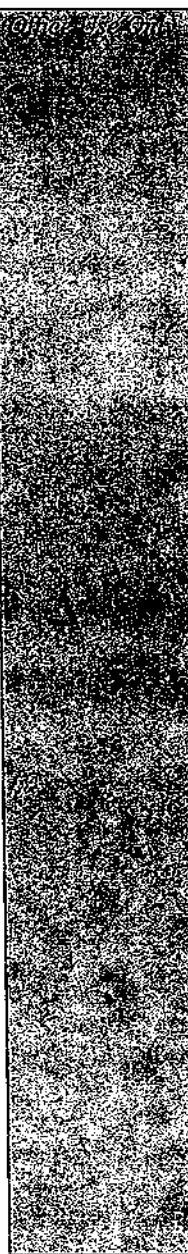
City: L.A. State: CA Zip Code: 90041

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: Title:

Comments:

I BELIEVE THAT THIS IS A GOOD PLAN.
 A VERY GOOD PLAN. NOW IS THE TIME
 TO MAKE THESE CHANGES. LAX NEEDS THIS
 UPGRADE. NOT ONLY WILL IT EASE
 TRANSPORTATION BUT IT WILL ALSO CREATE
 JOBS. AND THIS IS THE BOTTOM LINE.
 WITH THIS INCENTIVE, OTHER COMPANIES
 WILL SEE IMPROVEMENTS AND THEREFORE
 THEY WILL NEED TO ADJUST THEMSELVES
 WITH THESE CHANGES. AND THIS SPELLS
 JOB,
 LAWA AND THE L.A. CITY MAY JUST BE
 THE LEADER IN BRINGING RECOVERY TO
 L.A.'S ECONOMY IF NOT THE WHOLE OF
 CALIFORNIA. PLEASE — DO THIS,



Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): TRINI JIMENEZ, LEANOR School DIST. Date: 8/23/03

Address: 10319 FIRMOGA AVE.

City: LEANOR State: CA Zip Code: 90701

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

Comments:

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

My name is Trini Jimenez. I am the School Board President in the Lennox School District. Lennox is a small, mostly Latino community, located west of LAX and sandwiched between the 405 Fwy and the 105 Fwy. The Lennox School District serves over 7,000 children in this very densely populated area. We have a paramount interest in the LAX Master Plan because of the direct impact on our community.

We have carefully analyzed the impacts of the new option in the Master Plan and found that mitigations are crucial in our community because of the extreme proximity of the airport. The Lennox School District has conveyed our community's impacts and specific concerns in September 2001. The Lennox School District looks forward to working with Mayor Hahn, the Los Angeles City Council, The LAWA Board of Airport Commissioners, and the Los Angeles World Airport Staff.

We are confident that with appropriate mitigation we can support the Mayor in his effort to improve safety and security at Los Angeles International Airport. Thank you.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Piedmont Blvd Date: 8-23-03

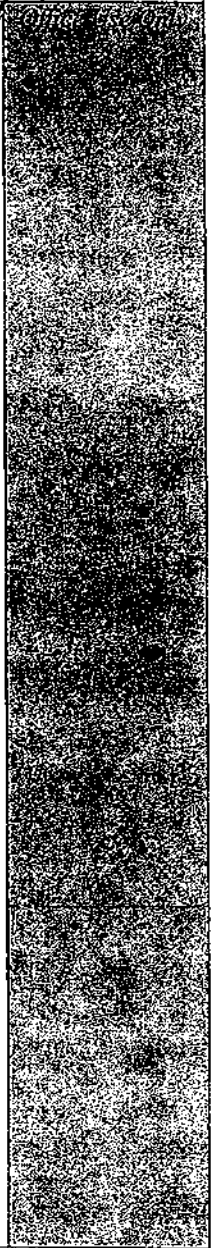
Address: 1891 N Bundy Dr

City: Long Beach State: CA Zip Code: 90801

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: Ironworkers Local 433 P/A

Comments:
Ironworkers Local 433 Support
Alternative D 100% owned the
Future of L.A.X.



Attach additional sheets if necessary. [Signature]

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Greg Phillips Date: Aug 24, 2003

Address: 5848 W. 95th St #6

City: Los Angeles State: California Zip Code: 90045

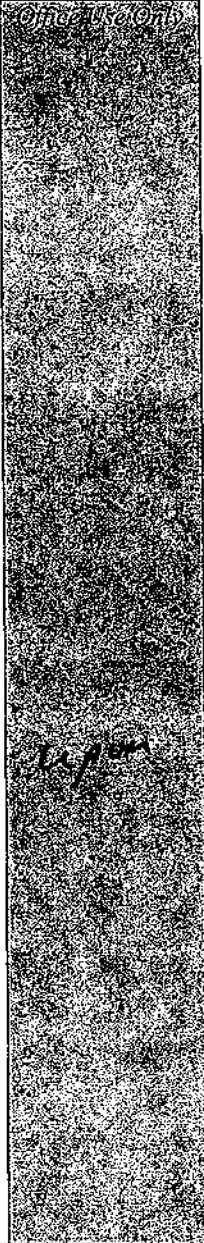
Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

Comments:

① Concentrating passengers together for check in will make them more vulnerable to terrorist bombings.

② The rail facility at the airport needs to be fully functional, to be able to sell tickets for all metro rail trains. ~~customers~~. A foreign traveler, ^{upon} arriving at LAX, should be able to understand how to get from LAX to Union Station. There should be MTA people stationed at the airport to explain and answer how to



arriving at LAX,

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

access commuter rail. inc



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization):

Greg Phillips

Date:

Aug 24, 2003

Address:

5848 W. 95th St #6

City:

Los Angeles

State:

CA

Zip Code:

90045

Document:

Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number:

Title:

Comments:

Official Use Only

(3) We need to expand the commuter capacity of LAX to support LA's growing population... we cannot just rely on regional airports

(4) I live in ~~Manchester~~ Manchester square. I don't appreciate being kicked out of my home. I want at least \$10,000 as compensation. Also, I work near the airport. I need to be able to live near the airport after I am relocated! Since the airport area is very expensive, compensation for me should take that into account.

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

into account. account.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): <u>Greg Phillips</u>		Date: <u>Aug 27, 2003</u>
Address: <u>5848 W. 95th St #16</u>		
City: <u>Los Angeles</u>	State: <u>CA</u>	Zip Code: <u>90045</u>

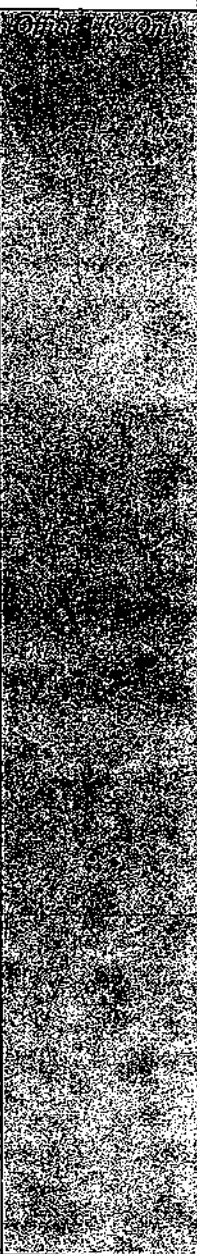
Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments:

I believe the current relocation plan for residents of Manchester Square is inadequate and forces unconstitutional restrictions on where a resident can live as a requirement of accepting the money offered.



Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): <i>Kenneth Gilbert Murphy</i>		Date: <i>Aug 25, 2023</i>
Address: <i>3310 W 74th ST.</i>		
City: <i>Los Angeles</i>	State: <i>CA.</i>	Zip Code: <i>90043</i>

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):

Number: Title:

Comments: *I am NOT in favor of the LAX Expansion Project.*

The vibration from the air traffic has caused numerous amount of cracks in both bathroom and bedroom located in the southern part of my property. Not only has it caused these cracks it has caused the bathroom door to rattle when some flights are flying lower than others.

If this project is approved, I am convinced that there will be an increase NOT ONLY IN NOISE, but also an increase in health risk from fuel dumping as well. Also, these things will cause a huge decrease in property value as well.

It seems to me that minorities are always the victims of unwanted projects in their communities

Office Use Only

Attach additional sheets if necessary.

Thank you for this opportunity to speak about the LAX Master Plan and EIS/EIR.

I come before you as Vice President of ARSAC, Alliance for a Regional Solution to Airport Congestion, an active participant in many of the Westchester-Playa del Rey and Southern California area community organizations.

EACH OF THE BUILD ALTERNATIVES ARE AN EXPANSION AND DO NOT MEET THE MAYORS CAMPAIGN PLEDGE.

I oppose Alternative D on several levels, but let me say **IT IS NOT AS ONEROUS AS ALTERNATIVES A, B, OR C.**

It is too expensive—whatever the real costs turn out to be.

It perpetuates the continued concentration of air commerce in one place by focusing on increasing LAX NOW and other airports as afterthoughts. We CAN expand LAX again now, but there is a consequence. When the next round of expansions are needed at the other airports their surrounding communities will have built up and become highly concentrated populations just like we already have around LAX.

This Plan adds even more environmental impacts on areas already having more than their fair share. The plan is to take all of Manchester Square as a check in facility whereas the LA City Council promised us almost three years ago that it could be used as a much needed park—if the local residents chose to be purchased by LAWA as sound mitigation. Unfortunately the remaining residents will in all likelihood be forced out by the LAWA demolition of those homes purchased so their leaving will not be voluntary.

Focusing on the EIS/EIR Documentation. The data is old, incomplete, and contradictory. Even recognizing that this is a program level environmental document instead of a project, every facet is covered by several options so we really can't do an evaluation of what will be the real impacts.

Examples are the people mover. We don't know where it will stop and even the details of what it will look like. Baggage handling includes building a billion dollar tunnel as well as making everyone carry their own from Manchester Square. Runway "improvements" also state differences such as the northern most runway 24R will be looking to be widened 50' at some time...north, south or some combination? The other northern runway movement calls for various differences in movement too.

I have to also ask what safeguards we'd have that the next phase after this is done won't impact the community even more with another round of expansion?

In terms of fast tracking of this process, I have doubts that the State has formally supported this activities and many surrounding cities and Counties have definitively opposed this action.

Further, what happened to all of the answers to questions from two years ago? Nothing has been released to us to see why ANYTHING is planned. What makes us believe that

the new questions will be adequately addressed? I note that a community prepared alternative, we called it E, was not accepted for comments prior to these hearings and that we are supposed to submit it simply as another comment.

Why should we trust this process to protect us from anything? The determination can be made that any impact MITIGATED OR NOT, CAN BE ACCEPTED and the projects moved forward. Most every mitigation is being done by an agency other than LAWA since it is not on airport properties. How can we be assured that the other agencies will follow through? It hasn't happened in the past.

Thanks for your time...

COMMENTS FROM AN OLD TIMER

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O.Box 92216
Los Angeles, CA 90009-2216

In reviewing LAX (D) and LAX (E) I find them full of holes and VERY EXPENSIVE.

1. Leave the terminals and existing access as is. This allows people to drop off and pick up the elderly and handy capped right at their terminals. This scatter of terminals is safer than the proposed concentration.
2. Moving runways and putting a taxiway between them has not improved wing tip clearance versus 45 degree holding between existing runways. Nobody shows which way the airplanes would be going in those center taxiways. This very unsafe.
3. The time and cost moving a runway will effect a shortage of operational runways for a long time and with the existing air traffic will cause a real problem.
4. The location of the new tower solved the visibility problem that occurred on the north runway and taxiway that one time. NO PROBLEMS SINCE.
5. With the financial shortage in Federal, State and City, leave as is except to improve the security in the existing terminals.
6. I went to the library to review the airport plan D and was shocked by the extent of the environmental study. About 6 feet of books full of GOBBLED- GOOK. When there wasn't an acceptable plan to evaluate. What a waste of taxpayer funds.
7. Cargo truck traffic mixed with passenger traffic could be solved by utilizing Ontario airport where the truck traffic can come and go in all directions and not restricted to approach only in one direction.

John S. Ehret
8219 Calabar Ave.
Playa Del Rey, CA 90293
Retired McDonnell Douglas 79", Retired from FAA 89", continued as a constant with McDonnell Douglas until Boeing took over.

Background Summary for LAX Expansion

LAX is operated by Los Angeles World Airports, LAWA, an independent department within the City of Los Angeles. Prior to Sept 11 LAX was the world's third busiest passenger (67.8 million annual passengers, MAP) and third busiest cargo facility (almost 2 million annual tons, MAT). LAX has slipped to being the fifth busiest passenger facility having lost about 15-20 percent of its passenger base. It continues to be number 3 in cargo with slightly over 2 MAT and increasing. LAX handles approximately seventy five percent of all commercial air traffic in all of Southern California and is the only International airport of consequence south of San Francisco. LAX land mass is one of the smallest major airports at 3500 acres compared to a typical of about 10,000 acres. LAX is located in the densely populated Westside and is surrounded by a substantial amount of "non-compatible land uses"—people's residences.

LAX is noted as a top terrorist target. The economic impact on Southern California would be devastating if there were either a man-made or natural disaster at LAX.

Attempts to truly diversify air traffic have stalled. Establishment of an airport at the former El Torro military base in Orange County has been defeated by south Orange County interests. The Southern California Regional Airport Authority has apparently died due to lack of support by Los Angeles City and some other participants.

The last major expansion of LAX authorized by a Master Plan (and full environmental impact review) was 1978-1982 which increased LAX to 40 MAP. This was promised to be the last. Past expansions have removed one third of the local residences. Subsequent incremental project expansions (no environmental impact study was required because each individual project was only a small percentage increase) raised the stated potential capacity to 78 MAP with ground traffic access to LAX as the prime constraint. BOAC President Ted Stein estimated that without this constraint LAX capacity is 83 MAP.

The FAA no longer establishes airline routes or schedules. This responsibility ended with the 1980's deregulation of the airline industry. Airlines establish their own frequency to any airport. The FAA states that they will work to safely facilitate all desired flights based on the ability of an airport to safely handle aircraft take offs, landings, and gate availability—even if it maximizes air traffic all 24 hours of the day.

Mayor Hahn was elected in 2001 after signing a pledge by the Alliance for A Regional Solution to Airport Congestion, ARSAC, that he would not increase LAX capacity. Subsequent to September 11 Mayor Hahn had a new Master Plan alternative, "the Safety and Security Alternative D," added to the Riordan Master Plan. Reissue of the Riordan Master Plan with this new alternative is anticipated this summer. More than \$125 million has been spent preparing this plan. The \$9-11 billion Alternative D estimates capacity at 78 MAP. This pronouncement is NOT universally accepted. Alt. D safety and security benefits are questioned by local "activists" and most recently by a RAND Corporation study.

Southern California Association of Governments, SCAG, a four county coordinating body, projects an increased air capacity need for Southern California. Their "allocation" of air capacity usage to various airports (not an enforceable number) calls for a percentage reduction of overall So Cal flights at LAX from three-fourths down to two-thirds by 2020. The Riordan expansion LAX Master Plan released (and defeated) about two years ago called for increases in LAX capacity to between 94 MAP to 100 MAP plus. SCAG estimated building equivalent capacity in areas other than LAX would cost \$2 billion less.

More than twenty years ago it was anticipated that Southern California would need more airport capacity. The LAWA Board of Airport Commissioners owns and operates Palmdale Airport and Ontario Airports. There is currently no commercial air service from Palmdale and about 6.7 Million Annual Passengers leave/return to Ontario Airport. Although LAWA has slack capacity at both Ontario and Palmdale, LAX remains the preferred site. During portions of the day LAX operates at near maximum capacity.

The initial Riordan plan was 12,000 pages long and environmental impacts were justified using 1996 data. The Hahn alternative has been added to the Riordan Master Plan and will be reissued. This approach allows continued use of the 1996 data rather than more current data. Although thousands of comments were submitted and major flaws found within the Riordan plans and support data, there have been no responses to the public comments. LAWA instead proceeded with development of Alternative D "with the comments in mind." They removed some of the significantly objectionable elements from the Riordan alternatives. Alternative D would have far less severe local impacts than Alternatives A, B, or C. None-the-less significant undesirable local and Southern California impacts remain.

Alternative D Master Plan development has been largely uni-directional. Little criticism has been tolerated and schedules appear to get all approvals before the next Mayoral election. Eleven months have past, for instance, since the most impacted homeowners area was promised a meeting. The initial Alternative D press announcement was by invitation only. The Plan has enjoyed much general exposure by LAWA, but few details exposed. Virtually all meetings are of the "this is what it is" nature. Only the Mayor's Blue Ribbon Committee on Manchester Square allowed some give-and-take, but was convened with major assumptions such as expansion into Manchester Square residential area fixed as a condition. Attendance was by invitation only in a secure location with no handouts or recording allowed. The public and press were not given admittance. Manchester Square procurement by LAWA is under GAO investigation for irregularities. If the area were to be procured, it was promised to remaining local residents as a park by the City Council in March 2001.

Local residents were told from the start that the general aspects of the plan are "not negotiable." Numerous requests to address plan objections were consistently met with the phrase, "we thought about it and decided against it." Alternative D continues to lack support from the Airlines, local community, or surrounding governmental entities. Only LA City Council and Mayoral approval is required to proceed.

Local community leaders independently developed their own Alternative E without support from LAWA consultants already being paid \$1 million per month. Alternative E addresses Alt. D shortcomings. The Mayor and LAWA remain unwilling to address this plan despite a Neighborhood Council request.

The Riordan review period was more than a six months long. This time we will be required to inspect the initial 12,000 page documentation for changes in addition to what we have been told will be 4,000-8,000 additional pages covering Alternative D—all within 45 days! Numerous requests from all levels of government and interest groups to extend the comment period have been rebuffed.

The enclosed CD contains numerous annotated named documents including a Powerpoint presentation on the history of LAX development, Alternative D, and Alternative E.

There are many nuances to this dollar give-away. Feel free to call me at (310) 641-4199 or e-mail me at DennySchneider@WeLiveFree.com for more details.

August 15, 2003

To: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

From: Ms. Ping Ho, M.A.
Analyst, UCLA Collaborative Centers for Integrative Medicine
2626-33rd Street
Santa Monica, CA 90405-3111
(310) 435-4578
pingho@ucla.edu

Re: Mayor Hahn's LAX Master Plan Proposal

Mayor Hahn's LAX Master Plan Proposal simply trades one security hazard for another. If safety is the primary motivation for this proposal, then it falls seriously short of its promises.

A recent Rand Corp. study has indicated that congregating all commercial passengers in one location increases the risk and harm to a greater number of people by a terrorist attack.

The proposal creates a major loophole. The added inconvenience of additional time required to be screened and transported to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. These general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation airport in the area.

I urge Los Angeles World Airports (LAWA) to thoughtfully consider the risks of this proposal and to address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

SPC00134



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Patricia Hamilton **Date:**

Address: 8416 Winsford Avenue

City: Los Angeles **State:** California **Zip Code:** 90045


Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: **Title:**

Comments:

These are my thoughts as presented yesterday
8/23/03 at the public hearing in Westchester's
Furama Hotel on the modernization plan for
Los Angeles International Airport.

See Attached writing



Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

Lax's Current Plan for Expansion

Techonology for the future cannot be predicted at this time so the coast involved to build the new Airport Plan cannot be estimated today - which is only a rough estimate --

*Our lives here in the United States changed on 9/11
Security and Time is of the Essence*

The Rand Corporation and the Airlines have given some helpful information for modernizing security at the airport. Nine years and million of dollars have already been spent on un-practical plans without taking into consideration -- The Big Picture -- A Regional Solution --

To enlarge LAX on the small and confined acreage including off-site check in facility in this metropolitan area should not be an option.

For serious safety, security, effieency and convenience the City of Los Angeles should follow the lead of the major Cities in the United States, Europe and Asia by using larger acreages outside of metroploitian areas. Los Angeles already owns larger acreages in Palmdale and Ontario. These Airfields should be developed and enlarged with connecting Metro-Link-Rail Transporation Systems to accommdate the new Jumbo Jets that will hold 500 passengers that are already in the planning stages.

More people's lives could be spared in the event of this type of catastrophe that has already occured on 9/11 in New York City.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Martin Culjat Date: 8/22/03

Address: 110 S. Sweetzer Ave #212

City: Los Angeles State: CA Zip Code: 90048

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: Ground Transportation

Comments:

Office Use Only

With the ITC in place, two of the greatest assets in the area are being overlooked: The Union - Station - LAX train tracks, and the Green Line.

- Plans should be made to accommodate ~~with~~ a Metrolink-type train station adjacent to either the ITC or GTC. Such a train line is inevitable as LA County's rail system continues to grow and quick transfers between LAX and Union Station are increasingly desired.
- Plans should also be made to accommodate a Green Line extension north through LAX to Westchester, connecting Westsiders to the rail system.

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003.

Aug. 21, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Cathy Larson
1722 Bryn Mawr Ave.
Santa Monica, CA 90405-5914

RE: Mayor Hahn's LAX Master Plan Proposal

It is essential that Los Angeles World Airports review its current Master Plan Proposal.

Although, Mayor Hahn's LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

A recent Rand Corp. study has indicated that congregating all commercial passengers in one location increases the risk and harm to a greater number of people by a terrorist attack.

The added inconvenience of additional time required to be screened and transported to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. These general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation airport in the area.

This Plan would also drastically alter traffic patterns. As a resident of Santa Monica, I am well aware that the majority of travelers who live in the North Western area including Santa Monica, Pacific Palisades, Marina del Rey, Venice, Playa del Rey, Topanga, and Malibu access LAX via Lincoln Blvd and other surface streets. I would imagine a similar situation exists from communities accessing LAX from the South Western area.

Will all this traffic be routed through residential areas of Westchester? That probably doesn't sound very appealing to that community. Or perhaps be forced to use the 405 Freeway which already doubles as the largest parking lot in the world?

I urge Los Angeles World Airports (LAWA) to thoughtfully consider the risks of this proposal and to address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

Also, any future change in LAX design that alters auto access must include traffic mitigation measures that don't exacerbate an already significant problem.

Sincerely,



Cathy Larson

SPC00137



FRED G. MCCAW, JR. * 349 SUNRISE TERRACE, PALMDALE, CA 93551, TEL: 661-273-5634

August 20, 2003

Mr. David B. Kessler
AICP, US Department of Transportation
Federal Aviation Administration
P.O. Box 92007
World Way Postal Center
Los Angeles, CA 90009-2007

Mr. Jim Richie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Ref: Palmdale Regional Airport

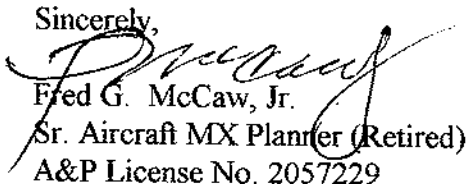
Dear Mr. Kessler and Mr. Richie,

Attached you will find my letter to Antelope Valley Press regarding my opinion and concern in the master plan proposal to expand LAX to meet aviation growth demand.

As a citizen of Antelope Valley, I would like to express my opinion and hoping that your good office would provide the City of Los Angeles the best plan and recommendation to include Palmdale Regional Airport. The success and failure of Mayor Hahn's master plan is in your good hands including the future of Antelope Valley.

I will pray to our Greatest Architect of the Universe to keep you steadfast in your decisions. Thank you and should you have any question, please do not hesitate to contact me.

Sincerely,


Fred G. McCaw, Jr.
Sr. Aircraft MX Planner (Retired)
A&P License No. 2057229

SPC00138



FRED G. MCCAW, JR. * 349 SUNRISE TERRACE, PALMDALE, CA 93551, TEL: 661-273-5634

Date: August 20, 2003

To: Public Forum
P.O. 4200
Woodland Hills, CA 91365-4200

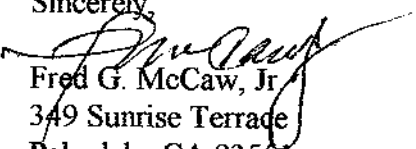
Copies: Mr. David B. Kessler
Mr. Jim Richie

Subject: Letters of Opinion

Dear Editor,

Please print my opinion in our Commercial Appeal. Should you have any question, please contact me anytime. Thank you for attending to this matter.

Sincerely,


Fred G. McCaw, Jr.
349 Sunrise Terrace
Palmdale, CA 93551

Palmdale Regional Airport

Mayor James Hahn mega bucks proposal of 9 Billion Dollars to renovate LAX would be another blow to Los Angeles taxpayers. However, for the sake of security and environmental impact to the City of Los Angeles, the Palmdale Regional Airport should be considered as an alternative solution to solve over congestion in LAX. Let us built an infrastructure, such as speed rail transportation from LAX to Palmdale Regional Airport. We can move the Cargo Airlines from LAX to relieve some of the 3.1 million tons of cargo and some of the 8 million passengers each year to Palmdale Regional Airport. Proper planning can control traffic congestion and smog pollution.

It's about time that a Mayor of Los Angeles and members of the City Council includes Palmdale Regional Airport to meet the growth of aviation demand in Los Angeles. Thanks to Mayor Mike Gordon of El Segundo for supporting the utilization of Palmdale Regional Airport. I also wish to thank our County Supervisor Mr. Mike Antanovich for his long time support of using Palmdale Regional Airport.

May I suggest to Mr. David B. Kessler of AICP, US Department of Transportation, Federal Aviation Administration and Jim Richie, City of Los Angeles, Los Angeles World Airports, LAX Master Plan Office to use their professional and unbiased non-political decisions to include Palmdale Regional Airport in the master plan expansion of LAX.

If the master plan to include Palmdale Regional Airport fails, it would be time for the citizens of Antelope Valley to purchase Palmdale Regional Airport from Los Angeles. If this also failed, we should legally claim this land, since LAX has no use for it. Then and only then, we would be free from the politicians of Los Angeles City and would be able to determine the destiny of our airport.

SPC00138

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Claudia Border
12035 Marine St.
Los Angeles, CA 90066

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

A recent Rand Corp. study has indicated that congregating all commercial passengers in one location increases the risk and harm to a greater number of people by a terrorist attack.

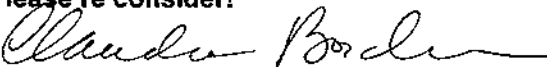
The added inconvenience of additional time required to be screened and transported to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. These general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation airport in the area.

I urge Los Angeles World Airports (LAWA) to thoughtfully consider the risks of this proposal and to address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

Additional Comments: Do we need to have another attack to be more proactive for our citizens?

I'm also worried about the safety of Santa Monica Airport, they could start entering there and cause trouble.

Please re consider!


Claudia Border

SPC00139

Aug. 21, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Adrian Harewood
Megan FitzGerald
2437 Pier Avenue
Santa Monica, Ca. 90405

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

A recent Rand Corp. study has indicated that congregating all commercial passengers in one location increases the risk and harm to a greater number of people by a terrorist attack.

The added inconvenience of additional time required to be screened and transported to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. This will detrimentally effect the increase of the already overwhelming air traffic related noise and air pollution from jet fuel exhaust at smaller airports adjacent to family oriented residential communities (such as Santa Monica Airport).

In addition, these general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation Airport in the area. Based on media reports and our personal experience with Santa Monica airport, the increasingly larger commercial jets are pushing the limits of utilizing the smaller and unregulated airports, which leaves a dangerous and gaping hole in our nations aviation security apparatus.

We urge Los Angeles World Airports (LAWA) to thoughtfully consider the risks of this proposal and to address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

Yours truly,



Adrian Harewood



Megan FitzGerald

SPC00140



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Dean L. Lindstrom Date: 9/8/03

Address: 7503 W. 89th Street

City: Los Angeles State: CA Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

Comments:

1. One of the first things we should have learned from the terrorist attack of 9/11/01 is that enlarging LAX will make it a more desirable target. Spreading the flights and passengers to other areas would make an attack less likely.
2. Establishing a check-in facility in Manchester Square, makes that a good target for terrorists; adding the 2 mile trams also adds inviting and easy targets.
3. This does tend to make the buildings less vulnerable at the expense of increased vulnerability for the people.
4. The traffic congestion on the 405 and 105 freeways and in the check-in area will be significantly increased, causing many problems.
5. The destruction of facilities and construction of new ones is a terrible waste of money with no significant improvement in operations.
6. Expansion to the east will have a major impact on the citizens east of the airport.
7. A very important factor making this such a terrible waste of time and money is the fact that population growth in Southern California is north toward Palmdale and east to Riverside and San Bernardino. Long before the LAX expansion is complete, airport expansion in those areas will be necessary. Where does that money come from?
8. One of the biggest things lacking in this plan is Common Sense.
9. No other major airport is located in the middle of the city. Cities around the world have expanded and built new airports, but not in the middle of the city. Check Hong Kong, Milan, Italy, and Munich, Germany for examples.
10. It is clear that this is a plan where special interests will make a lot of money, rather than a plan to improve airport transportation and its impact on the surrounding community.

Dean L. Lindstrom

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003



C/O David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Comentarios del Público
I represent the
Lennox Academy
School

Por favor, letra de imprenta.

Nombre (Nombre de pila, Inicial, Apellido u Organización): **Fecha:**
Janeth Prestegui 9/13/03

Domicilio: 4341 W. 106 St Inglewood CA, 90304

Ciudad: Inglewood **Estado:** CA **Código Postal:** 90304

Teléfono (Opcional): (310) 674-2208 **Correo Electrónico** (Opcional):

Documento: Borrador Plan Maestro Borrador EIS/EIR

Número de (Si corresponde): **Sub-sección:** **Título:**

Comentarios: When airplanes pass, car alarms sound there is too much sound everywhere and the noise is so loud. So fix this place and just make a useful time for airplanes to pass. Also at night when airplanes pass they don't let us sleep. Make a useful time for airplanes to pass. Thank you

Únicamente para uso de la Oficina

Incluya páginas adicionales si necesario.

Comentarios oficiales sobre el Borrador Plan Maestro de LAX y/o Borrador Suplementar EIS/EIR deberán ser recibidos a no más tardar el Viernes 7 de Noviembre, 2003 a las 5:00pm del Tiempo Uniforme Pacífico.

Mande los Comentarios a:
Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007



Comentarios del Público

C/O David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Por favor, letra de imprenta.

Nombre (Nombre de pila, Inicial, Apellido u Organización): *Ryan Williams* Fecha: *9/13/03*

Domicilio: *4374 Tuller Ave.*

Ciudad: *Culver City* Estado: *CA* Código Postal: *90230*

Teléfono (Opcional): *(310) 313-0019* Correo Electrónico (Opcional):

Documento: Borrador Plan Maestro Borrador EIS/EIR

Número de (Si corresponde): Sub-sección: Título:

Comentarios:

I ~~do~~ live in Culver City and work in Lennox. Rand shows that we should restrict growth to lessen LAX as a target. How dare the business community continue to exploit people of color in Lennox. We all know that this "investment" in security leaves the door wide open for continued growth at LAX. Why are we investing 9 billion in LAX when we need to be redistributing the sound, environmental and medical burden to the greater community. Anyone who supports spending money at LAX is slitting the throats of the immigrant community that is the backbone of this community.

Únicamente para uso de la Oficina

Incluya páginas adicionales si necesario.

Comentarios oficiales sobre el Borrador Plan Maestro de LAX y/o Borrador Suplementar EIS/EIR deberán ser recibidos a no más tardar el Viernes 7 de Noviembre, 2003 a las 5:00pm del Tiempo Uniforme Pacífico.

Mande los Comentarios a:
Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

8-20-03

Randall E Hartman
21718 Marjorie Ave.
Torrance, CA 90503

Jim Ritchie
City of Los Angeles, Los Angeles World Airports
LAX Master Plan Office
Los Angeles, CA

RE: LAX Master Plan

I am a Quality Assurance Inspector of aircraft maintenance for American Airlines. I have worked at LAX in this capacity for the last 20 yrs as both an aircraft inspector **and** mechanic. I intimately see everyday the problems LAX has gone through over the years, and the current problems it faces in trying to maintain safety and security, and in dealing with increasing air traffic.

I have studied Mayor Hahn's plan for LAX thoroughly and quite honestly find it laughable. Nothing about it makes any common sense in trying to solve the current, and future problems facing LAX. The only logic for this plan, is to "make work" (since I think it is a waste of labor and resources) for the construction firm(s) that will be doing this job. I wouldn't doubt that these contractors gave Hahn a heap of money in his campaign for mayor.

First and foremost lets talk about security. Hahn' plan claims this will improve security at LAX. His plan calls for having everyone check in at one central location and then "people-move" them to their gates. **THIS PLAN IS A TERRORIST DREAM!** Yea, lets gather the massive crowds of people that go through LAX and put them all in one area. Even a moron should be able to see that this isn't a very bright idea. A suicide bomber then could mix in with this crowd before they check in, and wipe out a hell of a lot of people.

Hahn's plan would severely hamper the efficiency and order of LAX for an estimated 11 yrs, and that's if they do it on schedule which rarely happens. This is 11 yrs of inconvenience to the passengers, airlines, and vendors. The airline industry is already severely hurting financially and this will impact operations here at LAX for 11 yrs. On top of that the cost of this massive project that will do nothing to improve anything. It will be financed by higher air fares, and **this will** hamper the airlines, and also any business that relies on air travel, like tourism, business travel, airport vendors, etc.. What is Hahn and all those that support this thinking!?

Stop this insanity! You don't need to mess up LAX. You need to develop a **regional approach** to handle air traffic around Los Angeles. Most of the people that work for the airlines, and those that fly that live in the LA area, don't live near LAX! They live elsewhere and would be better served by airports like Ontario, San Bernadino, Orange County, Burbank, and Palmdale. That is where you should expand, and you can make improvements to LAX if needed, but don't do anything stupid and major, like move runways, or terminals, and make a centrally located check-in area. Most of my co-workers here at American Airlines feel the same way. We don't need your so called "improvements".

Sincerely,



Randall E Hartman

SPC00144

ATTN: K. LAY MASTER PLAN (PUBLIC) PART
 LEARNING CENTER, ROOM 10-A 6601 Imperial Highway,
 Los Angeles, CA 90045

(3) Airports	(2) Clerks	(1) Lib
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 PALMBANK 1 Airport
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Sum 41 + 1 college

KUCLA Henry J. Brunner

LAX

cl at www.laxmasterplan.org

(y) or (all) of the volumes that comprise the draft Lax master plan & addendum and/or supplement to the draft EIS/EIR, please contact:

INC phone: 310-727-8668
 NUE 90040 FAX: 310-727-6678
 Email: LAX@print.com

master (y) or (all) money order, cashier's check, or personal check. Any order paid by personal check will be delayed until the check clears. ALL PAGES.

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Setting of the supplement to the draft EIS/EIR and draft Lax Master plan inventory

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(1) Volume totaling 1,165 pages. It does not include supporting addendums and

DRAFT EIS/EIR (paper copy only) 1 volume totaling 163 pages. Each appendix provides

reference data which DRAFT EIS/EIR. The cost of each individual appendix varies according to

to the draft EIS/EIR (paper only) of five (5) volumes totaling 2,626 pages. Each report represents

ulate the conclusions in the supplement to the draft EIS/EIR. The cost of each varies according to its

various Federal Aviation Administration requirements & migration.

PLEASE NOTE IF you purchase a document in black and white, the color pages may be difficult to interpret. Evelyn Quintanilla at (202) 646-7693

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Los Angeles

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Appendix described below in the

MY APPENDIX

(E) (History) ^(MA) company (Exchange for CD's) 5 special
Supplement to DRAFT EIS/EA (5 CD's total) for project
This document consists of technical reports

Appendices to the Supplement to support the Appendices
A consists of supports the Supplement total pages count

Technical Reports to the Supplier. The technical report can technical
Analysis used to individual Technical Report
Draft LAX plan Appendix THE DRAFT LAX master plan background
and other related for planning and technical

portions of these documents were designed to be L

si necesita asistencia en Español, FAVOR COMUNICAR

DATE	Location
Monday, Oct. 20, 2003 5:00pm - 9:00pm	Doubletree Hotel 888 Montebello Blvd Rosemead, CA 91170
Wed, Tuesday, Oct. 22, 2003 5:00pm - 9:00pm	Granada Hills Charter HS 10535 Zulzot Ave Granada Hills, CA 91344
Saturday, Oct 25, 2003 9:00am - 1:00pm	Epic Center 39806. Miralto Avenue Los Angeles, CA 90037

von "Lark"
Prof. Gold & Lark
Between 6:00 - 7:00 pm

Prof. Strachan
Between 8:00 - 9:00

von prof. Ernest Fritz S.
or Schubert
Between 8:00 (2:00 AM) / PMS

© USPS 2002

 THIS ENVELOPE IS RECYCLABLE AND MADE WITH 30% POST CONSUMER CONTENT.

SPC00145

7/7/2003

DEAR MAYOR HAHN (A)

I VOTED FOR YOU BUT I'M SORRY
I DID THE ACTION.

YOUR PLAN TO SPEND \$9.6. ~~THE~~ BILLION
ON AIRPORT MODERNIZING IS WASTFUL
WHAT THE CITIZENS NEED IS A TRAIN
TO LAX AS E.G. ATLANTA, BART (S.F.),
N.Y.C. IS BUILDING ONE.

PLEASE FOCUS ON MOVING TWO
PARALLEL RUNWAYS ON THE SO SIDE
OF THE AIRFIELD FARTHER APART. I
WAS ON A PLANE WHEREBY WE HAD A
NEAR MISS.

(B)

WE NEED ADDITIONAL EFFICIENCY IN
THE USE OF OUR POLICE MANPOWER
E.G. DO WE NEED TWO OFFICERS
PER CAR DAY + NIGHT SHIFTS?

(2) DO WE NEED 2 AND 3 POLICE
CAR AT TRAFFIC ACCIDENT LOCATION?

(3) WHY MUST THE CITY PAY

SPC00146

SPC00146

TIME AND HALF TO POLICE
OFFICERS THAT APPEARS IN
TRAFFIC COURT. ?

WHEN WILL THE CRA,
M.T.A. AND OTHER DEPARTMENT
STOP THEIR WASTEFUL
SPENDING AND BECOME MORE
COST EFFECTIVE.

YOU'RE THE LEADER OF
THE BAND. HOW ABOUT SOME
COMMON BUSINESS SENSE IN
LEADERSHIP. ?

Sincerely,

Ken Stolle

P.S. A REPLY WOULD BE
APPRECIATED.

13 July, 2003

Mayor James K. Hahn
200 North Spring Street
Los Angeles, CA 90012

Dear Mayor Hahn,

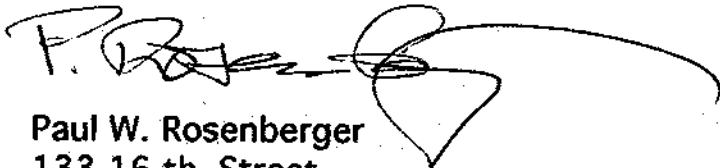
Although admirable in many respects, your airport plan does not address the traffic congestion that is already paralyzing the 405 virtually around the clock, much of it attributable to the airport traffic. As the airport capacity expands, this problem will become catastrophic.

The current plan calls for passengers to be processed at a central baggage screening facility, after which they board buses to be transported to their departure terminals.

A much better alternative is to have multiple regional facilities (down town LA, the valley, Orange county, etc.) and bus passengers from there to the terminals. As long as passengers have to board a bus, they might as well board it where it is convenient to their home location. This may be more expensive in the short run, but would pay huge dividends in passenger convenience, traffic reduction, and avoidance of extremely expensive freeway expansion.

Please give consideration to this important issue as you refine your air port modernization plan.

Sincerely,



Paul W. Rosenberger
133 16 th. Street
Manhattan Beach, Ca 90266
(310) 545-3531 E-mail:PaulR88@aol.com

SPC00147

8437 Truxton Avenue
Los Angeles, CA 90045
June 30, 2003

The Honorable Mayor James Hahn
City of Los Angeles
City Hall
200 North Spring Street
Los Angeles, CA 90012

Re: The LAX Master Plan

Dear Mayor Hahn:

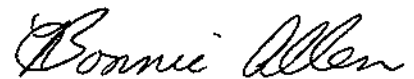
We are writing to ask you to increase the minimum public comment period for the LAX Master Plan, Alternative D, from 45 days to 180 days because 45 days is simply too little time for public review and comment. Fairness to all interested parties requires adequate time to receive, review and comment on such an important document that will affect everyone in the city of Los Angeles and well beyond.

We therefore urge you to increase the public review period to 180 days.

Sincerely,



Lucille Allen



Bonnie Allen

SPC00148

urgent

f a c s i m i l e

To: Mayor Hahn
Fax Number: 12139780750

From:
Fax Number:
Business Phone:
Home Phone:

Pages: 3
Date/Time: 8/18/2003 9:15:34 AM
Subject: LAX MASTER PLAN

Critique Of and Possible Alternative To

SPC00149

LAX MASTER PLAN - SPENDS 9 BILLION PLUS TO:

- * **Tear Down Airport Structures Possibly Not Yet Even Paid For**
- * **Concentrate Airport Congestion**
- * **Promote Traffic Gridlock**
- * **Make LAX the Most Inconvenient Airport in the World**

Simply moves Airport Congestion & Likely Point of Terrorist Attack to another more congested site without equal replacement parking and still further away from Green Line to Blue Line to Red Line and Urban Destinations. Is it really convenient to go to Park and Ride Lots in Long Beach, Norwalk & Inglewood and ride busses to Manchester Square Airport Security Center ?

Our past leaders were visionary in buying a large airport site at Palmdale. Tokyo, Seoul, Hong Kong and Washington D.C. all built new larger International Airports far from their cities. Most now use old airports for Domestic Flights Only. Transit Links to other Airports and Cities.

HOW TO SPEND LESS AND GET MORE.....a possible Alternative Plan

LOS ANGELES AIRPORTS AND RAIL TRANSIT SCHEME * *

As Illustrated with Detailed Map - Plans & Text shown on Large Display Boards.
(Prevented from Showing at Airport *Public Hearing*)

*** New Secure Los Angeles International Airport at Palmdale**

With all passenger and baggage screening and check -in features now in LAX Master Plan Using only a small portion of this vast site.

Links Palmdale Metrolink Station (uc) with one-mile Elevated Airport Tram connecting to Security Center for Passenger and Luggage Screening, Flight Check-In and Baggage Check.

Continuing Tram to Huge International Terminal and on to even larger Domestic Terminal for Connecting Flights.

2.5 Mile Elevated Tram Loop from Terminals to Parking, Bus, Taxi and Car Rental Lots; to Security Center; and Metrolink Station.

500 acres of Open Parking Lots with approximately 50 to 70 thousand Car Capacity.
180 acres for Bus and Taxi Terminals and Car Rental Lots.

Existing Metrolink Travel Time from Union Station to Lancaster is 1 hour and 40 minutes.
Would be less from Red Line/Metrolink Station to Palmdale Airport and even less by car on 14 Freeway.

nsit Travel Time to Airport could be greatly reduced by (1) Better Track Alignment
mproved Rail Roadbed (3) Grade Separation (4) Double Tracking and (5) Electrification.

*** Los Angeles Westchester Domestic Airport at LAX**

Linked by Terminals Tram to Metro Rail Line. Possible Security Check Point at Tram Station.

Airport Conference Center & Corporate Jet parking at now Tom Bradley International Terminal.

Retain all LAX Terminals, Parking Structures and Runways as they now exist.

LAX Flights Actually Reduced. No Homes or Businesses Taken.

*** Easy Rail Transit to ALL Los Angeles Airports.**

Including Direct Metro Rail between LAX and Burbank Airports.

Only 15 miles of new Metro Rail lines could link Green Line and LAX to Burbank Airport and Metrolink Rail Line to Palmdale Airport.

Two mile Red Line Valley Metro Rail Extension to Burbank Airport Terminal. Then one mile more to new Antelope Valley Metrolink Station and Rail Transit Service to L.A. Int. Airport at Palmdale. Also increases low income workers access to large nearby affordable housing stock.

Ebony Metro Rail Line from Union Station to Wilshire-Western Stub. Then 12 miles to LAX. Subway down Crenshaw Blvd. and Elevated on MTA owned railroad right-of-way to Century/Aviation Station Link with LAX Airport Terminals Tram. Ending at Green Line Light Rail Aviation Station. Bay Area BART elevated everywhere except in Downtown City Areas.

Long Beach Airport Alternative Terminal Transit Links to Long Beach Blue Line Light Rail.

Now no direct rail access to Ontario Airport. Alternative Plan has new Ontario Airport Stations on Riverside and San Bernardino Metrolink Lines with Transit Links to Airport Terminal.

Tony Neil Kom - Environmental Planner

(323) 221 1415 KomCepts@aol.com

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May not be Copied or Used in Any Way Either in it's Entirety or in Any Part Without Prior Written Approval of Tony Neil Kom or Heirs. Dated August 1, 2003. Los Angeles, California

9/10/2003

Master Plan, LAX
PO Box 92216
Los Angeles, CA 90009-2216

RE Airport hearing and meeting on August 23, 2003,
Furama Hotel, Westchester, CA.

Suggestion: Please next time, NO CHILDREN

I am a resident of Westchester, who attended the airport meeting on August 23. I couldn't hear the speakers because two children chattered throughout the meeting.

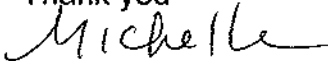
The children would not stop talking, even though the union representatives told their children to be quiet. This did no good, in fact, the two small girls were asked to be quiet about a dozen times, but never stopped talking for a second, until finally at the break they were taken out. It was unbelievably rude not to keep them quiet or take them out of the room during the meeting.

In addition, three other children in this group played a game for quite awhile which was distracting, also disruptive to trying to hear the speakers. No attempt was made to stop the game or ask these children to go outside.

We all want to hear every speaker at the meeting. I'm sure the union wants its message to be heard--it was a shame their own noisy children prevented us from hearing their message too.

Next meeting, please, no children.

Thank you



cc Maria Elena Durazo, President
Local 11
675 S Park View St
Los Angeles CA 90057

SPC00150



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): MINA BHARADWA Date: 8/23/03

Address: 7298 W MANCHESTER

City: LOS ANGELES State: CA Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: _____

Comments:

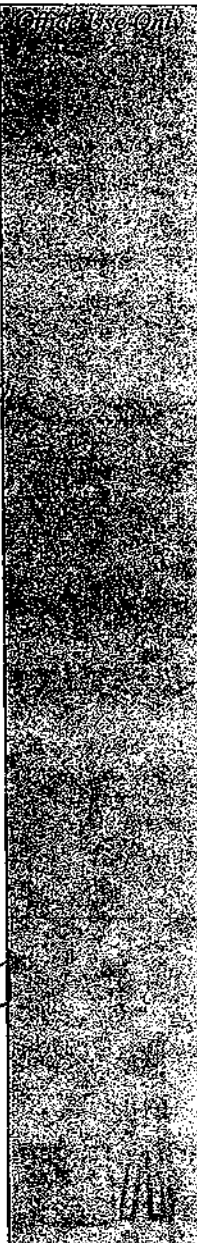
My name is Mina Bhavadu. I am a local Realtor. I live & work in westchester.

I support Alternative E as devised by local residents.

Manchester Square should be converted Centre or Park.

The check in facility should be relocated to airport land at corner of Aviation and Century

The Regional Solution needs to be investigated. People who donot live in LA County should pay surcharge especially Orange County residents where they do not want El Toro to be a regional airport.



Attach additional sheets if necessary.

For Your
Information

Jim -

Regretfully, I was
unable to stay for
the balance of the
public hearing meeting
at The Furama Hotel.
I would appreciate
it if you could
include my comments
(attached).

Thank you,
Patti



The Convention and Visitors Bureau

333 South Hope Street 18th Floor
Los Angeles, California 90071
Tel 213.624.7300 Fax 213.624-9746
E-mail info@LAinc.us

Los Angeles • Chicago • Washington, D.C.
London • Tokyo



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): ^{bureau} Patti MacJennett, LA Inc - the Convention + Visitors Bureau Date: Aug 23, 2002

Address: 633 W. Fifth St.

City: LA

State: CA

Zip Code: 90071

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable): ^{aug 23} Title: - Public Hearing - Furama Hotel

Comments:

On behalf of the Los Angeles Convention + Visitors Bureau, I'm here to speak in support of the LAX master plan.

Our organization represents LA's tourism industry, the second largest industry in L.A. providing over 240,000 jobs. Last year, tourism injected \$11.8 billion in direct visitor spending.

LA's ^{growth} ~~position~~ as a top travel destination is largely due to LAX which provides easy access + competitive airfares from all major cities around the world.

In today's environment, competition for the visitor is fierce. Travelers today have more choices than ever before in history. ~~and~~ They can choose airports such as Phoenix, SFO and Las Vegas that have updated facilities.

We are here to underscore the core elements of this plan.

Attach additional sheets if necessary.

continued



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization):
Patti MacJennett

Date:

Address:

City:

State:

Zip Code:

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number:

Title:

Comments:

Office Use Only

1. ^{TO} Provide a safe and secure facility - which ultimately benefits all travelers and the surrounding community.
2. To modernize the airport in order for LAX to maintain its standing as a premiere international gateway.
3. To recognize that a regionalized system is the long-term solution to Southern California's increasing air travel demand.

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

SPC00152



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Andrew J. Leighton Date: 8.28.03

Address: 583 Prospect Ave.

City: Hermosa Beach State: Ca. Zip Code: 90254

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: _____

Comments:
Please register my opposition to Master Plan LAX. The proposed changes will do little to increase airline safety. They will in fact, set up an increase in passenger capacity - an issue opposed by all the neighboring communities for reasons of increased traffic as well as noise and air pollution. We here in the South Bay continue to ask why other regional airports are not asked to increase their capacity. Finally, the price tag (\$9 Billion plus?) is much too high. During these fiscally trying times, couldn't that money be better spent on something else?

Attach additional sheets if necessary. Thank you for your time, Andrew Leighton

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003



LAEDC

*Economic Vitality,
Trade & Jobs*

August 28, 2003

Jim Richie
Los Angeles World Airports
One World Way
Box 92216
Los Angeles, CA 90009-2216

Re: LAX Master Plan

Dear Jim:

Thank you for participating so actively in the LAEDC Critical Infrastructure Council's efforts to develop a position on the LAX Master Plan. As you know, the Council is most concerned about the region's need to meet its growing demand for airport capacity and the functionality and ease of use of its airports for travelers and cargo. Based upon the presentation by Ted Stein, President of the LAWA Airport Commission, we would appreciate your response to the following questions:

- 1) What flexibility exists in Alternative D to enable LAX to grow beyond 78 MAP if other regional airports prove unable to satisfy future demand for growth?
- 2) Why does Alternative D contemplate the Ground Transportation Center, Automated People Mover and new Central Terminal Area as Phase I changes rather than projects to be considered in later phases depending on the development of security technologies and TSA procedures?
- 3) Why does Alternative D postpone the enhancement of Bradiey Terminal upgrades to later phases considering the age and growing obsolescence of the facility for international passengers?
- 4) Why wouldn't Lot C be a better location for a Ground Transportation Center considering the following:
 - a. A location closer to LAX reduces the "security envelope" to be protected?

444 S. Flower St.
34th Floor
Los Angeles, CA

90071
t: 213.622.4300
f: 213.622.7100

www.laedc.org



WORLD TRADE CENTER ASSOCIATION
LOS ANGELES - LONG BEACH

350 South Figueroa St., Suite 172
Los Angeles, California 90071 USA
t: 213.680.1888 f: 213.680.1878
info@wtcanet.org

One World Trade Center, Suite 295
Long Beach, California 90831 USA
t: 562.495.7070 f: 562.495.7071
info@wtcanet.org

SPC00154

- b. Reduction in distance and cost for the Automated People Mover System and any associated baggage transport system?
 - c. Improved access to the GTC from already existing roadways and more distance from the 405 and 105 freeways to avoid "stack-up" of vehicles?
 - d. The ability to better stage the construction and development of the GTC.
 - e. The option of using Manchester Square as the consolidated rental car facility.
- 5) What are the estimated annual operating cost increases for LAX under Alternative D?
 - 6) In order to finance Alternative D, what will be the increase in landing fees for LAX?
 - 7) If there will be three trains for the APM, how many tracks will be used?
 - 8) Will passengers be able to check in baggage at the GTC so they don't have to carry it on the APM?
 - 9) Will passengers be able to check in for flights at the GTC?
 - 10) What assumptions limit Flyaway Service to 5 MAP at LAX?

We plan to finalize our position on the LAX Master Plan in the next few weeks and would appreciate your response.

Sincerely,



Viggo Butler
Chairman, Critical Infrastructure Council

cc: Ted Stein, President
LAWA

Eric D. Everett

9602 2nd Avenue, Inglewood, CA 90305

August 23, 2003

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

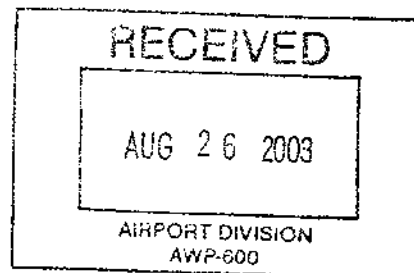
Dear Sir:

I am a stakeholder in the LAX plan for expansion. I need the LAX Master Plan Notification of Availability (NOA) mailed to me. I seem to have misplaced the one we received a few weeks ago. Thank you for your help.

Sincerely,



Eric D. Everett
(323) 779-7149



SPC00155



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print

Name (First, MI, Last, or Organization): <u>Gordon Michael Mego</u>		Date: <u>8-23-03</u>
Address: <u>4535 W. 141st St.</u>		
City: <u>Hawthorne</u>	State: <u>Calif.</u>	Zip Code: <u>90250-6927</u>

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):

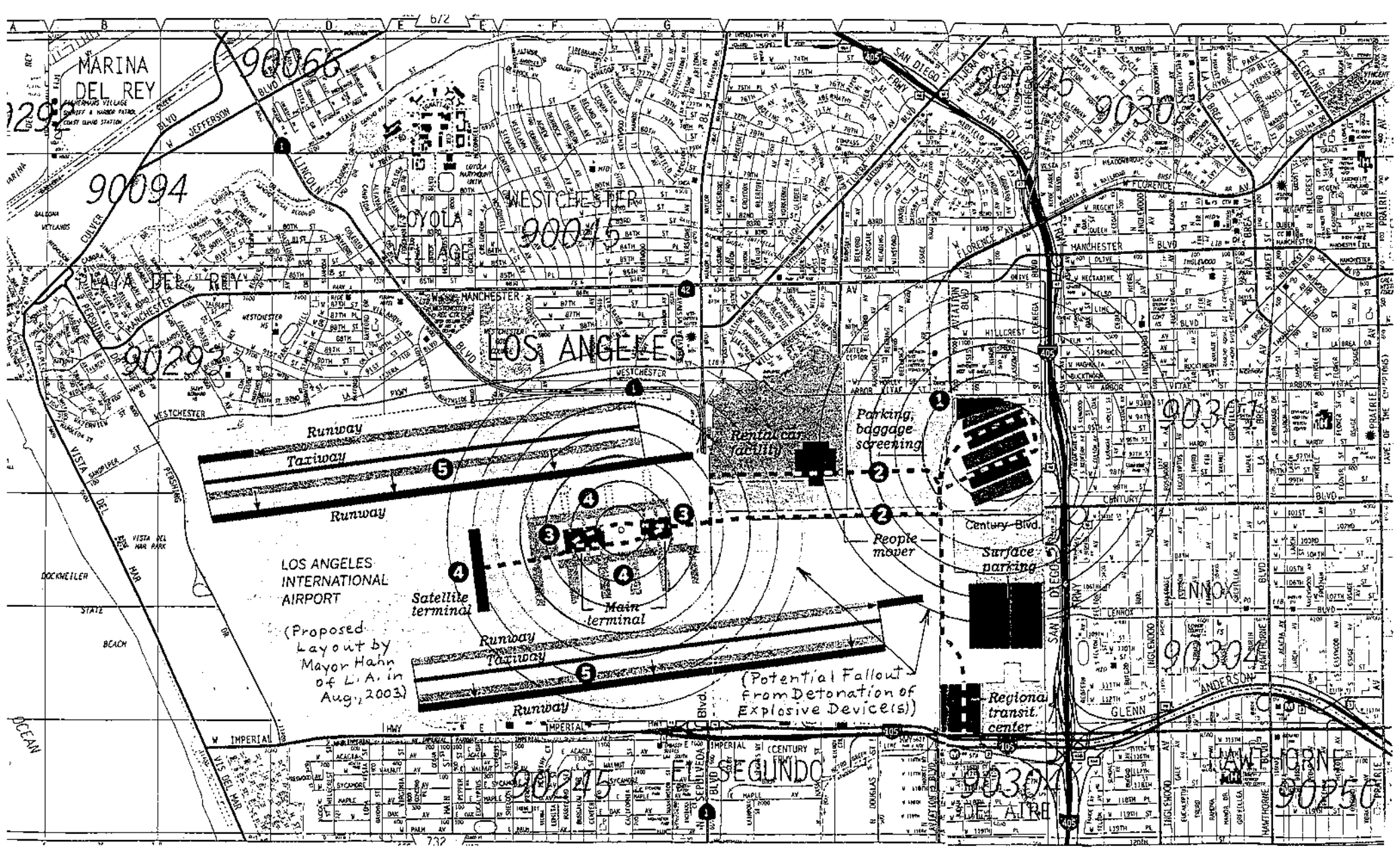
Number: Title:

Comments: See "Attachments"

- 1) Copy of speech on LAX Airport, dated Apr. 14, 2003, that I gave to the Board of Commissioners of LAWA on May 6, 2003.
- 2) Maps of LAX Airport on 8 1/2" x 14" sheet which show the current layout and the Hahn proposal that depicts the potential fallout of an explosion in the 'Manchester Square Area'.
- 3) L.A. Times Newspaper Article dated August 10, 2003 and entitled "Price of LAX Project Could Jump"
- 4) L.A. Times Newspaper article dated August 20, 2003 and entitled "Hahn's LAX Plan Draws County Fire"

Office Use Only

Attach additional sheets if necessary.



SPC00156

Hahn's LAX Plan Draws County Fire

Supervisors question if the proposal would discourage growth, as promised by the mayor.

By JENNIFER OLDHAM
Times Staff Writer 8-20-03

Los Angeles County lawmakers attacked Mayor James K. Hahn's \$9-billion modernization plan for Los Angeles International Airport on Tuesday, questioning whether the proposal would limit growth at the aging facility as the mayor promises, and criticizing an environmental study of the plan that was released last month.

Despite a plea from the city's airport agency to discuss the item at a later meeting, county supervisors voted unanimously to submit their critical comments at a public hearing Saturday.

The move is a setback for Hahn, who has worked feverishly over the last year to build political support for his LAX plan, which he says promotes security and safety over expansion. An airport expansion plan favored by his predecessor, Mayor Richard Riordan, ultimately was shelved because of intense opposition from residents, the county and others.

In addition, county officials will have an opportunity to weigh in on Hahn's plan through the county's Planning Commission, which will determine whether the airport renovation is consistent with the county's land-use plan.

If the commission finds that Hahn's plan doesn't measure up, a super-majority of the City Council would be required to approve the proposal — 10 votes rather than the eight required otherwise.

Hahn's plan would dramatically rework the airport by demolishing Terminals 1, 2 and 3, knocking down parking structures in the central terminal area and replacing them with a new terminal complex, and moving the airport's two sets of parallel runways farther apart.

On Tuesday, county supervisors reviewed a four-page report drafted by Andy Lazzaretto, whose firm, A.C. Lazzaretto & Associates, was hired by the county last month to analyze the plan.

The report, which will be presented as the county's position on Hahn's LAX plan, said the mayor's proposal may not constrain growth at LAX or make the airport more secure.

Hahn's plan misrepresents the number of gates that would be available for aircraft, the report found, and would redesign gates to allow more capacity and improve the airfield to accommodate larger aircraft. All those changes would allow LAX to serve more passengers, the report said. Hahn has said that by limiting the number of gates at LAX he could persuade airlines to take flights to other airports in the region.

County supervisors said the mayor's plan to build a passenger check-in center near the San

Diego Freeway would allow the airport to accommodate double the number of travelers that it does today.

"They're laying the groundwork for a massive expansion of this airport," said Supervisor Zev Yaroslavsky. "I said to the mayor a few weeks ago that if you want to sell airport growth, go out and sell it like Riordan did."

The county report also contended that the environmental study for Hahn's plan does not adequately address how the project would affect minority residents, relies on outdated statistics and fails to adequately address increased traffic projected for surrounding neighborhoods.

Hahn signed a pledge during his campaign in 2001 promising to discourage growth at LAX past 78 million travelers a year. The airport served 56 million passengers last year, about 40% more than it was designed to handle. The last major overhaul of the airport occurred in preparation for the 1984 Olympics.

On Tuesday, supervisors reacted angrily to an offer by Carlyle Hall, an attorney who represents the city's airport agency, to meet with county officials to discuss their comments before Lazzaretto submits them to the city.

"We think A.C. made a number of comments that could benefit from additional time," Hall said. "There are a number of factual inaccuracies. We would like to have our consultants sit down with your consultants to discuss this further."

Yaroslavsky declined the invitation.

"I don't see the security aspect of this," he said. "I don't want to be convinced privately in my office. I want you to come out publicly and tell me."

Lazzaretto's report misstates the number of gates available at the airport today, Hall said. There are 163 gates at LAX, not the 153 listed in the report, he added. The consultant's report said that more than 200 gates would be available under Hahn's plan, but Hall said that is not true.

"The airlines are looking at this plan and complaining because it would limit growth," Hall said after the meeting. "There's a big disconnect there with what Zev says."

Costs of Remodeling LAX May Exceed \$9-Billion Price Tag

LAT 8-10-03 Manchester Square

[LAX, from Page B1]

6,000 people out of a Westchester neighborhood where Hahn wants to build a new passenger check-in center. Nor does the proposal include the financing costs of the mayor's LAX project, such as interest and insurance on revenue bonds.

Hahn is already facing skepticism from airlines, residents and business groups that his plan is necessary to make LAX more secure and efficient. The disclosure that the \$9-billion estimate may not represent the true cost of the plan is adding to their concerns.

"The number is already so huge that the airlines are unbelievably concerned," said Kelley Brown, an airline consultant. "The airlines also know in situations like this at airports it's not unusual for costs to rise as time goes on."

Airline representatives cite the nation's largest public works project to date — Boston's Big Dig, which is reworking a congested roadway system by placing most of it underground. Costs for that project have escalated from \$10.8 billion in 1997 to \$14.6 billion today — with mitigation measures taking up one-fourth of the project's budget, according to the Massachusetts Turnpike Authority.

Mitigation measures included in the environmental study for Hahn's plan range from reconfiguring roads and intersections around the airport, including constructing a new off-ramp and freeway interchange, to building new park-and-ride centers, conducting noise studies and relocating endangered species.

Estimating the cost of such projects is difficult because the number of mitigation measures could grow, or they could be refined or taken out of Hahn's plan before the final environmental study is released next year, airport consultants said.

"In a situation like this you have five live alternatives and four different mitigation programs," said Anthony Skidmore, vice president at CDM, a firm hired by the city to draft the envi-

ronmental studies. "In some ways they're notably different, so it's often premature to try to do costs for all those mitigation measures."

Hahn's plan would dramatically rework LAX by demolishing Terminals 1, 2 and 3; knocking down parking garages in the current central terminal area; building a passenger check-in center about a mile east of the airport; and moving sets of parallel runways on either side of the airfield farther apart. The mayor released the environmental study for his plan on July 9 and will hold hearings on the document starting Monday.

To save time and money, Hahn chose to add his LAX plan to the environmental studies completed for an airport expansion project proposed by his predecessor, Mayor Richard Riordan.

Riordan wasn't required to include as many mitigation measures in his three expansion alternatives because central elements of his plans, such as a road encircling the airport and a new terminal to the west near the El Segundo dunes, would disperse traffic, pollution and noise. Consequently, the \$12-billion estimate for the expansion alternative favored by Riordan, known as "Alternative C," already included most mitigation costs. Manchester Square

One of the biggest expenses not reflected in environmental studies for Hahn's plan is completion of a voluntary program to buy properties in a Westchester neighborhood near LAX. The mayor hopes to build a check-in center there, but must first move 6,000 homeowners and renters and demolish their homes.

This process is likely to cost at least \$300 million, according to estimates provided by the city's airport agency. The city relies on federal grants to pay for the acquisitions, but that money could be used to complete other airport projects, such as a request by carriers to modernize the Tom Bradley International Terminal.

Economists who follow air-

port expansion projects say it's also important to look for unintended costs that may result from Hahn's LAX plan, such as tax revenue that would be lost after the city buys 77 acres of commercial property near the airport. The acquisition of 26 parcels is necessary in part to obtain rights of way for a rental car facility and a people mover, officials say.

A parking lot at Sepulveda and Century boulevards is included in that proposal. The lot generated \$538,000 in tax revenues in 2002, according to Los Angeles County tax records.

Hahn's environmental study also features several proposals to reroute traffic around LAX that would surely carry a high price tag, a Times review of the 11-volume document found. These include an elevated ramp from the Century Freeway near Aviation Boulevard to a check-in center at Manchester Square, and a new interchange off the San Diego Freeway at Lennox Boulevard. To obtain the right of way to build the interchange, the city would need to purchase nine to 12 homes and four to seven businesses, planners said.

Freeway interchanges can cost \$50 million to \$80 million, said Hasan Ikhata, the Southern California Assn. of Government's director of transportation planning.

If Hahn's LAX plan goes forward, these road improvements might qualify for federal or state grants, said Patrick Tomcheck, a transportation engineer with the city agency that operates LAX.

The city also hopes to ease traffic around LAX by persuading passengers to take buses to the airport from FlyAway lots. Hahn's study proposes that the lots be built in Long Beach, Inglewood, the San Fernando Valley, at a proposed Norwalk/Santa Fe Springs transportation center and at Union Station.

No cost estimates were provided for those park-and-ride lots, but the city would be required in most cases to purchase property and design and construct a terminal and parking fa-

cilities.

In comparison, design and construction costs to remodel the existing Van Nuys FlyAway — a project that started earlier this year and is not included in Hahn's plan — are expected to run \$50 million, according to airport documents.

Another major issue is airport noise. To offset additional aircraft noise, the city proposes prohibiting airlines from taking off to the east between midnight and 6:30 a.m. To do so, the city must conduct a study that proves such a policy would not economically harm airlines that fly during these hours.

The Federal Aviation Administration must also approve the change. Because of the time and expense involved, these studies are fairly rare. A similar study to limit nighttime flights at Burbank Airport has cost \$3 million to date with one phase to go. Noise and pollution also are expected to affect wildlife in the area.

The mayor has said his modernization plan is the most environmentally friendly of the five alternatives. But his proposal still affects wildlife, and the environmental study proposes relocating species around the airport, including jackrabbits, spade-footed toads and fairy shrimp. The shrimp lie dormant in dirt on the southwestern side of the airport. To offset the destruction of habitat, the city proposes ripping up streets on 470 acres above Dockweiler State Beach. The city demolished nearly 800 homes on these dunes in the 1960s and 1970s, leaving the broken streets. Demolition costs are not provided in the environmental study.

Building new vernal pools to provide a home for the spade-footed toads and the shrimp could start at \$40,000 an acre, said Travis Longcore, science director for the Urban Wildlands Group, a Los Angeles-based conservation organization, who has studied wildlife living near LAX.

"Compared to building a parking lot," he said, "this is cheap."

Price of LAX Project Could Jump

Hahn's \$9-billion proposal to expand airport does not include costs of much of the work required to complete construction.

By JENNIFER OLDHAM
Times Staff Writer 8-10-03

The sea monkeys that call Los Angeles International Airport home need Mayor James K. Hahn's \$9-billion modernization plan to survive.

That's the argument made on Page 29, in Appendix H, Volume 3 of the 5,323-page environmental study for the mayor's proposal to dramatically rework the aging airport. Just how much money it would take to save the microscopic invertebrates — long a fixture in comic book ads and tiny plastic tanks on kids' dressers — is unclear.

What is clear is that relocating the sea monkeys, also known as Riverside fairy shrimp, an endangered species, to other quarters is just one of dozens of projects that Hahn proposes in an effort to compensate for the increased traffic, noise and pollution that would result from overhauling LAX.

These mitigation measures, required by state and federal law to lessen the effects of construction, would probably add significantly to the project's \$9-billion price tag. But their costs are absent from the 11-volume environmental study.

The \$9-billion estimate also does not include the cost of buying the remaining houses and apartment buildings and moving

[See LAX, Page B14]

Chester Square

LAX Airport

Hello! My name is Gordon Michael Megó, ~~my~~ my address is 4535 W. 141st Street, ^{and my phone # is (310) 675-8674.} I am a native and resident of Hawthorne and the South Bay region since Oct. 8, 1952. And I am a former aerospace engineer who has worked on the F-18 and the B-2 aircraft at Northrop Corp., the B-1 bomber at Rockwell Intl., and the C-17 transport at McDonnell Douglas from the mid 1970's to the late 1980's.

I grew up in an era when propeller-driven airplanes were a common sight and sound. I flew aboard ~~an air~~ ^{on air} lines for the first time in the ^{late} 1950s with TWA on a Lockheed Constellation plane that had a triple-tail design and small air cond vents by the windows. It was ~~an interesting~~ ^{an interesting} experience on flights to and from New York where the sister of my mother had lived in Brooklyn since the 1930's.

My father worked for American Airlines during the 1950's as a Senior and then Lead Mechanic who always maintained the aircraft in nearly perfect flying condition.

On some occasions, I had the opportunity to see ^{the} behind-the-scenes activities at the airport, including visits to the old control tower building with its Spanish-style architecture.

Apr. 14, 2003

Gordon Michael Megó
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

LAX Airport

Over the course of decades, from the 1960's onward, I had the pleasure of flying aboard various aircraft with different airlines. Of particular enjoyment was my trip to Washington, D.C. where I stayed for eight days ^{in July of 1983}, including ^{the} Washington Hotel near the White House, ~~and~~ visited many places around the historic capital, and rode on their fantastic Metro Rail system. As the Los Angeles region, and especially the South Bay area, increased in residential population and with various businesses, LAX Airport expanded the size and scope of its operations accordingly to meet the demands of the growing region of So. Calif.

By the year 2000, LAX Airport had reached a level of 67 million passengers who traveled to various destinations in the United States and around the world. While the annual capacity for passengers at the facility is currently 78 million, there are proposals to increase the capacity to as much as 120 million.

After the Sept. 11, 2001 tragedies in New York, Washington, D.C., Pennsylvania, and elsewhere, the number of people who flew aboard commercial airlines was reduced by 10% to 25% depending on the airline company. At LAX Airport, the annual level is down by 10%-15% or approximately 52 million to 55 million passengers from the 2001 rate of 61 million.

Apr. 14, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

LAX Airport

Even at the current levels of airline flights, the residents of the South Bay area in Los Angeles County, and especially in the City of Hawthorne, are experiencing and enduring significant amounts of air pollution, loud noise, road traffic, population density, etc. which affect the quality of life for all the people of the region.

Of particular annoyance is the roaring sounds of engines from low-flying commercial aircraft which occasionally traverse the skies of the South Bay area in an effort to shorten their travel from LAX Airport. Pilots must be required to follow certain protocols with respect to flight paths, altitudes, etc. over Hawthorne and other surrounding cities. Violations of these procedures should result in financial penalties and/or restricted access to LAX Airport.

There have been various proposals to expand LAX Airport which would increase the annual level of passengers not only from the record high of 67 million to a maximum of 78 million, but even to as much as 120 million. The proposals will essentially require moderate to major reconstruction of the airport facility and significant destruction of residential neighborhoods in the area.

APR. 14, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

LAX Airport

The Manchester Square area of Los Angeles, which is located between Century Blvd. and Arbor Vitae, and between La Cienega and Aviation Blvds., is a residential neighborhood that was mainly comprised of single-family homes, which date back to the 1940's, and even included an elementary school which served the surrounding community.

Los Angeles World Airports (LAWA) is currently in the process of acquiring property and demolishing buildings in the Manchester Square area in order to build a passenger, check-in facility. IF LAWA achieves their goal of owning every property in the ^{Manchester Square} area, ~~it~~ will cease to exist as a residential neighborhood in the Los Angeles region where there is a shortage of housing.

Since LAWA has not approved of any expansion plan for LAX Airport, it should cease further acquisition of property in the Manchester Square area, resale purchased property to residential homeowners, insulate homes that are currently available or eventually built, and reopen the public elementary and/or middle schools for students.

According to a proposal by Mayor James Hahn of Los Angeles, there would be a major transformation of LAX Airport. It would involve tearing down some terminal buildings,

~~April 14, 2003~~
April 14, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

LAX Airport

Apr. 14, 2003

and parking structures, building a remote ~~AP~~ passenger check-in facility in ~~the Manchester Square area of L.A.~~ ^{the Manchester Square area of L.A.}, closing off the two-level inner roadway to the general public, building a "People Mover" system to connect the remote facility with the main part of the airport, moving and adding taxiways and runways, and other changes. The price tag for this enormous project is approximately \$10 billion that will surely increase during the years ahead.

As with previous efforts to expand or renovate LAX Airport, the new proposal is not an acceptable solution for the South Bay region of Los Angeles County.

The implementation of any such changes would lead to increased levels of possible terrorism and other criminal activity, of ~~invasive~~ security measures, of business slowdowns and failures, of unemployed people, of various taxes, fees, etc., of vehicle traffic on streets and highways, of loud noise from more aircraft, of air, land, and water pollution, and of population in the region.

The establishment of a remote, check-in facility for airport passengers would greatly expand the overall size of LAX that will stretch east to the 405 Fwy and substantially increase the residential and business areas that could be affected by a major terrorist act, especially ~~from~~ ^{from} a nuclear weapon or conventional missile.

Gordon Michael Meago
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

LAX Airport

Apr. 14, 2003

Without even considering the latest proposals for change at LAX, the current security environment creates the feeling of an armed encampment. The intrusive and invasive measures treat people in an undignified manner and abusive ways as if they were criminals.

There is something quite wrong when elderly folks, soccer moms, various celebrities, government officials, and other innocent people are forced to endure long delays, physical searches, shoe scans, identity verification, personal background checks, luggage inspections (some without the consent and presence of the owner), surveillance cameras, traffic and parking difficulties, and other situations.

Until LAWA implements an approach to security that is based upon reasonable suspicion and common sense, there will be an increasing number of people who will not travel aboard commercial airlines or spend money at businesses within the airport and around the region.

As if the effects of Sept. 11, 2001 were not bad enough for the U.S. economy, the current activity at and proposed changes for LAX will cause more financial problems to the airline industry, retail stores, hotels, restaurants and other businesses who will reduce operations or file bankruptcy which means higher unemployment, lower tax revenue, etc.

Gordon Michael Meggo
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

LAX Airport

In order to facilitate the smooth flow of people into and out of LAX Airport, it is absolutely necessary that the double-decker roadway and the parking structures within the facility must remain open for use by the general public who want to drop off or pick up passengers and luggage at the terminal gates, sidewalks, or parking areas.

Further, the Green Line of the Metro Rail system must be extended into LAX Airport where the passenger trains would travel around the inner perimeter of the facility and stop in front of each airline terminal. This will provide an alternative mode of transportation from other parts of California which will reduce highway traffic, improve air quality, provide convenience, and save money for people in the long term.

Efforts must be pursued to create a regional system that will handle the significant number of airline passengers in Southern California, particularly in Los Angeles and Orange Counties. LAX Airport must not be forced to accommodate the increased loads from other areas.

Therefore, LAX Airport must not be expanded beyond its current capacity of 78 million passengers and preferably should be limited to 67 million passengers, which is a peak annual level in year 2000.

Apr. 14, 2003

Gordon Michael Mege
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

LAX Airport

The current layout of LAX Airport must be limited to only necessary improvements of the facility within its current land boundaries for the convenience of the passengers and the efficiency of airport operations.

In conclusion, I am hopeful that my comments about LAX Airport will resonate with the board members of Los Angeles World Airports. LAWA has the difficult task of upgrading the existing airport and handling the various criminal elements while trying to promote the commercial aspects of aviation travel. But it is incumbent upon the board members of LAWA to pursue courses of action that will improve the quality of life and the economic vitality of the region for the vast majority of the people without spending enormous sums of money on unnecessary projects and sacrificing our personal freedoms as stated in the U. S. Constitution and in the Bill of Rights.

Apr. 14, 2003

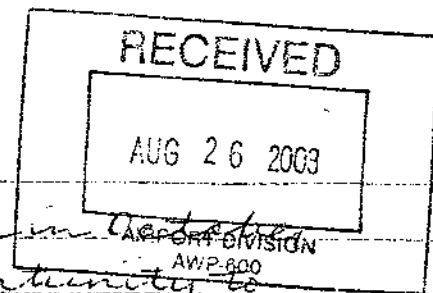
Gordon Michael Megoo
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

Gordon Michael Megoo

4535 W. 141st St.
Hawthorne, Calif.
90250-6927
(310) 675-8674



David Keseller, AICP
U.S. Dept. of Transportation
Federal Aviation Admin.



August 25, 2003

As a person who was born in ^{California} of 1952, I have had the opportunity to see the airport of Los Angeles evolve into LAX Airport. It has changed and grown over the decades to become one of the top five major airports in the nation.

I have flown on many aircraft to various destinations over the decades that include my first flight aboard TWA's Lockheed Constellations in the late 1950's.

When my father worked for American Airlines in the 1950's as a senior and lead mechanic, I was allowed to see behind-the-scenes operations at the airport.

My interest in airplanes eventually lead me to become an aerospace engineer who has worked for various defense-related businesses, including Rockwell, Intl. in the Weapons Systems Div. for the B-1 Bomber during the 1980's.

LAX Airport certainly needs changes in order to modernize the facility. It is necessary to improve 1) convenience, that is make it more user friendly, for passengers, visitors, etc., 2) efficiency of operations that reduce time involved from arrival to departure for passengers, visitors, and others, 3) level of safety and security for people in and around the area, ~~and~~ 4) amount of permanent jobs from businesses in the airport, nearby areas, and L.A. region, and 5) the quality of life for people from air and noise pollution, heavy traffic, etc.

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927

August 25, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927

Unfortunately, the earlier plans by L.A. Mayor Richard Riordan would not and the current proposals by Mayor James Hahn will not achieve any of the objectives, but will actually make everything, to one degree or another, worse than before at LAX Airport while costing at least \$10 billion.

While the downturn in the U.S. economy has affected the number of passengers who take flights to and from LAX Airport, the level of security is another factor that has impacted the yearly amount of people traveling, which is now about 52 million.

The implementation of the Ground Transportation Center in what is now a residential neighborhood of Manchester Square, of the Baggage Screening Center in place of the parking structures in the Central Terminal area, and the people mover rail system that will connect the two sections will certainly slow down the overall operations of the airport, will definitely increase the amount of time and the level of inconvenience for people at the airport, and will surely expand the areas where more lives will be affected by any terrorist attack.

In fact, if an explosive device(s) were to be detonated in the Ground Transportation Center, literally thousands of people could be killed or injured not only there, but also in the surrounding residential areas that are located north and east of it, in

August 25, 2003

the nearby commercial areas which include large hotels, and along the 405 freeway which is a heavily traveled route that may be shut down.

Curiously, the Los Angeles World Airports (LAWA) has been purchasing homes from property owners in the Manchester Square neighborhood during the past six years with the goal of owning all the property in the area. The question is how can they legally expend public funds to buy these or any other properties for some unauthorized future project? They have never received approval from residents and businesses in the area nor from the various governing bodies at the local and national levels.

Also, Mayor Hahn is trying to seek approval of his LAX Airport proposal based upon an outdated Environmental Impact Report (EIR) that was commissioned by Mayor Riordan for earlier renovation proposals. He has chosen not to initiate a new Environmental Impact Study (EIS) as required by law for his proposed changes for LAX Airport.

On May 15, 2003, the Rand Institute of Santa Monica, which is a highly regarded private research group, issued its report on Mayor Hahn's proposal for LAX Airport. It was critical of nearly every aspect of the proposed renovation for \$10 billion.

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927

August 25, 2003

In their analysis, they concluded that the Hahn proposal would not achieve its stated goals and would negatively impact the region at an enormous cost to taxpayers, businesses, etc. and that the safety and security of the people at LAX Airport could be easily improved with simple, common-sense upgrades at a small fraction of the \$10 billion.

On Aug. 19, 2003, A.C. Lazzaretto & Assoc. issued their report that was commissioned by the L.A. County Board of Supervisors on the Hahn proposal for LAX Airport.

It was critical about issues of security, environment, growth, etc. that affect the quality of life for people.

The viability of the airline industry in the United States is questionable considering the filings for bankruptcy by various air carriers which have lost billions of dollars in recent years. Where does Hahn suppose that they find the money to renovate LAX Airport? What does Hahn think will happen to them while they are subjected to constant disruption of their operations during the 11-year construction period? Obviously, there will be airlines that will simply go out of business! The economic fallout for the L.A. region, the state of California, and the rest of the nation would be significant.

Gordon Michael Mege
4535 W. 141st St.
Hawthorne, CA 90250-6927

August 25, 2003

LAX Airport should not be expected to handle an increasing number of passengers from other parts of Los Angeles and surrounding counties. There must be a regional approach that utilizes the large airports to the maximum extent possible with approval of residents, businesses, and others in the affected communities.

As part of the solution to traffic congestion in Los Angeles County, LAX could serve as a model for a futuristic airport with diversity in transportation which allows people the option of using private vehicles, shuttle buses, railroad trains, etc. to reach any of the airline terminals.

Of particular importance, it will be necessary to extend the Green Line of the Metro Rail into the central terminal area of LAX Airport along the inner, double-deck roadway. At some point in time, there could be a connection of a rail line that will travel north to West L.A., Santa Monica, etc.

During the past few years, the U.S. economy has been in a downturn with significant losses in employment among the various sectors of business. Therefore, it is understandable that labor unions are seeking work for their members who can't afford to be unemployed.

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927

August 25, 2003

But I would ask the leaders of the various unions in California to withhold or to withdraw their support for the Hahn proposal for LAX Airport. In doing so, they can help create a more realistic and viable plan that a majority of the people will approve.

Under any new proposal for LAX Airport, it is imperative that we retain the airline terminals at their present locations, the parking structures in the central terminal areas, and the double-deck roadway for private vehicles, ~~and~~ that we limit any changes to the facility to necessary improvements for the convenience and the safety of the passengers, visitors, and others as well as the efficiency of operations at the airport, and that we prevent the expansion of LAX into any unused or new areas.

In conclusion, I am hopeful that my comments about LAX Airport will resonate with those individuals who are considering any proposed changes to the facility. It is incumbent upon the governing bodies to pursue courses of action that will improve the quality of life and the economic vitality of the region for the vast majority of people without spending enormous sums of money on unnecessary projects.

Gordon Michael Mego

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927

Michael S. Klein and Julie Janower Klein
12424 Wilshire Boulevard, # 1450
Los Angeles, California 90025

August 19, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

RE: Mayor Hahn's LAX Master Plan Proposal

Dear Mr. Ritchie,

We write in opposition to Mayor Hahn's proposed LAX Master Plan Alternative.

Although his proposal was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

First and foremost, the recent Rand Corporation study indicated that congregating all commercial passengers in one location increases the risk and will probably result in harm to a greater number of people in the event of a terrorist attack.

Also, the added inconvenience of additional time for screening and transportation to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. These general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation airport in the area.

In general, we oppose this proposal and urge that it not proceed.

In addition, please encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

Very truly yours,



Michael S. Klein



Julie Janower Klein

SPC00158

Creating jobs is a good thing, and keeping ALL of our U.S. airports modern and maintained is certainly a good thing.

But I have to say NO, emphatically, to the mayor's Alternative "d".

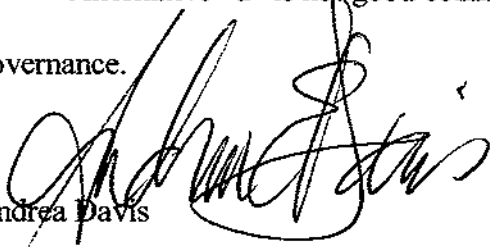
Mayor Hahn's PR machine keeps repeating that the 9 billion dollar plus LAX "Alternative d" will be safer and more secure. Experts from the Rand Corporation, in a study requested by Congresswoman Jane Harman, disagree. After studying the plan they found that the airport would, in fact, be less safe and less secure than the existing LAX.

In fact, the study concluded, modernization could be accomplished at a much lower cost than alternative d.

Concentrating all the travelers into one remote check-in just creates an even more attractive target for any terrorist activities. We the residents that surround LAX, we the travelers, we ALL will be put at tremendous risk if we allow Mayor Hahn to create one giant bull's-eye at what once was Manchester Square.

Not safer, nor more secure, certainly not more convenient. and unnecessarily expensive.

Alternative "d" is not good community planning, Mr. Mayor, and it's not good governance.



Andrea Davis

7352 Vista del Mar Lane
Playa del Rey, CA 90293

310-823-8927

SPC00159

As your former airport commissioner, you told me, "We need a \$3 FLYAWAY to LAX just like what the Valley has!"

^{also} You asked, "Why doesn't the GREEN LINE go to LAX?" ^{make it} It would be so easy to get to work.

NOW the FLYAWAY IS REALLY GOING TO HAPPEN!But, how about the Green Line?

Instead of Alternative D, extend the GREEN LINE north 2.5 miles up Aviation, turning left on 98th St., ^{then} and it goes right to LAX at Sepulveda. Combine this change with ^a the north runway extension over Pershing Drive, not only is their more land space available for LAX passenger dispersion, but the 2 mile perimeter for shoulder firing missiles is also extended out over the ocean for shared protection by the Coast Guard. Construction on the runways should start NOW, not 2014.

~~Thus~~, Contrary to Alternative D, the plane & traffic noise levels and the congestion will be considerably less for the 105, 405, Sepulveda and Inglewood communities. There would be no need for a people mover; no disruption of Century Blvd. Manchester Squares would become a beautiful park for not only the tourists to enjoy, ^{but} also the community.

Seeing that there is to be a Green Line station, ^{planned} on Aviation, between 98th & Century, one could visualize the Retail/Recreation Center at this stop where tourists could enjoy a 6 hour layover. LAX could become the most tourist- friendly airport in the world, benefiting all Angelenos.

The GREEN LINE has the Right-of-Way to go north on Sepulveda Blvd., hooking up with Slauson for a **GREEN LINE LAX EXPRESS** to downtown Los Angeles Union Station. However, the community won't like the Green Line going through downtown Westchester & I certainly don't want it to go down MY street! THEN when I focus in on 20 years later, ^{I realize} I'll be almost 90. With just a short walk, I could go ANYWHERE. And best of all, our grandchildren will enjoy the positive environmental impact on our city.

~~Just as for the butterflies, there are inconveniences for EVERYONE.~~

Submitted by Former Airport Commission Mahala Walter 8/18/2003



Public Comments

Please print.

Name (First MI Last, or Organization): Rachael A. Manns		Date: 09/28/03
Address: 5426 W 94th Place Apt #6		
City: Los Angeles	State: California	Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: **Title:**

Comments:

Office Use Only

I am a resident occupying space which could possibly vacated. I'm concerned about relocation payments. I even have noticed that homes on my street have been destroyed, and eminent domain is prevailing. I do not want to be one of the last residents in my neighborhood to move. At what time/date can I move with relocation fees.

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
 U.S. Department of Transportation
 Federal Aviation Administration
 P.O. Box 92007
 Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
 City of Los Angeles
 Los Angeles World Airports
 LAX Master Plan Office
 P.O. Box 92216
 Los Angeles, CA 90009-2216



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): **BRIAN C. KOCH** Date: **10/1/03**

Address: **7641 BOEING AVE**

City: **LOS ANGELES** State: **CA** Zip Code: **90045**

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

Comments:

As a homeowner in the Westchester community, I would like to register my strong concerns with Alternative D. While modernization and security are important, this plan doesn't improve either enough to justify a \$9B price tag, 12 years of construction-related impacts to our community, and loss of proposed open space.

Specifically, Alternative D will:

- Require 12 years of construction, causing significant noise, traffic, and air quality impacts.
- Increase congestion on Sepulveda Blvd.
- The Ground Transportation Center (GTC) will remove a promised park at the site and become a vulnerable target, very near existing residential neighborhoods.
- Drain \$9B from the airlines and passengers to construct unneeded facilities.

There are viable proposals that are cheaper and less disruptive. The Mayor's Blue Ribbon Committee on Manchester Square has proposed a scaled down "Alternative E" plan and the L.A. Airline Airport Affairs Committee has proposed their own \$3B plan. Both these plans envision the Manchester Square area as a the previously-promised and much-needed community park, limit demolition of perfectly usable airport parking structures and garages, while improving security checkpoints and freeway access via the Green Line and freeway links. The large scale GTC is not required in either of these plans.

The NEPA/CEQA process has been valuable to identify these better alternatives. Now it is the City of Los Angeles' obligation to find a better plan than Alternative D.



Additional comments if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

As a homeowner in the Westchester community, I would like to register my strong concerns with Alternative D. While modernization and security are important, this plan doesn't improve either enough to justify a \$9B price tag, 12 years of construction-related impacts to our community, and loss of proposed open space.

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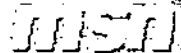
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The NEPA/CEQA process has been valuable to identify these better alternatives. Now it is the City of Los Angeles' obligation to find a better plan than Alternative D.

Speake 12

1.

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5 airports to avoid if you can

"LAX is oppressive," says one traveler. "I dread it," says another about Miami's airport. But New York's 3 are the worst. Here's why.

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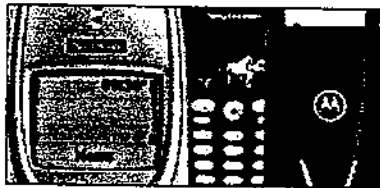
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5 best airports for layovers

Power Trip / Christopher Elliott



Airport layovers are as inevitable these days as cramped economy class seats, annoying security checkpoints and nitpicky ticket agents. But unlike the other realities of flying, you've often got a choice about the terminal you're trapped in.

Which airport should you pick? J.D. Power and Associates tried to answer that question a few years ago when it released its "inaugural" customer satisfaction study on U.S. airports. It named Orlando, Fla., the No. 1 airport, a choice I'm inclined to agree with. But then it offered a bizarre selection for runner-up: Las Vegas (Nev.) McCarran International Airport.

What's wrong with McCarran? Well, just walk through the doors and take a whiff. If you're a nonsmoker, you'll know what I mean. Even though passengers are only allowed to light up in limited smoking "areas" in the terminal, those places seem to be everywhere — in bars, waiting areas and almost anywhere there's a slot machine. I dread landing in Las Vegas.

My point is that customer satisfaction surveys seem to be just about as reliable as calling a few frequent travelers and asking them which airports they like. So that's what I decided to do.

Here are five favorite airports for layovers, as determined by my completely unscientific, random poll of road warriors. And by me.

1. Orlando International Airport (MCO).

I've been stuck at Orlando several times for up to a whole day, have flown into and out of every one of its terminals, and I think J.D. and company are right about this one. Orlando is the best airport in the United States for a layover, bar none. It's easy to find, parking isn't a problem and the terminals are incredibly user-friendly. Like some of the other highly-rated Florida airports, notably Tampa, Orlando

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- Travel

4.

5 best airports for layovers

1. **Orlando International Airport (MCO).**

Orlando is the best airport in the United States for a layover, bar none. It's easy to find, parking isn't a problem and the terminals are incredibly user-friendly.

2. **Denver International Airport (DEN).**

The layout of its terminals is highly intuitive and the food is palatable, which is more than I can say for a lot of other airports. Plus, it *looks* great. "It's the coolest-looking airport,"

3. **Chicago O'Hare International Airport (ORD).**

The international terminal is really a work of art "Best Airport in North America"

4. **Hartsfield Atlanta International Airport (ATL).**

1996 Summer Olympics, when this airport gave itself a much-needed facelift and opened a new international terminal.

5. **San Francisco International Airport (SFO).**

The new San Francisco International is much better than what it was, and it's still improving. I like to think of it as a work in progress, with coming-soon train service, redesigned road and new parking facilities, a vice president for a San Francisco computer company, counts the new SFO among his favorites.

5 airports to avoid if you can

1.

2.

3.

4. **Los Angeles International Airport (LAX).** Friends don't let friends fly into LAX. The circular design isn't well suited, a desperately needed expansion. "LAX is oppressive," "It's dingy and dilapidated, noisy and overcrowded, unfriendly and with poor facilities."

*Victims of
Environmental & Governmental Havoc
Caused by **LAX** Airport*

Since initiation of the LAX voluntary acquisition project in 1999, the Los Angeles World Airport has acquired private land for public use and subsequently demolished and moved acquired homes out of the noise-impacted area, leaving the remaining Manchester Square neighborhood "damaged" desecrated, unsafe and un-fit to live. Tall chain link fences have been erected throughout most parts of the neighborhood, enclosing old broken concrete foundations of former-standing homes and other vacant lots and abandoned houses. Today, Manchester Square is a mere skeleton of its former thriving community.

The residents of Manchester Square are denied the option for soundproofing and insulation of jet noise for this noise-mitigation project and are forced to indefinitely endure unsafe and unfit environmental conditions perpetuated by LAX, or concede to LAX's voluntary acquisition project which is wrought with violations of federal law for land acquisition and relocation of displaced persons including discrimination, coercion, and under-valued purchase offers for property. Resident appeals to the FAA in Washington D.C. have resulted in *lack of uniform* treatment of minority persons and a subjective disregard of FAA Guidelines for airport acquisition procedures prescribed in FAA Order 5100 37A.

Your review of the previously mailed (MARCH 07, 2003) document and exhibits and your subsequent attention to this matter will serve the mass of Californians victimized by LAX.

Respectfully Submitted, In Truth and Light

**C.L. Parrish,
Resident Homeowner / Advocate for Minority Persons**

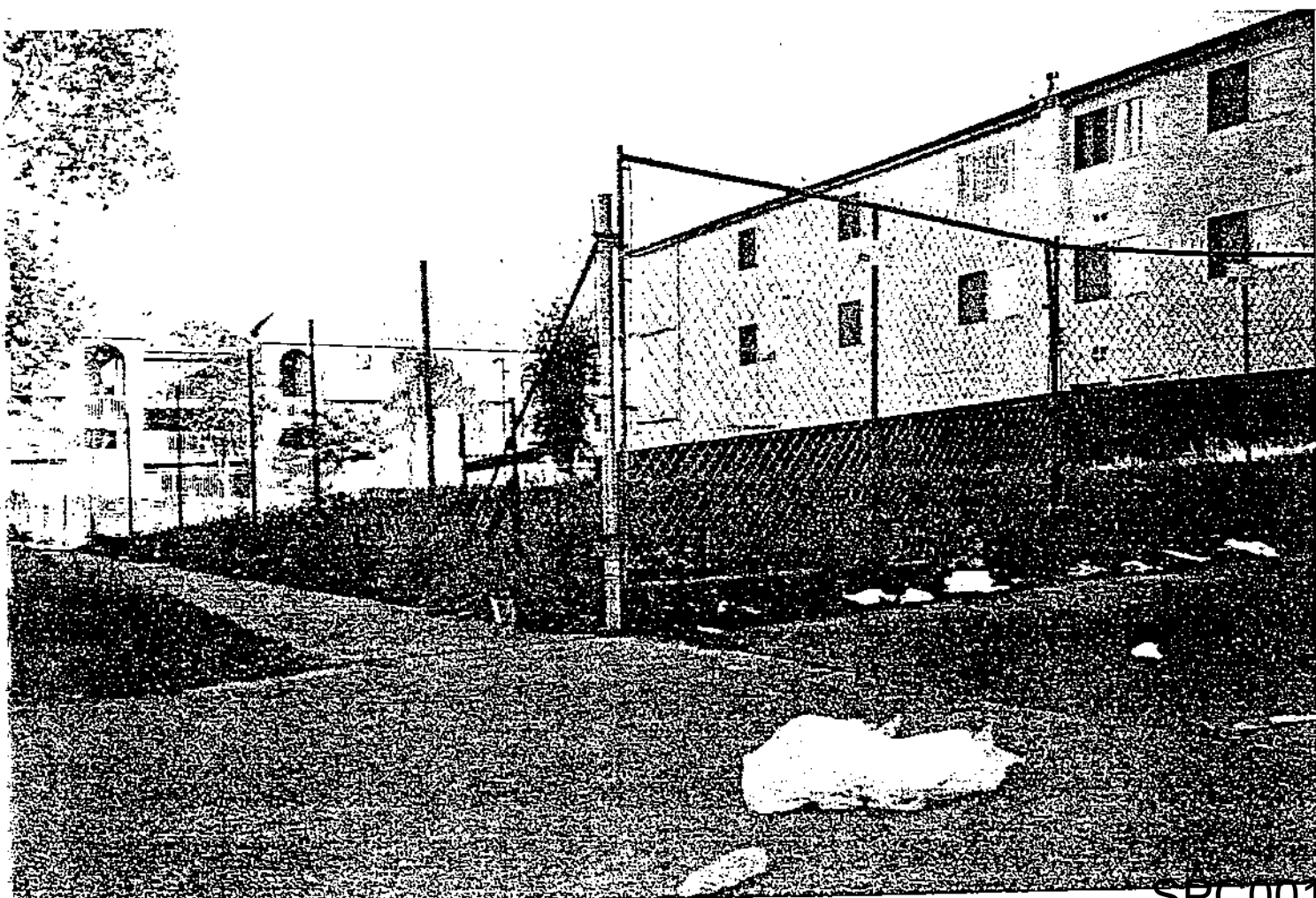
9606 Hindry Avenue, Los Angeles, California 90045, phone# 310-568-1497, parrishtrade@earthlink.net

**LAX
CHEATS
MANCHESTER SQUARE
HOMEOWNERS
IN LAND ACQUISITION**

**Petition to Audit
Prepared March 07, 2003**

Those Honorable Persons and Agencies Receiving this Petition

<p>The Honorable James K. Hahn, Mayor of Los Angeles</p>	<p>Dept. of Transportation Secretary The Honorable Norman Mineta</p>	<p>Dept. of Justice U.S. Attorney General The Honorable John Ashcroft</p>
<p>The Honorable Cindy Miscikowski Councilwoman, Eleventh District</p>	<p>Dept. of Transportation Inspector General The Honorable Kenneth Mead</p>	<p>LA City Attorney Rocky Delgadillo & John Werlich, Airport Div.</p>
<p>Councilwoman District 6 The Honorable Ruth Galanter</p>	<p>Chief of Staff Administrative Office The Honorable David Mandell</p>	<p>Attorney Berger and Norton Attn. Michael Berger</p>
<p>[Claims against the Gov.] City Clerk</p>	<p>Dept of Business, Transportation & Housing (BT&H) Honorable Maria Contreras-Sweet</p>	<p>Attorney Masry & Vititoe Attn. Ed Masry</p>
<p>FAA Civil Rights Judith Crosby</p> <p>Rick Etter FAA, Washington D.C. Federal Aviation Administration Airport Acquisition Specialist</p>	<p>Office of Planning and Research (OPR) Honorable Sandra Salazar-Thompson Project Director Environmental Justice</p>	<p>Attorney Law Office of Chris Sutton</p> <p>Case Investigations at Institute for Justice</p>
<p>Reginald K. Bessmer, FHWA, Washington D.C. Federal Highway Administration, Office of Real Estate Services</p>	<p>Office of Planning and Research (OPR) Honorable Terry Roberts State Clearinghouse Director</p>	<p>Media Channel 4 KNBC Manny Medrano</p>
<p>Ronald Fannin FHWA, Washington D.C. Federal Highway Administration, Office of Real Estate Services</p>	<p>Honorable Sonya K. Blake, Director Advocate for Small Business (ASB)</p>	<p>Newspaper LA Times Jennifer Oldham</p>
<p>Layne A. Patton Realty Specialist FHWA-CA Division</p>	<p>Theodore Stein, Jr. President, Airport Commission</p>	<p>Newspaper Daily Breeze Ian Gregor</p>
<p>Bob Swenson, W.D. Schock CO, Inc (LAWA)</p>	<p>Lydia Kennard Executive Director, Airport Commission</p>	<p>Newspaper Argonaut</p>
<p>Intissar Durham Program Director LAWA</p>	<p>Intissar Durham Program Director LAWA</p>	<p>Newspaper The New York Times Company</p>
<p>Lourdes Romero Property Manager II, LAWA</p>	<p>Lourdes Romero Property Manager II, LAWA</p>	<p>Newspaper The Washington Post</p>



SPC00164

“Coercive action was taken by LAX to intimidate homeowner to rescind advocacy of rights and representation to a willing minority individual”

LAX's full-fair-offer policy is an inflexible one-price procedure...

LAX denied homeowner a sound proofing option for this noise-mitigation project, exacting the only alternative: to participate in Acquisition, or to remain in a noise impacted neighborhood -which has been “damaged,” demolished, nearly abandoned of single-family homes and residents, unsafe and un-fit to live, due to the airport’s destructive actions in this Acquisition and Relocation project.

Los Angeles World Airport practiced unlawful subjective omissions and deviations from the Uniform Act using the term “voluntary” acquisition as their authority.

**IN THE STATE OF CALIFORNIA
CITY OF LOS ANGELES, COUNCIL DISTRICT 11**

**C. L. Parrish/
Manchester Square Resident and Homeowner,**

Petitioner,

v.

**Theodore Stein, Jr./
President, Airport Commission
Los Angeles World Airport,**

Respondent.

**PETITION FOR AUDIT OF "VOLUNTARY" ACQUISITION EXEMPTION AND
ACQUISITION AND RELOCATION PROCEDURES**

Petitioner, C.L. Parrish, pursuant to Public Law 91 -646 Uniform Relocation Assistance and Real Property Acquisition Policies, 49 CFR Part 24 and FAA Order 5100.37A, petitions Honorable persons and Agencies of California to take notice of, act against, and implement corrective action for a particular havoc of state and federal law and abuse of power committed by the Los Angeles World Airport (LAWA).

The Petition for Audit is a result of the Los Angeles World Airport's (LAWA) procedurally barred and unlawful practices and policies, inequitable treatment, coercive actions, and denied benefit entitlements causing material damage to residents, within the current acquisition of private property from specific and designated areas within the community of Westchester known as Manchester Square/Belford.

The purpose of the Petition for Audit is to determine whether LAWA violated state and federal law for conformity and compliance of Acquisition and Relocation procedures prescribed in the Uniform Act; whether LAWA failed to administer a *uniform* corrective action of a prevalent, known violation, and states:

1. Petitioner is a citizen of the State of California, a resident and homeowner in Los Angeles County, Council District 11, and currently resides in the neighborhood of Westchester known as Manchester Square. Respondent Theodore Stein, Jr., is President of the Board of Airport Commissioners that governs the operating department of the Los Angeles World Airport (LAWA) for the City of Los Angeles.

2. Respondent failed to strictly adhere to the Uniform Act procedures for acquisition and relocation, to such a degree that displaced persons are materially affected; accordingly, LAWA invalidates its certificate of assurances for compliance of the Uniform Act to FAA, thus requiring forfeit/withdraw of all future FAA funding or reimbursement for airport projects utilizing acquired land void of Uniform Act requirements, till such time corrective action is taken to correct known violations or until property owners are compensated for material damage.

3. Respondent's use of a "voluntary" acquisition exemption does *not* meet all federal regulation requirements.

4. Respondent practiced unlawful subjective omissions and deviations from the Uniform Act using the term "voluntary" as their authority.

5. Respondent's Noise mitigation project *does* need to acquire all, or substantially all designated residential property for redevelopment into noise compatible land uses to accomplish the noise mitigation project –not voluntary.

6. Respondent denied Petitioner a sound proofing option for this noise-mitigation project, exacting the only alternative for Petitioner: to participate in Acquisition, or to remain in a noise impacted neighborhood -which has been "damaged," demolished, nearly abandoned of single-family homes and residents, un-safe and un-fit to live, due to the airport's destructive actions in this Acquisition and Relocation project.

7. Respondent refused negotiated purchase; engaged in an inflexible one-price Offer policy

8. Respondent denied Petitioner's request to *uniformly* correct a prevalent violation of "timeliness of purchase offers" for an individual case involving a minority and project-wide; a correction that was granted to Petitioner upon appeal to the FAA in Washington D.C..

9. Issue. Respondent invoked coercive action in order to compel an agreement for the price to be paid for property in violation of Uniform Act and FAA Guidelines.

10. Issue. Respondent invoked coercive action to intimidate Petitioner to rescind advocacy of rights and representation of a willing minority individual in violation of Uniform Act and FAA Guidelines [S. R. Sribour case]

11. Petitioner's extraordinary measures and volumes of research and time necessary to become proficiently knowledgeable of Public Law 91 -646, Uniform Relocation Assistance and Real Property Acquisition Policies, federal regulations 49 CFR Part 24, FAA Order 5100.37A, in order to present technically sound case to FAA and LAWA and obtain only one correction of a basic acquisition procedure for "timeliness of purchase offers," which recouped monumental amounts of material damage, is incomprehensible, unorthodox, and nearly unattainable by most residents.

12. Respondent unlawfully charged specific "Close of escrow" fees to displaced persons, despite technical merit evaluation by FAA to reconsider practice.

13. Petitioner is alleging specific and unlawful procedures and inappropriate determinations of entitlements within the Relocation Phase, personally experienced as an advocate for Rights of Manchester Square residents and as a voluntary representative of a minority individual.

14. Respondent violated his own declared Appeal Process procedures.

15. Respondent failed to update *inadequate* Purchase Price Differential (PPD) under Housing of Last Resort (HLR) provisions; derived unlawful payment determinations of PPD from inferior neighborhoods with home sale values less than that of displaced neighborhood; causing substantial financial consequences affecting purchase of comparable replacement dwelling.

16. Petitioner in this case has exhausted the remedies by the airport by filing appeals to the Los Angeles World Airport staff, the Airport Commission, the City Attorney's Office, and other governmental representatives, and by meeting with an Ombudsman and retaining legal council. The request for Audit of Acquisition and Relocation Procedures has been drafted following repeated written appeals spanning twelve months (one year) for *uniform* correction of violations in LAWA's acquisition policy.

17. Petitioner experienced extreme stress, and financial hardship, and suffered disproportionate injuries as a result of the airport project.

18. The Honorable persons and Agencies of this review can exert significant influence on this Petition and the issues raised pursuant to oath of office to serve people, especially when a large mass of Californians is affected, particularly those residing in Manchester Square within the community Westchester and because violations herein are continuing to present date, and not limited to Petitioner's standing, advocacy claims, investigation and evidence.

19. Petitioner incorporates by referencing the Memorandum of Points and Authorities in support of the Petition for Audit of Voluntary exemption and Acquisition and Relocation Procedures of the Los Angeles World Airport and the Exhibits in the Appendix.

WHEREFORE, Petitioner C. L. Parrish moves Honorable persons and Agencies of this review and enclosure to seek the following relief:

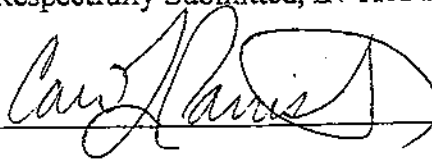
- a. Accept responsibility to pursue and resolve issues of this case.
- b. Accept responsibility to pursue and resolve issues on project-wide magnitude
- c. Require the Respondent to answer the allegations in this Petition and Points and Authorities in Support
- d. Seek a project-wide audit for “timeliness of Purchase offer” presentations following an approved appraisal and establishment of just compensation
- e. Seek a project-wide audit for *uniform* corrections of known violations
- f. Seek a project-wide audit for evidence of negotiated purchase(s) –flexible offers.
- g. Seek an evidentiary audit of federal requirements for a “voluntary” acquisition
- h. Seek an evidentiary audit for intended use of acquired land
- i. Seek a project-wide audit of “close of escrow” fees charged to displaced persons, particularly those evaluated by FAA and recommended to reconsider not charging
- j. Seek a project-wide audit for appropriate benefit entitlement determinations and strict conformity to procedures deriving a Purchase Price differential (PPD) payment
- k. Seek an evidentiary audit for HLR provision for “updates” of inadequate PPDs
- l. Seek a project-wide audit of actualized Relocation Appeal Process
- m. At the conclusion of the evidentiary audit find that:

1. Respondent failed to strictly conform to Uniform Act procedures for individual parcels of land.
2. Respondent failed to strictly conform to Uniform Act procedures for project-wide acquisition.
3. Respondent violated state and federal law by exceeding the prescribed thirty day (30 day) time span permitted from an establishment of just compensation to Purchase Offer presentation date; Respondent's delays have ranged between two and six months (2 – 6 months)
4. Respondent failed to *Uniformly* correct known violations of a basic acquisition practice requiring "timeliness of Purchase Offers"
5. Respondent failed to implement a "negotiated Purchase" policy; LAWA's full-fair-offer policy is an inflexible one-price procedure
6. Respondent invalidated a certificate of assurance for conformity and compliance of the Uniform Act procedures, policies, and practices
7. Respondent failed to meet "voluntary" acquisition requirements narrowly defined in FAA Order and Uniform Act
8. Respondent intends to purchase and redevelop acquired land to noise compatible land use; not reconveyed to continual residential use with avigation easements
9. Respondent abused it discretion and power in failing to provide full benefit entitlements of relocation provisions for "separate household"

10. Coercive action was taken by Respondent to unlawfully defer negotiations in order to compel an agreement for the price to be paid for Petitioner's property
11. Coercive action was taken by Respondent to intimidate Petitioner to rescind representation and advocacy of rights to a willing minority individual; and a *Reversal* of favorable determinations [S.R. Sribour]
12. Respondent erroneously charged: Reconveyance fees, Recording fees and documentation [Fax] fees, in close of escrow of acquired dwelling; despite technical merit evaluation by FAA to reconsider practice
13. Respondent violated Uniform Act procedures by improperly deriving Purchase Price Differential (PPD) payments from comparables located in *inferior* neighborhoods with lower home sales values than displaced neighborhood; not from "same or better" neighborhoods
14. Respondent failed to *update inadequate* PPD payments under provisions of Housing of Last Resort (HLR)
15. Respondent failed to comply with own declaration of Appeal Process
 - n. Seek professional services of independent company specializing in Acquisition and Relocation provisions to conduct Audit, EE, O.R. Colan & Associates; Alliance
 - o. Seek continuous professional monitoring from a Federal Cognizant Agency of all present and future airport procedures till completion of the airport project
 - p. Seek project-wide mandated corrective action and/or compensation for material loss for all present and past land acquisitions found in violation of the Uniform Act.

- q. Inform the lead agency (FHWA) and the Federal Aviation Administration, (FAA) of Respondent's repeated procedural non-conformity and non-compliance with Uniform Act for individual parcels of land and throughout entire airport project, and request subsequent appropriate consequences of actions.

Respectfully Submitted, IN TRUTH AND LIGHT



C. L. Parrish,
Manchester Square Resident/ Homeowner

POINTS IN SUPPORT OF PETITION FOR AUDIT

INTRODUCTION

The spirit of the Uniform Act is clearly people-oriented; the implementation of the Uniform Act by the Los Angeles World Airport clearly is not. The allegations of violations in the Acquisition Phase and Relocation Phase are written from first-hand experience and knowledge of the Petitioner. Also, the mentioned plights of S.R. Sribour, henceforth, are from first-hand knowledge, as the Petitioner has served as a volunteer advocate for the Rights of this neighboring Thai family, single father and daughter, who case is wrought with violations including coercion, discrimination, denial of entitlements and indefinite delays of *small-business* and *residential* relocation payments.

Since initiation of the airport project in 1999, the Los Angeles World Airport has acquired private land for public use and subsequently demolished and moved acquired homes out of the affected area leaving Manchester Square nearly abandoned of single-family residents. This growing airport project has left the remaining Manchester Square neighborhood "damaged" demolished, unsafe and un-fit to live. Tall chain link fences have been erected throughout most parts of the neighborhood, enclosing old broken concrete foundations of former-standing homes and other vacant lots and abandoned houses. Today, Manchester Square is a mere skeleton of its former community. EXHIBIT A.

C.L. Parrish, hereinafter referred to as "Petitioner" desires to participate in this airport project, and to relocate out of affected area, as Acquisition is the only alternative to remaining on an irreversibly demolished street within a baron neighborhood of Manchester Square. Petitioner, however, is unable to proceed with the acquisition because of the airport's procedurally barred and *unlawful* practice of a utilizing an inflexible one-price procedure for purchase offers, which is presented in a "take-it-or-leave it" manner. This unlawful situation has continued for twelve months.

"If you truly do not agree with our offer then you may rescind your interest to participate in the program." - Intissar Durham, of LAWA September 21, 2002

Respondent also demonstrated lack of veracity and unresponsiveness to Petitioner's earlier requests for a correction of a basic acquisition procedure that violated the Uniform Act policy. LAWA declined to respond to Petitioner's repeated letters of appeal, certified mailings, and telephone queries which compelled Petitioner to present case directly to the FAA in Washington D.C. to encourage a response from LAWA and to remit a technical review of merits of the alleged violation of the Uniform Act requiring "timeliness of Purchase offers."

Petitioner's indispensable, extraordinary measures and volumes of research and time necessary to become proficiently knowledgeable, well beyond the handbook of Benefits and Rights of Displaced Persons provided by the airport, to present a technically sound case to FAA Officer Rick Etter in Washington D. C., perpetuated a favorable technical merit evaluation by FAA of Petitioner's appeal. LAWA, in turn, implemented corrective action for the violation of "timeliness of purchase offers" resulting in "significant agency delays" and granted Petitioner an updated appraisal—a reestablishment of valuations recouping \$60,000 (sixty-thousand dollars), an amount necessary to correct the violation of the Uniform Act. Petitioner stated that LAWA's inefficient procedures resulted in "significant agency delays" of two and one half months (2 ½ months) from the date of the purchase offer presentation following the establishment of the estimate of compensation. The FAA Order 5100 37A Chap. 3. SEC 1. 3 --3(a), guidelines for proper airport procedures in implementing the Uniform Act, clearly allows for a thirty-day (30-day) time-span to present a purchase offer following establishment of just compensation. Again, material damages recouped totaled \$ 60,000 (sixty thousand dollars) in corrective action by airport.

LAWA *denied* Petitioner's requests for correction of this prevalent violation for a minority individual, S.R. Scribner, whom the Petitioner serves as a willing representative and advocate of Rights, at the choosing of S.R. Scribner, and LAWA also denied a project-wide correction of this same violation of the Uniform Act claiming a "voluntary" acquisition exemption of the Uniform Act policies and FAA Guidelines therein.

Accordingly, LAWA must invalidate its certificate of assurances to

"In this case (Scribner) it happened to take three months to complete the process. Despite the timeframe of the process and because the program is voluntary it is ultimately the decision of the property owners whether the offer is fair and just"
— Lourdes Romero, LAWA, Aug. 23, 2002

FAA for conformity and compliance of the Uniform Act, thus requiring withdraw of all federal funding or reimbursement for each parcel of land or entire project void of Uniform Act provisions during acquisition and relocation.

Petitioner also presented evidence to LAWA of appraisal procedural violations within the updated appraisal, which repeated the appeal process; Requests of "amicable negotiations" for an agreed purchase price based on the inexact nature of the appraisal process, an expeditious acquisition of property and corrections of appraisal procedural violations. LAWA repeatedly denied all requests and refused a *negotiated purchase* for twelve months (one year) to date, with NO foreseeable resolution -coercive action taken by the airport to *defer negotiations* in order to compel an agreement for the price to be paid for the property, in violation of the Uniform Act.

Respondent's lack of veracity, unresponsiveness, and non-conformity to Uniform Act procedures is not limited to Petitioner's allegations of this case. LAWA also practices inequitable treatment of certain displaced persons within the acquisition relocation process including: coercion, discrimination, inadequate payment determinations, and denied entitlements.

S. R. Sribour has suffered serious financial hardship from this airport project and has received *no* Relocation Payments for his *small business*, or his *residential move*, both occurring on August 01, 2002. LAWA's continuing unresolved issues, inadequate determinations and violations of the Uniform Act policies are prolonging issuance of proper entitlement payments indefinitely.

On October 09, 2002 the Respondent invoked coercive actions of intimidation over S.R. Sribour, of minority race, and Petitioner during an airport meeting. LAWA denied S.R Sribour the Right to representation by another willing party of his choosing to speak on his behalf, namely the Petitioner in violation of the Uniform Act.

During the same October 09, 2002 meeting, Dario Polintan, of LAWA and Bob Swenson,

'The business portion of your (S.R. Sribour) relocation claim does not seem to a point of contention and we will process your claims for your two business expeditiously' – Lourdes Romero, Aug. 23, 2002

W.D. Schock Company Inc, *reversed* a previously favorable determination of Aug. 23, 2002 to expeditiously issue a small-business relocation payment to S.R. Sribour, per letter by Lourdes Romero, dated Aug. 23, 2002. *No* payment for small business relocation was

ever issued.

LAWA AND FAA FAIL TO UNIFORMLY IMPLEMENT UNIFORM ACT

LAWA denied Petitioner's request for a *uniform* correction of the violation of "timeliness of purchase offers" causing "significant agency delays"; FAA denied technical merit of appeal to Sribour for this issue, but granted favorable merit to Petitioner. FAA stated to the Agency that in the case referencing, *specifically*, S.R. Sribour, the three month (3 month) agency delay *was* conforming to Uniform Act and its FAA Guidelines; in the case of the Petitioner, the two and one half month (2 ½ month) delay was not conforming -contradicting his earlier technical merit review & FAA Order 5100 37A Chap. 3 SEC 1. 3 -3(a) *The Offer to purchase the property should be within thirty days (30 days) of the establishment of just compensation.* LAWA practices delays ranging from 2 -6 months.

The result of this havoc of laws and subjective deviations of the Uniform Act policies is loss of Rights, *material damage* and substantially under-valued offers to purchase property.

Both Petitioner and S.R. Sribour have similar properties in location (neighbors), lot size and living space and had airport-appointed appraisals conducted within thirty days of each other, by the same appraiser, Lea Associates. LAWA's failure to grant *uniform* corrective action for S.R. Sribour, resulted in a \$70,000 (seventy-thousand dollars) difference in the purchase Offer.

EXHIBIT B.

It is the duty of the airport to *uniformly* make all corrective actions necessary if procedural violations actually occurred on individual parcels of land or if violations are prevalent in the project-wide acquisition, or risk the consequences. Also, the FAA, in an advisory capacity to the airport for appeals, becomes a critical entity in this airport project and the recommendations provided by an FAA Officer must be delivered in a *uniform* manner that strictly adheres to its own FAA Guidelines for an airport's proper implementation of procedures prescribed for the Uniform Act.

The Petitioner claims that The Los Angeles World Airport's (LAWA) project-wide acquisition and relocation procedures are amiss of the Uniform Act provisions and are preventing *full entitlements* and denying *full rights* and causing *material damage* to the displaced residents from Manchester Square. A favorable assessment of this Petition by way of an Audit of conditions herein, to be conducted by knowledgeable individuals and/or an independent professional company familiar with acquisition and relocation procedures prescribed by the Uniform Act of 1970, will confirm validity of the facts presented.

POINTS OF AUTHORITIES

POINTS OF AUTHORITIES

Under the Uniform Act of 1970, known as 49 CFR Part 24 in the Code of federal regulations, the Legislative effort was to address the burden of public projects on private individuals. The purpose of the Uniform Act was to establish uniform policy of fair and equitable treatment of persons to be displaced and provide certain eligible protections and relocation benefits that go beyond the just compensation allowed under the Fifth Amendment of the United States Constitution [Fourteenth due process], [California Constitution Article 1 SEC. 19]. The provisions of these benefits are outlined in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

MAJOR COMPONENTS of the Uniform Act in particular interest to this case are as follows: 1) It requires an "approved" appraisal be prepared prior to presentation of Purchase offer 2) No coercion is allowed in the negotiation process 3) If the agency intends to acquire the real property, it shall not intentionally make it necessary for the property owner to institute legal council 4) Appraisal must be completed by qualified independent appraisers 5) Appropriate financial assistance shall be provided to all displaced parties

The Uniform Act was amended in 1987 and the Department of Transportation (DOT) was appointed lead agency. D.O.T. in turn delegated this responsibility to the Federal Highway Administration (FHWA).

On March 02, 1989, the FHWA published the government-wide single rule in the Federal Register. The objective of the single rule was to maintain a consistent application of the regulations as well as the following duties: 1) encourage the expeditious acquisition of property through "negotiation" 2) establish public confidence in land acquisitions 3) provide fair treatment of persons displaced 4) minimize litigation and relieve congestion in the courts 5) ensure that agencies implement the regulations in an efficient manner.

FAA Order 5100 37A is not a regulatory order but it is the implementing procedure to assist airport owners in carrying out provisions of the Uniform Act, 49 CFR Part 24 for airport projects.

CLAIMS OF "VOLUNTARY" ACQUISITION SUSPECT

Certain major components of the Uniform Act are subjectively omitted and modified by LAWA causing under-valued offers to purchase, loss of benefits, entitlements and provisions to displaced individuals, under a false authority that a "voluntary" acquisition allows for deviations and/or omissions of prescribed Uniform Act procedures. The requirements for a voluntary acquisition are narrowly defined in Uniform Act and FAA Order 5100 37A Chapter 3. SEC. 3 -9

et al. and when applicable invoke optional use of the Uniform Act; however, subjective omissions of procedures and deviations from practices and policies are not permitted. The Uniform Act, when engaged, provides full rights and entitlements and procedures *uniformly* to displaced persons within the entire project; with or without eminent domain power.

Petitioner alleges that the Manchester Square acquisition *may not* be a voluntary acquisition and states the following: specific Manchester Square/Belford noise-impacted properties are intended to be purchased by Acquisition *without* the option for soundproofing for this Noise-mitigation program, then demolished or moved, in order to accomplish the noise-mitigation project; not reconveyed to continued residential use with aviation easements. Noise mitigation projects, which acquire designated residential property for redevelopment into noise compatible land uses do require the acquisition of all or substantially all of the property in the project area to accomplish the intended noise mitigation. Therefore acquisitions for these projects may NOT be considered “voluntary” transactions; with or without the eminent domain authority to acquire needed property FAA Order 5100 37A Chap. 3. SEC. 1. 3 –9(3).

The Los Angeles World Airport’s (LAWA) project-wide procedures are amiss of the Uniform Act policies contained herein, under which the Petitioner is appealing.

The spirit of the Uniform Act is clearly people-oriented. The implementation of the Uniform Act by the Los Angeles World Airport clearly is not.

**C. L. Parrish/
Manchester Square Resident and Homeowner,**

Petitioner,

v.

**Theodore Stein, Jr./
President, Airport Commission
Los Angeles World Airport,**

Respondent.

APPENDIX

**TO PETITION FOR AUDIT OF "VOLUNTARY" ACQUISITION EXEMPTION AND
ACQUISITION AND RELOCATION PROCEDURES**

EXHIBITS A - B

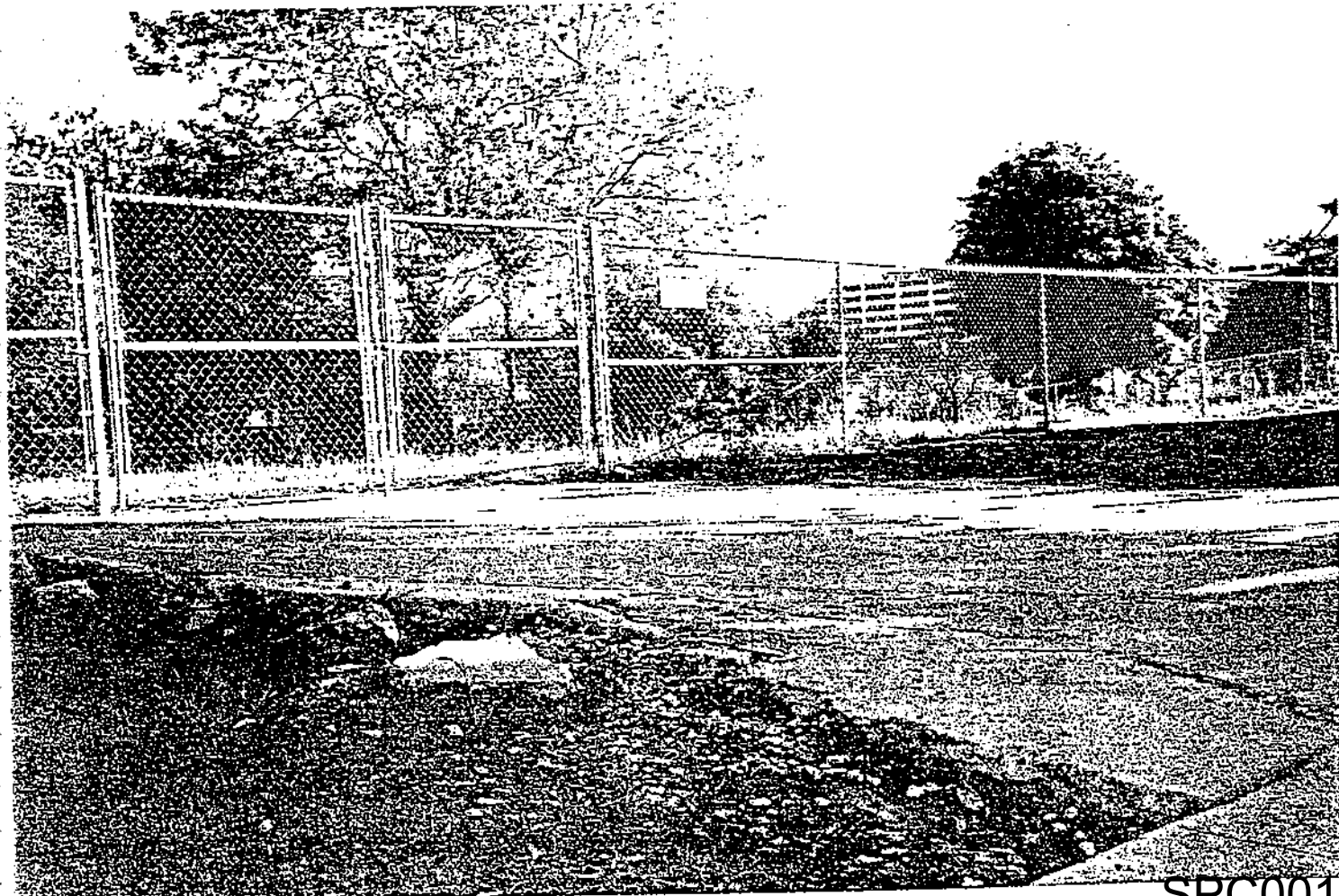
APPENDIX

**EXHIBIT A MANCHESTER SQUARE NEIGHBORHOOD PHOTOS DATED
03/06/03 (photos by S.D. Parrish)**

**EXHIBIT B NO UNIFORM POLICY: COMPARISON CHART -\$70,000 (SEVENT-
THOUSAND DOLLAR) LESS IN OFFER TO PURCHASE**

1

Exhibit -A-



21

SPC00164

September 16, 2002

To: Federal Aviation Administration, Mr. Rick Etter
From: Mr. Soros Rod Sribour
Ms. C.L. Parrish

Exhibit - B-

RE: Under-valued purchase offers by LAWA;
Reference Sribour, S.R. and Parrish, C.L. files

Quick Date Reference;
Property acquisition

Sribour

Parrish

[NO]

FAA monitoring of LAWA YES

February 07, 2002

Property Appraisal

March 07, 2002

February 26, 2002

Review Appraisal Approved

March 18, 2002

Three Months

Additional Agency Delay

Two Months

May 22, 2002

Offer Presentation Date

May 30, 2002

\$ 320,000

Purchase offer Amount

\$330,000

[NO]

Updated Appraisal Granted;

[YES] [violation corrected]

\$0

Reestablished compensation

\$390,000

\$70,000 difference in valuation for Similar Homes

appraised thirty days apart by same appraiser and same review appraiser;
LAWA Purchase Offer presentation dates only eight (8) days apart

Sribour

Parrish

NO

Appeal to FAA [GRANTED] YES

1077

Home Square footage

1076

6254

Lot size Square footage

5936

3/2

Bedrooms & Baths

3/2

One Studio

Full Guesthouse

none

Average

Overall Condition

Good

October 10, 2003

Mr. Jim Ritchie
Deputy Executive Director
Los Angeles World Airports
LAX Master Plan Office
PO Box 92216
Los Angeles, CA 90009-2216



Re: Comments on the Supplement to the Draft EIR/EIS (Alternative D)

Dear Jim:

The Gateway to LA Property-Based Business Improvement District (PBID) continues to appreciate the extensive dialogue we have had with you as well as other LAWA and City officials on Alternative D.

We understand that the Alternative D Draft EIR is a "program-level" document, therefore all the details that Gateway would like to see in such a document are simply not part of the record, but will be provided as project-level reviews take place.

With the detail that Gateway to LA has obtained, we believe that Alternative D does a better job responding to the needs of the Century Corridor than the other Master Plan alternatives that have been prepared. This belief, based on the current level of information available, leads us to an endorsement in concept of Alternative D.

Gateway to LA looks forward to working with you, LAWA and City officials as project-level details are developed for Alternative D and we appreciate LAWA's offer to create a Gateway to LA Working Group to facilitate dialogue on specific aspects of Alternative D. As you are aware, Gateway continues to plan for the revitalization of the area through a day-use conference center and shopping destination. We believe this effort complements Alternative D and we look forward to pursuing this vision of unifying the entire area from a transportation standpoint to visitor serving uses through the Gateway to LA Working Group.

As we look toward the development of project-level details, Gateway submits the following set of questions for your review and comment as you finalize the Environmental Impact Report for Alternative D.

98th Street/Automated People Mover/Consolidated Rental Car Facility

- 1) How will pedestrians, vehicles and the people mover inter-relate along 98th Street?
- 2) What land will need to be acquired for the APM system?
- 3) What businesses and or facilities would be lost in the process?
- 4) What is the exact route of the APM?
- 5) Even though the APM is an elevated structure after Sepulveda Boulevard, will it eliminate a traffic lane on 98th Street or have other traffic impacts?
- 6) Has a potential location for the future spur line extension of the AMP (page 2-72 of the Master Plan Addendum) been determined? If not, *why? (Please elaborate)*
- 7) Has a specific traffic study for 98th St. been conducted to determine how the APM will interface with vehicle traffic? If not, *why? (Please elaborate)*
- 8) How will vehicles enter/exit the RAC?

6151 West Century Boulevard
Suite 121
Los Angeles, CA 90045
310.216.7328 (phone)
310.216.7346 (fax)

SPC00165

- 9) How will public access be facilitated to the RAC for both pick-up and drop off of passengers headed to LAX?
- 10) How will public access be facilitated to the Ground Transportation Center (GTC) from Century?
- 11) Will there be a Gray Bus entrance from Century into the GTC? If so, where would it be located and how would access be regulated?
- 12) The DEIR discusses closing 98th St. during construction. Is there a way to minimize impacts to 98th St. and only closing parts of the street thereby allowing traffic to pass during construction? What ideas are being proposed?

New LAWA Parking Structures

- 13) Have parking rates and fees for users of the new parking structures been developed? If not, why? *(Please elaborate)*
- 14) The DEIR states there would be 12,890 private parking stalls. Where will these stalls be located?
- 15) Is 12,890 an estimate of existing stalls or does it include future stalls to be added?
- 16) What percentage of the parking stalls in the GTC will be designated "short term parking" vs. "long term parking?" Is this consistent with what was stated in the original Master Plan EIR/EIS? What will the daily rates be for each of these particular types of parking?
- 17) What percentage of the parking stalls in the ITC will be designated "short term parking" vs. "long term parking?" Is this consistent with what was stated in the original Master Plan EIR/EIS? What will the daily rates be for each of these particular types of parking?

Transportation Issues

- 18) If Gateway was to undertake a universal shuttle system, could the shuttle be allowed access directly to the CTA? If not, why? *(Please elaborate)*
- 19) What is the exact route of the proposed cargo roadway network?
- 20) Why doesn't the DEIR study traffic impacts at 102nd and 104th streets as part of the cargo roadway network?
- 21) How many construction truck trips will occur along Century Boulevard during a.m./p.m. peak construction?
- 22) Have alternative routes that would create less of an impact to the businesses along Century Boulevard been studied? What are those routes?
- 23) How will overall average daily trips from all vehicles change on Century Boulevard?
- 24) How will other project area street segments change from existing conditions under Alternative D and under the no project alternative?

Miscellaneous

- 25) Alternative D looks to require the acquisition of approximately 77 acres of land. Which specific parcels have been identified in all or in part for potential acquisition? Have specific guidelines been established for land acquisition/condemnation?

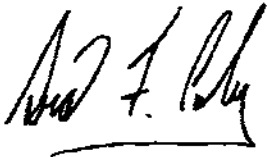
26) Will LAWA make special arrangements to replace gas stations that are displaced by Alternative D? If not, why? *(Please elaborate)*

27) What are LAWA's specific plans for beautification of the Century Corridor and 98th Street during construction and at build out of Alternative D?

We appreciate your attention and input on these issues as part of the EIR process and we look forward to continuing to work with you as Alternative D takes shape.

Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Grant Coonley", with a horizontal line underneath.

Grant Coonley
President
Gateway to LA

Cc: The Hon. Jim Hahn
The Hon. Cindy Miscikowski
Mr. David Kessler, FAA

8-13-03

Admin. Marion Blakey
Federal Aviation Admin
800 Independence Ave., S.W.
Washington, D.C., 20591

ARP-1

I am providing you a copy of my speech that I gave to the Board of Commissioners of the Los Angeles World Airports (LAWA) on May 6, 2003 regarding LAX Airport.

As you may be aware, Mayor James Hahn of Los Angeles recently presented his plan for significant changes to LAX Airport.

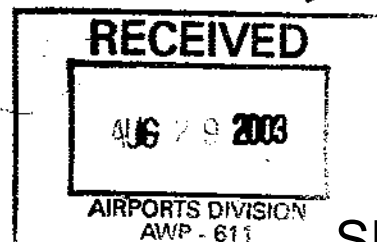
The major renovation will do little or nothing, and possibly even worsen, for the convenience and safety of the traveling public, and for the efficiency and profitability of the airlines and the airport.

Many individuals; citizen groups, homeowner organizations, businesses and corporations, private researchers (e.g. Rand Institute), and government officials at various levels are adamantly opposed to Mayor Hahn's plan for LAX airport.

We hope that you will exert your influence to prevent a disaster of a plan from getting off the ground.

Gordon Michael Mego

4535 Wilh1st St
Hawthorne, Calif.
90250-6927
(310) 675-8674



SPC00166

LAX Airport

Hello! My name is Gordon Michael Mego, ~~my~~ my address is 4535 W. 141st Street ^{and my phone # is (310) 675-8674.} I am a native and resident of Hawthorne and the South Bay region since Oct. 8, 1952. And I am a former aerospace engineer who has worked on the F-18 and the B-2 aircraft at Northrop Corp., the B-1 bomber at Rockwell Intl., and the C-17 transport at McDonnell Douglas from the mid 1970's to the late 1980's.

I grew up in an era when propeller-driven airplanes were a common sight and sound. I flew aboard ~~an~~ ^{an air}liner for the first time in the ^{late} 1950s with TWA on a Lockheed Constellation plane that had a triple-tail design and small air cond vents by the windows. It was ~~an interesting~~ ^{an interesting} experience on flights to and from New York where the sister of my mother had lived in Brooklyn since the 1930's.

My father worked for American Airlines during the 1950's as a Senior and then Lead mechanic who always maintained the aircraft in nearly perfect flying condition.

On some occasions, I had the opportunity to see ^{the} behind-the-scenes activities at the airport, including visits to the old control tower building with its Spanish-style architecture.

Apr. 14, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

LAX Airport

Over the course of decades, from the 1960's onward, I had the pleasure of flying aboard various aircraft with different airlines. Of particular enjoyment was my trip to Washington, D.C. where I stayed for eight days ^{in July of 1983} including ^{the} Washington Hotel near the White House, ~~and~~ visited many places around the historic capital, and ~~rode~~ ^{on the} ~~fantastic~~ Metro Rail system. As the Los Angeles region, and especially the South Bay area, increased in residential population and with various businesses, LAX Airport expanded the size and scope of its operations accordingly to meet the demands of the growing region of So. Calif.

By the year 2000, LAX Airport had reached a level of 67 million passengers who traveled to various destinations in the United States and around the world. While the annual capacity for passengers at the facility is currently 78 million, there are proposals to increase the capacity to as much as 120 million.

After the Sept. 11, 2001 Tragedies in New York, Washington, D.C., Pennsylvania, and elsewhere, the number of people who flew aboard commercial airliners was reduced by 10% to 25% depending on the airline company. At LAX Airport, the annual level is down by 10%-15% or approximately 5.2 million to 5.5 million passengers from the 2001 rate of 61 million.

Gordon Michael Megoo
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

Apr. 14, 2003

LAX Airport

Even at the current levels of airline flights, the residents of the South Bay area in Los Angeles County, and especially in the City of Hawthorne, are experiencing and enduring significant amounts of air pollution, loud noise, road traffic, population density, etc. which affect the quality of life for all the people of the region.

Of particular annoyance is the roaring sounds of engines from low-flying commercial aircraft which occasionally traverse the skies of the South Bay area in an effort to shorten their travel from LAX Airport. Pilots must be required to follow certain protocols with respect to flight paths, altitudes, etc. over Hawthorne and other surrounding cities. Violations of these procedures should result in financial penalties and/or restricted access to LAX Airport.

There have been various proposals to expand LAX Airport which would increase the annual level of passengers not only from the record high of 67 million to a maximum of 78 million, but even to as much as 120 million. The proposals will essentially require moderate to major reconstruction of the airport facility and significant destruction of residential neighborhoods in the area.

Apr. 14, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

LAX Airport

The Manchester Square area of Los Angeles, which is located between Century Blvd. and Arbor Vitae, and between La Cienega and Aviation Blvds., is a residential neighborhood that was mainly comprised of single-family homes, which date back to the 1940's, and even included an elementary school which served the surrounding community.

Los Angeles World Airports (LAWA) is currently in the process of acquiring property and demolishing buildings in the Manchester Square area in order to build a passenger check-in facility. IF LAWA achieves their goal of owning every property in the ^{Manchester Square} area, it will cease to exist as a residential neighborhood in the Los Angeles region where there is a shortage of housing.

Since LAWA has not approved of any expansion plan for LAX Airport, it should cease further acquisition of property in the Manchester Square area, resale purchased property to residential homeowners, insulate homes that are currently available or eventually built, and reopen the public elementary and/or middle schools for students.

According to a proposal by Mayor James Hahn of Los Angeles, there would be a major transformation of LAX Airport. It would involve tearing down some terminal buildings,

~~APR 14, 2003~~
APR 14, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

LAX Airport

and parking structures, building a remote passenger check-in facility in ~~the Manchester Square area of L.A.~~ ^{the Manchester} Closing off the two-level inner roadway to the general public, building a "People Mover" system to connect the remote facility with the main part of the airport, moving and adding taxiways and runways, and other changes. The price tag for this enormous project is approximately \$10 billion that will surely increase during the years ahead.

As with previous efforts to expand or renovate LAX Airport, the new proposal is not an acceptable solution for the South Bay region of Los Angeles County.

The implementation of any such changes would lead to increased levels of possible terrorism and other criminal activity, of ~~invasive~~ invasive security measures, of business slowdowns and failures, of unemployed people, of various taxes, fees, etc., of vehicle traffic on streets and highways, of loud noise from more aircraft, of air, land, and water pollution, and of population in the region.

The establishment of a remote, check-in facility for airport passengers would greatly expand the overall size of LAX that will stretch east to the 405 Freeway and substantially increase the residential and business areas that could be affected by a major terrorist act, especially ~~from~~ ^{from} a nuclear weapon or conventional missile.

Apr. 14, 2003

Gordon Michael Mego

4535 W. 141st St.

Hawthorne, CA 90250-6927

(310) 675-8674

LAX Airport

Without even considering the latest proposals for change at LAX, the current security environment creates the feeling of an armed encampment. The intrusive and invasive measures treat people in an undignified manner and abusive ways as if they were criminals.

There is something quite wrong when elderly folks, soccer moms, various celebrities, government officials, and other innocent people are forced to endure long delays, physical searches, shoe scans, identity verification, personal background checks, luggage inspections (some without the consent and presence of the owner), surveillance cameras, traffic and parking difficulties, and other situations.

Until LAWA implements an approach to security that is based upon reasonable suspicion and common sense, there will be an increasing number of people who will not travel aboard commercial airliners or spend money at businesses within the airport and around the region.

As if the effects of Sept. 11, 2001 were not bad enough for the U.S. economy, the current activity at and proposed changes for LAX will cause more financial problems to the airline industry, retail stores, hotels, restaurants and other businesses who will reduce operations or file bankruptcy which means higher unemployment, lower tax revenue, etc.

Apr. 14, 2003

Gordon Michael Meago
4535 W. 141st St
Hawthorne, CA 90250-6927
(310) 675-8674

LAX Airport

In order to facilitate the smooth flow of people into and out of LAX Airport, it is absolutely necessary that the double-decker roadway and the parking structures within the facility must remain open for use by the general public who want to drop off or pick up passengers and luggage at the terminal gates, sidewalks, or parking areas.

Further, the Green Line of the Metro Rail system must be extended into LAX Airport where the passenger trains would travel around the inner perimeter of the facility and stop in front of each airline terminal. This will provide an alternative mode of transportation from other parts of California which will reduce highway traffic, improve air quality, provide convenience, and save money for people in the long term.

Efforts must be pursued to create a regional system that will handle the significant number of airline passengers in Southern California, particularly in Los Angeles and Orange Counties. LAX Airport must not be forced to accommodate the increased loads from other areas.

Therefore, LAX Airport must not be expanded beyond its current capacity of 78 million passengers and preferably should be limited to 67 million passengers, which is a peak annual level in year 2000.

Apr. 14, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

LAX Airport

The current layout of LAX Airport must be limited to only necessary improvements of the facility within its current land boundaries for the convenience of the passengers and the efficiency of airport operations.

In conclusion, I am hopeful that my comments about LAX Airport will resonate with the board members of Los Angeles World Airports. LAWA has the difficult task of upgrading the existing airport and handling the various criminal elements while trying to promote the commercial aspects of aviation travel. But it is incumbent upon the board members of LAWA to pursue courses of action that will improve the quality of life and the economic vitality of the region for the vast majority of the people without spending enormous sums of money on unnecessary projects and sacrificing our personal freedoms as stated in the U.S. Constitution and in the Bill of Rights.

Apr. 14, 2003

Gordon Michael Megó
4535 W. 141st St.
Hawthorne, CA 90250-6927
(310) 675-8674

Gordon Michael Megó

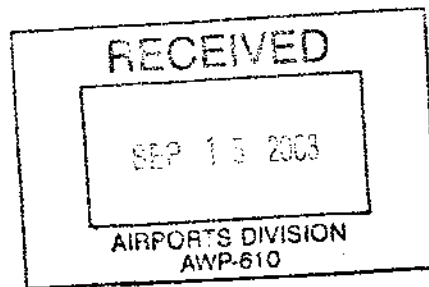
4535 W. 141st St.
Hawthorne, Calif.
90250-6927
(310) 675-8674



8-20-03

Randall E Hartman
21718 Marjorie Ave.
Torrance, CA 90503

David B Kessler, AICP
U.S. Dept. of Transportation
Los Angeles, CA



RE: LAX Master Plan

I am a Quality Assurance Inspector of aircraft maintenance for American Airlines. I have worked at LAX in this capacity for the last 20 yrs as both an aircraft inspector and mechanic. I intimately see everyday the problems LAX has gone through over the years, and the current problems it faces in trying to maintain safety and security, and in dealing with increasing air traffic.

I have studied Mayor Hahn's plan for LAX thoroughly and quite honestly find it laughable. Nothing about it makes any common sense in trying to solve the current, and future problems facing LAX. The only logic for this plan, is to "make work" (since I think it is a waste of labor and resources) for the construction firm(s) that will be doing this job. I wouldn't doubt that these contractors gave Hahn a heap of money in his campaign for mayor.

First and foremost lets talk about security. Hahn' plan claims this will improve security at LAX. His plan calls for having everyone check in at one central location and then "people-move" them to their gates. THIS PLAN IS A TERRORIST DREAM! Yea, lets gather the massive crowds of people that go through LAX and put them all in one area. Even a moron should be able to see that this isn't a very bright idea. A suicide bomber then could mix in with this crowd before they check in, and wipe out a hell of a lot of people.

Hahn's plan would severely hamper the efficiency and order of LAX for an estimated 11 yrs, and that's if they do it on schedule which rarely happens. This is 11 yrs of inconvenience to the passengers, airlines, and vendors. The airline industry is already severely hurting financially and this will impact operations here at LAX for 11 yrs. On top of that the cost of this massive project that will do nothing to improve anything. It will be financed by higher air fares, and this will hamper the airlines, and also any business that relies on air travel, like tourism, business travel, airport vendors, etc.. What is Hahn and all those that support this thinking!?

Stop this insanity! You don't need to mess up LAX. You need to develop a **regional approach** to handle air traffic around Los Angeles. Most of the people that work for the airlines, and those that fly that live in the LA area, don't live near LAX! They live elsewhere and would be better served by airports like Ontario, San Bernadino, Orange County, Burbank, and Palmdale. That is where you should expand, and you can make improvements to LAX if needed, but don't do anything stupid and major, like move runways, or terminals, and make a centrally located check-in area. Most of my co-workers here at American Airlines feel the same way. We don't need your so called "improvements".

Sincerely,

Randall E Hartman

SPC00167

**DR. NIMROD ERECH MELCHIZEDEK CHRIST NIMROD
PSYCHOLOGIST, PRESIDENT & CO-FOUNDER
SELF-ESTEEM & WORLD PEACE ASSOCIATION
14002 PALAWAN WAY
PENTHOUSE #17
MARINA DEL REY, CA 90292
NIMRODWORLDPEACE@AOL.COM
310/574-3840 310/285-6738 FAX 310/574-3840**

August 3, 2003

Mr. David B. Kessler, AICP
U. S. Department of Transportation
Federal Aviation Administration
P. O. Box 92007
Los Angeles, CA 90009-2007



Dear Mr. Kessler:

May this communication find you and yours prospering in health, wealth and peace of mind.

I attended the Environmental Justice meeting held on August 2, 2003 at Inglewood High. Included are comments and insights I gathered at that meeting concerning the Draft EIS/EIR and an on going problem I am having with LAX noise since June 21, 2003.

Another subject I will address at those Public Hearings on the LAX Master Plan that I will be attending, other than my present problem with the arbitrary plane noise from LAX is, will Inglewood High be soundproofed and any other school that is in the path of those loud planes which are actually Weapons of Mass Destruction (WMDs)?

The planes were almost landing on the school grounds and the noise was astonishing! What I found interesting is that I could see and hear those low flying planes as could everyone at that workshop. The noise at my home is comparable but I cannot see the planes. Amazing. I wonder how the children can properly study with that constant noise? Environmental Justice must take into consideration the teaching environment of the children and the soundproofing of schools, especially Inglewood High.

The plane noise has gotten lower at my home this morning due to my complaints at that workshop yesterday. They got the word in that LAX Tower and now know that I am truly serious. But the noise will rise again as usual when the urge hits them. I want them to abide by the law. I want the noise stopped, not only lowered at their whim!

Also, what is the make-up of those in the Air Traffic Control Tower? Do they empathize and live in the low-income communities impacted by the LAX plane noise? Are there any women and other minorities in that Tower?

SPC00168

Or are they all middle class white men who are not being properly supervised and who can increase the volume and rate of noise anytime and direct the planes anywhere they choose thereby posing a great security risk? Airport Security is concentrating on the passengers and not the workers in the Towers. This is a big mistake!

These questions I will ask at the meetings and they must be answered before any Plan is ratified. Because I truly believe there is a god-complex disease and racist attitude in the LAX Tower. And they are terrorizing many neighborhoods.

You probably disagree with me, but these are the facts. Keep an open mind. People lives are at stake.

Sincerely,

Dr. Nimrod

Dr. Nimrod

Enclosure: 7/28/03 *Newsweek* article: "The 9-11 Report: Slamming the FBI."
7/20/03 Letter to Ms. Lydia H. Kennard, Executive Director of LAWA

Periscope

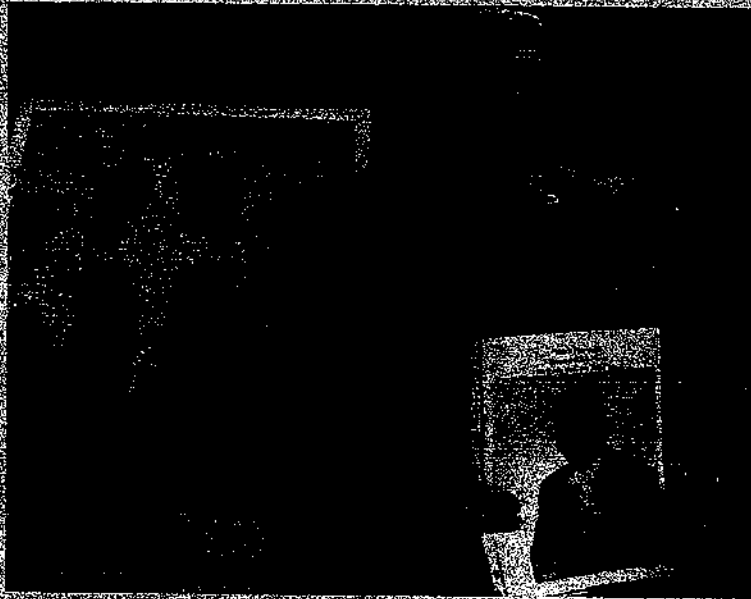
EXCLUSIVE

The 9-11 Report: Slamming the FBI

THE FBI BLEW repeated chances to uncover the 9-11 plot because it failed to aggressively investigate evidence of Al Qaeda's presence in the United States, especially in the San Diego area, where two of the hijackers were living with one of the bureau's own informants, according to the congressional report set for release this week.

The long-delayed 900-page report also contains potentially explosive new evidence suggesting that Omar al-Bayoumi, a key associate of two of the hijackers, may have been a Saudi

government agent, sources tell NEWSWEEK. The report documents extensive ties between al-Bayoumi and the hijackers. But the bureau never kept tabs on al-Bayoumi—despite receiving prior information he was a secret Saudi agent, the report says. In January 2000, al-Bayoumi had a meeting at the Saudi Consulate in Los Angeles—and then went directly to a restaurant where he



FAILED INTELLIGENCE—Mourning: loved one lost in the World Trade Center

met future hijackers Khalid Almahdhar and Nawaf Alhazmi, whom he took back with him to San Diego. (Al-Bayoumi later arranged for the men to get an apartment next to his and fronted them their first two months' rent.) The report is sure to reignite questions about whether some Saudi officials were secretly monitoring the hijackers—or even facilitating their conduct.

Questions about the Saudi role arose repeatedly during last year's joint House-Senate intelligence-committee inquiry. But the Bush administration has refused to declassify many key passages of the committee findings. A 26-page section of the report dealing with the Saudis and other foreign governments will be deleted. "They are protecting a foreign government," charged Sen. Bob Graham,

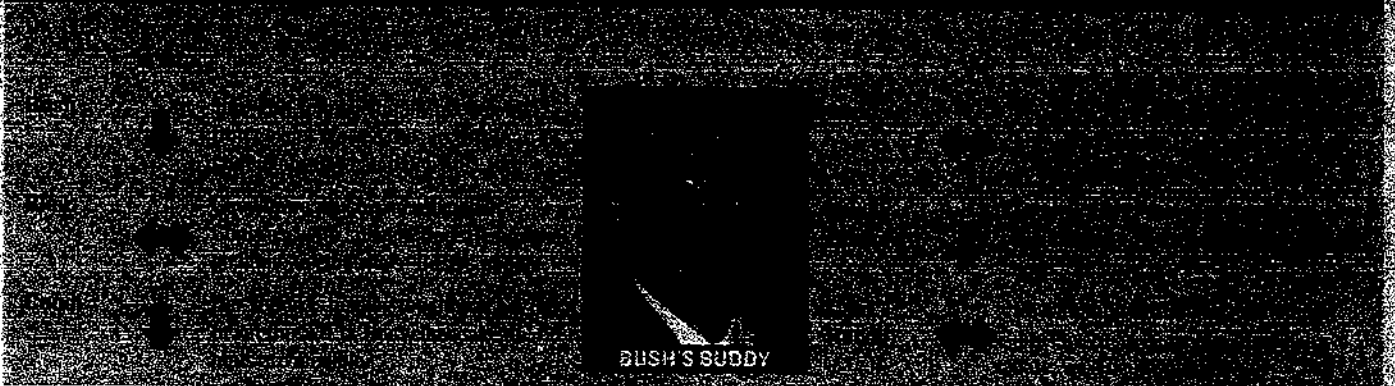
who oversees the inquiry.

The report emphasizes the Pentagon for releasing military strikes against Al Qaeda camps in Afghanistan prior to 9-11 and the CIA for failing to act on a dramatic affirmation about Almahdhar and Alhazmi at a security summit in Malaysia. But the FBI was the target of a treatise a few months after al-Bayoumi took them to San Diego. Almahdhar and Alhazmi moved into the home of a local professor who was a longtime FBI "asset." The prof also had earlier contact with another hijacker, Hamzi Hanjour. But even though the informant was in regular touch with his FBI handler, the bureau never pieced together that he was living with terrorists. The bureau also failed to pursue other leads, including a local imam who dealt with several 9-11 figures. The report, one congressional investigator said, "is a scathing indictment of the FBI as an agency that does not have a clue about terrorism." Furious bureau officials say the report misstates the evidence. They say the bureau checked up on al-Bayoumi, now back in Saudi Arabia, and concluded he had not given the hijackers material support. As for Almahdhar and Alhazmi, "there was nothing there that gave us any suspicion about these guys," said one FBI official.

—MICHAEL SIKOFF

CONVENTIONAL WISDOM

BAKED YELLOWCAKE EDITION



BUSH'S SUDDY

**DR. NIMROD ERECH MELCHIZEDEK CHRIST NIMROD
PSYCHOLOGIST, PRESIDENT & CO-FOUNDER
SELF-ESTEEM & WORLD PEACE ASSOCIATION
14002 PALAWAN WAY
PENTHOUSE #17
MARINA DEL REY, CA 90292
NIMRODWORLDPEACE@AOL.COM
310/574-3840 310/285-6738 FAX 310/574-3840**

July 20, 2003

Mrs. Lydia H. Kennard,
Executive Director
Los Angeles World Airports
Mail Stop 101
Los Angeles, CA 90045

Dear Mrs. Lydia H. Kennard:

May you and your family be engulfed in all that is good for your peace of mind, your body, your spirit, your faith and your finances.

I live in Marina Del Rey. On the night of June 21, 2003 around 1:00am I was startled out of bed by an aircraft overflight. That single event noise exposure level (SENEL) had to be around 120 decibels! The duration was quite long. As we know an increase of 10 decibels is perceived by the human ear as a doubling of noise. Well if you have been used to sleeping during the night for about two years without any noise at all, an aircraft overflight suddenly shaking your home, in the middle of the night, even at 5 decibels is traumatic. Would I be listened to if I lived in Inglewood instead of Marina Del Rey?

Since June 21, 2003, that distressing single event has multiplied and has become a day and night constant. The ambient noise level has become horrendous since the people in the Air Traffic Control Tower have, evidently, taken it upon themselves to change flight plans, loop departures, westerly operations, easterly operations and also over-ocean operations that operate between the hours of 12:00am (midnight) and 6:30am. Since June 21, 2003, there has been big change, or a shifting of noise from somewhere to the Marina.

On July 7, 2003, the FAA gave me the number of the Traffic Mgmt. Unit (TMU) and Mike there gave me the number of Marv Chappie in the Air Traffic Control Tower. Marv Chappie was on vacation until July 15, 2003, so I then called his back-up Frank Sweeny who told me nothing has changed and that in fact aircraft traffic has declined(!?).

The noise continued so loud that about midnight (12:35am) Sunday morning July 13, 2003, I called the Tower again and left a voicemail message to stop this violation and let me sleep. Something very evil is going on here. It seems that the noise tends to subside from approximately 1:00am to 5:00am. then starts up with a big bang at 5:00am! The other 20 hours are pure hell. Prior to June 21, 2003, the first day of summer, I would peacefully sleep through the quiet night from 10:00pm to 6:00am. Was an insidious change made for summer air traffic?

SPC00168

I need no aircraft overflights as daily 5:00am headache-producing wake up calls! As I write you now Mrs. Lydia Kennard, at 3:00pm, it seems I am sitting on an LAX runway!

I sleep majorly on my back. I have reversed my sleeping position so that my left ear will not be pointing towards the window and the airport noise which has irritated my left ear. This offered some relief. But on July 16, 2003, at around 5:00am there was a single event aircraft overflight "bang!" right over my head that has my left ear still hurting because I was lying on my side with my left ear pointing towards the ceiling, not the window. But the bang came from above and not the side. I had to ice my ear the next day.

Nobody seems to know what's going on. You and I know the Day/Night Noise Level (DNL) used by the FAA penalizes noise which occurs between 10:00pm and 7:00am by 10 decibels. Prior to June 21, 2003, there was no noise level. Now the DNL every night sounds above 65 decibels to maybe 120 decibels, especially single event noise!

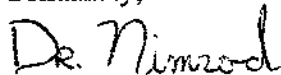
The Run-Ups were very loud all day long but they must have put this procedure back in another area because it is not as loud. It's a real dull roar. But the noise of helicopters and small aircraft are constantly overhead all day and that noise is loud joined frequently by the roar of jets. It's all very disturbing since I think, read, study and write a great deal.

The noise monitoring system used by LAX, may show the noise expansion of LAX. The Noise Contour should reveal significant noise exposure in a wider area encompassing Marina Del Rey. We both know the FAA and Caltrans define significant noise exposure as any area within the 65 decibels DNL or CNEL Contour. This is too high.

As was stated earlier, an increase of 10 decibels is perceived by the human ear as a doubling of noise. In an area where there was not any DNL noise, just 10 decibels is monstrous! I want an explanation and I want this stopped immediately! There is no way that such drastic environmental and flight changes can take place and no one knows about it at Los Angeles World Airlines. If this is the case then LAX poses a grave threat to the community, and airport security must now include the daily mental evaluation and drug testing of those in control of aircraft flight no matter their position. Millions of people in the air and on the ground are assuming that those in charge of LAX are competent, aware and truthful. Sadly this seems not to be the case, especially in the Tower.

I have spoken to the LAX Tower to no avail. I also made out two complaint forms over the phone and left a message for "Noise Abatement" and I have not heard back from anyone. Mrs. Lydia H. Kennard, Executive Director; on July 11, 2003, Ms. Carol Watkins of Mayor Hahn's office was professional and kind enough to send you a copy of my letter. This is a more comprehensive letter. The silence I am getting from people at LAWA I wish would transfer to silence in my community. I understand that you must have time to research this severe matter, but please understand my health is at risk. I desire a meeting with you at your earliest convenience to discuss this matter. Peace.

Genuinely,



Dr. Nimrod

MAXINE WATERS

MEMBER OF CONGRESS
35TH DISTRICT, CALIFORNIA

CHIEF DEPUTY WHIP

COMMITTEES:

FINANCIAL SERVICES

SUBCOMMITTEE ON HOUSING AND
COMMUNITY OPPORTUNITY
RANKING MEMBER

JUDICIARY

SUBCOMMITTEE ON COURTS,
THE INTERNET AND
INTELLECTUAL PROPERTY

SUBCOMMITTEE ON CRIME, TERRORISM
AND HOMELAND SECURITY

Congress of the United States
House of Representatives
Washington, DC 20515-0535

PLEASE REPLY TO:
2344 RAYBURN HOUSE OFFICE BUILDING
 WASHINGTON, DC 20515-0535
(202) 225-2201
FAX: (202) 225-7854

DISTRICT OFFICE:
 10124 SOUTH BROADWAY
SUITE 1
LOS ANGELES, CA 90003
(323) 757-8900
FAX: (323) 757-9506

Public Hearing
Supplement to the Draft EIS/EIR
for the Proposed LAX Master Plan
Doubletree Hotel, Rosemead, CA
Testimony from Rep. Maxine Waters
October 20, 2003

Alternative D is a \$9 billion project that would demolish homes and disturb communities without improving the safety and security of LAX. The Supplement to the Draft EIS/EIR is an inaccurate and misleading document that fails to reflect the true impact of this project.

The centerpiece of Alternative D is the Ground Transportation Center (GTC), a large remote passenger check-in facility that would be constructed at Manchester Square, several blocks away from the airport terminals. An Intermodal Transportation Center (ITC) would be constructed at Aviation Blvd. and Imperial Highway, which would provide a connection to the Green Line. According to the Supplement to the Draft EIS/EIR, the GTC and the ITC would be the primary access points for all passenger drop-off and pick-up and vehicle parking. An Automated People Mover (APM) would be constructed to transport people to the airport terminals, and a baggage tunnel would be constructed to transport baggage. A Consolidated Rental Car (RAC) facility would be constructed in Westchester.

Local families could no longer drive to the Central Terminal Area (CTA) in order to drop off passengers. Instead, all passengers and employees would access the CTA from the GTC, the ITC and the RAC via the APM, carrying their carry-on baggage with them. This would be extremely inconvenient for most passengers, and it would present special hardships for the elderly, the handicapped and families traveling with small children.

Airport Security Issues

Supporters of the proposed project to construct a remote passenger check-in facility claim that the facility is necessary to improve the safety and security of LAX and prevent terrorist attacks at LAX. Theoretically, diverting all vehicular traffic to remote parking structures and the remote passenger check-in facility would protect the Central Terminal Area from car bombs.

The RAND Corporation conducted a security study of the proposed remote passenger check-in facility, which was released on May 14, 2003. The study concluded that the proposed project would not significantly improve the security of LAX. The study also concluded that concentrating passengers in the proposed remote passenger check-in facility could make the check-in facility the likely target of a terrorist attack. Finally, the study concluded that concentrating several airport functions in the remote passenger check-in facility could exacerbate the effects of an attack on airport operations.

Statement
PLF/DEF 1
EXHIBIT
DATE 10-20-03 RPTR
SPC00169

On July 25, 2003, I introduced H.R. 2985, a bill to condition construction of a remote passenger check-in facility at LAX upon a finding that such a facility will promote the safety and security of the public. H.R. 2985 would require the Secretary of Homeland Security to review the proposed facility prior to its construction to determine whether it will protect the safety and security of air passengers and the general public more effectively than the existing facilities at LAX. If the Secretary of Homeland Security does not determine that the facility will improve public safety and security, the Federal Aviation Administration (FAA) would not be allowed to approve its construction. On Sept 2, the Board of Supervisors of Los Angeles County passed a motion to support my legislation.

Ironically, Alternative D does not even significantly improve security at the Central Terminal Area. According to the Supplement to the Draft EIS/EIR, Alternative D calls for the installation of new baggage screening facilities in the Central Terminal Area -- not the remote passenger check-in facility. If Alternative D were designed to protect the Central Terminal Area from terrorist attacks, one would think that the baggage would be fully screened before it is transported through the baggage tunnel to this area. Nine billion dollars is an extremely high price to pay for a project that provides a single building protection from car bombs but not from suitcase bombs.

Housing Issues

The Supplement to the Draft EIS/EIR makes the astounding claim that Alternative D would not displace any residents. Instead, the Supplement predicts that 2,500 houses and apartments will be acquired and the residents relocated under LAWA's existing Voluntary Residential Acquisition/Relocation Program, through which LAWA may acquire property and relocate residents on a voluntary basis in order to mitigate the impact of airport noise. The Supplement then concludes that Alternative D would not require the acquisition of any additional dwelling units or the relocation of any additional residents. This claim is especially ironic, given the fact that several Manchester Square residents and apartment owners have already said that they will not leave their homes voluntarily.

In reality, Alternative D would displace thousands of Manchester Square residents. In order to construct the remote passenger check-in facility, the City of Los Angeles would have to acquire and demolish 38 houses, 179 apartment buildings and a 52-year-old elementary school, in addition to the 263 structures it has already acquired. It would also have to relocate about 6,200 people, some of whom have federally subsidized housing vouchers. I strongly oppose the forced relocation of any of these residents.

Cost of the Alternative D

Alternative D would cost \$9 billion, an exorbitant amount of money, at a time when budget deficits are growing and the economy is weak. Airlines would be required to increase their passenger fees in order to fund the proposal, which would amount to a tax increase for air passengers. American taxpayers have already provided loan guarantees to the airline industry to keep the airlines in business following the terrorist attacks of September 11, 2001. They should not have to pay increased passenger fees for unnecessary airport construction projects as well.

Air passengers and other taxpayers are willing to provide reasonable expenditures to pay for measures that provide real increases in security, such as the installation of baggage screening facilities. However, the remote passenger check-in facility, the automated people mover and the baggage tunnel included in Alternative D are not reasonable expenditures and do not provide real increases in security.

The American people are sick and tired of deficits and bloated government spending. The State of California is now running a \$38 billion deficit, and the federal government has a \$525 billion deficit. Furthermore, Congress is in the process of providing the President an additional \$87 billion for continuing operations in Iraq and Afghanistan. Alternative D is an outrageously expensive boondoggle, which the American people cannot afford.

Conclusion

Alternative D is simply a continuation of former Mayor Richard Riordan's plan to expand the airport in the name of safety and security. I urge the City Council of the City of Los Angeles to reject this ill-advised and expensive scheme that will displace thousands of Manchester Square residents without improving the safety and security of LAX.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): MARY A. HARRINGTON Date: 10-16-03

Address: 1638 W. 83rd Street

City: Los Angeles State: CA Zip Code: 90047

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

Comments:
I am requesting to be considered to soundproof my home at the above address. Can you please re-evaluate the decimal sound of the flight path of the LAX Airport above my property and area. Thank you very much for your time and consideration.

Sincerely,
Mary Hjt

Office Use Only

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Daylight Time, ~~November 17, 2003~~

November, 2003

SPC00170

ARP-1

9-8-03

SIC

FMAH

ACTION
is assigned to

Secy. Norman Mineta
Dept. of Transportation

August 25, 2003

As a person who was born in October of 1952, I have had the opportunity to see the airport of Los Angeles evolve into LAX Airport. It has changed and grown over the decades to become one of the top five major airports in the nation.

I have flown on many aircraft to various destinations over the decades that include my first flight aboard TWA's Lockheed Constellations in the late 1950's.

When my father worked for American Airlines in the 1950's as a senior and lead mechanic, I was allowed to see behind-the-scenes operations at the airport.

My interest in airplanes eventually lead me to become an aerospace engineer who has worked for various defense-related businesses, including Rockwell, Intl. in the Weapons Systems Div. for the B-1 Bomber, during the 1980's.

LAX Airport certainly needs changes in order to modernize the facility. It is necessary to improve 1) convenience, that is make it more user friendly, for passengers visitors, etc., 2) efficiency of operations that reduce time involved from arrival to departure for passengers, visitors, and others, 3) level of safety and security for people in and around the area, 4) amount of permanent jobs from businesses in the airport, nearby areas, and L.A. region, and 5) the quality of life for people from air and noise pollution, heavy traffic, etc.

Gordon Michael Mege
4535 W. 141st St.
Hawthorne, CA 90250-6927

August 25, 2003

Gordon Michael Mego
4535 W. 14 1st St.
Hawthorne, CA 90250-6927

Unfortunately, the earlier plans by L.A. Mayor Richard Riordan would not and the current proposals by Mayor James Hahn will not achieve any of the objectives, but will actually make everything, to one degree or another, worse than before at LAX Airport while costing at least \$10 billion.

While the downturn in the U.S. economy has affected the number of passengers who take flights to and from LAX Airport, the level of security is another factor that has impacted the yearly amount of people travelling, which is now about 52 million.

The implementation of the Ground Transportation Center in what is now a residential neighborhood of Manchester Square, of the Baggage Screening Center in place of the parking structures in the Central Terminal area, and the people mover rail system that will connect the two sections will certainly slow down the overall operations of the airport, will definitely increase the amount of time and the level of inconvenience for people at the airport, and will surely expand the areas where more lives will be affected by any terrorist attack.

In fact, if an explosive device(s) were to be detonated in the Ground Transportation Center, literally thousands of people could be killed or injured not only there, but also in the surrounding residential areas that are located north and east of it, in

August 25, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927

the nearby commercial areas which include large hotels, and along the 405 freeway which is a heavily traveled route that may be shut down.

Curiously, the Los Angeles World Airports (LAWA) has been purchasing homes from property owners in the Manchester Square neighborhood during the past six years with the goal of owning all the property in the area. The question is how can they legally expend public funds to buy these or any other properties for some unauthorized future project? They have never received approval from residents and businesses in the area nor from the various governing bodies at the local and national levels.

Also, Mayor Hahn is trying to seek approval of his LAX Airport proposal based upon an outdated Environmental Impact Report (EIR) that was commissioned by Mayor Riordan for earlier renovation proposals. He has chosen not to initiate a new Environmental Impact Study (EIS) as required by law for his proposed changes for LAX Airport.

On May 15, 2003, the Rand Institute of Santa Monica, which is a highly regarded private research group, issued its report on Mayor Hahn's proposal for LAX Airport. It was critical of nearly every aspect of the proposed renovation for \$10 billion.

August 25, 2003

Gordon Michael Mege
4535 W. 141st St.
Hawthorne, CA 90250-6927

In their analysis, they concluded that the Hahn proposal would not achieve its stated goals and would negatively impact the region at an enormous cost to taxpayers, businesses, etc. and that the safety and security of the people at LAX Airport could be easily improved with simple, common-sense upgrades at a small fraction of the \$10 billion.

On Aug. 19, 2003, A. C. Lazzaretto & Assoc. issued their report that was commissioned by the L.A. County Board of Supervisors on the Hahn proposal for LAX Airport.

It was critical about issues of security, environment, growth, etc. that affect the quality of life for people.

The viability of the airline industry in the United States is questionable considering the filings for bankruptcy by various air carriers which have lost billions of dollars in recent years. Where does Hahn suppose that they find the money to renovate LAX Airport? What does Hahn think will happen to them while they are subjected to constant disruption of their operations during the 11-year construction period? Obviously, there will be airlines that will simply go out of business! The economic fallout for the L.A. region, the state of California, and the rest of the nation would be significant.

August 25, 2003

LAX Airport should not be expected to handle an increasing number of passengers from other parts of Los Angeles and surrounding counties. There must a regional approach that utilizes the large airports to the maximum extent possible with approval of residents, businesses, and others in the affected communities.

As a part of the solution to traffic congestion in Los Angeles County, LAX could serve as a model for a futuristic airport with diversity in transportation which allows people the option of using private vehicles, shuttle buses, railroad trains, etc. to reach any of the airline terminals.

Of particular importance, it will be necessary to extend the Green Line of the Metro Rail into the central terminal area of LAX Airport along the inner, double-deck roadway. At some point in time, there could be a connection of a rail line that will travel north to West L.A., Santa Monica, etc.

During the past few years, the U.S. economy has been in a downturn with significant losses in employment among the various sectors of business. Therefore, it is understandable that labor unions are seeking work for their members who can't afford to be unemployed.

Gordon Michael Meago
4535 W. 141st St.
Hawthorne, CA 90250-6927

August 25, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927

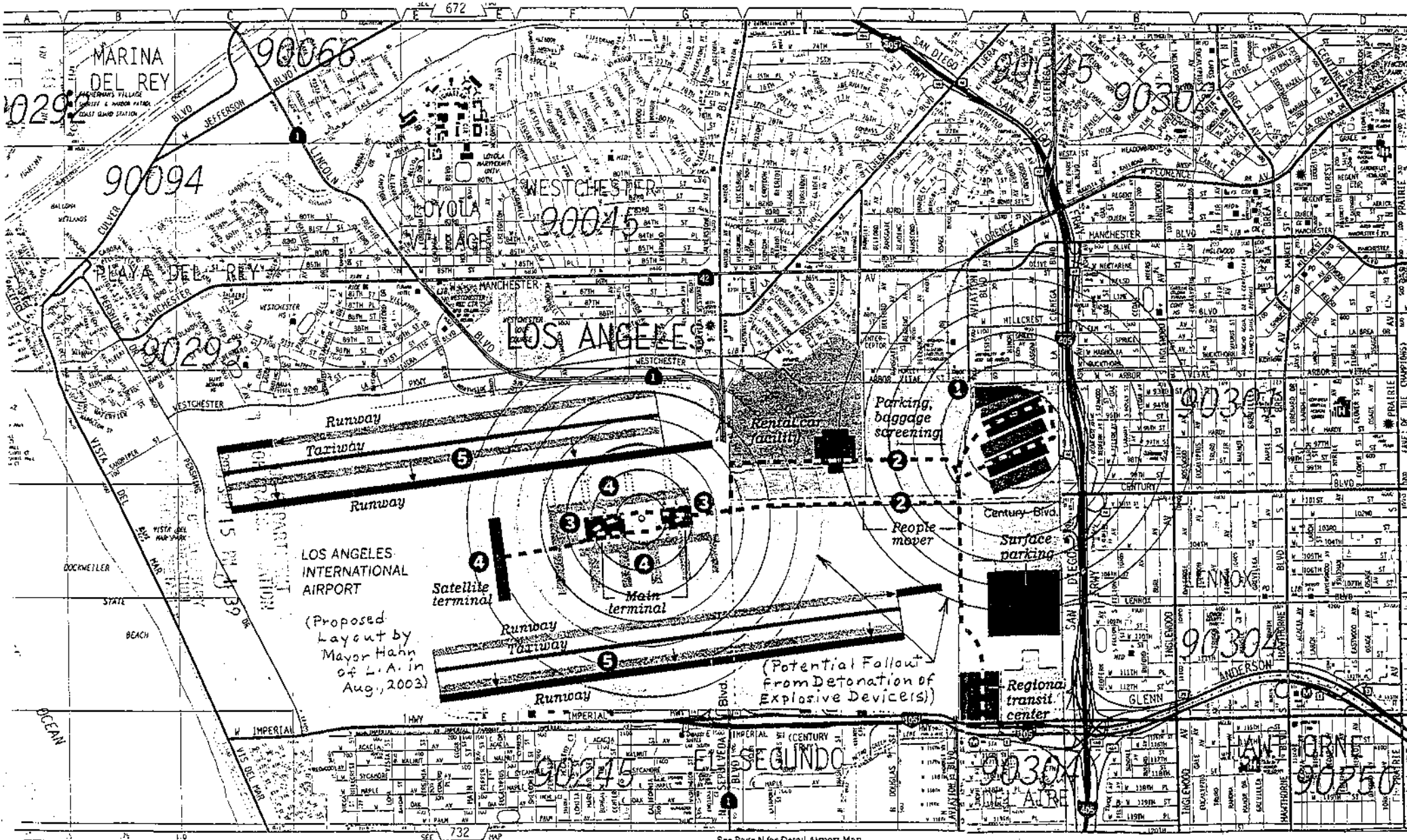
But I would ask the leaders of the various unions in California to withhold or to withdraw their support for the Hahn proposal for LAX Airport. In doing so, they can help create a more realistic and viable plan that a majority of the people will approve.

Under any new proposal for LAX Airport, it is imperative that we retain the airline terminals at their present locations, the parking structures in the central terminal areas, and the double-deck roadway for private vehicles, ~~and~~ that we limit any changes to the facility to necessary improvements for the convenience and the safety of the passengers, visitors, and others as well as the efficiency of operations at the airport, and that we prevent the expansion of

LAX into any unused or new areas, especially the Manchester Square neighborhood.

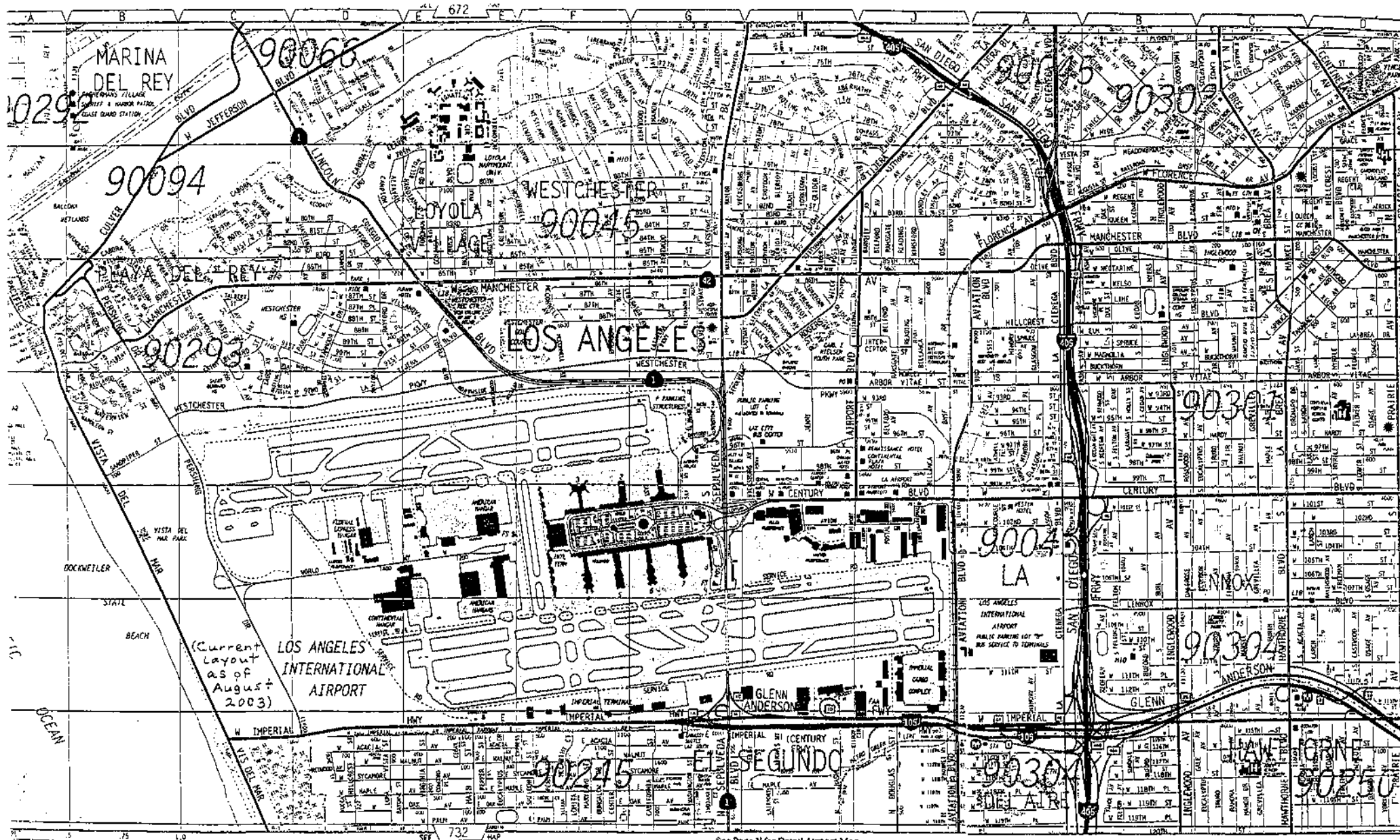
In conclusion, I am hopeful that my comments about LAX Airport will resonate with those individuals who are considering any proposed changes to the facility. It is incumbent upon the governing bodies to pursue courses of action that will improve the quality of life and the economic vitality of the region for the vast majority of people without spending enormous sums of money on unnecessary projects.

Gordon Michael Mego



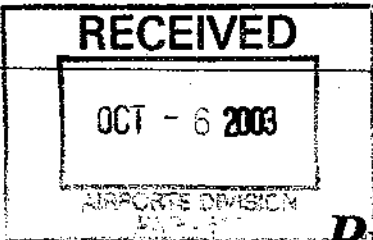
LOS ANGELES INTERNATIONAL AIRPORT
 (Proposed layout by Mayor Hann of L.A. in Aug, 2003)

(Potential Fallout from Detonation of Explosive Devices)





P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): <u>Sueann T. Lipp</u>		Date: <u>Sept. 2, 2003</u>
Address: <u>12040 Laurel Terrace Drive</u>		
City: <u>Studio City</u>	State: <u>CA</u>	Zip Code: <u>91604</u>

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments:

Who is the mayor trying to fool with this plan of safety and security? Many questions remain unanswered as to whether this will add safety for the public. How about the RAND Study?

As a resident of the Valley, my concern is traffic. The nightmare of getting to LAX from Studio City will not be any more improved after spending \$9 billion. The 405 is still a parking lot. Air traffic is still down since Sept. 11 and yet the mayor feels this is what Los Angeles needs right now.

I am completely opposed to such an outrageously expensive "facelift" for LAX.

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

XEROX: CC

SPC00172

August 21, 2003

Mr. David Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mailed
10-14-03, elg

Subject: Supplement to the DEIS/EIR LAX Master Plan—"Governor's Certificate" and PUC 21661.6 and how they relate to Alternative D, cargo, and nighttime operations

The "*Governor's Certificate*" arose from the federal Airport and Airway Improvement Act of 1982. In California the governor delegated this certification responsibility to the California Air Resources Board, CARB. The CARB developed an Air Quality Certificate process to regulate air emission—Section 509(b) (7) (a).

QUESTION 1. What is LAX's interpretation of the invoking of the "*Governor's Certificate*" on Mayor Hahn's Alternative D plan?

Public Utility Code, PUC 21661.6 states that a California city cannot buy land for a project until the project has been officially approved. The City of Los Angeles owns LAX. LAX has acquired homes in Manchester Square, the Belford apartment area, plans to acquire approximately 57 homes in the Wiley Post area, and the Southern California Association of Governments has approved/allocated money to widen the I405 Freeway/Arbor Vitae Interchange at the expense of removing minority housing, businesses, part of a park, part of a school, and one church. All this acquiring and planning to acquire is being done without an approved LAX project. In fact, as far back as 1998 LAX expansion maps have shown cargo planes in the Manchester Square/Belford areas, again with no approved LAX expansion plan.

QUESTION 2. What legal "leg" does LAX have to violate *Public Utility Code, PUC 21661.6* by acquiring properties for the LAX expansion project when that project has not been officially approved by the Los Angeles City Council or the Mayor of Los Angeles?

Cargo A previous LAX expansion EIS/EIR stated that cargo was an exception to EIS/EIR regulation, rules, etc., in other words cargo was going to operate under variance rulings.

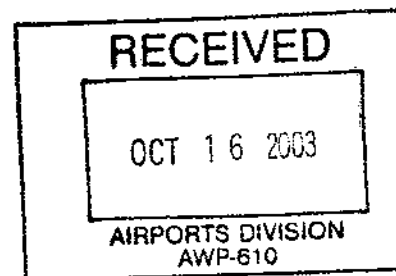
QUESTION 3. Does Alternative D treat cargo and passenger operations exactly the same or is cargo being treated under different rules/variances? If cargo has different rules what are they and what are their effects in the air, on the ground, and environment wise?

Nighttime operations LAX can expand to beyond 100 MAP as it exists today—August 21, 2003. This can be done by merely extending and expanding nighttime operations.

QUESTION 4. What are the nighttime hours, operation limits, and other regulations for passenger and cargo operations in this EIS/EIR Supplement? What guarantees are there that limit percentage-wise or operation-wise increases in nighttime operations—a cap guarantee on ALL types of operations and hours of operation?

Liz Garnholz
442 Whiting Street
El Segundo, CA 90245

Liz Garnholz
8-21-03



SPC00173

October 7, 2003

Dear Mr. Kessler:

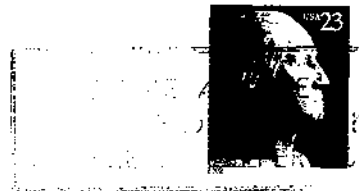
We oppose LAX Alt. D. This proposal would result in all airport-bound traffic coming through our neighborhoods. This would bring even more noise and pollution. The \$9.6 billion cost is unconscionable.

Thank you.

Sincerely

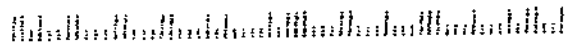
J. A. Hyra

J. A. Hyra
7645 Midfield Ave.
Los Angeles, CA 90045-3233



Mr. David B. Kessler
AICP
US Dept. of Transportation
Federal Aviation Admin.
PO Box 92007
Los Angeles, CA 90009-2007

90009-2007



SPC00174

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
Master Plan Office
PO Box 92216
Los Angeles, CA 90009-2216

Norm Thoeming
11018 Moorpark St. #313
North Hollywood, CA 91602
nthoemin@hotmail.com

Mr. Jim Ritchie:

As my bizarre work schedule keeps me from attending the three EIR hearings regarding the LAX masterplan, I've compiled this brief letter to add my comments.

First of all, thank you for this wonderful, innovative plan for the future of LAX and the entire community. I assure you that I and every person over which I hold the slightest influence will accept and encourage this remarkable plan. Keep up the good work.

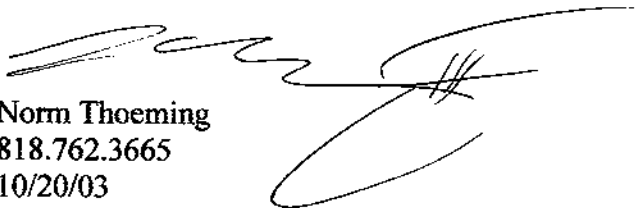
Another issue facing the future of Los Angeles is the expansion of the MTA system and the proposed California High Speed Rail project. While Alternative D does include a direct connection with the Metro Green line at Aviation via a pedestrian walkway (an option which will only help both MTA and cut down on Airport traffic), I haven't found details about what will be done with the existing northbound MTA-owned ROW along Aviation.

In the past, various parties have insisted that a Green Line extension northward or any rail into the airport may affect various controlling beacons and equipment. Having taken the El into O'Hare, obviously it is doable. Please encourage all parties included to think for the future of the city and the airport to preserve this right of way and to build into the construction budget the necessary trench west of Aviation Blvd along the MTA Harbor Subdivision ROW. This would allow the Green Line to proceed north from the current Aviation/Imperial Green Line station without interfering with LAX radar beacons and/or other electromagnetic operations associated with LAX.

On the same note, please encourage those involved to allow space for a future additional train station at the ITC or the GTC should the Green Line expand or should High Speed Rail come from Union Station to LAX via the former Slauson railroad tracks.

Thank you very much for your time, your efforts, and your open mind:

Norm Thoeming
818.762.3665
10/20/03



Rec'd
10/22/03
SPC00175



Public Comments

Please print.

Name (First MI Last, or Organization): JAMES WASHINGTON - LOCAL 347		Date: 10/25/03
Address: 1015 WILSHIRE BLVD		
City: LOS ANGELES	State: CA	Zip Code: 90017

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: **Title:** REPRESENTATIVE

Comments:	<i>Office Use Only</i>

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
 U.S. Department of Transportation
 Federal Aviation Administration
 P.O. Box 92007
 Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
 City of Los Angeles
 Los Angeles World Airports
 LAX Master Plan Office
 P.O. Box 92216
 Los Angeles, CA 90009-2216



Public Comments

--	--	--	--	--	--	--	--

Please print.

Name (First MI Last, or Organization): ADAN FLORES **Date:** 10-25-03

Address: 9930 E. ALESIA ST

City: S. EL MONTE **State:** CAL **Zip Code:** 91733

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: **Title:**

Comments:
 Support plan D

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Attach additional sheets if necessary.

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Send Comments to:

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 U.S. Department of Transportation
 Federal Aviation Administration
 P.O. Box 92007
 Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
 City of Los Angeles
 Los Angeles World Airports
 LAX Master Plan Office
 P.O. Box 92216
 Los Angeles, CA 90009-2216



Comentarios del Público

Por favor, letra de imprenta.

Nombre (Nombre de pila, Inicial, Apellido y Organización):

Roberto Hernandez

Fecha:

10-25-03

Domicilio:

Local 300

Ciudad:

Estado:

Código Postal:

Teléfono (Opcional):

Correo Electrónico (Opcional):

Documento:

Borrador Plan Maestro

Borrador EIS/EIR

Número de (Si corresponde):

Sub-sección:

Título:

Comentarios:

I Support plan (D)

Únicamente para uso de la Oficina

Incluya páginas adicionales si necesario.

Comentarios oficiales sobre el Borrador Plan Maestro de LAX y/o Borrador Suplementar EIS/EIR deberán ser recibidos a no más tardar el Viernes 7 de Noviembre, 2003 a las 5:00pm del Tiempo Uniforme Pacífico.

Mande los Comentarios a:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

SPC00178



Public Comments

Please print.

Name (First MI Last, or Organization): F. J. PAYLOVICH		Date: 10/29/03
Address: P.O. Box 1373 SANTA MONICA, CA 90406		
City:	State:	Zip Code:

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: _____ Title: _____

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1 SAFORT PLAN B.

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Send Comments to:

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 Federal Aviation Administration
 P.O. Box 92007
 Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
 City of Los Angeles
 Los Angeles World Airports
 LAX Master Plan Office
 P.O. Box 92216
 Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First M, Last, or Organization): ANGEL ARCOIA Date: 10/25/03

Address: 4163 Oak St.

City: Acio Rivera State: CA Zip Code: 90660

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments: Office Use Only

Yo apoyo el plan D
y al mayor Hann

Attach additional sheets if necessary.

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Send Comments to:

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U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

--	--	--	--	--	--	--	--

Please print.

Name (First MI Last, or Organization): DAN, A & VILAN		Date: 10-25-03
Address: 9427 DORIS ST		
City: CANT PICO RIVERA	State: CAL	Zip Code: 90660

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
 Number: Title: LABOER LOCAL 300

Comments: I SUPORT PLAN D	Office Use Only
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Attach additional sheets if necessary.

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Send Comments to:

Mr. David B. Kessler, AICP
 U.S. Department of Transportation
 Federal Aviation Administration
 P.O. Box 92007
 Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
 City of Los Angeles
 Los Angeles World Airports
 LAX Master Plan Office
 P.O. Box 92216
 Los Angeles, CA 90009-2216

I am here today to give testimony on the damage being done to our homes as a result of the increased airline travel over our community. I have lived in this community for over 31 years.

This issue is not new to us. We have tried over the last ten years to engage in a constructive dialogue with the LAX Airport Representatives and time and time, they have ignored our concerns and request to assistance in repairing our home impacted by the air services.

Many of our home have cracks in the foundations, our doors and windows frame are out of alignment with the structure of the homes and our roofs have been damaged as a result of the low flying and the fumes traveling down.

The noise has been so loud when the airplanes are traveling over our homes, that we have to play an up and down game with the sound on our televisions or phone conversation in order to hear.

When Representatives have meet with us (only on a few occasions), and stated that the noise indicator do not show that we are in the direct noise flight path, we have shown them the actual map created by the LAX is out dated. The increase use of the airport and the ~~has~~ to expand, should be clear indicators that a new set of noise box indicator should be placed in ~~low~~ locations to determine the impact the airplanes. We have tried to convey this to the Representative, yet no one is willing to give us a definitive answer or allow us to identify some of the location if this were to take place.

We are requesting, no demanding that action take place to address our concerns and to establish a relationship with us in helping to resolving this issue and repairing our home in the same manner you have done with Westchester, Inglewood and a small portion of southwest LA close to the Inglewood city line.

Keep in mind that LAX is own by the City and we as residents of the City pay taxes and patronize the facility and should be entitle the level of customer service you pay to visitor using the airport.

Brenda Robinson
1900 W. 91st Street

United States Senate

WASHINGTON, DC 20510-0504

<http://feinstein.senate.gov>

October 20, 2003

Mr. Jim Ritchie
City of Los Angeles
LAWA Master Plan Office
P.O. Box 92216
Los Angeles, California 90009-2216

INQUIRY FROM: Mr. Gordon Mego

RE: Input on Proposals for LAX Expansion

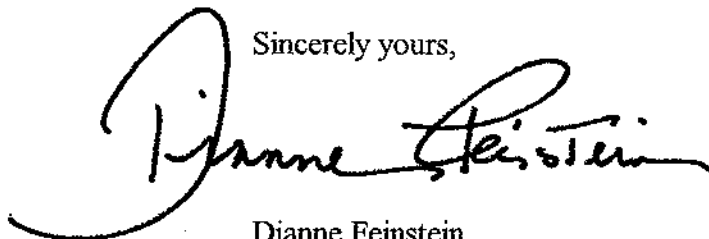
Dear Mr. Ritchie:

I am forwarding the attached constituent inquiry regarding the expansion of Los Angeles International Airport (LAX) for your review. I believe that my constituent would benefit from your response to the specific issues raised in the enclosed letter.

I would appreciate it if you would return your response to me as quickly as possible so that I can share the information with Mr. Mego. Should you have any questions, please contact my Washington, D.C. office at (202) 224-3841.

Best Regards.

Sincerely yours,



Dianne Feinstein
United States Senator

DF:kmm

SPC00183

4107097

9-8-03

Sen. Diane Feinstein

As a person who was born in October of 1952, I have had the opportunity to see the airport of Los Angeles evolve into LAX Airport. It has changed and grown over the decades to become one of the top five major airports in the nation.

I have flown on many aircraft to various destinations over the decades that include my first flight aboard TWA's Lockheed Constellations in the late 1950's.

When my father worked for American Airlines in the 1950's as a senior and lead mechanic, I was allowed to see behind-the-scenes operations at the airport.

My interest in airplanes eventually lead me to become an aerospace engineer who has worked for various defense-related businesses, including Rockwell, Intl. in the Weapons Systems Div. for the B-1 Bomber during the 1980's.

LAX Airport certainly needs changes in order to modernize the facility. It is necessary to improve 1) convenience, that is make it more user friendly, for passengers, visitors, etc., 2) efficiency of operations that reduce time involved from arrival to departure for passengers, visitors, and others, 3) level of safety and security for people in and around the area, ~~and~~ 4) amount of permanent jobs from businesses in the airport, nearby areas, and LIA region, and 5) the quality of life for people from air and noise pollution, heavy traffic, etc.

August 25, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927

August 25, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927

Unfortunately, the earlier plans by L.A. Mayor Richard Riordan would not and the current proposals by Mayor James Hahn will not achieve any of the objectives, but will actually make everything, to one degree or another, worse than before at LAX Airport while costing at least \$10 billion.

While the downturn in the U.S. economy has affected the number of passengers who take flights to and from LAX Airport, the level of security is another factor that has impacted the yearly amount of people traveling, which is now about 52 million.

The implementation of the Ground Transportation Center in what is now a residential neighborhood of Manchester Square, of the Baggage Screening Center in place of the parking structures in the Central Terminal area, and the people mover rail system that will connect the two sections will certainly slow down the overall operations of the airport, will definitely increase the amount of time and the level of inconvenience for people at the airport, and will surely expand the areas where more lives will be affected by any terrorist attack.

In fact, if an explosive device(s) were to be detonated in the Ground Transportation Center, literally thousands of people could be killed or injured not only there, but also in the surrounding residential areas that are located north and east of it, in

August 25, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927

the nearby commercial areas which include large hotels, and along the 405 freeway which is a heavily traveled route that may be shut down.

Curiously, the Los Angeles World Airports (LAWA) has been purchasing homes from property owners in the Manchester Square neighborhood during the past six years with the goal of owning all the property in the area. The question is how can they legally expend public funds to buy these or any other properties for some unauthorized future project? They have never received approval from residents and businesses in the area nor from the various governing bodies at the local and national levels.

Also, Mayor Hahn is trying to seek approval of his LAX Airport proposal based upon an outdated Environmental Impact Report (EIR) that was commissioned by Mayor Riordan for earlier renovation proposals. He has chosen not to initiate a new Environmental Impact Study (EIS) as required by law for his proposed changes for LAX Airport.

On May 15, 2003, the Rand Institute of Santa Monica, which is a highly regarded private research group, issued its report on Mayor Hahn's proposal for LAX Airport. It was critical of nearly every aspect of the proposed renovation for \$10 billion.

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927

August 25, 2003

In their analysis, they concluded that the Hahn proposal would not achieve its stated goals and would negatively impact the region at an enormous cost to taxpayers, businesses, etc. and that the safety and security of the people at LAX Airport could be easily improved with simple, common-sense upgrades at a small fraction of the \$10 billion.

On Aug. 19, 2003, A. C. Lazzaretto & Assoc. issued their report that was commissioned by the L.A. County Board of Supervisors on the Hahn proposal for LAX Airport.

It was critical about issues of security, environment, growth, etc. that affect the quality of life for people.

The viability of the airline industry in the United States is questionable considering the filings for bankruptcy by various air carriers which have lost billions of dollars in recent years. Where does Hahn suppose that they find the money to renovate LAX Airport? What does Hahn think will happen to them while they are subjected to constant disruption of their operations during the 11-year construction period? Obviously, there will be airlines that will simply go out of business! The economic fallout for the L.A. region, the state of California, and the rest of the nation would be significant.

August 25, 2003

Gordon Michael Mego
4535 W. 141st St.
Hawthorne, CA 90250-6927

LAX Airport should not be expected to handle an increasing number of passengers from other parts of Los Angeles and surrounding counties. There must be a regional approach that utilizes the large airports to the maximum extent possible with approval of residents, businesses, and others in the affected communities.

As part of the solution to traffic congestion in Los Angeles County, LAX could serve as a model for a futuristic airport with diversity in transportation which allows people the option of using private vehicles, shuttle buses, railroad trains, etc. to reach any of the airline terminals.

Of particular importance, it will be necessary to extend the Green Line of the Metro Rail into the central terminal area of LAX Airport along the inner, double-deck roadway. At some point in time, there could be a connection of a rail line that will travel north to West L.A., Santa Monica, etc.

During the past few years, the U.S. economy has been in a downturn with significant losses in employment among the various sectors of business. Therefore, it is understandable that labor unions are seeking work for their members who can't afford to be unemployed.

August 25, 2003

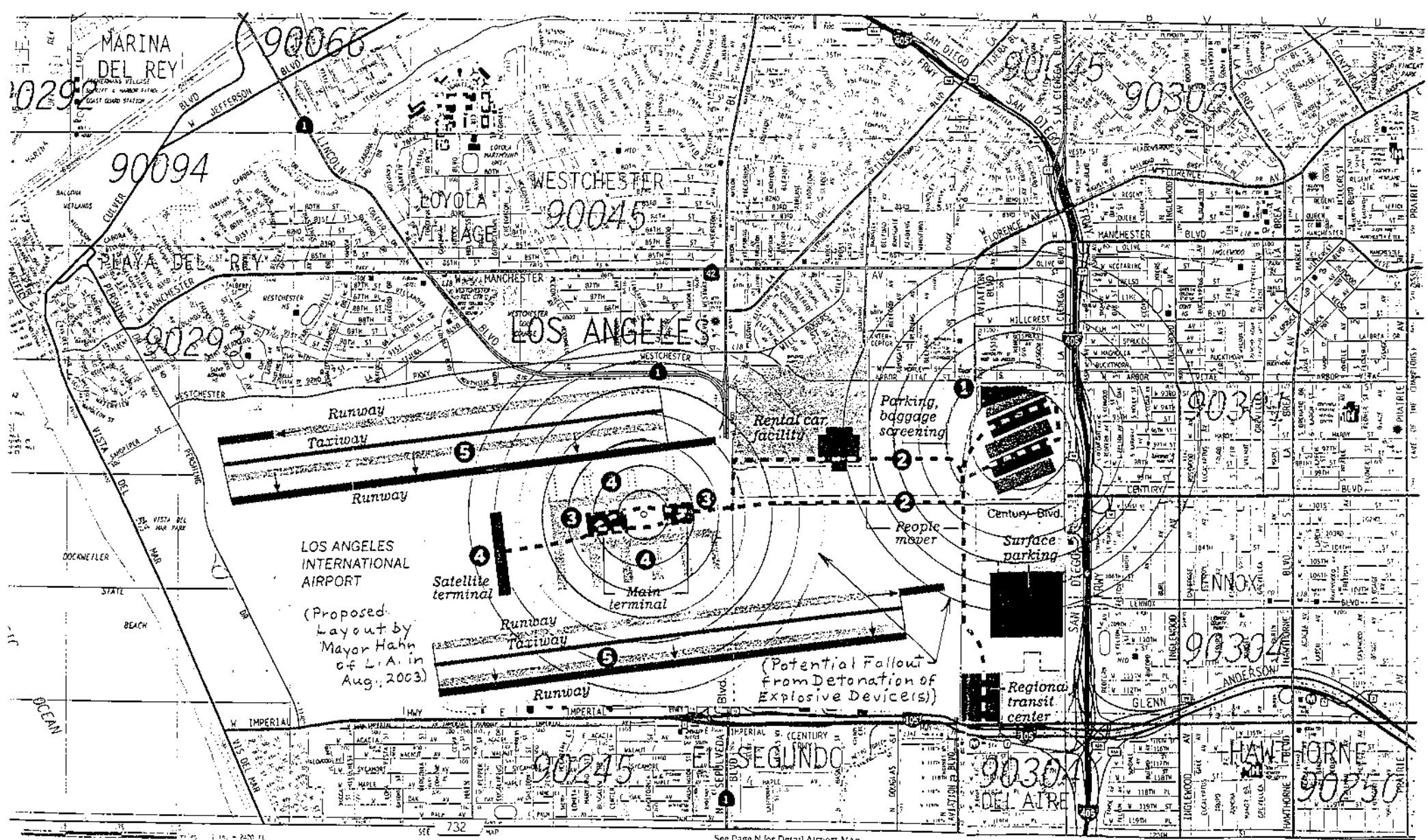
Gordon Michael Mego
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Hawthorne, CA 90250-6927

But I would ask the leaders of the various unions in California to withhold or to withdraw their support for the Hahn proposal for LAX Airport. In doing so, they can help create a more realistic and viable plan that a majority of the people will approve.

Under any new proposal for LAX Airport, it is imperative that we retain the airline terminals at their present locations, the parking structures in the central terminal areas, and the double-deck roadway for private vehicles, ~~and~~ that we limit any changes to the facility to necessary improvements for the convenience and the safety of the passengers, visitors, and others as well as the efficiency of operations at the airport, and that we prevent the expansion of LAX into any unused or new areas.

In conclusion, I am hopeful that my comments about LAX Airport will resonate with those individuals who are considering any proposed changes to the facility. It is incumbent upon the governing bodies to pursue courses of action that will improve the quality of life and the economic vitality of the region for the vast majority of people without spending enormous sums of money on unnecessary projects.

Gordon Michael Mego



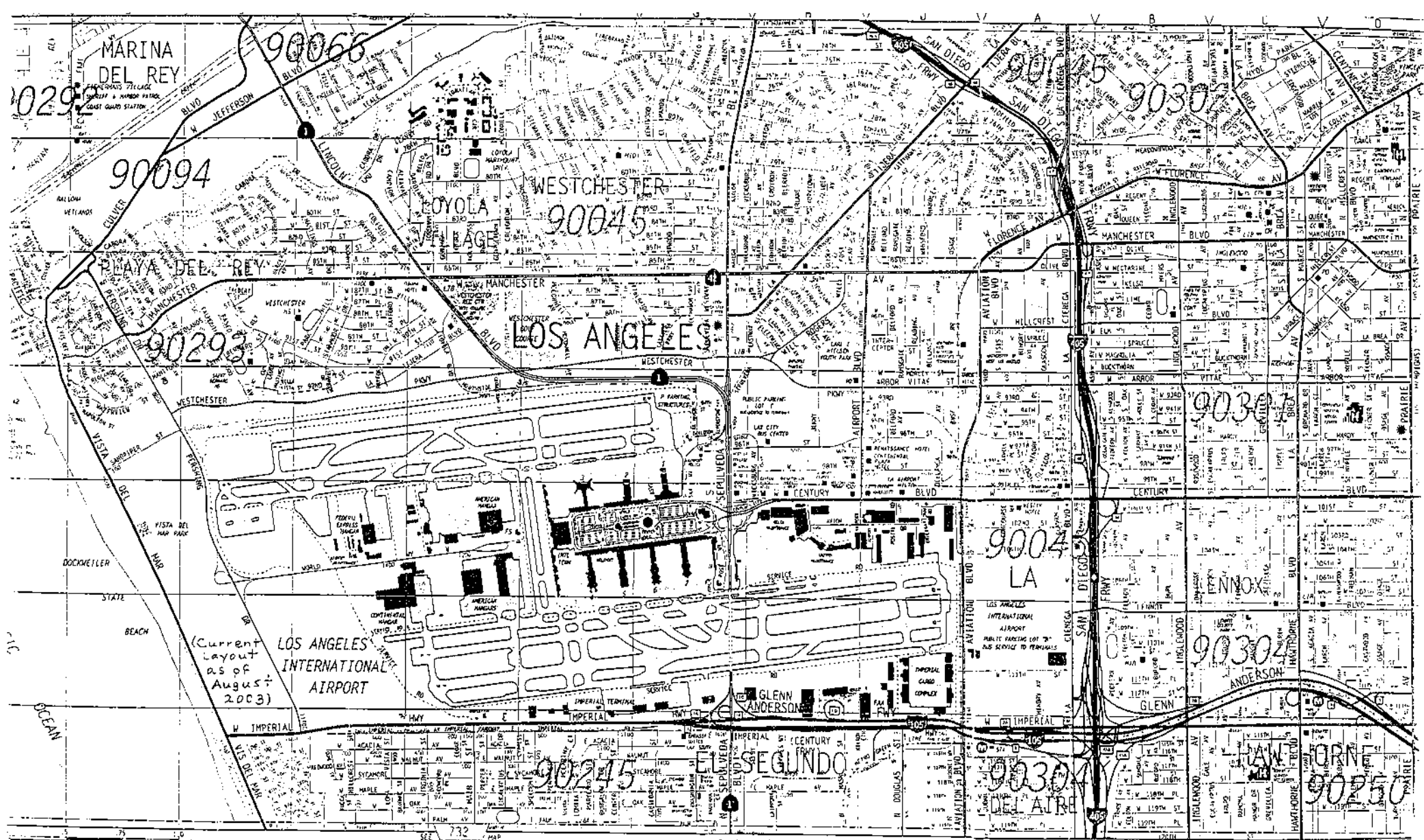
LOS ANGELES INTERNATIONAL AIRPORT

(Proposed Layout by Mayor Hahn of L.A. in Aug. 2003)

(Potential Fallout from Detonation of Explosive Devices)

SEE 732 MAP See Page N for Detail Airport Map

SPC00184



(Current layout as of August 2003)
 LOS ANGELES INTERNATIONAL AIRPORT

See Page N for Detail Airplan Map

SPC00184



Public Comments

Please print.

Name (First MI Last, or Organization): Armando Alvarado Date: 10-25-03

Address: 1101 Griswold Ave

City: San Fernando State: CA. Zip Code: 91340

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

<p>Comments:</p> <p><u>I support plan "D"</u></p>	<p>Office Use Only</p>
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U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): Gregorio Garcia Date: 10-25-03

Address: 38551 L. Lacview Av.

City: Palm Dale State: CA Zip Code: 92550

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

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or

Mr. Jim Fitchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization):

HENRIQ XERO

Date: 10/26

Address: 4525 No Jony RD

City: Bodwin Park Ca.

State:

CA

Zip Code: 91706

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

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Los Angeles World Airports
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P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): MRS ESPESEL Date: 10-25-03

Address: 1055 W. 2ND ST

City: POMONA State: CA Zip Code:

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

<p>Comments:</p> <p>I SUPPORT PLAN "2"</p>	<p>Office Use Only</p>
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or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
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Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): Agustin Ramos

Date: 10-27-03

Address: LOCAL #300

City:

State:

Zip Code:

Document: Draft Master Plan Addendum

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Title:

Comments:

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Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): FERNANDO CONTRERAS Date:

Address: 3051 Hubbard #6

City: Sydney State: CA Zip Code: 91342

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

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or

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 City of Los Angeles
 Los Angeles World Airports
 LAX Master Plan Office
 P.O. Box 92216
 Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization):

BENITO ALARCÓN

Date:

10-25-03

Address:

226 W 78th St

LA CA

90003

City:

State:

Zip Code:

Document:

Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number:

Title:

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Lo APOLLO AL MAYOR de LA
cd. de Los Angeles

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or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): HENRY JIMENEZ Date: 10/23/03

Address: 515 SHATTO PL

City: LA State: CA Zip Code: 90020

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

<p>Comments:</p> <p><u>I SUPPORT JAMES HANE PLAN FOR LAX</u></p>	<p>Office Use Only</p>
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Federal Aviation Administration
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Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): FRANCISCO MONSON Date: 10-25-03

Address: LOCAL #300

City: _____ State: _____ Zip Code: _____

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: _____

<p>Comments:</p> <p><u>I support plan (D)</u></p>	<p>Office Use Only</p>
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or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): **MARIO LONGORIA** Date: **10/25/03**

Address: **12954 GUADALAJARA CIR.**

City: **CERRITOS** State: **CA** Zip Code: **90703**

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

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Federal Aviation Administration
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Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): JESOS - JIMENES Date: 10.28.2002

Address: 703 - GRIBBITO ST

City: SAN FERNANDO State: CAL. Zip Code: 91340

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

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Federal Aviation Administration
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Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): Fernanda Flores Date: 10-25-03

Address: Level 300

City: _____ State: _____ Zip Code: _____

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City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

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Please print.

Name (First MI Last, or Organization): JUAN CARRILLO Date: 10 25 03

Address: 887 213 ST

City: LA State: CALIF Zip Code: 90011

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):

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 City of Los Angeles
 Los Angeles World Airports
 LAX Master Plan Office
 P.O. Box 92216
 Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): Carlos Casillo Date: 10-25-03

Address: 4658 Gleason St

City: L.A. State: ca. Zip Code: 90520

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments:

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Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): DELFINO DELA CRUZ Date: 10/25/03

Address: 9620 SEPULVEDA BLVD #2

City: NORTH HILLS State: CA Zip Code: 91343

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
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Comments: I SUPPORT PLAN "D"
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Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): JESSIE M. GADDIS **Date:**

Address: 8838 HAAS AVE.

City: LOS ANGELES **State:** CA **Zip Code:** 90047

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: **Title:**

Comments:

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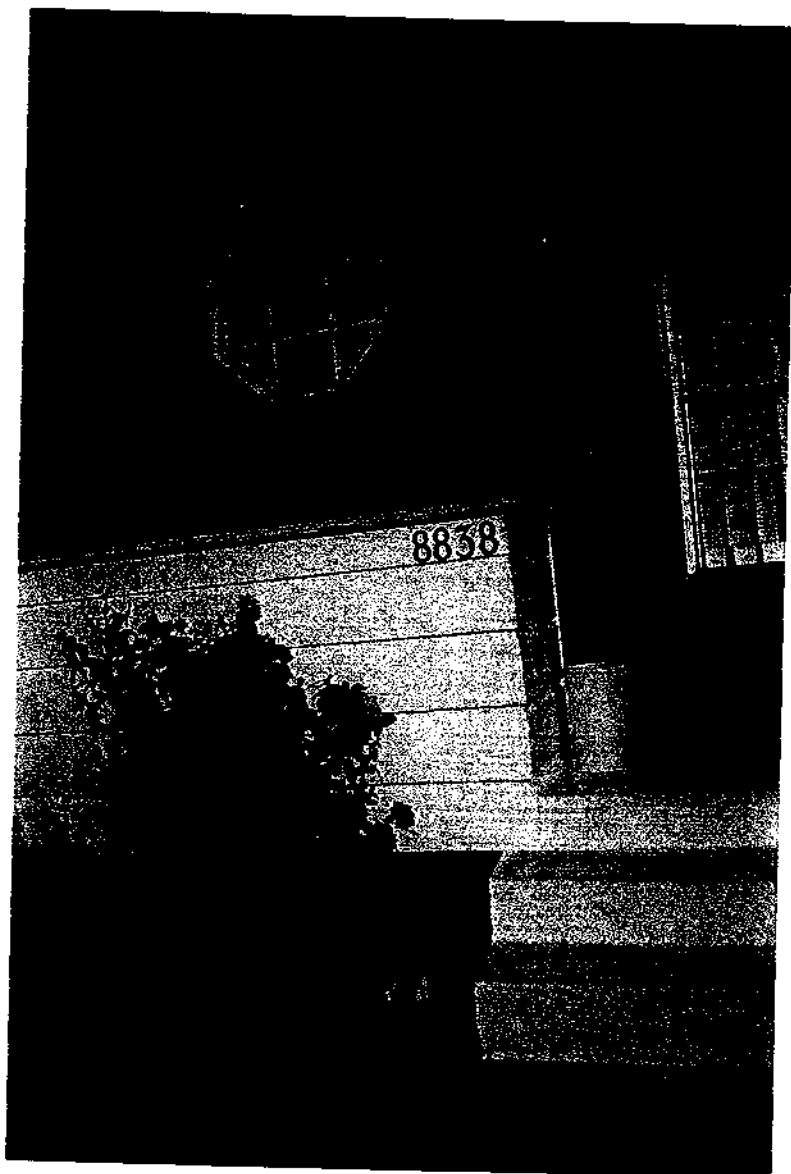
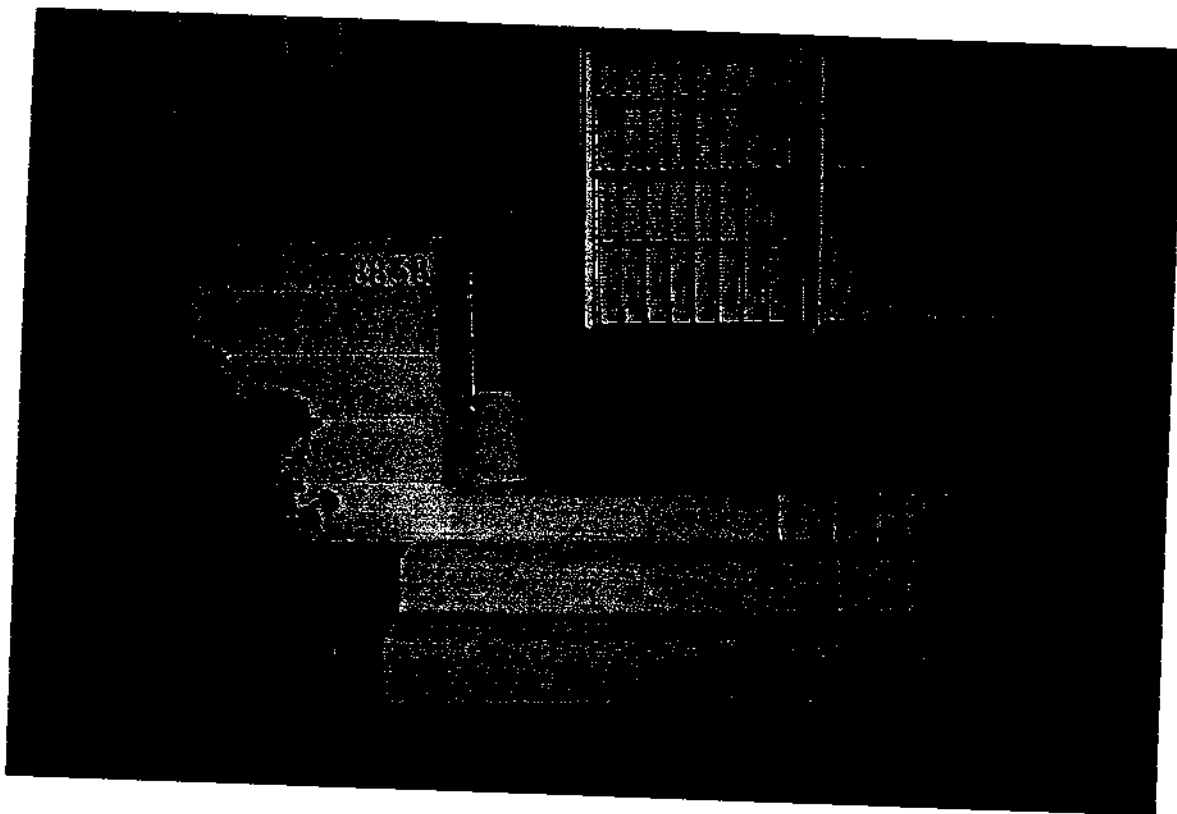
Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

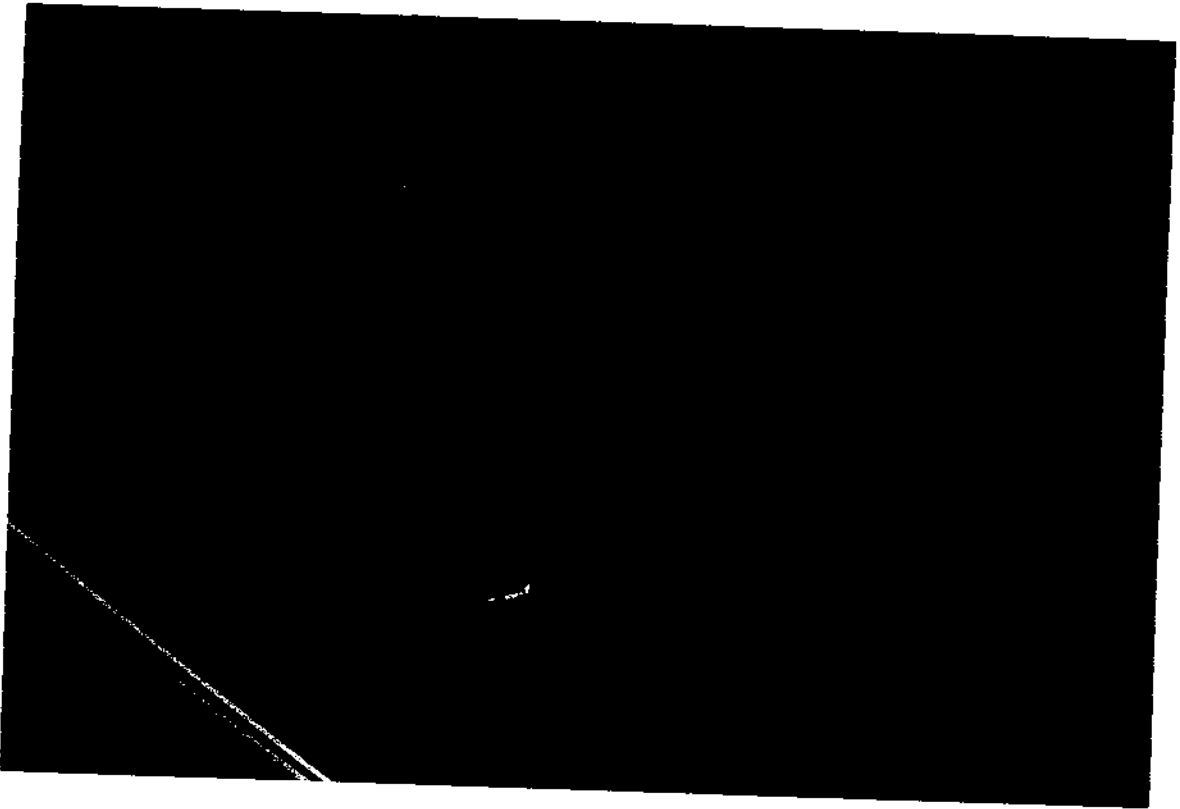
Send Comments to:

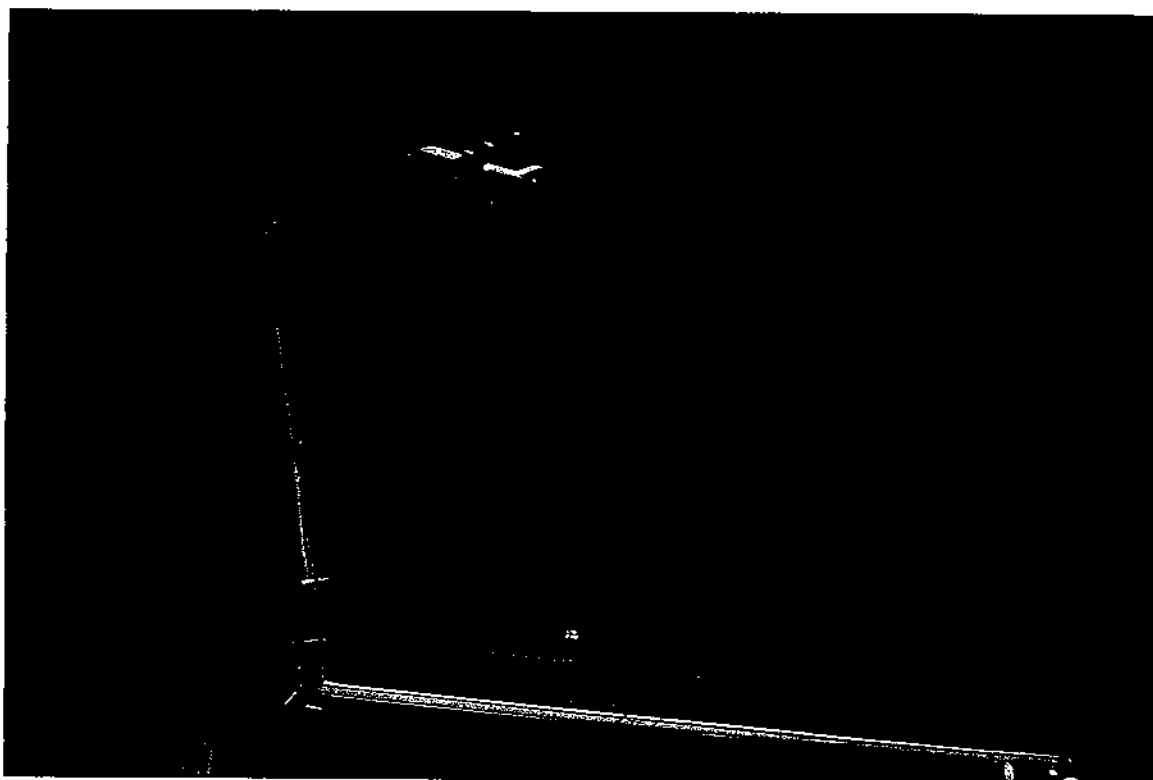
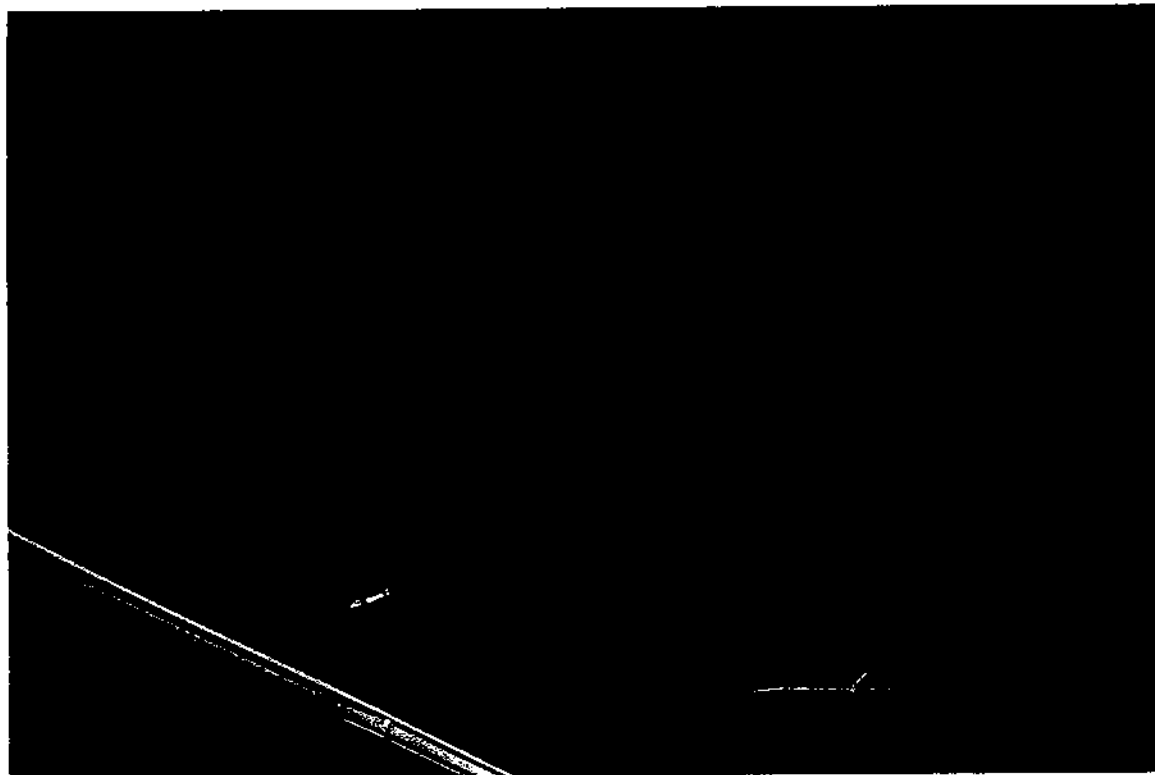
Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

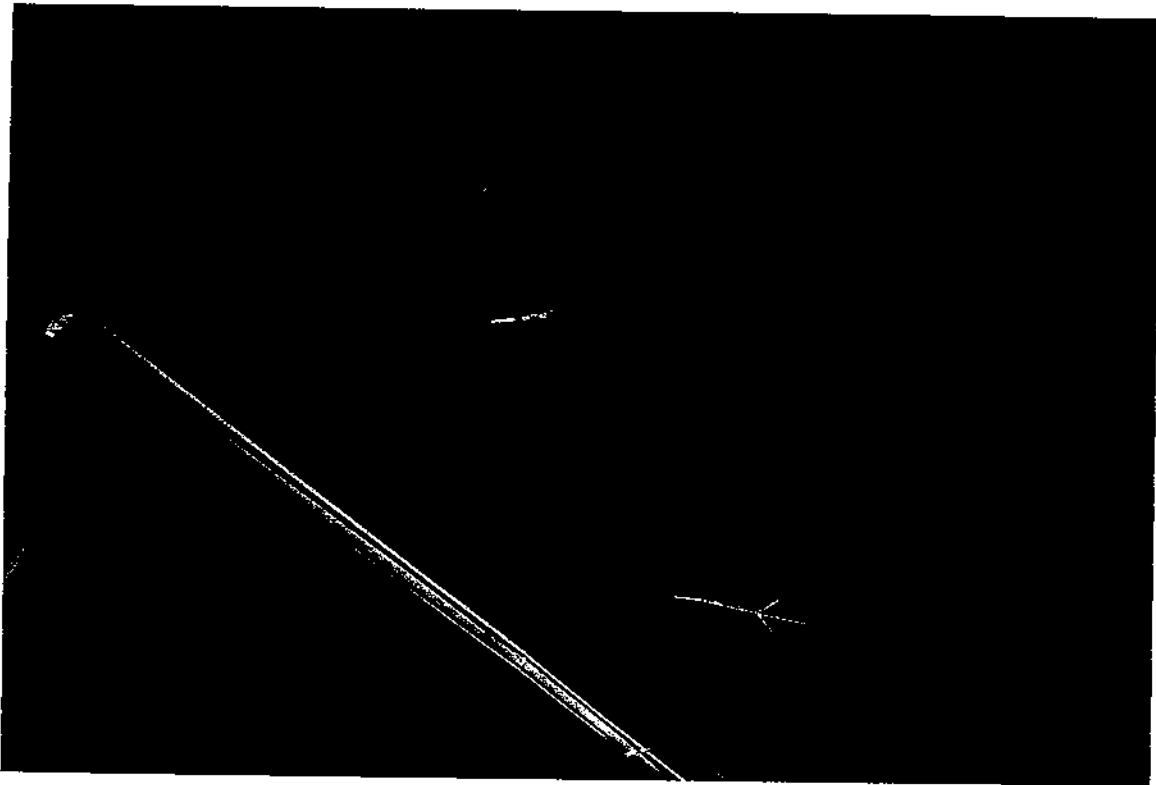
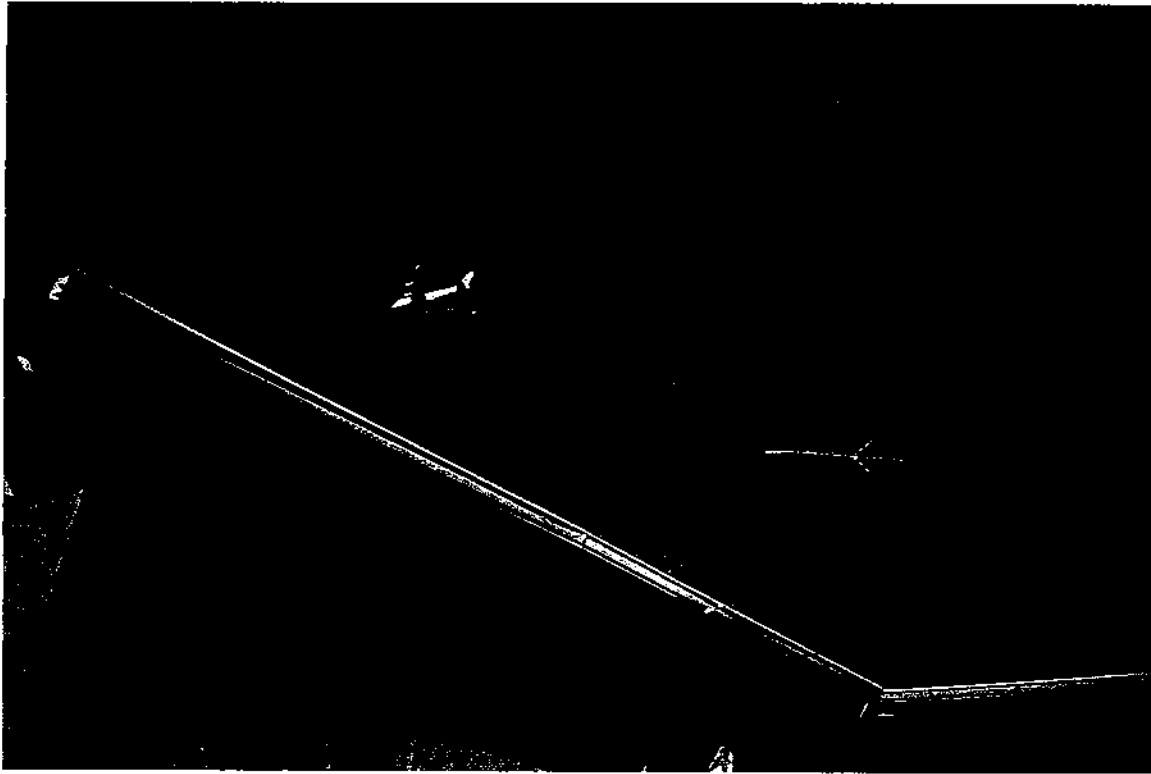
or

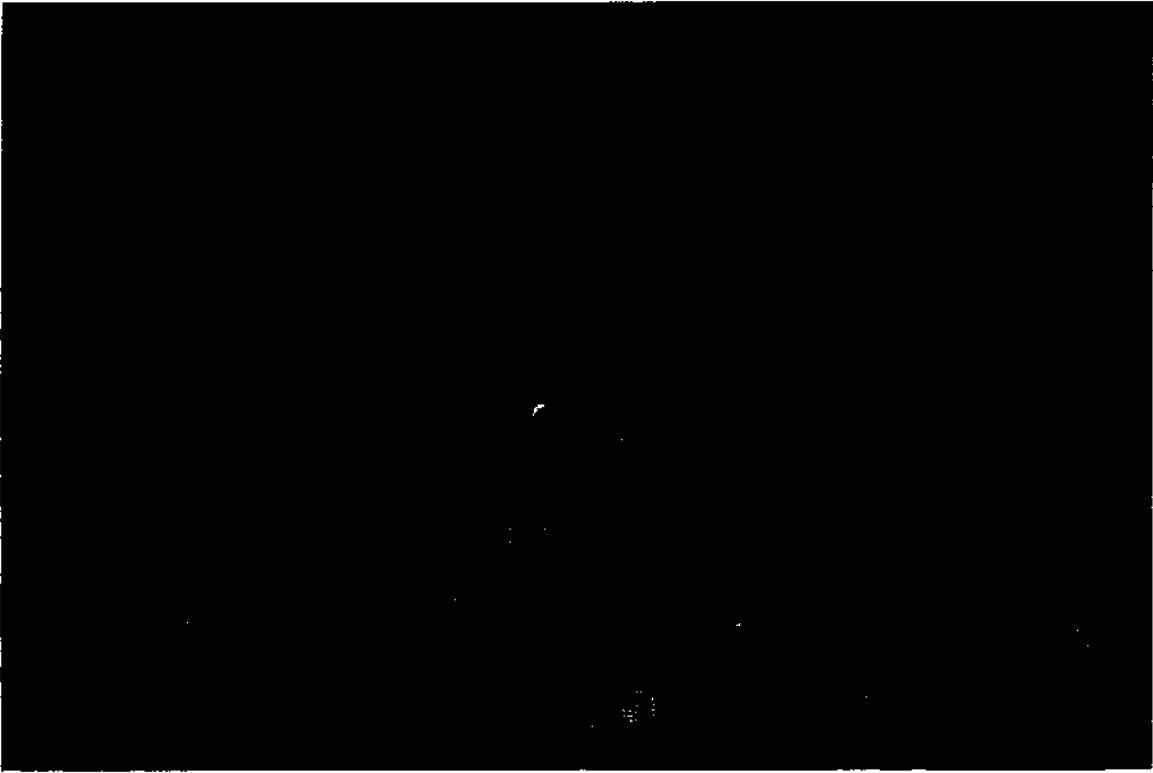
Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216













Public Comments

Please print.

Name (First MI Last, or Organization):

Charles A Adelman

Date:

10/25/03

Address:

6146 Eleanor Ave #107

City:

Los Angeles

State:

CA

Zip Code:

90038

Document:

Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number:

Title:

Comments:

1) ~~LAX~~ LAX is the main trans-Pacific Hub for the ~~US~~ United States. every flight into or out of LAX carries both local origin/Destination passengers and connecting passengers. It is not practical to ~~split~~ divide these passengers to different airports. Therefore to be realistic, we must either increase the capacity of LAX to meet demand, build ^{direct} high speed rail connections between airports, or replace LAX with a new larger airport in the inland empire

2) Moving the main parking area out of the central ~~terminal~~ terminal area is essential for both security and traffic management ~~reasons~~ reasons; However, concentrating all parking in a new "Surface transportation area" simply moves the security problems ~~and~~ Traffic congestion to a different location; Solving the congestion and ~~car bomb~~ Car bomb security issues requires creating an effective network of transit connections into LAX. The ~~intermodal~~ intermodal Transportation Center must be located in the central terminal area so that passengers

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Send Comments to:

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U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Comentarios del Público

Por favor, letra de imprenta.

Nombre (Nombre de pila, Inicial, Apellido u Organización):

Charles A Adelman

Fecha:

10/25/03

Domicilio:

6146 Eleanor Ave

Ciudad:

Los Angeles

Estado:

CA

Código Postal:

90058

Teléfono (Opcional):

Correo Electrónico (Opcional):

Documento:

 Borrador Plan Maestro Borrador EIS/EIR

Número de (Si corresponde):

Sub-sección:

Título:

Comentarios: Page 2

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Can walk to the terminals from their trains without having to change trains. LAX needs to have a direct high speed rail link to Union Station downtown and John Wayne Airport in Orange County. It needs to have grade ~~separated~~ separated transit links from the San Fernando Valley/Westside, from downtown/San Gabriel Valley and from Burbank airport. LAX must work with MTA & SCA6 to develop the following Rail Lines:

- 1) LAX → Union Station → Ontario Airport High Speed Rail
- 2) LAX → ~~Anaheim~~ Anaheim → John Wayne Airport H.S. R.
- 3) LAX → Union Station → El Monte Subway
- 4) Aviation Sta → LAX → Westwood → Sherman Oaks → San Fernando Green Line extension
- 5) Redondo → Southbay Galleria → Del Amo Square → Long Beach Green Line extension
- 6) Burbank Airport → Hollywood → Beverly Center → LAX Subway

Incluya páginas adicionales si necesario.

Comentarios oficiales sobre el Borrador Plan Maestro de LAX y/o Borrador Suplementar EIS/EIR deberán ser recibidos a no más tardar el Viernes 7 de Noviembre, 2003 a las 5:00pm del Tiempo Uniforme Pacífico.

Mande los Comentarios a:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

SPC00201



Public Comments

Please print.

Name (First MI Last, or Organization): Tom Hilfenhaus Date: 10-26-03

Address: 9732 Via Srenq

City: Sun Valley State: CA Zip Code: 91504

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: _____

Comments:
I support plan D

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Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): _____ Date: 10/25/03

Address: 1140W Newgrove st

City: Lancaster State: California Zip Code: 93534

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: _____

<p>Comments:</p> <p>Yo apoyo el plan D</p>	<p>Office Use Only</p>
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Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
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Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): JORJE SIFUNTES **Date:**

Address: 5461 VIA CAMPO

City: L.A. **State:** CALIF **Zip Code:** 90022

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: **Title:**

Comments:	<i>Office Use Only</i>
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Send Comments to:

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Federal Aviation Administration
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Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Comentarios del Público

Por favor, letra de imprenta.

Nombre (Nombre de pila, Inicial, Apellido u Organización):

EFRAIN LOPEZ

Fecha:

10/25/03

Domicilio:

4528 Santa Anita Ave

Ciudad:

El Monte CA

Estado:

Código Postal:

91751

Teléfono (Opcional):

Correo Electrónico (Opcional):

Documento:

Borrador Plan Maestro

Borrador EIS/EIR

Número de (Si corresponde):

Sub-sección:

Título:

Comentarios:

Yo apoyo el plan D

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Mande los Comentarios a:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

o

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

SPC00205



Comentarios del Público

Por favor, letra de imprenta.

Nombre (Nombre de pila, Inicial, Apellido u Organización): Guadalupe Navarro J. 2000 #300		Fecha: 25/10/03
Domicilio: 9735 Cedros ave Calif.		
Ciudad: Ponoyama CA	Estado: CA Calif.	Código Postal: 91402
Teléfono (Opcional): (213) 216-2726	Correo Electrónico (Opcional):	

Documento: Borrador Plan Maestro Borrador EIS/EIR

Número de (Si corresponde): **Sub-sección:** **Título:**

Comentarios:

D o Apoyo al Plan

D

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Mande los Comentarios a:

Mr. David B. Kessler, AICP
 U.S. Department of Transportation
 Federal Aviation Administration
 P.O. Box 92007
 Los Angeles, CA 90009-2007

Mr. Jim Ritchie
 City of Los Angeles
 Los Angeles World Airports
 LAX Master Plan Office
 P.O. Box 92216
 Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization):

Francisco Arrizon

Date:

10-25-03

Address:

515 Shatto Pl.

City:

Sylmar

State:

CA

Zip Code:

90020

Document:

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Supplement to the Draft EIS/EIR

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Title:

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Send Comments to:

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P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): EDDIE HERRERA Date: 10-25-03

Address: 3606 E. 60TH ST

City: HUNTINGTON PARK CA State: CALIF Zip Code: 90255

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: _____ Title: _____

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Send Comments to:

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or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
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Los Angeles, CA 90009-2216



Comentarios del Público

Por favor, letra de imprenta.

Nombre (Nombre de pila, Inicial, Apellido u Organización): Jacobo Sanchez **Fecha:** Oct 25 03

Domicilio: 2812 S Orange St

Ciudad: Los Angeles **Estado:** Ca. **Código Postal:** 90006

Teléfono (Opcional): (323) 938-1241 **Correo Electrónico** (Opcional):

Documento: Borrador Plan Maestro Borrador EIS/EIR

Número de (Si corresponde):

Sub-sección: **Título:**

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I SUPPORT PLAN D

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Mande los Comentarios a:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Comentarios del Público

Por favor, letra de imprenta.

Nombre (Nombre de pila, Inicial, Apellido u Organización):

Fecha:

JUAN GOMEZ

10-25-03

Domicilio:

37034 LOMIS CF

Ciudad:

Palmdale

Estado:

CA

Código Postal:

93556

Teléfono (Opcional):

Correo Electrónico (Opcional):

Documento:

Borrador Plan Maestro

Borrador EIS/EIR

Número de (Si corresponde):

Sub-sección:

Título:

Comentarios:

I SUPPORT PLAN D

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Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): JAMES E GOVIA Date: 10-35-03

Address: PO Box 1015


City: State: CA Zip Code: 90036

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments: I support plan D



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U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): **ARFURO ZAVAJA** Date: **10-25-03**

Address: **1101 GARDNER**

City: **FAA** State: **CA** Zip Code: **91340**

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

<p>Comments:</p> <p><i>I support Plan 11 D</i></p>	<p>Office Use Only</p>
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Send Comments to:

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Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): FREDERICK E. DEPALM Date: 10/25/03

Address: 501 CENTRA ST. L

City: EL SEQUUNDO CA. State: _____ Zip Code: 90245

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable): _____

Number: _____ Title: _____

<p>Comments:</p> <p><u>I SUPPORT PLAN "D"</u></p>	<p>Office Use Only</p>
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U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): ARTURO FELIX Date:

Address: 3910 W 102 ST

City: INGLEWOOD State: CA Zip Code: 90303

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title:

<p>Comments:</p> <p><u>I SUPPORT PLAN</u></p>	<p>Office Use Only</p>
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U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): **DENNIS BROWN** Date: **Oct. 9**

Address: **12233 MALONE ST.**

City: **LA** State: **CALIFORNIA** Zip Code: **90066**

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: Title:

Comments:

When Alternative D is continually referred to as the mayor's "Safety and Security" plan, it disturbs me a great deal. Although the plans are difficult to decipher, upon closer examination, it becomes very clear that the only thing that will be safe and secure is the airport itself.

It was my initial understanding that the Safety and Security plan was designed to protect the traveling public. This plan appears to do just the opposite. By having passengers concentrated in an area far removed from the physical structure of LAX, it is the same as painting a giant bullseye on the Ground Transportation Center and inviting terrorists to have a go at it. The propose 'people mover' has the same potential - an underground tunnel with thousands of passengers concentrated (trapped) in one area.

If the argument is for security, there seem to be many details / questions that have gone unanswered in this plan. Security technology that has not yet been developed, costs of implementation unknown - it would be irresponsible of the city, and the FAA to proceed with Alt. D without these answers.

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Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): BOB FELLER, EXEC. MGMT. CONSULT. Date: 10/23/03

Address: WORLDWAY CENTER 91435

City: L.A. State: CA Zip Code: 90009

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):

Number: Title:

Comments:

I MOVE ALL THE IMPERIAL TERM. FRAGHT+, TO THE 4 OUTLYING LAWA AIRPORTS THAT WANT IT.

II. DOUBLE LAX PASSENGER CAPACITY BY BUILDING A 2ND LAX @ IMPERIAL.

III. FOR SECURITY - HAVE "BOOTAS" TO INSPECT PEOPLE & LUGGAGE, WITH A ELECTRONIC CLOSED DOOR INTO TERMINAL A 4(+) ARMED POLICE THERE AT ALL TIMES. ONLY OPEN DOOR TO TERMINAL AFTER PEOPLE & LUGGAGE CLEARED FOR NBC'S & CONTRABAND.

IV ANY OTHER HELP, WRITE ME!

Office Use Only

Attach additional sheets if necessary.

Councilman Kelly McDowell
City of El Segundo
Comments on the LAX Master Plan Draft EIS/EIR Supplement
EPIC Center, Los Angeles
October 25, 2003

Good morning. I am Councilman Kelly McDowell, representing the City of El Segundo.

Given the length and complexity of the Master Plan and environmental documents, our complete comments, including those on technical issues, will be finalized soon and my City's comments today are preliminary.

The City of El Segundo continues to oppose Alternatives A, B, and C for the many reasons the City expressed orally and in writing during the public review and comment period for the initial Draft EIS/EIR in 2002.

The City of El Segundo has not endorsed Alternative D. However, we feel its stated objective of constraining LAX to its current capacity is appropriate and supports a regional aviation approach.

To be clear, the City of El Segundo can only support an alternative that by design will accommodate passenger and cargo levels no greater than the physical capacity of the airport as it exists today.

The City has retained a nationally respected expert to assess the capacity of Alternative D.

To the extent that our expert consultant's findings are that the passenger capacity of Alternative D, as currently designed, exceeds 78 MAP, we would hope that LAWA would cooperate with El Segundo in incorporating any revisions in the Plan necessary to ensure the capacity is not increased beyond 78 MAP.

Limiting LAX's capacity to its current capacity has always been our number one goal.

We believe that limiting capacity at LAX ~~will~~ allow other airports in the region to develop and handle their fair share of ~~the~~ future regional aviation demand.

However, my City is greatly concerned about the impacts of southside airfield changes that would move the southernmost runway 50 feet closer to El Segundo.

LAWA has stated that it believes these changes are necessary to improve runway safety.

However, we are currently studying the impacts of the proposed reconfiguration and the options for the southern runway complex.

In particular, we urge full public consideration of end-around taxiways as an alternative that could provide greater safety at lower cost and with fewer new burdens on local communities.

Safety at LAX must be a priority for all of us.

El Segundo is prepared to support measures necessary to enhance safety, even if those measures increase our burden, but only if we are assured, through an independent expert, that alternatives with fewer impacts are not equally effective.

In conclusion, we are grateful for Mayor Hahn's responsive leadership and his pledge to constrain growth at LAX and foster a regional approach to meeting future aviation demand.

It is our hope that the ultimate outcome of this Master Plan process will be a regional airport approach that ensures that LAX does not exceed its current capacity.

Thank you.

####

~~XXXXXXXXXX~~

My name is Emma Worthington and I live in Inglewood. I also work at the airport and have worked there for almost 30 years. Like myself many people who work at the airport live in the surrounding communities. We live in Inglewood, Lennox, Hawthorne, El Segundo and Westchester. We understand the connection between good quality jobs and a quality life. We need new jobs but we don't minimum wage jobs. What we need is jobs that provide a livable wage and affordable family health coverage. The companies at the airport provide those types of jobs and that is how I have been able to raise my family and not be on welfare. In order to insure that this modernization plan provides good employment opportunities for our communities, we encourage the mayor to include in his plan a local hiring program so that others in my communities can also raise their families and our youth can strive to emulate their parents. When we talk about modernization we say we are bringing the airport and Los Angeles into the 21st Century. Well we the workers would like to be able to bring our communities into the 21st Century along with the airport and the rest of Los Angeles. That is why we urge the mayor to ensure that his plan provides good paying jobs with good benefits and a community packet that will ensure we are along for the ride. NOT LEFT BEHIND.

I've resided in Inglewood for 30 years. When I moved here the airport was innocuous. Inbound planes flew in a pattern which seemed to follow Century Blvd. Out bound planes did not affect us.

The air traffic was minimal. The street traffic was bearable. The air was breathable. My sleep was not disturbed at night.

Now residents anywhere in the city have either seen or heard an airplane over their houses.

And this has resulted in.....

Traffic Congestion

main arteries

neighborhoods (speeding)

street damage

Noise Pollution 24 hours per day

aircraft

street

freeway

neurosensory disorders

Air Pollution

Aircraft emissions

Traffic emissions

Particulate matter (that we have to breath day in and day out)

Most of our adults suffer from some respiratory disorder, but alarmingly the problem is wide spread among our children whose young lungs should be uncontaminated.

Neurological / Psychiatric Disorders

Sleep deprivation

Anxiety-depression

Learning disorders *airplanes are on the descent directly over many of our schools*

Safety Issues

Low flying aircraft

More airport related facilities moving closer and into our communities – bringing with them possible terror attacks

Too many aircraft flying in close proximity at a time

Property Damage

caused by air pollutants and sound waves

LAX has been methodically increasing the airport's capacity without the required environmental impact reports.

The current report is sorely lacking in validity. It does not address solutions to any of our quality of life issues, traffic, noise and air pollution, mental and physical health, property damage and safety. It's based on old, erroneous, unsubstantiated, and irrelevant data.

LAX is not an asset Inglewood. It is the worst possible neighbor any community could have. It profits from our misfortune. But what better place to exploit than a low income minority community?

If I had any lung capacity left, I'd like ^{to go out of my house} to be able to fill them with clean air.

LAX PUBLIC HEARING

Questions from constituents of the 8th District concerning flight schedules, noise and employment:

- Why are planes permitted to take-off and land between the hours of 11:00 PM and 6:00 AM?
- Referring to jet noise levels - why haven't new criteria been established to account for flight patterns over areas such as Vermont Knolls?
- Why can't jet engines noise be muffled 10 miles before landing?
- How can the residue from jet fuel be reduced over our community?
- Why not extend the airport and runways out into the ocean?, Japan has done this successfully?
- What methodology has been devised to mass transit passengers to terminals if no curbside drop off is permitted?
- Local residents were told from the start that the general aspects of the plans were not negotiable, then why are you holding public hearings?
- Since the existing airport was designed to accommodate 40 million passengers, last year 56.2 millions used the facilities and the expansion will accommodate 78.9 million, what are your plans to not further impact our quality of life or has it been factored into your plans?

✓ ECONOMY: ✓

- Of the 49,000 jobs that the airport expansion is projected to create, how many jobs for the residents in those communities that have and will be impacted be made available?
- The Mayor has addressed unions with the expansion plans, are there plans to reach out to none union workers, giving them an opportunity for employment?
- How will the public be notified of available employment?

AA (NAME) W. SOLOMON
LIVE, SOUTHEAST
NEI COUNCIL

SOUTH
EAST

SPC00220

Dear Counsel Members,

My name is Tarlise Netherly; I am addressing you today for two reasons.

First, I am here to ask you not to approve "Alternative Master Plan D" for the Los Angeles International Airport and its surrounding area. I am making this request because there is a problem with the proposed plan. ~~THE WAY IT IS.~~

It took me a total of 12 days, 3 hours a day, to read and understand the proposed plan and the drastic changes being proposed. I originally began reading the plan to get insight on a piece of property in your proposal that I would like to develop; however, in doing my research I found something quite alarming.

With myself being handicapped I am thoroughly aware of my surroundings; therefore, I noticed that the proposal has not stated specific handicapped or disabled safety precautions being developed. The "alternative master d plan" states is "it's accessible" but what does that mean?

For instance in the proposed "People Mover", there are no intended railings for the blind to hold onto, there are no seating schematics, and there are no wheelchair safety locks. Anyone who knows anything about wheelchairs knows the wheel locks on the wheelchair are not always sturdy. There is also no mention of our exceptional four-legged friends (dogs) who assist some of us in getting around; they too are a part of us. Posting the well-recognized handicap placard is meaningless if there is no actual assistance to back it up.

Your suggestion of "Alternative Master Plan D" utilizes a great deal of paper, and yet leaves out a part of a social class that is alive, well and extremely vital in the community, it is imperative that precautions for the handicapped and disabled are included on paper and not just phased in while construction takes place; this would be improper procedure.

All too often, society ignores the fact that someone who looks, talks, and walks differently may indeed have feelings just like the next "normal" person. This is precisely why I am asking the counsel to go back and review the schematics for "Alternative Master Plan D", before making a commitment to spending millions of dollars in order to reconstruct and redevelop LAX and its surrounding areas. Should you decide to research the information I have given you regarding the handicapped and disabled, you will find there are a substantial amount of people both young and elderly who enjoy and/or are required to travel. Your "people mover" must accommodate us as well.

The second reason for my coming before you is, as I have previously stated, there is a piece of property in your plan that I would very much like to develop.

The current address of the property is 9011 S. Airport Blvd, Los Angeles, Ca. Its location is on the north/south corner of Arbor Vita and Airport Blvd; [directly adjacent the Post Office]. Please see map 2.3-1 and 2.3-2 in Alternative Master Plan D Volume I The

SPC00221

property has been vacant for approximately five years; previously, it was occupied by the Hertz Corporation, as a car rental station.

I would like to take this land and establish a nightclub. Allow me to emphasize that this will not be a strip club but an establishment where all diversities can go and enjoy themselves. The club will promote class, excitement, and relaxation, as there will be "Spoken Word" and Jazz on Wednesday's and Sunday's. There will also be Hip Hop and disco Thursday through Saturday, with hopes of diverting attention away from the adult entertainment in the area. In doing so, we will introduce a higher quality of entertainment in correlation with the image you are trying to establish with the reconstruction of the LAX area. Thus, generating additional positive revenue for the various surrounding communities around the Los Angeles International Airport.

My proposal of the nightclub will generate positive revenue for the area. As you may already know there is currently a law on the table regarding lap dancing which if passed would mean that exotic dancers would have to remain six feet way from the customer; no doubt that this will cripple the adult entertainment industry. Should this law come to pass, it will affect the three adult clubs in the airport area. From a strategic standpoint, I would like for my nightclub to take a positive spin from the negative outcome. Bring a positive outlook to the situation while still maintaining and generating more revenue for the area, ~~thus raising the property value of the said target area.~~

According to your "Alternative Master Plan D-section A2.2- Passenger Operations 1996 vs. 2000". LAX in 1996 had 57,975 visitors to the Los Angeles area vs. in 2000 there was 67,303, a difference of 9,328 (1.7%) in approximately 4 years. With ~~the~~ precise advertising, considering future demographics of the area, I believe that there will be an approximate growth increase of 2% to 5% in 5 years to support the financial burden needed for the redevelopment of the area.

I know that I am solely one person, however I am one person taking a stand for not only myself but for others in my community. The handicapped and disabled persons issue came up only after doing the research required for the nightclub. I now leave you with two major issues to contemplate. First, how to incorporate safety precautions for the handicapped and disabled into your plan, and second, allowing me to lease a plot of land that has been vacant for quite some time. My objective is to turn it into a positive influence for the community and the LAX area as well.

I have taken the liberty of visiting the land, as well as have taken (show pictures) as you can see, the surrounding area is a place where an influx of revenue can have a positive influence on the area. Since the current night spots are the sports bars in hotels. with the nightclub in this central area there will be a diversion of revenue from the distant surrounding areas to the main area in which you are trying to redevelop.

The areas that will be influenced by the nightclub's location; 1) more employment, 2) parking structures, 3) eateries, 4) the hotels in the area, 5) airport travelers, and 6) the ~~raise of value for the airport and~~ the surrounding business and residential communities.

Now I am not going to tell you that everything is going to be completely positive, because this is not Utopia. The downside to all this is going to be a security issue for both the Airport and the nightclub, however that can be minimized, with the right Security firm that coincides with the Security implemented in the surrounding parking structures and the Airport, that downside can become null and void.

I urge you, the counsel, to please consider this alternative, ^{in the} as opposed to using taxpayer money to ~~redevelop and reconstruct LAX.~~

↓
ment

Please print.

Name (First MI Last, or Organization): Carlos J. Poreas Date: 10/25/03

Address: 5610 Pacific Blvd #203

City: HUNTINGTON PARK State: CA Zip Code: 90255

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title: EXECUTIVE DIRECTOR

Comments:

In L.A. County African American, Latinos and Asians are three times more likely to have a hazardous waste treatment, storage or disposal facility within one mile of their homes than white population. Schools with more than 50% people of color population are three times more likely to a facility reporting to the Federal Toxic Release Inventory within a mile of the school. Children attending schools with the highest risk to respiratory health problems score significantly lower achievement (from poor air quality)

People of color have historically been burdened with the negative impacts of development that benefits the broader society while forced to live in poverty. People of color are now declaring this environmental racism unjust. We demand environmental justice. Any project at LAX will have impact on the surrounding communities of color and we demand justice for these communities. Any project that benefits the economy has to benefit the people impacted.

Office Use Only

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Skimming through the supplement to the draft EIS/EIR, and listening to different LAWA staff people (and elected officials) I have come to believe that they seem to be more concerned and careful of the infrastructure and economics of the buildings and money-making resources, than of the health, welfare and sanity of the surrounding communities. All I see in this plan is greed on all levels of government. Why don't people who are ~~are~~ ^{not} elected officials get the compensation and quality of life they deserve?

In 2001 SCAG had an item in its RTP about the Arbor Vitae interchange. Time and again elected officials had said that it had nothing to do with the airport or its expansion, and LAWA staff even went so far as to say that the interchange was for the Forum (which is now a church), Hollywood Park (which needed financial help from the city of Inglewood) and a Kmart that is no longer existent. So if the interchange is not for the airport why is it in the EIS/EIR?

There is a MOU between LAWA and Inglewood that is mentioned in the EIS/EIR, that its aviation easement requirements are currently suspended—the requirements to the aviation easements that the residents had/have to sign takes away their right to sue the airport.

In the past Inglewood's mayor had wrongly stated at a City Council meeting that the Easements had been eliminated while in fact they *were* merely suspended.

With Manchester Square as the GTC how will it improve security and safety? I guess if you want to keep the CTA safe Manchester Square helps, but how is putting all the people closer to the residents of Westchester going to keep the passengers and residents safe? If someone really wanted to do something to improve safety and security they would do the best thing and regionalize.

QUALITY OF LIFE COMMENTS:

- Pollution - both noise and aerosols components will increase dramatically, because airline traffic will expand to the level required by the planned MAP goal.
- Included in the plan, should be a proposal to provide funds to complete the existing soundproofing contracts and identify the remaining homes that are affected, based on 55 DNL noise levels and above.
- The infrastructure- Century Blvd. from the 110 freeway to La Cienega and other heavily traveled streets to and from the airport should be resurfaced regularly with funding support from LAWA to eliminate pot holes and other irregularities.
- Homeowners residing in the flight path of Los Angeles International Airport are significantly impacted by airplane noise, making it difficult to plan and enjoy activities in the backyard or leave doors and windows opened for ventilation. The constant drone of airplanes taking off or landing does not permit normal phone conversation without interruptions or the enjoyment of a television program without exceeding the 60 decibels dBA level, which have been determined to be a normal level for conversation.
- Environmental issues, health issues and soundproofing for residents living in the flight path and around LAX must be mitigated prior to approval of any plans to expand.

ENVIRONMENTAL:

- The environmental impact, particularly air pollution and noise will be substantially increased during the physical construction as well as when the expansion is complete.

HEALTH ISSUES:

- Studies dating back to 1977 reports that continued exposure to loud noise is a health hazard to individuals living near or around flight corridors.
- Airplane noises are linked to:
 - Stress
 - Hypertension
 - Sleep deprivation and interruptions
 - work-related performance
 - learning and academic performance

The residents of the 8th District would like to go on record opposing any expansion until the environmental, health and economic issues are mitigated to assure that our quality of life will not be further compromised.

952 S. WESTERN AVE
CANA CA 90006 #112

MY NAME IS SUSAN KIM
AND I REPRESENT KOREAN WELFARE ORGANIZATION
I have come here today to ~~testify on~~ support
~~of~~ of ~~the~~ Alternative D of the
LAX MASTER plan.

I believe that Mayor Hank's proposal
is a balanced plan because it allows
for some growth while taking into
consideration the impacts to the surrounding
communities plus this project will create
some what 50,000 jobs. construction
related jobs for the people of Los Angeles

The plan will improve operations and
create a greater level of customer
service by improving the passenger
experience for travelers

I ~~believe~~ myself believe it is time to
~~modernize~~ modernize LAX. ~~and~~ ~~that~~
and I believe Alternative D is step
in the right direction
Alternative D isn't for Mayor Hank.
IT'S for the Thank you
CITY OF LOS ANGELES.



October 24, 2003

The Honorable James K. Hahn
Mayor's Office
City of Los Angeles
200 North Spring Street
Los Angeles CA 9012

1015 WILSHIRE BLVD.
LOS ANGELES, CA 90017

213/482-6660
213/482-6673 FAX
800-LOCAL347

www.seiu347.org

Dear Mayor Hahn:

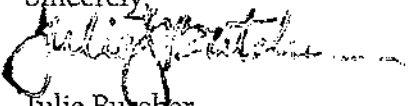
On behalf of the Service employees International Union - AFL-CIO (SEIU) Local 347, I would like to express our strong support for Alternative D of the LAX Master Plan.

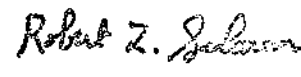
SEIU Local 347 represents over 700 employees that work at LAX and thousands that live in the surrounding communities. The employees we represent are directly impacted by what happens at LAX. We feel that your efforts to modernize LAX are a step in the right direction. Alternative D is a balanced approach to maintaining LAX as an economic engine for our regional economy while considering the environmental and traffic impacts to the surrounding communities.

Your Safety and Security Alternative addresses many security concerns at LAX and allows the flexibility to accommodate evolving federal security requirements and technology. SEIU Local 347 has a great interest in providing a safe and secure work environment for its members at the airport and in the surrounding areas.

SEIU Local 347 feels strongly that the modernization of the airport is long overdue and necessary. The improvements that alternative D proposes will provide for improved operations and increased efficiencies that will benefit passengers and concessions at LAX. Maintaining LAX as an international gateway to the country will maintain hundreds of thousands of jobs directly related to LAX. We recognize the importance of preserving LAX as a premiere airport in the world.

We appreciate your leadership and continuous efforts to modernize LAX. We look forward to working closely with you throughout the master plan process.

Sincerely,

Julie Butcher
General Manager


Bob Schoonover
President

Fighting to Keep Public Services Public



SPC00226

SPECIFIC GOALS FOR LAX RECONFIGURATION PLANS—GREEN LINE CONNECTIONS

Friends of the Green Line has concluded as its realistic goals to ask the City of Los Angeles and LA World Airports to **NOT PREVENT LAX RAIL ACCESS FROM THE NORTH AND/OR TO PREVENT THE GREEN LINE FROM PROCEEDING NORTH BEYOND LAX:**

Where Friends of the Green Line now stands with respect to the Green Line and LAWA Traffic Mitigation as part of its final EIR is that non-automobile-related traffic measures should include:

1) A written promise for LAWA to fund the necessary trench west of Aviation Blvd. along the MTA Harbor Subdivision ROW to allow the Green Line to proceed north from the current Aviation/Imperial Green Line station without interfering with LAX radar beacons and/or other electromagnetic operations associated with LAX

2) A written promise for LAWA to fund and construct its final Ground Transportation Center (whether it is at Manchester Square or anywhere else) in a manner that allows for a future Green Line station.

LAX-bound passengers from the north should not overshoot LAX to reach the future Intermodal Transit Center at Aviation/Imperial in order to connect with the Central Terminal Area via the LAX People Mover

3) A written promise for LAWA to fund and staff any future preliminary engineering for a Green Line that connects to Westchester and the Westside in a manner that does not preclude the Green Line from reaching these destinations, and in a manner that complements, not competes with, the future LAX People Mover

MAXINE WATERS

MEMBER OF CONGRESS
35TH DISTRICT, CALIFORNIA

CHIEF DEPUTY WHIP

COMMITTEES:
FINANCIAL SERVICES

SUBCOMMITTEE ON HOUSING AND
COMMUNITY OPPORTUNITY
RANKING MEMBER

JUDICIARY

SUBCOMMITTEE ON COURTS,
THE INTERNET AND
INTELLECTUAL PROPERTY

SUBCOMMITTEE ON CRIME, TERRORISM
AND HOMELAND SECURITY

Congress of the United States
House of Representatives
Washington, DC 20515-0535

PLEASE REPLY TO:
2344 RAYBURN HOUSE OFFICE BUILDING
 WASHINGTON, DC 20515-0535
(202) 225-2201
FAX: (202) 225-7854

DISTRICT OFFICE:
10124 SOUTH BROADWAY
SUITE 1
 LOS ANGELES, CA 90003
(323) 757-8900
FAX: (323) 757-9506

Testimony from Rep. Maxine Waters

**Public Hearing on the Supplement to the Draft EIS/EIR
for the Proposed LAX Master Plan**

**Granada Hills Charter High School
10535 Zelzah Avenue
Granada Hills, CA 91344**

October 22, 2003

Alternative D is a \$9 billion project that would demolish homes and disturb communities without improving the safety and security of LAX. The Supplement to the Draft EIS/EIR is an inaccurate and misleading document that fails to reflect the true impact of this project.

The centerpiece of Alternative D is the Ground Transportation Center (GTC), a large remote passenger check-in facility that would be constructed at Manchester Square, several blocks away from the airport terminals. An Intermodal Transportation Center (ITC) would be constructed at Aviation Blvd. and Imperial Highway, which would provide a connection to the Green Line. According to the Supplement to the Draft EIS/EIR, the GTC and the ITC would be the primary access points for all passenger drop-off and pick-up and vehicle parking. A Consolidated Rental Car (RAC) facility would be constructed in Westchester.

Inconvenience for Passengers

Local families could no longer drive to the Central Terminal Area in order to drop off passengers. Instead, an Automated People Mover would be constructed to transport people to the airport terminals, and a baggage tunnel would be constructed to transport baggage. All airport employees and passengers would access the Central Terminal Area from the GTC, the ITC and the RAC via the Automated People Mover, carrying their carry-on baggage with them. This would be extremely inconvenient for most passengers, and it would present special hardships for the elderly, the handicapped and families traveling with small children.

Airport Security

Supporters of the proposed project to construct a remote passenger check-in facility claim that the facility is necessary to improve the safety and security of LAX and prevent terrorist attacks at LAX. Theoretically, diverting all vehicular traffic to remote parking structures and the remote passenger check-in facility would protect the Central Terminal Area from car bombs.

The RAND Corporation conducted a security study of the proposed remote passenger check-in facility, which was released on May 14, 2003. The study concluded that the proposed project would not significantly improve the security of LAX. The study also concluded that concentrating passengers in the proposed remote passenger check-in facility could increase the likelihood that the check-in facility would be the target of a terrorist attack. Finally, the study concluded that concentrating several airport functions in the remote passenger check-in facility could exacerbate the effects of an attack on airport operations.

On July 25, 2003, I introduced H.R. 2985, a bill to condition construction of a remote passenger check-in facility at LAX upon a finding that such a facility will promote the safety and security of the public. H.R. 2985 would require the Secretary of Homeland Security to review the proposed facility prior to its construction to determine whether it will protect the safety and security of air passengers and the general public more effectively than the existing facilities at LAX. If the Secretary of Homeland Security does not determine that the facility will improve public safety and security, the Federal Aviation Administration (FAA) would not be allowed to approve its construction. On September 2, the Board of Supervisors of Los Angeles County passed a motion to support my legislation.

Ironically, Alternative D does not even significantly improve security at the Central Terminal Area. According to the Supplement to the Draft EIS/EIR, Alternative D calls for the installation of new baggage screening facilities in the Central Terminal Area -- not the remote passenger check-in facility. If Alternative D were designed to protect the Central Terminal Area from terrorist attacks, one would think that the baggage would be fully screened before it is transported through the baggage tunnel to this area. Nine billion dollars is an extremely high price to pay for a security project that provides protection from car bombs but not from suitcase bombs.

Displacement of Residents

The Supplement to the Draft EIS/EIR makes the astounding claim that Alternative D would not displace any residents. Instead, the Supplement predicts that 2,500 houses and apartments will be acquired and the residents relocated under LAWA's existing Voluntary Residential Acquisition/Relocation Program, through which LAWA may acquire property and relocate residents on a voluntary basis in order to mitigate the impact of airport noise. The Supplement then concludes that Alternative D would not require the acquisition of any additional dwelling units or the relocation of any additional residents. This claim is especially ironic, given the fact that several Manchester Square residents have already said that they will not leave their homes voluntarily.

In reality, Alternative D would displace thousands of Manchester Square residents. In order to construct the remote passenger check-in facility, the City of Los Angeles would have to acquire and demolish 38 houses, 179 apartment buildings and a 52-year-old elementary school, in addition to the 263 structures it has already acquired. It would also have to relocate about 6,200 people, some of whom have federally subsidized housing vouchers. I strongly oppose the forced relocation of any of these residents.

The Cost of Alternative D

Alternative D would cost \$9 billion, an exorbitant amount of money, at a time when budget deficits are growing and the economy is weak. Airlines would be required to increase their passenger fees in order to fund the proposal, which would amount to a tax increase for air passengers. American taxpayers have already provided loan guarantees to the airline industry to keep the airlines in business following the terrorist attacks of September 11, 2001. They should not have to pay higher passenger fees for unnecessary airport construction projects as well.

Air passengers and other taxpayers are willing to support reasonable expenditures to pay for measures that provide real enhancements in security, such as the installation of baggage screening facilities. However, the remote passenger check-in facility, the Automated People Mover and the baggage tunnel included in Alternative D are not reasonable expenditures and do not provide real enhancements in security.

The American people are sick and tired of deficits and bloated government spending. The State of California is now running a \$38 billion deficit, and the federal government has a \$374 billion deficit in 2003. Furthermore, Congress is in the process of providing the President an additional \$87 billion for continuing operations in Iraq and Afghanistan. The American people cannot afford to spend \$9 billion on an outrageously expensive boondoggle at LAX.

Conclusion

Alternative D is simply a continuation of former Mayor Richard Riordan's plan to expand the airport in the name of safety and security. I urge the City Council of the City of Los Angeles to reject this ill-advised and expensive scheme that will displace thousands of Manchester Square residents without improving the safety and security of LAX.

MAXINE WATERS

MEMBER OF CONGRESS
35TH DISTRICT, CALIFORNIA

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(323) 757-8906
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Testimony from Rep. Maxine Waters

**Public Hearing on the Supplement to the Draft EIS/EIR
for the Proposed LAX Master Plan**

**EPIC Center/Olympic Swim Stadium
Community Hall
3980 S. Menlo Avenue
Los Angeles, CA 90037**

October 25, 2003

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In reality, Alternative D would displace thousands of Manchester Square residents. In order to construct the remote passenger check-in facility, the City of Los Angeles would have to acquire and demolish 38 houses, 179 apartment buildings and a 52-year-old elementary school, in addition to the 263 structures it has already acquired. It would also have to relocate about 6,200 people, some of whom have federally subsidized housing vouchers. I strongly oppose the forced relocation of any of these residents.

Noise and Traffic Congestion

For several years, I have been working to limit the environmental impact of Los Angeles International Airport (LAX) on the surrounding community. My constituents living next door to LAX, in Westchester, Inglewood, Hawthorne, Gardena and South Central Los Angeles, must contend with excessive noise, pollution and traffic congestion caused by the airport. These residents suffer many sleepless nights due to deafening jet noise. They must wipe the soot from aircraft emissions from their cars and driveways everyday. Residents have reported increased cases of asthma, respiratory ailments and hearing problems.

I do not accept the claim in the Supplement to the Draft EIS/EIR that Alternative D would reduce by 1,300 the number of residents exposed to noise levels of over 65 CNEL by the year 2015. Most airport noise is the result of airplane landings and departures, and Alternative D does not propose any reduction in landings and departures. In fact, Alternative D would increase the airport's capacity from 78 million air passengers per year to 78.9 million air passengers per year. Consequently, Alternative D could allow the number of landings and departures and the corresponding jet noise to increase. Of course, Alternative D could reduce the number of residents exposed to high levels of airport noise as a result of the forced relocation of residents from Manchester Square. However, forcing residents to leave their homes is no way to respond to their complaints about noise.

The claim in the Supplement to the Draft EIS/EIR that Alternative D would reduce traffic congestion is also not credible. Alternative D would concentrate airport traffic on the east side of the airport near the proposed remote passenger check-in facility, causing a shift in airport traffic to the I-405 freeway near the Arbor Vitae/Manchester Avenue exits. This could cause a tremendous increase in traffic congestion on I-405, which is already heavily congested. It could also increase traffic congestion in the surrounding communities as airport passengers and other drivers seek alternative routes to get to, from and around the airport. Concentrating airport traffic at a single facility will not reduce congestion.

The Cost of Alternative D

Alternative D would cost \$9 billion, an exorbitant amount of money, at a time when budget deficits are growing and the economy is weak. Airlines would be required to increase their passenger fees in order to fund the proposal, which would amount to a tax increase for air passengers. American taxpayers have already provided loan guarantees to the airline industry to keep the airlines in business following the terrorist attacks of September 11, 2001. They should not have to pay higher passenger fees for unnecessary airport construction projects as well.

Air passengers and other taxpayers are willing to support reasonable expenditures to pay for measures that provide real enhancements in security, such as the installation of baggage screening facilities. However, the remote passenger check-in facility, the Automated People Mover and the baggage tunnel included in Alternative D are not reasonable expenditures and do not provide real enhancements in security.

The American people are sick and tired of deficits and bloated government spending. The State of California is now running a \$38 billion deficit, and the federal government has a \$374 billion deficit in 2003. Furthermore, Congress is in the process of providing the President an additional \$87 billion for continuing operations in Iraq and Afghanistan. The American people cannot afford to spend \$9 billion on an outrageously expensive boondoggle at LAX.

Conclusion

Alternative D is simply a continuation of former Mayor Richard Riordan's plan to expand the airport in the name of safety and security. I urge the City Council of the City of Los Angeles to reject this ill-advised and expensive scheme that will displace thousands of Manchester Square residents without improving the safety and security of LAX.

COPY

The Honorable James Hahn
Mayor of Los Angeles
200 North Spring St., Room 303
Los Angeles, Ca. 90012

October 25, 2003

Dear Mayor Hahn,

The past two weeks have been among the worst in our lives. The cause? The constant and unrelenting noise from LAX that has gone on late into the night and started up early in the morning. We live one mile north of the airport, have insulation and double paned windows. The week-end of the 10th was a week-end from hell and we averaged four and a half hours of sleep on Friday, Saturday and Sunday. Mayor Hahn, you wouldn't want to live like this and neither should the people in Westchester/Playa del Rey. We deserve something better.

The plan D you're proposing will only make things worse. This "modernization" which would also allow for 12+ million more passengers, sounds like an expansion to us. You can pour 9 billion or 90 billion into LAX and, in the long run, it will still be a second class, tiny airport which is over-crowded and obsolete for today's needs. LAX should have been used as a secondary air port two decades ago, but no one has had the foresight to realize it or take the necessary steps.

Every other major city in this country and Europe has recognized the need to build a new airport outside the inner city and has done so. Los Angeles is the only one lagging behind in all forms of transportation, but especially air. We have lived in Los Angeles for over 50 years and heard Palmdale, Palmdale, Palmdale from day one. Yet no one has had the boldness and vision to build a state-of-the art International airport there where there is plenty of acreage for future expansion. There would be room for nice hotels and restaurants also. Of course, there has to be ground transportation to accompany an airport, but there are many choices there as well. There are thousands of people in the Valley and inland areas that would be delighted not to have to come to LAX. It will take someone with vision to do this and that person could be you.

Where would our city be if the movers and shakers of the past had listened to the "naysayers"? We'd still be a small town. The recent and wonderful additions to our down-town, especially the spectacular Concert Hall, will undoubtedly attract thousands of visitors if Frank Gehry's museum in Bilbao, Spain is any indication. The Staples center and new Cathedral are also major attractions.

Where will these people land? Will it be in some dinky, obsolete air-port or a modern terminal where they can be quickly and comfortably transported to down-town (think Union Station).

This is your chance, Mayor Hahn, to step into a new age, a new millennium, and plan for the future. All too often, your predecessors have looked to the past and applied the "band-aid" approach to solve the problems of Los Angeles. This could be your chance to make our city BETTER, not just bigger. It would then become the great city it was intended to be.

Sincerely yours,
Ruth and Don Glennon
(Mr. and Mrs. Donald F.)
8048 El Manor Ave.
Westchester, CA. 90045

Ruth & Don Glennon

Recd
10-28-03
9:25 AM
SPC00230



Public Comments

Please print.

Name (First MI Last, or Organization): <i>Jimmie N. Collins</i>		Date: <i>10/27/03</i>
Address: <i>10420 S. Manhattan Place</i> [<i>(323) 756-0994</i>]		
City: <i>L.A.</i>	State: <i>CA</i>	Zip Code: <i>90047</i>

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
 Number: _____ Title: _____

Comments:
 My home is situated along the aircraft landing approach to LAX. Therefore, I am requesting that my home and those in my surrounding neighborhood be retrofitted with sound-proof windows and air-conditioning as a part of the airport noise abatement program.
 As a member of the Manhattan Place Block Club organization, I am also requesting an immediate response to these concerns on behalf of those I represent.

Office Use Only

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
 U.S. Department of Transportation
 Federal Aviation Administration
 P.O. Box 92007
 Los Angeles, CA 90009-2007

or

Mr. Jim Fitchie
 City of Los Angeles
 Los Angeles World Airports
 LAX Master Plan Office
 P.O. Box 92216
 Los Angeles, CA 90009-2216

Rec'd
10-28-03
9:25 am



P.O. Box 92216
 Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Nancee Morrison Date: October 2003

Address: 6350 W. 81st.

City: Westchester State: CA Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
 Number: _____ Title: _____

Comments:

Why is Los Angeles the only major city that is serviced by one airport? LAX can only be improved/modernized to a certain extent. Rather than putting a bandaide fix on this problem, wouldn't it be better to be looking at a regional solution that would distribute passengers throughout Southern California?

Trying to expand LAX is like trying to put a square peg in a round hole. The area around the airport will NOT support the growth proposed, yet the city is willing to pull out all the stops to make this work. Why not put that energy into development of Palmdale and Ontario where the projected growth is? These areas would welcome the business it would bring to their communities. It doesn't look like the desire or will is there to find a truly workable solution to the problem.

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Seth Teedter Date: 10-17-2003

Address: 104 Sunridge

City: PDR State: CA Zip Code: 90293

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments:

Nothing about the plan that has been presented to the public sounds like it is very secure. It sounds like the airport, the airplanes and buildings are more important than the passengers are.

It sounds like the city (the mayor) just wants to get anything finished done and get this airport issue behind him.

This alternative all plan doesn't seem like it will actually do anything to make traveling in and out of Los Angeles more safe. I don't like the idea of having to go all the way to the other side of the airport from where I live to catch a flight.

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): PAMELA WILTZ Date: 10-12-03

Address: 8000 Naylor Avenue

City: Los Angeles State: CA Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: _____

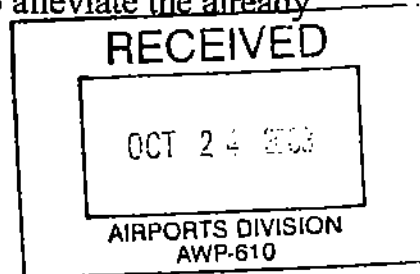
Comments:

As a resident of a neighborhood near LAX, I'm quite concerned about the transportation issues involved in Alternative D of the Master Plan.

In all of the meetings I've attended, I still haven't heard specifics addressing traffic mitigation. There do not seem to be hard and fast answers about how the mitigation measures offered to our community will be funded.

Traffic on the 405 freeway around LAX is always congested, but there are several offramps to choose from. Frequent travelers know that they have several alternate routes. From what I've observed, Alternative D would funnel all airport traffic through one offramp. The plan claims that this would increase freeway speeds and reduce traffic. Although I'm not an engineer, I can't imagine that taking traffic from 3 exits and squeezing it into ONE exit will do anything to relieve airport traffic from the 405.

I would like to know what type of traffic studies have indicated that Alternative D will do anything to alleviate the already congested traffic situation.



Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

Mr. David Kessler, AICP
U.S. Department of Transportation FAA
AWP-611.2
PO Box 92007
Los Angeles, CA 90009-2007

Norm Thoeming
11018 Moorpark St. #313
North Hollywood, CA 91602
nthoemin@hotmail.com

Mr. David Kessler:

As my bizarre work schedule keeps me from attending the three EIR hearings regarding the LAX masterplan, I've compiled this brief letter to add my comments.

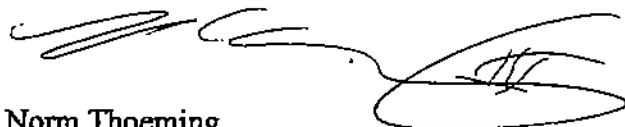
First of all, thank you for this wonderful, innovative plan for the future of LAX and the entire community. I assure you that I and every person over which I hold the slightest influence will accept and encourage this remarkable plan. Keep up the good work.

Another issue facing the future of Los Angeles is the expansion of the MTA system and the proposed California High Speed Rail project. While Alternative D does include a direct connection with the Metro Green line at Aviation via a pedestrian walkway (an option which will only help both MTA and cut down on Airport traffic), I haven't found details about what will be done with the existing northbound MTA-owned ROW along Aviation.

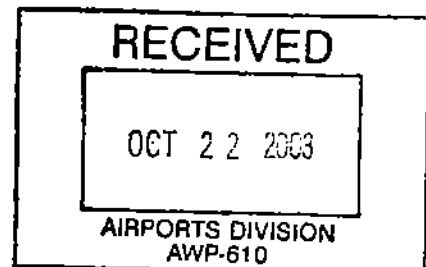
In the past, various parties have insisted that a Green Line extension northward or any rail into the airport may affect various controlling beacons and equipment. Having taken the El into O'Hare, obviously it is doable. Please encourage all parties included to think for the future of the city and the airport to preserve this right of way and to build into the construction budget the necessary trench west of Aviation Blvd along the MTA Harbor Subdivision ROW. This would allow the Green Line to proceed north from the current Aviation/Imperial Green Line station without interfering with LAX radar beacons and/or other electromagnetic operations associated with LAX.

On the same note, please encourage those involved to allow space for a future additional train station at the ITC or the GTC should the Green Line expand or should High Speed Rail come from Union Station to LAX via the former Slauson railroad tracks.

Thank you very much for your time, your efforts, and your open mind:



Norm Thoeming
818.762.3665
10/20/03



SPC00235

October 28, 2003



Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Mr. David B. Kessler
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 92007-2007

The LAX Community Noise Roundtable Draft EIR / EIS Comments

The LAX Community Noise Roundtable was created in September 2000. It is composed of elected officials or their designees from Rancho Palos Verdes, Palos Verdes Estates, Redondo Beach, Hermosa Beach, Manhattan Beach, El Segundo, Culver City, Monterey Park, Los Angeles (Districts 11 and 8), Inglewood, Hawthorne, Los Angeles County, the FAA, the ATA, Los Angeles International Airport Area Advisory Committee and representatives from area groups.

1. The dates used do not satisfy the baseline for comparison to be as of the time that the Supplemental to the Draft EIS/EIR was submitted. The baselines were outdated at the time they completed the Supplemental to the Draft EIS/EIR.
2. 4.1.6.1.5 states, " the increase of the size of aircraft would result in louder individual noise events and consequently greater total noise energy levels and slightly increased contour size". This is against our stated policy of shifting noise from one community to another.
3. 4.1.6.1.5.3 - Page 4-65. This is against our stated policy of shifting noise from one community to another. S4.1-27 indicates a 2000 increase in population newly exposed to 65 CNEL or greater; an increase of 150 dwellings added within the 65CNEL; and 4 schools, 2 churches and 3 hospitals are newly added. Where are the precise mitigation measures for these increases?
4. The LAX Noise Roundtable does not support any flight track alteration or airfield alteration that shifts noise from one community to another. The FAA has also stated that to be their policy.

The moving and/or extending of runways 24L, 24R, and 25L results in the shifting of the noise contours and/or the shifting of noise from one community to another. Moving a runway changing the take off and landing of an aircraft flight path causes a significant shifting of noise. Why does the document indicate that there is not a significant change? What metric is used to determine 'significant'?

5. The development of the A-380 and other potential jumbo jets noise characteristics have not been analyzed or incorporated. Will this increase or decrease the single event noise and the CNEL Contours? The actual noise characteristics of these advanced aircraft should be used in your study. Why does the document not mention these characteristics? How do the larger jumbo's perform with tail winds below 2, 4,6, 8, and 10 knots?

6. The World Health Organization (WHO) has upgraded noise pollution from a nuisance to a serious hazard. According to the WHO, "prolonged or excessive noise exposure has been linked to high blood pressure, heart disease, concentration problems and, of course, hearing loss. People who live in neighborhoods near highways and airports experience noise risks". Why were the affects of noise from health studies not presented in the document?

7. The threshold of significance for SEL single event noise used was 94 dba for exterior noise and 81 dba for interior noise for awakenings and is inadequate. The 94dBA and 81dBA is too high a threshold. We feel the SEL single event dba should more closely be associated with 'annoyance' and not just 'awakenings'. Why didn't the EIS/EIR deal with annoyance? Why were the reputable WHO statistics not evaluated in the guidelines?

8. Why in the N/ANP alternative is there an increase in nighttime noise?

9. We recommend that SEL single event noise be used to expand the areas for noise insulation. No one complains about a CNEL infraction. They call about single event noise. The Supplemental to the Draft EIS/EIR does not use as a mitigation measure a program to incorporate the single event criteria as a useful tool to a soundproofing program. Seeing as this is something that should have been included years ago it is only appropriate that LAX use this new legal tool to expand the area of dwellings in the soundproofing program. Why wasn't this issue addressed in the Supplemental to the Draft EIS/EIR? How many times a day are single event noise thresholds exceeded?

10. The outcome of a WHO expert task force meeting in London in March 1999, includes guideline values for community noise:

<u>Environment</u>	<u>Critical Health Effect</u>	<u>Sound Level dB(A)</u>	<u>Time hours</u>
Outdoor Living Areas	Annoyance	50 - 55	16
Indoor Dwellings	Speech intelligibility	35	16
Bedrooms	Sleep disturbance	30	8
School Classrooms	Disturbance of communication	35	During class

11. Percentages are very misleading when used in noise disturbance statistics. The actual numbers including percentages are needed for analysis. Facts, figures, noise levels, estimated values, decibels, and comparisons should have been provided. Why were the actual metrics not presented?

12. Will simultaneous landings of aircraft, on 24L, 24R, 25L, 25R runways, take place during the construction of the aforementioned runways? If so, what impact will that have on the CNEL and singles event noise?

13. What impact will simultaneous landings and/or takeoffs have on noise contours and single event noise?

14. Will simultaneous landings take place when all runways are completed?
15. What will be the noise impact of air traffic rerouting during runway reconstruction?
16. Easterly direction take offs are very disturbing to airport neighbors for awakenings and annoyance. It is apparent to the Roundtable that the awakenings of easterly takeoffs at night is far more disturbing than one out of ten instances that your report indicates. How were your figures determined?
17. Low frequency noise measurements are neglected in the Supplemental to the Draft EIS/EIR. Low frequency noise is a serious disturbance. Why aren't there any measurements and mitigation measures for low frequency noise included in this Supplemental to the Draft EIS/EIR? Please provide any information you have pertaining to this problem.
18. We recommend the suspension of all aviation easement requirements on all noise insulation programs. Why weren't the state requirements for avigational easements included in the noise insulation programs? Why hasn't LAWA included air conditioning units in all past and future noise insulation programs even though not funded by the Federal government?
19. Why is there no noise information about the Beach communities and Palos Verdes Peninsula, even though they have had noise annoyance problems for some time? Why have they been omitted? Explain the failure to look at noise impacts at CNEL levels below 65 that might include Palos Verdes Peninsula and the beach communities? (For example 50, 55, 60 CNEL)
20. Single event noise levels should expand to include a 20 mile radius. How can you determine an annoyance factor area if you don't expand your area of investigation? Why were areas negatively impacted by single event noise not included in the EIR/EIS? (See comment 10)
21. What feet mix in 2015 was used to arrive at the conclusions in the document? How many are turbo-props?
22. The EIR/EIS states the Alternative D capacity of 78.9 MAP is a theoretical number, which may be exceeded. The use of 78.9 MAP as a limiting factor in the future growth of LAX is not enforceable. Why weren't noise impacts above 78.9 MAP investigated and documented? What is your plan? Will the relocation of the "curb front" allow more passengers to use the airport and thus more operations and thus more noise? Why were there no new theoretical MAP numbers applied to Alternative D when it increases the capacity of LAX beyond 78.9 MAP?

If the theoretical capacity as stated in the EIR/EIS can exceed 78.9 MAP if demand increases where is the regional plan which would reduce the demand on LAX? If there is no regional plan then where are the numbers showing impacts above 78.9 MAP?
23. Why hasn't the City of Los Angeles continued to support the Southern California Regional Airport Authority if they believe in a regional approach in airport capacities and a cap of 78.9 MAP at LAX?
24. As demand increases when will the capacity of normal operations start to impact over ocean operations? At what point does demand cause LAX to remain in normal operations past the 12 a.m. to 6:30 a.m. window?

25. The EIR/EIS relies on mitigation measures based on the successful Part 161 approval by the FAA. Is this a guaranteed approval process? Why was it assumed that this would happen? Why are there no studies that show the impact without the Part 161?

26. The EIS/EIR states 6.2.3: "Prior to the determination of sound treatment eligibility, however, a new study of the relationship between specific aircraft noise levels and childhood learning abilities will be undertaken by LAWA as part of the continuing environmental monitoring process obligated under CEQA. This study will seek a predictive statistical relationship between the level of aircraft noise present at a school and the ability of children to learn, as expressed by standardized test results. When that study is complete and acceptable results are achieved, the potential for additions to the sound insulation program for schools will be revisited as part of LAWA's continuing environmental management responsibilities."

How do you plan to test the impact of noise on the ability of children to learn in affected schools like the Lennox Elementary School District when the only learning environment has been one with aircraft noise? What would be their learning abilities without noise when they haven't had the opportunity to learn without noise.

27. Speech interference was the level of significance used in the analysis. Why was this not used to measure impacts that would result in the need to identify mitigation actions?

28. The word 'significant' is used throughout the SUPPLEMENT TO THE DRAFT EIS/EIR MASTER PLAN for LAX. We have come to the conclusion. After making several inquiries about the definition of the word 'significant' to high level Deputy Executive Directors of LAWA and others, there is no one definition capable of applying to all instances of its use. The Executive Summary of Volume One of this Supplemental Draft to the EIS/EIR does not address the definition of "significant." Therefore it is necessary to ask the same question about similar but different statements included in the Supplemental Draft to the EIS/EIR. Please refer to the Executive Summary, Volume One of the Supplemental Draft to the EIS/EIR for titles and page numbers of the Executive Summary Tables. Please do not use words that are synonymous with 'significant' to explain. Define, and interpret the word 'significant'. Some of the words to avoid in explaining the definition are: important, meaningful, weighty, notable, profound, Pivotal, serious, momentous, Substantial, and other synonyms of this type. Facts, figures, noise levels, Estimated values, decibels, and comparisons should have been provided what metric values were used to determine these levels of significance?

Executive Summary pages 51-76 4.1 Noise

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
2. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
3. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
4. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
5. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
6. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
7. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.2 Land Use

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
10. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
11. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.24.2 Health Effects of Noise

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section

4.27 Schools

3. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section

29. How can noise impacts that are 'unavoidable' be acceptable?

30. Will the elimination of "avigation" easements for all impacted areas help reduce the number of legally impacted dwellings and people? How many households refused the sound insulation offers because of avigation easements requirements?

31. The California Airport Land Use Handbook concludes that no definitive, widely recognized, single event noise level guidelines currently exist relative to land use compatibility planning. This Supplemental to the Draft EIS/EIR would have been an ideal tool to establish single event noise level guidelines. Why didn't the document include the necessary research to accomplish that goal?

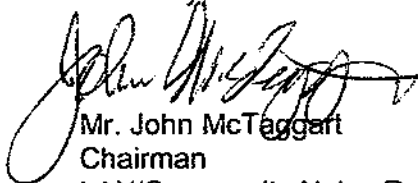
32. The Automated People Mover (APM) operation will impose undesirable noise on all 10 existing hotels in the Century Boulevard/98th Street area. The noise level; is rated by the EIS/EIR as a severe impact on 2 hotels and a significant impact on 4 others. High activity levels include 1755 day-trips (about 2 per minute) and 615 night-trips (about 1 per minute). What are the mitigation measures for noise of the APM?

33. Some requests for easterly takeoffs during over ocean operation are based the slant of runway 25R/7L from west to east. Why was the leveling of the runways on the south side of LAX not included in the EIS/EIR?

34. Do the characteristics and performance of the A380's and other jumbos interfere with its ability to comply with over ocean operations?

Thank you.

Sincerely,



Mr. John McTaggart
Chairman
LAX/Community Noise Roundtable



Public Comments

Please print.

Name (First MI Last, or Organization):

Jack Karp

Date: 11/03/03

Address: 31115 Ganado Drive

City: Rancho Palos Verdes

State: CA

Zip Code: 90275

Document: Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number:

Title:

Comments:

1. I have reason to believe and allege that the public hearing venues are purposely chosen to maximize the inconvenience and dissuade people who live in the South Bay Area (Torrance, Redondo Beach, Manhattan Beach, Hermosa Beach, El Segundo, Lawndale, Hawthorne, Rancho Palos Verdes, Rolling Hills Estates, Palos Verdes Estates, & Rolling Hills) from attending. This is a blatant example of purposely inconveniencing people to limit adverse comments.
2. I saw no discussion about aircraft noise after departure heading south to southeast that affects the South Bay Area. Aircraft noise is a prime complaint of our residents. Planes fly too low and turn too soon. This issue is avoidable by demanding departures extend 5 miles west from the shore line and reach an altitude of 10,000 feet, whichever occurs first, before changing course and heading southerly and easterly over the Los Angeles basin.

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

NOV 4 2003

SPC00237



P.O. Box 92216
 Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Kristine Brees Date: 10-08-03

Address: 8101 Crozdon Avenue

City: Westchester State: CA Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
 Number: _____ Title: _____

Comments:

When I read \$9 billion as the projected cost of Alternative D, I can't quite grasp the number. With friends who work in the airline industry fearful of job losses and the public traveling less since 9-11, how can this expenditure be justified?

My main concern after reading parts of the Risk Study printed in the paper was that this Alt. D will not actually guarantee safety or security. As a community member, I'm not sure we can't find ways of implementing security measures now for a fraction of the cost proposed by Alt. D. The \$9 billion price tag is really a red flag to those of us who already think that this plan is a boondoggle!

Attach additional sheets if necessary.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization):

Erin Hanley

Date:

October 28, 2003

Address:

7820 Inverness

City:

Westchester

State:

California

Zip Code:

90045

Document:

Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number:

Title:

Comments:

Alternative D of the LAX Master Plan still does not address the major concerns of the airport's neighbors.

How long will it take to get answers to what health impacts we are being subjected to by living in close proximity to the airport?

So far, the studies still do not answer question parents have about pollution, toxic emissions, learning issues, sleep disturbance and noise associated with increased operations at LAX. These questions will not go away. Until air quality can be measured and deemed safe for the surrounding communities, Alternative D should not be given the green light to move forward.

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

SPC00239



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Russell Stone Date: 10-11-03

Address: 7713 Emerson Ave.

City: Los Angeles State: CA 90045 Zip Code:

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments:

Since those who conducted the RAND study have nothing to gain in the ongoing airport expansion debate, I think the city should take heed to the points it makes rather than dismissing it. The cost of the project for Los Angeles airport has raised many questions about how (and if) it can be financed. I was under the impression that you could build a couple of airports for what it would cost to improve or modernize this existing one.

I agree that something needs to be done to improve the current traffic congestion in and around the airport – especially for those of us who live nearby. But the RAND study does point out that there are many things that could be done in the way of improvements that would have an impact such as the Avion Boulevard cargo road and putting all the rental car companies on one location to take the burden off streets surrounding the airport. It seems like these would be more cost-effective solutions to current challenges.

I guess what I'm trying to say is that I'm not convinced of the safety and security argument that we are hearing as the reason for Alternative D. It just sounds like the new name for the Riordan Master Plan that we heard about years ago. It seemed like a bad idea then and this one seems to be no better.

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

10-25-03

I THINK EXPANDING THE CAPACITY OF LAX IS THE WRONG DIRECTION FOR OUR FUTURE. OTHER SURROUNDING AREAS REJECT AIRPORTS WHICH COULD LESSEN THE NEEDS FOR A LARGER, NOISIER LAX.

MINIMIZING LAX GROWTH SHOULD HAVE THE EFFECT OF FORCING PLACES SUCH AS ANTELOPE VALLEY AND ORANGE COUNTY TO FIND WAYS TO SERVE THEIR POPULATIONS AIR TRAVEL NEEDS WITHOUT USING LAX.

OUR AREA IS BEING STAMPED BY MEGA-LAX PROPONENTS WHO GIVE NO THOUGHT TO THE DETERIORATING QUALITY OF LIFE IN THE AREAS IMPACTED BY LAX TRAFFIC, NOISE AND GROWTH.

EXPANDING LAX AN INFINITUM IS NOT A WISE SOLUTION TO THE AREA'S TRANSIT PROBLEMS.

PLEASE STOP ENDLESS LAX GROWTH BEFORE ALL OF SOUTH BAY IS ONE ENDLESS AIRPORT!

ROB STRAUBE
5356 W. 122ND ST.
HAWTHORNE, CA.

SPC00241



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): Gary A. Murphy Date: 11/01/03

Address: 6364 W. 85th Place

City: Los Angeles State: California Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):
Number: Title:

Comments:

After reviewing the presentation of the latest LAX Master Plan and supporting documents, I find that the plan has no benefits other than the runway changes and urge those making the decision to reject it.

1. The LAX proposal does not address the congestion and environmental problems that will result from concentrating our air transportation at one location. It does not recognize that future air travel growth will be due to growth in population in San Bernardino County, Northern Los Angeles County and Ventura County. The proposed plan does indicate that Ontario airport will have to carry part of the increase in future airport traffic, but provides no funding or plans to accomplish this. It shows no utilization of Palmdale at all. It makes no sense to put \$9 billion into one location, when this funding could be used to create alternative airports that could be a great convenience to the additional population in the area. With the added congestion and off-site check-in, a person flying out of LAX from Riverside or Palmdale would have to leave home 4 or 5 hours before their flight
2. Experts are also correct in calling the proposal a step backward in safety. It provides no safety benefits, only moving the target to another location. It also seems very unwise to become dependent on one major airport. Expanding to regional airports will insure that air transportation is available in case of some major disaster or threat at one airport.

With the large government deficits we now have we cannot afford to waste \$9 billion on construction that accomplishes nothing. Regional airports will be needed and this funding could be used for them and improved transportation to them.

Attach additional sheets if necessary.

October 24, 2003

Mary Harrington
1638 W 83rd Street
Los Angeles, CA 90047

Master Plan LAX
P.O. Box 92216
Los Angeles, CA 90009-2216

RE: SOUNDPROOFING

To Whom It May Concern:

I am writing to you to request to be considered and added to your master plan of soundproofing my home at the above address. My property and the area that I live in is also in the flight path of the airplanes that fly to LAX Airport daily. Can you please re-evaluate the decibal sound of the flight path above my property and in the area. Thank you very much for your time and consideration.

Sincerely,



Mary Harrington

NOV 10 2003

SPC00243

November 3, 2003

David B. Kessler, AICP And
U. S. Dept. of Transportation
Federal Aviation Administration
AWP-611.2
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
Master Plan Office
P. O. Box 92216
Los Angeles, CA 90009-2216

REFERENCE: LAX Master Plan -
 Supplement to the Draft EIS/EIR - Alternative D
 Also Alternatives A, B and C

The following comments are submitted be included in the public record of the LAX Draft Master Plan and Draft EIS/EIR.

In 1988, LAX publicly announced that at 65 MAP the airspace would reach its maximum capacity. Alternative A, B, C and D, as well as the No Action Alternative exceed this capacity by up to 50%. All alternatives in the LAX master plan would cram more air traffic into already overcrowded space. This is not rational. This is not safe.

In the vicinity of LAX, there are ten other commercial airports ready to be used. Homeland Security compels us to consider a regional approach to handle passenger and cargo aircraft.

All the existing variations and alternatives in the current LAX Master Plan should be rejected.

A regional planning committee composed of representatives from all areas of Southern California, including residents and activists in the various communities, should be immediately formed to develop a five-county air transportation master plan to cope with the realities of the 21st century.

Barbara G. Burns

Barbara G. Burns
7314 Kentwood Avenue
Westchester, CA 90045-1224

CC: Los Angeles Mayor James Hahn
Los Angeles City Councilwoman Cindy Miscikowski
Los Angeles County Supervisor Yvonne B. Burke
U. S. Representative Jane Harman

Recd
11-05-03
SPC00244

November 3, 2003

David B. Kessler, AICP And
U. S. Dept. of Transportation
Federal Aviation Administration
AWP-611.2
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
Master Plan Office
P. O. Box 92216
Los Angeles, CA 90009-2216

REFERENCE: LAX Master Plan -
Supplement to the Draft EIS/EIR - Alternative D
Also Alternatives A, B and C

The following comments are submitted to be included in the public record of the LAX Draft Master Plan and Draft EIS/EIR.

The most essential ingredient for "Enhanced Safety and Security" has been omitted from the Alternative D Supplement to the LAX Master Plan and that is dispersion of both passenger and cargo aircraft among many airports in Southern California. Lacking this vital feature, Alternative D is unacceptable and should be rejected.

For the same reason, Alternatives A, B and C should also be rejected.

Other immediate problems that are not addressed in any of the alternatives, but which should be considered are:

1. Runway incursions. Pilots rank LAX as one of the most dangerous airports in the nation.
2. Overflights above El Segundo. These are unnecessary and hazardous, but frequent.
3. Noise and traffic in the communities impacted by LAX. These safety, health and environmental concerns must be addressed under the present level of MAP and MAT before any changes in the structure or operations of the airport should be considered.

Bruce E. Burns

Bruce E. Burns
7314 Kentwood Avenue
Westchester, CA 90045-1224

cc: Los Angeles Mayor James Hahn
Los Angeles City Councilwoman Cindy Miscikowski
Los Angeles County Supervisor Yvonne B. Burke
U. S. Representative Jane Harman

Rec'd
11-05-03
SPC00245

November 2, 2003

Dear Mr. Kessler,

I remember that after the last Public Hearing for the Supplement to the Draft EIS/EIR for the Los Angeles International Airport Master Plan you had asked if I had a question. At the time I did not, although afterwards I thought of one that I hope you will be able to answer.

For what length of time will the Draft, and Supplement to the Draft, EIS/EIR for the LAX Master Plan be available for public reference at the Inglewood main library?

I greatly appreciate your time, and would respectfully inquire why the Draft EIS/EIR for the first four LAX master plan alternatives was removed from the Inglewood main library in 2002.

Thank you for your time,
Sincerely,

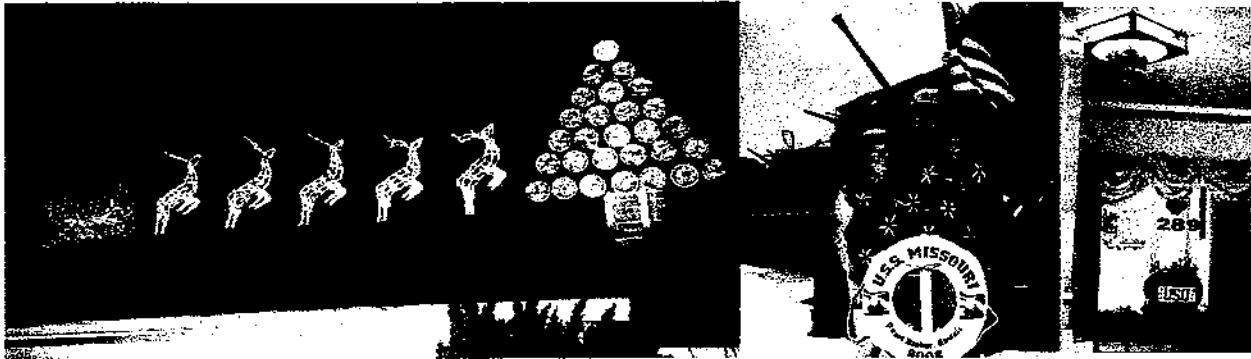


Sparky Carpio

407 Exton Ave. #4
Inglewood CA, 90302

Email to: starfireas1@sbcglobal.net

SPC00246

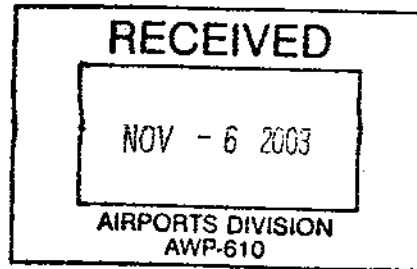


PRANCED through 2002 with RED, BLUE & WHITE!

PREPARED for 2003

HONOR TROOPS

Mr David B. Kiessler, AICP
 U.S. Department of Transportation
 Federal Aviation Administration
 P.O. Box 92007
 Los Angeles, CA 90009-2007



7015 S. Sepulveda Private
 Los Angeles, CA 90045-1512
 November 4, 2003

Unfortunately, the SYSTEM IS NOT WORKING!!! Therefore, I must insist on NO ACTION on Alternative A, B, C, D, and E.

The wishes of the airline carriers necessitate priority consideration. As I've worked through the public hearings, it is obvious that we must start over, accommodating the demands security & modernization in historical times. The following recommendations are submitted:

- 1). Moving two parallel runways on the south side farther apart so that they conform to FAA Standards.**
- 2). Move new runway 50 feet closer to El Segundo and farther westward; thus using available land reducing noise/pollution for the entire city, plus obtain the much needed housing.**
- 3). Must remodel Bradley to welcome the air bus to truly remain a competitive International airport.**
- 4). Make every effort to divert cargo traffic to Ontario & Palmdale.**

It appears to me that there is NO city planning that brings the communities all TOGETHER to best serve southern California. Therefore, I propose that LYDIA KENNARD, the person who is most knowledgeable about LAWA, to head a lockdown conference with one representative from the following government agencies and communities that live with the traffic, pollution, noise, and financial benefits of LAX. No doubt impossible, but worth a try.

Gov't agencies: Gov. Schwarzenegger, Congresswoman Waters/Harman, TSA Loy, Transportation Sec'y Mineta, Supervisors Burke/Knabe, Mayor Hahn, Gordon (El Segundo), Oviatt (Ontario), City Councilpersons Miscikowski/Parks, FFA, Green Line, MTA, L A Co. Planning Officer,

Communities: Central LA., Culver City, El Segundo, Inglewood, LAX, Lennox, Marina del Rey, Manhattan Beach, Osage, Playa del Rey, Playa Vista, Westchester

Other: Alliance for Regional Solution to Airport Congestion, Gateway to LA, LA Airliners Airport Committee, LA Co. Economic Development Corp., LAX Community Noise Roundtable, Rand Corporation, Regional Solution to Airport Congestion

Many THANKS for the opportunity to speak out at the public hearings. Also submitting my fast-track opinion which City Council really didn't want to hear, cutting the three minutes to one. Good Luck with successful LAX planning,

R. Mahala Walter

Former Airport Commissioner

SPC00247

Honorable L.A. City Council Members:

9/12/03

As a former airport commissioner, I am asking you, CITY COUNCIL, to vote YES on this MOTION. If the consultants had done their job properly in the first place, there wouldn't be so many questions about Alternative D. Why don't the CONSULTANTS stand up and answer the questions about their design? Why send LAWA people out to face the public?

Let's start with....the underground luggage tunnel. Its' construction is due to start in 2005, but the safety features recommended by the FAA for runway & taxiway safety are not scheduled for completion until 2015. The underground luggage tunnel, is there going to be one...or NOT! Where's it going to run?

Last year I warned a couple Congressional Representatives & NATE HOLDEN that our own crazies could put timers on bombs in their luggage and sent them through to the CTA and not even have to commit suicide! Now YOU union PEOPLE, do you really want your union brothers & sisters to work there?.....And by the way, what makes you think you'll be getting the job. Time & time again, I objected to subcontractors coming in from out of state to do the work!

You know, proponents like to couch this whole scenario around security as "Cars & LAX FACILITIES don't mix!" Now tell me, how do they think people are going to get to this Ground Transportation Center?.....And what if you were a TERRORIST wanting to inflict major damage & loss of life, where would you rather have the PASSENGER LOAD WIDELY DISTRIBUTED AROUND 8 DIFFERENT TERMINALS or where EVERYONE for ALL FLIGHTS CONGREGATE AT one CHECK in/DROP off site? You see now why proponents have had to scrap security and recently invent "*modernization.*"

Sounds like a Disneyland attraction to use the Automated People Mover to funnel an increased number of people, travelers plus meeters & greeters, into the 200 additional businesses proposed by the mayor, shifting money from existing businesses for the benefit of increasing airport revenues. What happens now to the small businesses & hotels around LAX, who will have a very difficult time for many years? SOME MAY NOT SURVIVE. And what about the AIRLINES, especially those who are either in or fighting off bankruptcy!!!

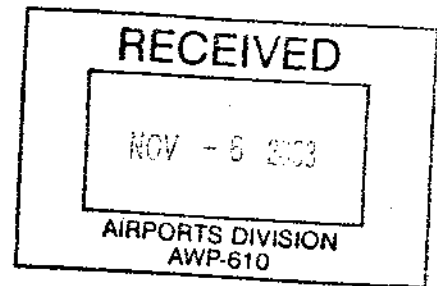
By the way, Ted Stein, were these consultants paid by the word or by the page? It certainly wasn't for the quality of work. Why spend millions more for a plan that will not FLY?

Vote YES to stop fast-track planning of Alternative D.

Signed *R. Mahala Walter*

SPC00248

Linda S. Peterson
7053 Vista del Mar Lane
Playa del Rey, CA 90293



November 5, 2003

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
AWP-611.2
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Re: Comments on Supplemental EIR/EIS

Dear Sirs:

Although I commend Mr. Hahn for making improvements in his proposed Alternative D over the prior plans for the airport, I do not believe there has been sufficient consideration of other alternatives for handling safety and security at LAX and in the region. Your EIR/EIS should have more thoroughly analyzed Alternative D, considered options other than just Alternative D, and considered data more recent than 1996.

The most significant thing you could do to impact LAX security would be to disperse air traffic throughout the region. Instead, Alternative D would give terrorists a spruced-up, more compact and more inviting target. A terrorist bombing of LAX would be devastating to the region's economy, but it would be far less devastating if there were other airports that could handle the traffic that would have to be diverted from LAX.

The Palmdale airport should be expanded and developed, and airlines and cargo companies given encouragement to use it. To respond to the naysayers who contend that it is too far away to develop, I suggest looking at the experience of Dulles airport. When it was initially built, there was very little development anywhere around it, and much skepticism about how much it would be used. Now it is the center of a thriving commercial district, mostly businesses attracted to that area because the airport is there. The same thing would happen if you were to expand the Palmdale facility.

The proposed 12-year construction project at LAX is of concern to me as a neighbor of the airport. I have seen what has happened to the Waterview landscaping project, where a lovely concept has become a neighborhood blight because the airport failed to do adequate research or planning with the Coastal Commission. How can you

SPC00249

ensure that Alternative D, if adopted, would not run into similar, but much more substantial, problems and delays?

As a procedural matter, I would like to know if the City Attorney has given an opinion regarding whether it would be a conflict of interest for LAWA Commissioner Miguel Contreras to vote on the various proposals coming before the Commission, given that he spoke out in favor of Alternative D as a representative of a labor union at the public meeting held at the Furama Hotel on August 23. To what extent was he involved in organizing union members to attend the various public meetings?

As a neighbor of LAX, I am not totally opposed to anything happening at the airport. I agree that it needs modernization and improvements in vehicular access. I am opposed to anything that would allow the airport to expand beyond its current borders, which would be in violation of Mayor Hahn's campaign promises. Alternative D would appear to be designed to allow future expansion.

Please ensure that whatever is done at LAX is fair to the surrounding communities, and that other areas of Southern California shoulder their fair share of the burdens of an airport.

Very truly yours,



Linda S. Peterson

Rec'd
11-06-03
9:10 am

Peura Enterprises

5340 West 135th Street, Hawthorne, CA 90250-4945

November 4, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
Post Office Box 92216
Los Angeles, CA 90009-2216

Dear Mr. Ritchie:

In accordance with Section 102(2)(c) of the National Environmental Policy Act of 1969, the California Environmental Quality Act of 1970, Section 509(b)(5) of the Airport and Airway Improvement Act of 1982, as amended, I reviewed the Los Angeles International Airport (LAX) Draft Master Plan Addendum and the Supplement to the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR).

Based upon my review, I respectfully offer the following observations and enclosed comments for your consideration. My review focused on Ground Transportation into and out of LAX.

As a member of the business community, I understand how important international trade is to this region's and my community's economy and future economic growth. LAX and other regional airports provide a vital international trade link for the region.

A strong regional economy requires a regional air transportation system capable of continued accommodation of demands for such services. In this regard, projected shortfalls of 10 to 30 million annual passengers (MAP) are disconcerting. The discussion in the Planning Objectives Section of the Addendum raises considerable doubt regarding the region's ability to meet future demands for air transportation. The proposed Alternative D does little to satisfy these future needs.

To really take control of the situation and make truly regional decisions in this matter, decision-making regarding how and when airports are served cannot remain the sole purview of the airlines. I am not suggesting regulating airlines and reestablishing the Civil Aeronautics Board abolished by the federal Airline Deregulation Act. However, under the current unregulated environment, local or regional caps on numbers of flights and passengers are meaningless. Additionally, suggested allocations of air traffic growth are meaningless unless and until sponsors of other regional airports expand to handle their share.

One of the more serious issues with the EIS/EIR is the cost of traffic mitigation measures and funding sources have not been identified. Also, ground transportation projects of other jurisdictions are used to mitigate impacts without regard to their validity. Because identified mitigation measures are primarily north of the airport, problems created south of the airport remain unresolved.

SPC00250

My observation of past events regarding LAX improvements strongly suggests justifiable concern about proposed caps on the number of flights, inadequacy of identified mitigation measures, and lack of funding for mitigation measures.

When the airport was expanded in the early 1980s, the EIS/EIR provided for expansion to 40 MAP. That level proved to be meaningless. Moreover, the mitigation measures identified at that time were inadequate (and similarly not funded) at the 40 MAP level, let alone at today's level of operation. No measures have been implemented to mitigate increases over the 1980 EIS/EIR-approved level. Consequently, ground transportation mitigation measures for the Master Plan Addendum must therefore use 40 MAP as the baseline.

In addition, conditions of approval must contain specific funding sources, schedules, legally binding commitments to implement signed by the responsible agencies, and remedies in the case of non-performance. Without such funding sources, implementation commitments, and remedies, any mitigation measures are illusory.

If you have any questions or require clarification of any comments, please contact me at (310) 643-5906.

Respectfully,



Edwin W. A. Peura
Vice President

LAX Master Plan Addendum

And

Supplement to Draft EIS/EIR

Comments

General

1. Considerable uncertainty regarding Los Angeles World Airports' (LAWA's) intention to complete proposed mitigation measures is raised by the following comment:
"Mitigation measures are applicable only to the extent that the use of airport revenues to fund such measures is permissible under federal law and policies." (Technical Report 2a, page 41 and elsewhere as indicated by specific comments below.)
2. As with the 2001 Draft Master Plan and Draft Environmental Impact Statement/Environmental Impact Report Draft EIS/EIR, the study area for Off-Airport Ground Access is primarily north of LAX. Little attention is paid to streets and freeways south of the airport. More significantly, mitigation measures appear to be limited to LADOT jurisdictions with little regard to traffic problems created in surrounding areas outside of the City of Los Angeles.
3. It is not clear how moving passenger access east outside of the Central Terminal Area improves security. Requiring passengers with luggage and visitors to use a 1.5-mile long Automated People Mover before entering security makes no sense. What is being protected? Obviously not passengers because they could be subject to numerous threats while in transit. Granted the Central Terminal Area will no longer be as insecure with removal of parking structures. That threat has been moved to the new Ground Transportation Center and the new Intermodal Transportation Center.

EIS/EIR Supplement, Chapter 4, Affected Environment, Consequences, and Mitigation Measures

1. Page 4-2 to 4-3, Mitigation Measures Bullet. – The comment – "It should be noted that mitigation measures, as well as Master Plan commitments, are applicable to the extent that the use of airport revenue to fund such measures and commitments is permissible under federal law and policies." creates considerable uncertainty regarding the validity of any proposed mitigation measures.
2. Page 4-3, The Environmental Baseline. – Using the 1998 Revision to CEQA Guidelines - "as they exist at the time the notice of preparation is published...." as a basis for establishing an environmental baseline ignores all environmental impacts since LAX was expanded in the 1980s and 1990s from 40 MAP to the

current baseline. Unmitigated impacts have resulted in uncontrolled traffic growth with significant impact on neighborhoods north, south, and east of LAX.

3. Pages 4-3 and 4-4, The Environmental Baseline, Third Paragraph - The discussion in this paragraph regarding “incremental” and “cumulative” impacts raises the issue of incremental changes to LAX since the last Draft EIS/EIR of 1978 from 40 MAP to the current baseline. Our view is these incremental changes and their impacts especially with regard to traffic should be addressed by this Supplement to allow mitigation to 40 MAP. This would necessitate an Environmental Baseline of 1984 vice 1996/97.
4. Page 4-6, Formulation of Master Plan Commitments and Mitigation Measures, Third Paragraph – What is the timetable for “formulation” of the referenced Mitigation Monitoring Plan? How will mitigation measures be enforced?

EIS/EIR Supplement, Chapter 4.3.2, Off-Airport Surface Transportation

1. Page 4-243, 4.3.2.2 General Approach and Methodology, Second Bullet, Third Sentence and Figure S4.3.2-1, Off-Airport Surface Transportation Study Areas – What is the rationale for limiting the area of study south of LAX to north of Rosecrans while including a more extensive area north and east of LAX? As indicated in our June 12, 2001 comments, the study area is biased toward those areas within the jurisdiction of LADOT to the exclusion of other neighboring jurisdictions.
2. Page 4-247, Sixth Paragraph, Last Sentence – What is the rationale for limiting coordination to LADOT?
3. Pages 4-248 to 4-250, 4.3.2.5 Master Plan Commitments – Will off-airport traffic control actions, necessitated by these commitments, be coordinated with jurisdictions other than LADOT?
4. Pages 4-254 to 4-261, Figure S4.3.2-4, Year 2015 Alternative D Levels of Service (Adjusted Environmental Baseline Comparison) – What are the Levels of Service and Impacts for the following intersections:
 - Sepulveda and Marine,
 - Sepulveda and Manhattan Beach,
 - Aviation and Marine,
 - Aviation and Manhattan Beach,
 - Nash and El Segundo,
 - Douglas and El Segundo,
 - La Cienega and El Segundo (east of the 405),
 - La Cienega and Rosecrans,
 - Inglewood and El Segundo,
 - Inglewood and Rosecrans,
 - Inglewood and Marine,
 - Inglewood and Manhattan Beach,
 - Hawthorne and El Segundo,
 - Hawthorne and Rosecrans,
 - Hawthorne and Marine, and

- Hawthorne and Manhattan Beach/Artesia?
5. Pages 4-254 to 4-261, Figure S4.3.2-4, Year 2015 Alternative D Levels of Service (Adjusted Environmental Baseline Comparison) – What are the Levels of Service and Impacts for the following links:
 - Sepulveda south of Rosecrans,
 - Sepulveda Tunnel,
 - Aviation south of Rosecrans,
 - Inglewood south of Imperial,
 - Hawthorne south of Imperial, and
 - Rosecrans west of Hawthorne?
 6. Pages 4-254 to 4-261, Figure S4.3.2-4, Year 2015 Alternative D Levels of Service (Adjusted Environmental Baseline Comparison) – What are the Levels of Service and Impacts for the following Freeway Ramps:
 - I-405 NB off-ramp and El Segundo,
 - I-405 SB off-ramp and LA Cienega S/O Century,
 - I-405 NB off-ramp and Rosecrans, and
 - I-405 NB off-ramp and Inglewood?
 7. Pages 4-265 to 4-269, Table S4.3.2-8, Year 2008 Alternative D Levels of Service (Adjusted Environmental Baseline Comparison) – Concerns regarding status of Intersections, Links, and Freeway Ramps expressed in comments 4 to 6 above also apply to this table and supporting analysis.
 8. Page 4-273, 4.3.2.7.2 Alternative D - Enhanced Safety and Security Plan, Third Paragraph – Another Project to be considered is the construction of up to 750 units comprising a mix of single-family detached homes, attached and detached town houses, and high quality condominiums on the southeast corner of El Segundo and Aviation Boulevards in Hawthorne. The City Councils of El Segundo and Hawthorne recently approved this project, Pacific Glen.
 9. Page 4-273, 4.3.2.8 Mitigation Measures – The statement in this paragraph: *The following mitigation measures are applicable only to the extent that the use of airport revenue to fund such measures is permissible under federal law and policies.* casts doubt regarding the validity of any proposed mitigation measures. What agency will make the determination regarding use of airport funds? When will this decision be made?
 10. Pages 4-275 to 4-278, Table S4.3.2-11, Year 2008 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison) – The assumed proposed improvement by County of Los Angeles of the Intersection of Aviation and El Segundo is not substantiated by the *Coastal Corridor Transportation Study, Phase II, Figure 9, Roadway Improvements Funded*, South Bay Cities Council of Governments, 2003. Widening of Aviation is funded, but intersection improvements are not funded.
 11. Pages 4-275 to 4-278, Table S4.3.2-11, Year 2008 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison) and Pages 4-279 to 4-284, Table S4.3.2-12, year 2015 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison) – The unstudied Intersections, Links, and Freeway ramps identified in comments 4 to 6 above must be added to planned mitigation measures as appropriate.

12. Page 4-295, 4.3.2.10.2 Alternative D – Enhanced Safety and Security Plan, Second Paragraph – Leaving two critical intersections nearest the new Ground Transportation Center and Intermodal Transportation Center (Century at La Cienega and Imperial at La Cienega) unmitigated will lead to serious access problems for vehicles from the South Bay using arterial highways. What is the intended plan? To ignore the issue is not acceptable.

Technical Report S-2a. - Supplemental On-Airport Surface Transportation

1. Pages 24 and 25, Table 5, Key Assumptions/Inputs 2015 Alternative D, Planned – Regional Access/Egress Directional Distributions and Attachment A – What is the basis for allocation of percentages of passengers between entrances and ramps?
2. Page 62, Table 17, Key Assumptions/Inputs 2015 Alternative D, Refined System – Regional Access/Egress Directional Distributions – What is the basis for allocation of percentages of passengers between entrances and ramps?

Technical Report S-2b. - Supplemental Off- Airport Surface Transportation

1. Page 3 and Figure 1, Revised Study Area and Key Study Locations – Why have study areas been limited to areas north of Rosecrans?
2. Page 8, Planned Development Projects Added to Background Assumptions. - Hawthorne should be included in your list for projects.
3. Page 15, First Paragraph – Another Project to be considered is the construction of up to 750 units comprising a mix of single-family detached homes, attached and detached town houses, and high quality condominiums on the southeast corner of El Segundo and Aviation Boulevards in Hawthorne. The City Councils of El Segundo and Hawthorne recently approved this project, Pacific Glen.
4. Page 25, 3.2. Geographical Distribution of Trips – As indicate in above comments regarding Technical Report 2a, the basis for trip allocation is not obvious. Here the implication is “Passenger Surveys”. Have these surveys been documented? If so where? If the basis is *Technical Report 2b, Off-Airport Surface Transportation, LAX Master Plan Off-Airport Existing 1996 Transportation Conditions Report* of the Draft EIS/EIR, the validity of this allocation is questionable. The intersections surveyed in that study were biased toward the use of I-405 to access the CTA via Imperial and Century. None of the intersections surveyed were west of I-405 and south of Imperial. Consequently no data was collected regarding LAX traffic from Palos Verdes, Beach Cities, and bailouts from I-405 northbound onto surface streets.
5. Page 26, Table S9, Existing and Future Transportation Deficiencies (RTP Background Assumptions) – What is the justification for arbitrarily limiting the study area to north of Rosecrans? If the following intersections, links, and ramps had been included in the analysis, the number impacted would probably be higher:
 - Sepulveda and Marine,
 - Sepulveda and Manhattan Beach,
 - Aviation and Marine,

- Aviation and Manhattan Beach,
 - Nash and El Segundo,
 - Douglas and El Segundo,
 - La Cienega and El Segundo (east of I 405),
 - La Cienega and Rosecrans,
 - Inglewood and El Segundo,
 - Inglewood and Rosecrans,
 - Inglewood and Marine,
 - Inglewood and Manhattan Beach,
 - Hawthorne and El Segundo,
 - Hawthorne and Rosecrans,
 - Hawthorne and Marine,
 - Hawthorne and Manhattan Beach/Artesia,
 - Sepulveda south of Rosecrans,
 - Sepulveda Tunnel,
 - Aviation south of Rosecrans,
 - Inglewood south of Imperial,
 - Hawthorne south of Imperial,
 - Rosecrans west of Hawthorne,
 - I-405 NB off-ramp and El Segundo,
 - I-405 SB off-ramp and LA Cienega S/O Century,
 - I-405 NB off-ramp and Rosecrans, and
 - I-405 NB off-ramp and Inglewood.
6. Page 27, Third Paragraph and Figure S3, Differences in LAX Passenger Trips – 2015 PM Peak Hour - Alternative D – Adjusted Environmental Baseline – What is the basis for the conclusion that shifting passenger access to the eastern end of the airport will cause a measurable shift in traffic using I-405? Should Lincoln be included in the discussion in the third paragraph? Reduction of traffic on Lincoln is not reflected in Figure S3.
 7. Page 27, Fifth Paragraph and Figure S4, Differences in Total Vehicle Trips – 2015 PM Peak Hour – Alternative D – Adjusted Environmental Baseline – What is the basis for the conclusion regarding traffic shift?
 8. Page 28, Table S10, Master Plan Impacts on Surface Streets, Freeways, and Intersections vs. Adjusted Environmental Baseline: RTP Background Assumptions – See comment 5 above regarding Table S9.
 9. Pages 33 and 34, 4.2 Study Area Transportation Benefits, Table 11 Study Area Average Speed and Congested Lane Miles, and Table S12 Study Area VMT and VHT – The conclusions reflected in these tables probably result from the arbitrary conclusion that traffic will shift as a result of the proposed shift in passenger access to the east.
 10. Pages 35 and 36, Essential Neighborhood Traffic Management Elements – Does this philosophy extend to neighborhoods outside of the City of Los Angeles? If not, it should. Because of the reference to LADOT procedures in the third paragraph, the impression is created that the intent is to limit to the City of Los Angeles. The new interchange at Lennox and shift of passenger access to the east

will not increase the capacity of NB I-405 south of the new interchange. Consequently, the risk of driver bailout using El Segundo, Rosecrans, and Inglewood Off-Ramps remains. This may well result in cut through traffic into neighborhoods south of LAX. This should be examined.

11. Page 36, 5.2 Mitigation Measures for Alternative D, third paragraph and Figure S6 Changes in Total Traffic Volumes Due to Lennox/I-405 Interchange and I-105 Ramps – 2015 PM Peak Hour – What is the basis for these conclusions?
12. Page 36, 5.2 Mitigation Measures for Alternative D, third paragraph, last sentence – Does this conclusion include the potential for increased bailouts from I-405 as discussed in comment 10?
13. Page 41, First Complete Paragraph – Leaving two critical intersections nearest the new Ground Transportation Center and Intermodal Transportation Center (Century at La Cienega and Imperial at La Cienega) unmitigated will lead to serious access problems for vehicles from the South Bay using arterial highways. What is the intended plan? To ignore the issue is not acceptable.
13. Page 41, Fourth Paragraph – What agency will decide which mitigation measures will be funded with airport revenues? In the event airport revenues are not to be used to fund the recommended mitigation measures, will the proposed actions cease?
14. Page 41, 5.3 Alternative Mitigation Plan for Alternative D, First Paragraph – Which agency has the authority to approve the proposed Lennox Interchange and when will they decide?
15. Page 41, 5.3 Alternative Mitigation Plan for Alternative D, Fourth Paragraph – Lennox Interchange should be deleted from the mitigation measures in this paragraph since this section addresses an alternative plan.
16. Pages 41 and 42, 5.3 Alternative Mitigation Plan for Alternative D, Last Paragraph, First Sentence – What agency will decide which mitigation measures will be funded with airport revenues? In the event airport revenues are not to be used to fund the recommended mitigation measures, will the proposed actions cease?
17. Attachment B, Geographic Distribution of Airport Trips - Alternative D – What is the basis for determining the distribution. See comment 4 above.

Recd
11-06-03
9:10am

Jackie McCain
4135 LaFayette PL.
Culver City, CA., 90232
November 5, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O.BOX 92216
Los Angeles, CA. 90009-2216

RE: Supplement to the Draft EIS/EIR – Alternate D

Culver City certainly not consulted in the new alternative. On April 19, 2001 you spoke to the Culver City Homeowner Assn. on the Master Plan of Los Angeles International Airport Perhaps our group too interested in traffic on the 405 and not runways, so you checked us off the list.

Alternate D accommodates around 78.9 million annual passengers, almost at the same level as no change. While previous plans had almost 19 million more passengers. Less traffic on the 405 for sure.

The runway extensions seem feasible, however, not really informed on flight safety my comments are not one of an expert. The new parallel taxiway between existing runways does seem like a necessary safety point.

Looking at Alternate D's Manchester Square you will find many security and safety points. Traffic into the square from the 405 is from Arbor Vitae ST. and Century Blvd. the commercial and private vehicle. Today there does not seem to be safe commercial inspection. To think this has eliminated curb side parking is one great safety factor.

Ancillary facilities will be consolidated. Maintenance into a smaller area, Fire Station 51 expanded, Fire Station 80 relocated and expanded. The existing police headquarters removed by a new 110,000 square foot airport police building on the northwest corner of Westchester Parkway and Emerson Avenue.

The public parking will consist of three garages, 7,515 stalls both short and long term parking. Even the employees will have a new garage of 12,400 spaces and shuttled to their work sections.

The MTA Green Line will be linked to the passenger terminal by a covered walkway.

Alternative D will require approximately 77 acres of property, the least amount of land of all proposed alternatives.

Continued

SPC00251

Alternate Plan D

Plan D – Construction

Construction workers will park from one mile to fifty miles away and be shuttle bused in. They will not work in peak hours --- 8 a.m. to 9 a. m. – 5 p.m. to 6 p,m, and at the high airport hours – 11 a.m. to noon

IMPROVEMENTS at 1-405 and 1-105

A new 1-405/Lennox Boulevard interchange, affly over the existing 1-105/Imperial Highway interchange near Aviation. Provide new ramps between Aviation and LaCienega at the 1-105. Create a new interchange at 1-405 and Lennox Boulevard.

They plan to build future FlyAway remote terminals and bus in passengers. This should cut the traffic to the airport down on the 405 for Culver City.

In my opinion the Safety and Security of Plan D is designed to be flexible and will accommodate any new requirements.

GOLFERS:

I would be remiss if I did not tell you – the three (3) holes at Manchester Golf course will be replaced.

Thank you for the opportunity to respond.



Jackie McCain
310/838-6941



Public Comments

Please print.

Name (First MI Last, & Organization): Jasmine Patton 50th St. Block Club

Date: 04 Nov 03

Address: 1639 W. 50th St.

City: L.A.

State: CA.

Zip Code: 90062

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title: Alternative D

Comments:

Office Use Only

As a member of 50th St Block Club and as an Area Representative for the Dept of Neighborhood Empowerment, Neighborhood Development Congress, I have read and approved Alternative D as the best plan for the improvement of the airport at LAX.

However, the addition of shops and consumer locations will add to the already dense traffic, and is not an adequate security alternative to gates. I believe that segment of alternative D should be re-evaluated,

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Recd
11-06-03

SPC00252



Public Comments

Please print.

Name (First MI Last, or Organization):

Bruce Patton, Todd '50th St. Block Club

Date:

04 Nov 03

Address:

1639 W. 50th St.

City:

L.A.

State:

CA

Zip Code:

90062

Document:



Draft Master Plan Addendum



Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number:

Title:

Alternative D.

Comments:

Office Use Only

*I believe that Alternative D to the Master Plan is best for the city. Leave the gates.
Todd A Patton*

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

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U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

*Recd
11-06-03
9:10am*

SPC00253



Public Comments

Please print.

Name (First MI Last, & Organization): Patton, Bruce 50th St Block Club Date: 04 Nov 03

Address: 1639 W 50th St.

City: L.A. State: CA Zip Code: 90062

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: _____ Title: Alternative D

Comments: _____ Office Use Only

I approve of LAX Master
Alternative Plan "D".


Bruce Patton

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Recd
11-06-03
9:10am

FAX COVER SHEET

To: *Attn: Angie "LAX MASTER PLAN"*

From: *A. Beltran*

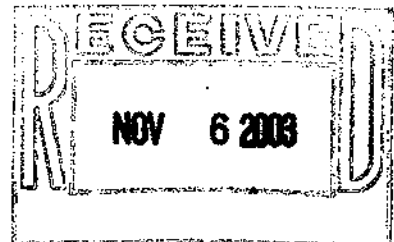
Date: *06/11/03*

Fax #: *310/646-1891*

Total Pages Including Cover:

Contact:

Comments: *WITHOUT TRANSPORTATION*



HECTOR BELTRAN

P.O. Box 701
Inglewood, Ca 90307-0701

EXAUDI@USA.COM
CA, 90307-0701

Medical Research Fellowship, 1992-93,
C. R. Drew University of Medicine & Science,
Hypertension Research Center.

M.P.H. (candidate), School of Public Health, 1984-86,
University of Calif., Los Angeles (UCLA),
Major: Health Services Organization.

M.D. Primary Health Care & Obstetrics, 1975-80,
Universidad Nacional Autónoma de México (UNAM).

10th Scientific Meeting, Inter-American Society of Hypertension. La Jolla, Ca., 1993.
Informed Consent: Language, Gender and Ethnicity. University of Florida, Clearwater, 1992.
46th Annual-Fall Conference, Council for High Blood Pressure. Cleveland, Ohio, 1992.
Terazy Scientific Symposium-Molecular Genetics. Cleveland, Ohio, 1992.
18th Annual Cardiovascular Epidemiological Seminar. Lake Tahoe, Ca., 1992.
Community Health Promotion and Disease Prevention. Stanford University, Ca., 1985.
10th Annual Review Course in Family Practice Medicine. U.S.C., Los Angeles, Ca., 1984.

Publications:

Longitudinal Study: Mexican-American Elderly, Health Status.
Harris & Harris, New York 1994
Insulin Levels are Lower in Salt-Sensitive African Americans.
Presented to the Inter-American Society of Hypertension, Manuscript 93-I-149.
Coronary Risk Factors in Hispanic Populations: REVIEW.
Hispanic Journal of Behavioral Sciences, vol. 7:2, 153-175; 1985.

- Health Coordinator: F. Douglass, Head Start Program, Los Angeles, Ca., 1994.
- Health Coordinator: Options, Head Start Program, Los Angeles, Ca., 1989.
- Counselor/Case Mgmt.: Catholic Archdiocese, Los Angeles, Ca., 1988.
- CSW II/Case Mgmt.: Los Angeles County-DPSS, Los Angeles, Ca., 1984.
- Mental Health Counselor: Kedren Community Mental Health Ctr., Los Angeles, Ca., 1982.
- Medical Coordinator: Urgent Care Clinic, Los Angeles, Ca., 1981.
- Medical Regional Coordinator: M.C.H. Program, Health Services Dept., Jalisco/Toluca, Méx., 1980.

REFERENCES WILL BE SUBMITTED AT A LATER TIME AS REQUESTED

PERSONA STATEMENT

DEPART

Assez vu

La vision est reconverts a tous le airs.

Assez eu

Rumneurs de villes, le soir, et au soleil, et toujours.

Assez connu

La arrets de la vie.- O rumeurs et visions!

Depart dans la affection et le bruit neufs.

A. Rimbaud*ENVIRONS (UNDER SIEGE)*

Seen enough

The vision gleams (and has been meet) in every air.

Had enough

Sound from loud noise pollutes our skies,
In the evening and in the sunlight of every single day

Known enough

Oh tumult! Oh visions! And aching sounds. - Life comes to a halt

Departure from affection and sensitivity,

modern loud roaring raw thundering shining sound,

hovering constantly over us.

I have witness enough

You are destroying our *habitat*.

- You and I are fully aware of that.

- So please help us make them stop and have them come to a halt.

Our normal way of going about our daily life is being shattered, a once tranquil environment has been irreversibly disrupted by commercial development, perhaps beyond repair. Our senses witness and feel such repercussion.

American naturalists, who once studied the natural sounds and recorded their patterns, find today their task increasingly more difficult. Finding a noise-free environment, a refuge from the maddening crows is a more challenging task now than ever before in history. Thus, nature may well become, truly a Sanctuary for those who come to realize and vision what a healthy environment really is and means to some of us.

City officials are unable to respond to our concerns, let alone behave responsibly to demands placed in our environment and to those who happen to live in it. I have witness a blatant disregard to demands for an objective and accurate environmental impact study in our community.

Where I now live each and every single day, seek relief in silence, which I can only find between the midnight hours of 1:30 and 4:30 PM. In spite of our pleas for relief, we find ourselves increasingly shut-off from the policy process, and increasingly less able, helpless and more dis-able to respond.

In addition, we ask ourselves will this be a reversible trend? We all are suffering from constant distress and disruption in our daily activities, due to the neglect from private developers and our civil authorities and the unfavorable outcomes from policies issued and improperly enforced.

A sacrilege has been perpetuated on our senses, and our perception of wellbeing perverted.

A psychological assault as a result of this siege

August 1, 2001

Now more than ever I seek solutions and perhaps become instrumental in finding effective and immediate management of this alarming problem constantly hovering over us.

We have no where to go, so please before we regret future irreversible damage on our senses and our community. Do not neglect to respond to our request. The potential faculties of future generations are at stake and our well being is in jeopardy.

HECTOR BELTRAN
EXAUDI DEUS
EXAUDI@USA.COM
CA. 90307-0701

SPC00255



50-Year Flag
1960

USA



Hector Beltran

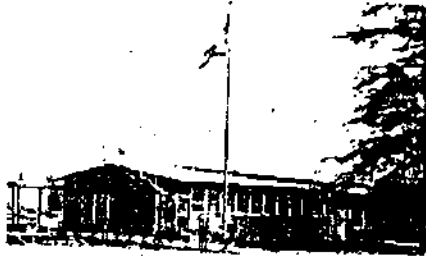
WASHINGTON SCHOOL
San Gabriel, California
1963-64

MR. JOHN COKELEY
Principal

MRS. ADAM
Grade 2



Nancy



Page 2
Hector Beltran

you in your career or personal life. I recommend you seek assistance from more appropriate sources of help and wish you well. I have again referred this matter to the University Police Department. If you have any questions or need clarification as to this directive, please call Sergeant James Vandenberg at 310-825-1491. My office will forward any future attempts to communicate with faculty and staff in the School of Public Health directly to Sergeant Vandenberg.

Respectfully,

V. Gale Winting
Associate Dean

cc: James Vandenberg, Sergeant UCPD

09/18/03

ATION

Daily Breeze

Study says noise affects neuron growth

SCIENCE: Exposure to constant sound delays auditory development in young mice.

By The Associated Press

WASHINGTON — The high noise of modern life may affect speech and language development in the very young, according to a study that found the auditory parts of the brains of young mice are slower to organize properly in the presence of continuous sounds.

Researchers at the University of California, San Francisco, reared a group of rats in an environment of continuous background noise and found that their brain circuits that receive and interpret sound did not develop at the same rate as animals that were raised in a quieter environment.

Edward F. Chang and Michael Merzenich, co-authors of the study appearing in the journal *Science*, said that the continuous noise delayed the organization of auditory neurons during a critical two-to-three-week period after the rat pups were born.

For rats not exposed to the noise, the auditory

cortex neurons during this period gathered into a smaller area and began developing a selective response to sounds.

But for the noise-exposed rats, this organization was slowed, causing a delay in the development of the ability to discriminate specific sound tones. The researchers said it took three or four times longer for the rats raised in a noisy environment to reach the basic benchmarks of auditory development.

Although the rat is not a perfect model for what happens in humans, the authors note, the study does suggest that high levels of noise might possibly affect some language learning in infants.

"These findings suggest that environmental noise, which is commonly present in contemporary child-rearing environments, can potentially contribute to auditory and language-related development delays," the authors write in *Science*.

The authors noted that although the brain development was delayed in rats exposed to the noise, their brains did eventually mature normally.

Science: www.sciencemag.org

Researchers find DNA in permafrost soil

By Paul Recer

THE ASSOCIATED PRESS

WASHINGTON — Ancient plant and animal DNA found in undisturbed soil sediment can be used to unlock secrets about life hundreds of thousands of years ago, researchers say.

Scientists analyzing soil from Siberian permafrost and from caves in New Zealand said they found evidence of DNA from animals that died out thousands of years ago and from plants that lived about 400,000 years ago.

Eske Willerslev of the Univer-

sity of Copenhagen, a co-author of the study appearing in the journal *Science*, said the study found that soil fragments the size of a sugar cube can contain large amounts of DNA from those ancient life forms.

"You can obtain a lot of information about that extinct biota from just two grams of material," Willerslev said.

Permafrost is excellent at preserving the ancient DNA, the researchers said, because it is constantly cold. The scientists identified DNA from 19 categories

of plants and from eight kinds of animals, including the extinct mammoth and steppe bison. The animal DNA was thought to be up to about 30,000 years old.

Willerslev said that attempts to look further back in history, beyond 400,000 years, was unsuccessful.

"We tried to look for DNA in sediments dated one and a half to two million years, but those tests came up negative," he said. "There may be some sort of barrier that makes that impossible."

logical understanding and empathy with the others's point of view. A common task for every group in quest of a common truth. With best greetings,

Yours sincerely, C. C. JUNG

To Karl Offinger

Dear Professor Offinger,

September 1957

Unfortunately I am so old and tired that I am no longer able to comply with your wish.¹ You may be assured, however, that I have every sympathy with your project and understand it only too well. I personally detest noise and flee it whenever and wherever possible, because it not only disturbs the concentration needed for my work but forces me to make the additional psychic effort of shutting it out. You may get habituated to it as to over-indulgence in alcohol, but just as you pay for this with a cirrhosis of the liver, so in the end you pay for nervous stress with a premature depletion of your vital substance. Noise is certainly only one of the evils of our time, though perhaps the most obtrusive. The others are the gramophone, the radio, and now the blight of television. I was once asked by an organization of teachers why, in spite of the better food in elementary schools, the curriculum could no longer be completed nowadays. The answer is: lack of concentration, too many distractions. Many children do their work to the accompaniment of the radio. So much is fed into them from outside that they no longer have to think of something they could do from inside themselves, which requires concentration. Their infantile dependence on the outside is thereby increased and prolonged into later life, when it becomes fixed in the well-known attitude that every inconvenience should be abolished by order of the State. *Panem et circenses*—this is the degenerative symptom of urban civilization, to which we must now add the nerve-shattering din of our technological gadgetry. The alarming pollution of our water supplies, the steady increase of radioactivity, and the

¹ O., professor of law at the U. of Zurich, had founded an association to combat noise ("Liga gegen den Lärm") and asked Jung for a contribution to be published in a reputable newspaper.

primitive equivalents are yells, bull-roarers, drums, etc.) Noise, like crowds, gives a feeling of security, love it and avoid doing anything about it as they do the apotropaic magic it sends out. Noise protects reflection, it scatters our anxious dreams, it assures in the same boat and creating such a racket that it attack us. Noise is so insistent, so overwhelming, thing else becomes a pale phantom. It relieves us of or do anything, for the very air reverberates with the of our modernity.

The dark side of the picture is that we wouldn't didn't secretly want it. Noise is not merely inconvenient it is an unadmitted and uncomprehended means of pensation of the fear which is only too well found silence, their fear would make people reflect, and what might then come to consciousness. Most people silence; hence, whenever the everlasting chit-chat stops, they are impelled to say something, do something fidgeting, whistling, humming, coughing, whisper noise is almost insatiable, even though it becomes times. Still, it is better than nothing. "Deathly phrasel—strikes us as uncanny. Why? Ghosts walk hardly. The real fear is what might come up from all the things that have been held at bay by noise. You have taken on a difficult task with this abatement, for the more you attack noise the more the taboo territory of silence, which is so much be depriving all those nobodies whom nobody ever sole joy in life and of the incomparable satisfaction they shatter the stillness of the night with their bikes, disturbing everyone's sleep with their moment they amount to something. Noise is then a confirmation of their existence. There are far more supposes who are not disturbed by noise, for them that could be disturbed; on the contrary something to live for.



P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First MI Last, or Organization): HOWARD H. HAGLUND, JR. Date: 30 OCT 03

Address: 112 N. JAMESTOWN ROAD

City: CORADOPOLIS State: PA Zip Code: 15108

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments: Office Use Only

- When is the fuel storage system in Alternatives A+B
- I don't see in alternatives A+B when the incremental work justifies the marginal increase in daily operations potential.
- Encourage more passenger efficient aircraft by having cost incentives for larger aircraft - get rid of R/Ts, turbo prop traffic etc + small Boeing aircraft
- Don't worry about increasing capability at LAX, the freeway systems nearby can hardly handle what you have now. Develop the other airports or new airports as a region - just because you don't own other airports be practical and solve jointly with BUR, LGB, SNA the problem.
- Don't increase the airport size - yes I am a Westchester landowner!

Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

Rec'd 11/6/03
4:45pm



Public Comments

Please print.

Name (First MI Last, or Organization):

Los Angeles County Economic Dev't. Corp.

Date:

11/6/03

Address:

444 South Flower Street, 34th Floor

City:

Los Angeles

State:

CA

Zip Code:

90071

Document:

Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (if applicable):

Critical Infrastructure Council

Number:

Title:

LAX Master Plan Assessment

Comments:

Office Use Only

PLEASE SEE ATTACHED

Jack Haney
PRESIDENT/CEO

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

SPC00257

LAEDC

*Economic Vitality,
Trade & Jobs*

**CRITICAL INFRASTRUCTURE COUNCIL
LAX MASTER PLAN ASSESSMENT**

THE CHALLENGE

Modernization of LAX is not an alternative, it is an *economic necessity!* As the region's most important economic engine, LAX is our front door to the world, welcoming visitors and business travelers, moving more than 2 million tons of air cargo with a value of \$60.9 billion annually and enabling more than 20 million residents to travel and do business regionally and internationally. In fact, LAX is currently the world's busiest arrival and departure airport and fifth busiest cargo airport. Yet it has not been significantly modernized since 1984 when it was upgraded to handle 40 million annual passengers per year (MAP). Prior to 9-11, LAX served 67 million passengers per year. It is currently operating at 59 MAP.

J.D. Powers recently ranked LAX 18th out of 20 major international airports in terms of passenger satisfaction. Doing nothing is unacceptable. Southern California must meet the growing needs for air travel and commerce or forfeit the economic benefits. Other metropolitan areas like Phoenix, Denver, Las Vegas, San Francisco, and Vancouver have been aggressively expanding their airports to attract the business. A regional solution is required for Southern California and should include Ontario, Burbank, Long Beach, John Wayne, Palmdale, San Bernardino, March, George (and yes, El Toro) airports. Given the limitations at these airports, however, LAX is vital because of its unique mix of international and regional carriers, and its proximity to the region's frequent flyers and international air cargo shippers. LAX will remain Southern California's pre-eminent airport.

Starting the Master Plan and EIR process over is not an option. We must maintain the "legal" viability of this process which is based on an aging 1996 baseline. Unfortunately the process has already consumed 10 years of the 20-year planning horizon. Building incrementally to address each future crisis will merely result in the continuing deterioration and obsolescence of LAX. We are therefore compelled to operate within the existing record and the limits of the worst-case environmental statement it provides. Our only realistic choice is to identify and support those elements of the proposed alternatives or alternatives which can be assessed in the final EIR process which make the

most economic, operational, security and financial sense today. Other alternatives may need to be considered in a supplemental or subsequent EIR process.

LAX needs to address the economic future of the region, as well as a potential terrorist event. Plans to modernize LAX should be based first on function, usability and economic impact, closely followed by due consideration for safety and security. Otherwise, an inefficient reconfiguration of airport operations on the transportation and economy of Southern California could impose unacceptable economic costs with questionable security and safety trade offs. In the aftermath of 9-11, the need for airport security has taken on new importance. Protecting people and facilities from a terrorist attack is a daunting challenge because "terrorism is dynamic and terrorists adapt their methods to suit changes in weaponry and defense tactics." Technology developments will offer new protection options in the future. Flexibility in current planning as opposed to massive, irreversible reconfiguration of airport operations is clearly advisable at this time.

Impacts on local communities need to be considered and economically rational solutions developed. However, it seems that LAX modernization, as critical as it is to the region, has become the poster child of the "not-in-my-backyard" movement. When residents in Orange County decide they don't want the impacts of having their own airport at El Toro and suggest "L.A." needs to solve its "own airport problems" at the expense of local residents in El Segundo, Westchester and Inglewood, issues of equity and burden sharing are painfully evident. Communities surrounding LAX understandably want other regional airports to share the growth in passenger and cargo needs.

Mayor Hahn should be commended for taking the political risk to try to move LAX modernization (and the El Toro alternative) forward. The Mayor is in an unenviable position. The burden of developing a solution for a region of some 180+ cities and communities has fallen largely on a single proprietary department in one city (albeit the largest). Without the rejuvenation of a Southern California regional airport authority to represent the common interests of this mega-region, our economic future is at risk. Mayor Hahn has invited public input at this point regarding his Alternative D, and we appreciate the invitation to share the insight and experience of the LAEDC's Critical Infrastructure Council.

The LAEDC's Critical Infrastructure Council is comprised of experts in planning, transportation, airport and airline operations, engineering, safety and security, economics and business. This assessment draws on meetings and dialogue with LAWA, the Mayor's Office for the City of LA, El

Segundo's Mayor Gordon, SAIC, RAND and other security experts, the airlines and the Westchester Alternative E Group.

The Critical Infrastructure Council recommends that four guiding principles be applied in the final decision-making for the LAX Master Plan:

1. Flexibility

In this post-9-11 world, planning for something as important as the modernization of LAX and the future of a regional airport system in Southern California is fraught with uncertainties. How quickly will passenger service rebound? How will passenger demand and market forces develop? What will be the mix and relationship of international and short-haul service? Will the new large body A380 Group VI type aircraft dominate international service? What will the TSA ultimately adopt as required airport security measures and what technologies will develop to address these needs? These unknowns argue strongly for a flexible plan which can adjust to future market and security requirements.

2. Passenger Convenience

Without world-class user-friendly facilities and service, our region will suffer as a global competitor. Ease of access to and use of all of our airports should be a top planning goal.

3. Security

LAX will remain a terrorist target. Security is an obvious priority. Any new plan must address improvements in security of both airport operations and passenger safety. We must consider and address the trade off's inherent in such planning.

4. Cost Effectiveness

The airline industry remains financially unstable. Landing and passenger fees do provide one source of funding but are also a competitiveness factor for LAX and its carriers. The plan should seek the most cost-effective solutions to the needs being address.

ALTERNATIVE D

ECONOMIC IMPACT

Economic impact should be a primary consideration in the development of LAX and our regional airport alternatives. The Master Plan EIR sheds significant light on such impact. The "no growth" and

"Alternative D" scenarios, which cap LAX at 78 million annual passengers (MAP), result in regional economic outputs of some \$18-20 billion less than Alternatives A, B or C which support 89-98 MAP. While this comparison is not by itself determinative, policy makers and residents need to understand that this factor alone equates to potentially foregoing the benefit of the economic equivalent of more than 500,000 jobs for our future regional economy if Alternative D is implemented and other regional airports fail to meet the needs of travelers and cargo operations (estimated direct passenger and cargo related jobs approach 100,000. See Schedule A). With California facing fiscal crisis and future population growth of five million more people in Southern California by 2020, such a plan could lead to economic strangulation. The economic equivalent of half a million jobs equate to more than \$1 Billion in annual tax revenues to support schools and governmental services.

The region must not cap its future with a "No Growth" plan for LAX. Market forces and user preferences will determine which airport alternatives in Southern California meet our future passenger and cargo needs. Burbank, Long Beach and John Wayne airports are already constrained or capped. Even Ontario with its substantial expandability has not generated sufficient traffic for Jet Blue, Aloha Air, and Air Canada for their passenger service. Use of our other regional airports for expanded passenger and dedicated cargo operations is a desirable goal. But, any plan which creates a real physical or capped limitation on LAX is unacceptable from an economic impact standpoint. A "planning capacity" is one thing. A legal or physical cap is something else. The goal of a distributed regional airport system is something everyone can support. But any plan must be flexible enough to address changing market forces and the traveling publics' ultimate choices of air service and airports.

GETTING TO THE AIRPORT

The concept of capping MAP can be misleading. Today's capacity limitations are not the number of flights our airports can accommodate; they are the number of passengers current modes of ground transportation can move to and from our airports. If the number of ground trips can be reduced and the number of passengers per ground trip increased, capacity can be improved and congestion can be reduced.

LAX is physically constrained today by the limits of ground access to move passengers and cargo to and from the airport via Century and Sepulveda Boulevards. Alternatives to improve this "connectivity" include:

1. Expansion of direct light rail service eliminating the multiple transfer issues currently extant on the Greenline. (Rail service could also incorporate a pre-check in flyaway service component discussed below).
2. A satellite system of dedicated "flyaway" bus service to LAX (and other regional airports) with pre-checked baggage service.
3. Remote check-in options outside the Central Terminal Area. (CTA)

Alternative D proposes the creation of a new offsite Ground Transportation Center (GTC) at Manchester Square adjacent to the 405 freeway, approximately two miles from the Central Terminal Area (CTA). The current parking structures would be eliminated and a new CTA constructed in the center of the airport. Direct truck and vehicle access would be replaced with an Automated People Mover (APM) between the CTA and the GTC. It is unclear at this point whether passengers will be able to check their baggage at Manchester Square or will have to carry baggage through the GTC screening, onto the APM and into the CTA. Alternative D does propose limited flyaway service with direct bus access to the CTA. It also proposes an Internodal Transportation Center where people can transfer from the Green Line and buses to the APM.

From a ground access standpoint, the option of a remote drop off and check in facility could enhance connectivity to LAX. However, due to its location the Manchester Square site raises unanswered questions regarding bottlenecks and back ups onto the 405 freeway as well as limitations regarding access from other highways and streets in the area. Timing regarding acquisition of the necessary land (200 acres) for Manchester Square is also highly speculative and could delay the project 7-9 years into the future. A site nearer LAX already under LAWA's control such as the Lot C area appears to offer a more viable and flexible alternative.

However, the most immediate and cost effective opportunity to alleviate traffic congestion around LAX is the creation of a world class "Flyaway" system of offsite check-in locations (e.g., Burbank, Downtown, Ontario, Long Beach, Orange County, etc.) where passengers can pre check- in luggage and board high quality dedicated buses designed for business travelers to travel via freeway diamond lanes direct to their airline terminal with their luggage delivered directly to baggage screening for aircraft load on.

Rail and bus systems like this are being used at many other airports including Hong Kong and London, and have now been approved by the TSA for use in Orlando. This option in Alternative D should be the focus of major funding support at this time, not massive irreversible airport reconfiguration. Alternative D will only add a .2 MAP of access capacity at a cost of approximately \$5 billion. Imagine what \$1-2 billion would buy in terms of a network of flyaway options. Not only could flyaway service reduce traffic at LAX, high quality, low cost flyaway service to other regional airports (e.g., from Orange County to Ontario) would also stimulate more passenger interest in the use of other regional airports to further reduce demand on LAX. (One future opportunity if the Anaheim to Las Vegas high speed Maglev system is constructed would be a spur line to Ontario as a dedicated high-speed flyaway service.) Additionally, these flyaway facilities would provide for the ability to disperse traffic to other airports in the region by allowing passengers to leave from one airport and return to another with no concern about where their car is parked. Currently some business passengers are reluctant to use a secondary airport because of uncertainty about their return schedule. Having a network of flyaway services covering the regions' airports would alleviate this concern, promote use of other regional airports and significantly alleviate access congestion to all airports.

RUNWAY SAFETY

The need for safety enhancements and center taxiways for the South runway complex are already overdue. By completing these improvements now, LAX will be capable of accepting the new A380 Group VI large (600 passenger) aircraft which a handful of international airlines will begin operating in 2007.

However, the massive reconfiguration of the north runway complex, especially the elimination of Terminals 1, 2, and 3 is of questionable value. Heathrow Airport has only two parallel runways yet plans to accommodate in excess of 80 MAP using new Group IV aircraft, suggesting LAX's reconfigured south runways plus one of the north runways should be adequate for LAX.

Elimination of Terminals 1, 2, and 3 to accommodate Group VI international aircraft is a highly questionable trade off, especially when one considers the impacts of reduction in gate capacity and the elimination of low-cost short-haul flights and service provided by low-fare airlines such as

Southwest. Short-haul airline traffic is critical to feed LAX's national and international flights. Forty percent of all international passengers using the Bradley Terminal at LAX depend upon short-haul connections. Elimination of short-haul capacity is counter-productive to supporting international flights and service to LAX. SFO learned this when they lost more than 20% of their international flights after the departure of Southwest Airlines to Oakland. Baltimore-Washington International Airport on the other hand has seen a 20% increase in international traffic and a return to pre-911 travel levels due to Southwest Airlines expanding operations there. We need both types of service to be competitive.

Short-haul flights have grown much faster than international flights post 9-11. Loss of low fare service would also cause competitor's fares at LAX to rise. Without Southwest, Denver's commuter fares are some of the highest in the nation. Our region needs low cost airline service to remain economically competitive. Any modernization plan for LAX must maintain the *flexibility* to serve a changing mix of short-haul and international passenger demand. Unfortunately a change in fixed gates which dramatically shifts LAX capacity to dedicated gates for new Group IV large aircraft will eliminate three short-haul gates for every large aircraft gate created. Should north runway separation ultimately be needed, shifting the northern runway to the north would be the preferable option, not elimination of Terminals 1,2, and 3.

AIRPORT & PASSENGER SECURITY

Post 9-11, airport security standards are undergoing continuous change. The Transportation Safety Administration continues to review a broad range of threats posed by terrorists. New technologies are under development to address the protection of passengers and facilities. Warnings have again been issued regarding potential hijacking threats even after cockpit cabin doors have been hardened. Now concentrations of people appear to be the preferred target. Security is a moving target and committing now to an expensive, irreversible and radical change in airport passenger operations based on a single threat scenario is not the best strategy.

Alternative D and the SAIC Security Report are based on the premise that car or truck bombs are the primary threat to future LAX operations. RAND on the other hand cites historical evidence that attacks on aircraft and luggage bombs pose a more frequent and greater threat to passengers. RAND also points out the risks created by concentrating large numbers of people in confined areas.

Basic security doctrine recognizes that the more geography and facilities requiring protection, the greater the size and cost of the necessary security forces and protection equipment and the greater the margin for error due to the lack of sufficiently trained personnel. Even though Alternative D appears to be primarily focused on protection of airport operations as opposed to passengers, the new passenger access system proposed in Alternative D actually creates three new targets of opportunity for terrorists: The Ground Transportation Center (GTC), the exposed, three-mile long Automated People Mover System (APM) and the new Central Terminal Area (CTA). These facilities not only concentrate passengers as targets, they also present distinct new opportunities to halt LAX operations if damaged or destroyed. A hijacked private or commercial plane could be aimed at the new Central Terminal Area where upwards of 20-25,000 passengers could be transiting on a major holiday, rendering LAX totally unoperational at untold human cost.

When one further considers the potential for 7-9 years of delay due to property acquisition issues, "hassle factors" for passengers and congestion on the 405 freeway, initial screening at the GTC using as yet unproven technology, a two-mile journey on the Automated People Mover System (APM) and yet another final security check at the Central Terminal Area (CTA), and the value, if any, of this added security, major operational reconfiguration of LAX requires further critical evaluation, especially if this huge cost in the early years of the project delays needed improvements for international air travel at the Bradley Terminal.

AIR CARGO – A REGIONAL ECONOMIC IMPERATIVE

In 2002, air cargo exports from the region reached \$31.5 billion in value. Imports were \$29.4 billion. Cargo exported through our ocean ports was valued at \$30.5, less than that shipped by air. Air cargo service to and from the region is critical to the future growth of our economy. Hundreds of thousands of high-value jobs here depend on just-in-time shipments and deliveries of goods via air. The Southern California Association of Governments projects a tripling of air cargo over the next 20 years, from 3 million tons in 2000 to 8.9 million tons in 2020. Alternative D assumes a growth at LAX from 2.0 to 3.1 million annual tons. The capacity shortfall of 5.8 million tons will need to be accommodated at other regional airports such as Ontario, Norton, March, Palmdale and George, or the business and jobs will be rerouted to Phoenix and Las Vegas. Not addressed in Alternative D are the regional enhancements in ground access necessary to accommodate truck access to and from

these regional airports and the thousands of business and retail locations throughout Southern California.

Dedicated cargo carriers such as UPS and EVA have already agreed to operate out of Ontario. Others such as Fed Ex might also be capable of using non-LAX alternatives. However, most of our air cargo currently moves in the bellies of passenger aircraft and this makes it difficult or too costly for airlines to provide cargo operations at a location distant from their primary passenger operations. Alternative D does not address a solution to this problem. It merely limits LAX to 3.1 million annual tons. Alternatives A, B, and C capped LAX air cargo at 4.2 million tons. Either we address the 50-65% cargo capacity shortfall regionally or forfeit the business and related jobs to other regions. (Using the economic data developed by LAWA for the master plan suggests that every additional million tons of air cargo for the region equates to 50,000 additional jobs.)

CONSIDERATION OF COSTS AND BENEFITS

The new Denver Airport was built at a cost of \$3 billion, albeit constructed on open land far from the metropolitan area. SFO has been modernized with major new ground access for cars, trucks and now BART at a cost of \$5 billion. The Mayor of San Francisco has clearly made expansion of capacity and convenience at SFO a strategic and economic priority for his region. Given the questionable enhancements relative to security at LAX, the downsizing of future gate capacity (from 163 to 153) to impose a 78 MAP physical cap and the added hassle factors for ground access, one must question the expenditure of \$ 9 billion dollars for the results to be achieved. As previously noted, for a much lower price tag, a system of remote fly away locations could better address commute times, remote security and reduction of local airport congestion.

LAX today has some of the lowest landing fees in the nation and we must finance needed improvements. The key is to choose the improvements wisely. Due to airline cost per enplaned passenger three times higher than LAX (\$6 vs. \$18), SFO has not only lost short-haul and international flights, its bond ratings have been lowered twice. SFO has now proposed discounting its landing fees to \$12 to attract more carriers and customers. Market forces are always at work and cannot be ignored.

Consolidation of rental car facilities is a clear benefit and could be served by APM or bus, depending upon its ultimate location and can be financed through user fees. An Intermodal Transportation Center could also be of value if and when light rail service is enhanced to LAX eliminating today's problems of multiple transfers. Both of these elements would help reduce congestion around LAX in the longer term.

PASSENGER CONVENIENCE IS CRITICAL TO A COMPETITIVE, WORLD CLASS AIRPORT

In a global economy, regions which rely on global commerce for their future have made their international airport a key strategy for economic growth. Hong Kong, Shanghai, Beijing, Malaysia, Singapore, Seoul, and San Francisco are all recent examples. When they market their regions, they all point to the ease of access through their world-class airports.

Modernization of the Bradley Terminal is a necessity now. Foreign visitors frequently express frustration with the lack of user friendliness, waits in the customs lines, difficulty in accessing destinations, etc. Many business travelers express a clear preference to use SFO when traveling on business to California. An international ranking of 18 out of 20 for LAX is unacceptable for a region so dependent on global commerce and tourism. Postponing these improvements to the later years of the plan risks further erosion of business and visitor travel and commerce for the region. The Bradley Terminal can be renovated now in conjunction with the addition of a new interconnected west terminal facility. It appears this option has been delayed to the later years (2020?) of the project due to the cost of the GTC, APM and CTA reconfiguration and the 78 MAP gate capacity limitations.

The added "hassle factors" of 405 Freeway congestion, an offsite Ground Transportation Center and a two-mile long Automated People Mover System (particularly if passengers are required to "schlep" their luggage to the Central Terminal Area) is far from a world-class system. Anyone who has experienced Hong Kong's remote downtown luggage and passenger check-in and the ride on a dedicated light rail system into the Hong Kong airport without worrying about luggage being delivered to the plane, appreciates the convenience and looks forward to the next trip. When one considers the Alternative D impact on convenience and time in transit, one has to ask "Why would a businessman in London, Tokyo or Shanghai want to use LAX if they could use San Francisco, Las Vegas or Phoenix to conduct their business?" We must answer this questions affirmatively – "because of convenience and access to our markets!"

CONCLUSIONS

Alternative D contains many critically needed enhancements to LAX's viability which should move forward now. The LAEDC's Critical Infrastructure Council therefore recommends the following be adopted:

1. South Runway complex modifications to improve safety and enable use by new, large Group IV aircraft through the addition of a central parallel taxiway.
2. A comprehensive system of remote check-in "Fly Away" locations throughout the region based on customer demand including dedicated fast bus systems providing direct access to the terminal. LAEDC would be willing to organize a working group to get this project started.
3. A consolidated Rental Car Facility. (Alternative locations could include Lot C, Manchester Square or the ITC and could begin with bus access.)
4. Modernization of the Bradley International Terminal now, including gates to accommodate the foreign carriers needs for the Group VI aircraft, using a new passenger concourse and an added aircraft gate area on its existing west face.
5. Use of state-of-the-art detection and surveillance technology to monitor entry of vehicles into the central terminal areas. This could be combined with limitations on high-risk van and truck access to the central terminal areas.

Alternative D also contains several elements which would radically and irrevocably change the nature of passenger access and airport operations and raise difficult questions of passenger convenience, security, cost and flexibility, and deserve more critical evaluation. These include (1) closure of the Central Terminal Area to vehicle access and replacement with a Ground Transportation Center at Manchester Square for remote passenger drop-off and an Automated People Mover to a new Central Terminal Area for check-in and (2) North Runway complex modifications to accommodate large Group IV aircraft which include elimination of Terminals 1, 2 and 3 and a substantial portion of LAX's short haul flight capacity.

THE GROUND TRANSPORTATION CENTER CONCEPT – AN ALTERNATIVE

The Manchester Square GTC is proposed as an immediate, radical and irrevocable change to LAX. It is billed as a "Safety and Security" plan for LAX to protect the primary function of the airport. However, it is premised on security technologies which do not yet exist. It also creates other security tradeoffs such as vulnerability of the APM and concentration of passengers in the CTA. It presents major issues of customer convenience unless some form of baggage check-in and handling can be accommodated at the GTC so passengers do not have to carry their luggage on the APM to the CTA. The location of Manchester Square also raises issues of access and impact on the 405 freeway. The GTC concept (with APM and CTA) accounts for approximately \$3 Billion of the overall Alternative D plan. The Critical Infrastructure Council believes the remote Manchester Square GTC concept raises more issue than answers.

However, the Council would like to offer an alternative to Manchester Square if remote drop-off is to be a necessary part of the Mayor's Alternative D plan. When LAX was last expanded in 1984, planners were aware that future growth would require added passenger drop-off capacity. They identified the LAX Parking Lot C area as the likely location for such a facility to supplement direct vehicle access. Connection to the nearby Central Terminal Area via an elevated people mover system was part of the thinking at the time (Pre-9-11 the people mover would have accessed individual terminals on a third level, but it could also serve a single central terminal alternative). (See Attachment B: Map) Moving the GTC to the Lot C area has the following benefits over Manchester Square:

- (1) Lot C is already owned and operated by LAX and within its existing operating envelope. It is available now as compared to an indefinite future date for Manchester Square.
(Additional underutilized land is also available on the south side of 96th street.
- (2) Proximity to LAX reduces the security envelope to be protected and enables security enhancements at least 5 years sooner than Manchester Square.
- (3) Proximity to LAX also substantially reduces the costs and enhances the viability of customer friendly APM system and a baggage check-in and handling system at the GTC since it is 1-1/2 miles closer and within the controlled area of LAX.

- (4) The Lot C area location enables vehicles to use all existing surface access routes to LAX without concentrating backup impacts on the 405 freeway.
- (5) Lot C's proximity to LAX enables a "staged" development which can use bus transport to LAX until the APM and new CTA are completed. This provides the flexibility to design and develop the GTC, the APM, the baggage handling system and the CTA over a more reasonable period of time in order to incorporate developing security and baggage handling technologies. Staging also enables LAX to address the renovations at the Bradley Terminal now rather than 2020.
- (6) Since LAX plans to maintain the access roadways around the CTA, the proximity of the Lot C area would allow emergency bus service to LAX as a backup in the event of a terrorist incident.
- (7) Lot C also offers the opportunity to pursue with the help of state funding, a dedicated "collector/distributor" access road from the 405 freeway along Arbor Vitae Street into the ground transportation center (and returning to the freeway) to incent users to avoid accessing the main terminals and reducing the potential for stack up on the 405 freeway.
- (8) If creation of construction jobs is a key consideration in the Mayor's plan, Lot C enables the creation of more near term jobs since the Lot area is already owned and controlled by LAX.

CONTINUING LIMITED CENTRAL TERMINAL ACCESS

The Critical Infrastructure Council would also suggest that rather than closing the Central Terminal Area to vehicles, that LAWA consider creating a limited access system based on pricing constraints to the use of the CTA vehicles with a low-risk profile. With a remote Lot C check-in option, creation of a time-based fee for access to and use of the Central Terminal Area by low-risk profile vehicles would enable those willing to pay, such as business passengers, to use the CTA (similar to current parking rate structures). Revenues generated could then be used to subsidize and enhance other forms of access and security such as flyaway and Lot C drop-off services, thereby incenting non-CTA access. This would reduce congestion in the CTA and enable the use of bomb sensing technologies to check vehicles entering the CTA. Users would then pass through tollgates leaving LAX. Frequent users could purchase electronic passes or tickets which can be read by readers similar to those used on the toll roads. In the event of condition orange or red, the CTA could be closed down and all vehicles

routed to Lot C avoiding much of the current back up on Sepulveda and Century Boulevards during emergency conditions.

THE NORTH RUNWAY AND TERMINALS 1, 2 AND 3

The plan to widen the north runway to expand capacity for the large Group VI aircraft is based on several critical assumptions about the future nature of international air service. The 600-seat Airbus A380 aircraft, is designed for international major market to major market ("point to point") service by some of the overseas carriers. Boeing, and many of the overseas and long haul carriers, however, believe that the more likely model is "hub and spoke scatter" service relying on a more flexible system using more conventional aircraft connecting to hubs where passengers can use short haul flights to reach multiple destinations.

Widening LAX's south runways is not only necessary now for safety reasons , but should enable LAX to accommodate a high volume of large Group IV aircraft using both south runways and one north runway simultaneously. It is highly questionable whether the north runway widening will be necessary. The elimination of Terminals 1, 2 and 3 would also disable much of LAX's hub and spoke short-haul capacity. Fortunately, this element of Alternative D is phased toward the end of the plan.

The Critical Infrastructure Council recommends that the north runway project be deferred until market developments warrant. In the event widening is necessary this should be accomplished by moving the north runway further north. This is a prime example of the flexibility needed in this post 9-11 environment.

CONCLUSION

Mayor Hahn has asked for public input. The Critical Infrastructure Council encourages LAWA to fully consider these and other suggested alternatives before moving into the final planning stage. Alternative D can be improved.

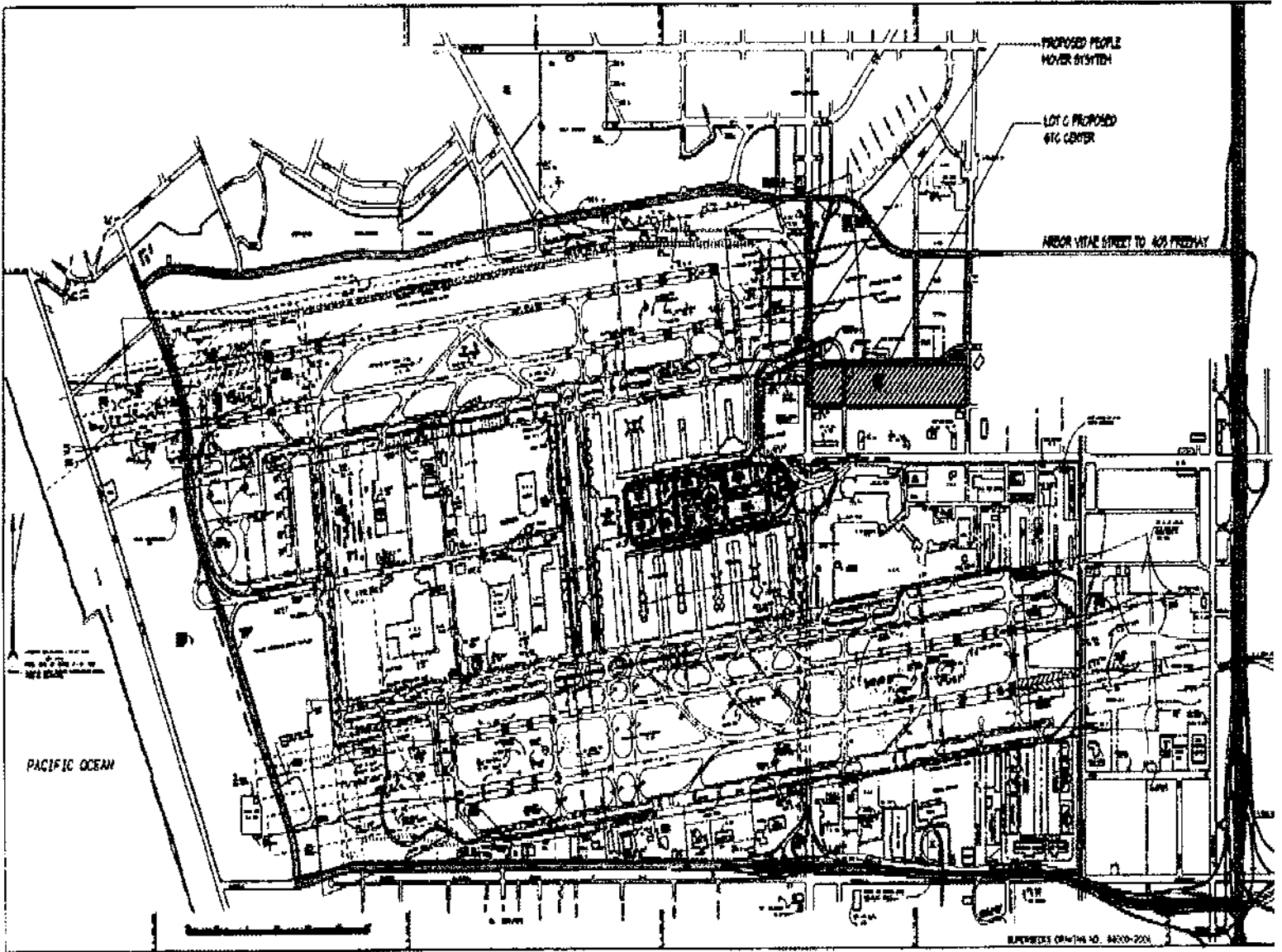
ATTACHMENT A

	<u>No Growth</u>	<u>Alternative A</u>	<u>Alternative B</u>	<u>Alternative C</u>	<u>Alternative D</u>
<i>Plan Features</i>					
Runways	4	5	5	4	4
MAP ¹	78.7	98	98	89	78.9
MAT ²	3.1	4.2	4.2	4.2	3.1
Operations	2,300	2,700	2,700	2,300	2,300
<i>Economic Data</i>					
Region Pass jobs	214,499 (n/a)	266,747 (+52,248)	266,747 (+52,248)	244,033 (+29,534)	214,946 (+447)
Region Cargo jobs	135,611 (n/a)	181,336 (+45,725)	181,336 (+45,725)	181,336 (+45,725)	135,611 (+0)
Total Region Direct Jobs	350,110 (n/a)	448,083 (+97,973)	448,083 (+97,973)	425,369 (+75,259)	350,557 (+447)
County Direct Jobs	294,237 (n/a)	375,550 (+81,313)	375,550 (+81,313)	357,140 (+62,903)	294,613 (+376)
City Direct Jobs	138,548 (n/a)	185,829 (+47,281)	185,829 (+47,281)	173,726 (+35,178)	138,725 (+177)
Reg. Econ. Output	\$63.7 B (n/a)	\$83.7B (+\$20B)	\$83.7B (+\$20B)	\$82.2B (+\$18.5B)	\$63.7B (\$0)
Cnty Econ. Output	\$52.3 B (n/a)	\$72B (+\$19.7B)	\$72B (+19.7B)	\$70.7B (+\$18.4B)	\$52.3B (\$0)
City Econ. Output	\$22.2 B (n/a)	\$31.5B (+\$9.3B)	\$31.5B (+\$9.3B)	\$30.2B (+\$8B)	\$22.2B (\$0)

¹ Million Annual Passengers

² Million Annual Tons

ATTACHMENT B



ACKNOWLEDGMENT

Special recognition needs to be provided to the following members of the Airport Task Force for their contributions to this assessment:

Viggo Butler, Chairman and retired COO, Lockheed World Air Terminals

Gin Wong, FAIA, Gin Wong and Associates, and Executive Architect and Planner,
1984 Lax Modernization

David Grannis, Planning Company Associates, Inc.

George Deukmejian, 35th Governor of California

**Continental
Airlines**

Continental Airlines, Inc. Tel 713 324 5497
PO Box 4607 HOSEN
Houston TX 77210-4607

November 6, 2003

Via Overnight Mail

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
1 World Way
Los Angeles, CA 90045

Mr. David B. Kessler, AICP
U.S. Dept. of Transportation
Federal Aviation Administration
Western-Pacific Region - Airports Div.
15000 Aviation Blvd.
Los Angeles, CA 90261

Re: Comments to Supplement to Draft EIS/EIR -- LAX Master Plan

Dear Mr. Ritchie and Mr. Kessler:

Continental Airlines ("Continental") hereby provides its comments to the Supplement (the "Supplement") to the Draft Environmental Impact Statement/Environmental Impact Report (the "DEIS") for the Los Angeles Airport Master Plan (the "Master Plan") and, in particular, the "Alternative D" plan addressed in the Supplement. As discussed in detail below, Continental believes that the DEIS and Supplement (collectively, the "Environmental Documents") do not satisfy the requirements of the National Environmental Policy Act ("NEPA") and California Environmental Quality Act ("CEQA") in that: (1) they do not adequately consider and evaluate certain environmental impacts or risks relating to ongoing and planned environmental remediation projects at LAX, particularly in the vicinity of the Continental aircraft maintenance facility (the "ACMX Facility") and the LAWA properties to the immediate west and south of the ACMX Facility, where there are significant known and suspected groundwater and soil impacts; and (2) they do not adequately analyze all available feasible mitigation measures or feasible alternatives that would substantially lessen or avoid the aforementioned significant environmental impacts.

Executive Summary

The Alternative D plan contemplates extensive demolition, excavation and construction activities throughout LAX. These demolition, excavation, and construction activities are likely to exacerbate, disturb or otherwise impact known and suspected groundwater and soil contamination at the airport, including interference with significant planned or anticipated environmental remediation projects at the airport. Most significant, Alternative D calls for the construction of two new aircraft maintenance facilities (the "New Maintenance Facilities") totaling approximately 300,000 square feet on the west side of the airport, south of World Way West, and just west of the ACMX Facility. This area overlays known jet fuel and halogenated

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volatile organic compound ("HVOC") plumes in the groundwater, and suspected soil impacts. The ongoing and planned remediation of such groundwater and soil contamination would be greatly hindered, and such contamination might be greatly exacerbated, by the construction activities related to Alternative D. The Environmental Documents do not adequately analyze either of these significant adverse environmental impacts, or the feasible mitigation measures or project alternatives that are available to avoid or significantly lessen these environmental impacts. As such, the Environmental Documents do not meet the requirements of NEPA and CEQA. The LAX airport's proposed "Alternative D" Plan conflicts with Continental's approved, but voluntary jet fuel clean up plan. The Environmental Documents do not address this conflict. Continental is unwilling to proceed with cleanup until this conflict is resolved.

I. Known and Suspected Soil and Groundwater Contamination Near ACMX Facility

A. Jet Fuel Impacts and Remediation Efforts

There is widespread jet fuel contamination at LAX, including but not limited to a large plume of "Jet-A" fuel (the "Free Product Plume") that is floating on top of the groundwater under the ACMX Facility, the adjacent LAWA parking lot and undeveloped lot just west of the ACMX Facility, and in the taxiway just south of the ACMX Facility. Under the oversight of the Los Angeles Regional Water Quality Control Board ("RWQCB"), Continental has been investigating and developing remediation plans for the Free Product Plume.

Continental has been investigating soil and groundwater in the vicinity of the ACMX Facility since 1988. Investigative efforts include the installation of more than 300 soil borings on and around the ACMX Facility, soil gas surveys, installation of groundwater monitoring wells, and quarterly groundwater monitoring. Continental also has conducted some very preliminary remediation activities (limited "passive" free product removal from groundwater), and recently submitted a workplan and received RWQCB approval for the installation of an extensive vacuum-enhanced free product recovery system in and around the ACMX Facility.

Installation of the new free product recovery system is set to commence in late 2003 or early 2004. This effort will include the installation of 244 to 330 six-inch diameter free product recovery wells in the area of the ACMX Facility, the adjacent LAWA parking lot and undeveloped lot just west of the ACMX Facility, and in the taxiway just south of the ACMX Facility. Jet fuel will be pumped from the free product recovery wells using down-hole pneumatic pumps. An extensive network of piping will connect the product recovery wells to an aboveground treatment facility located on the adjacent LAWA parking lot. Extracted jet fuel will be shipped offsite for recycling. At present, the projected expense of this free product recovery system is at least \$20 million, and possibly much more. The wells and related equipment are scheduled to be installed in late 2003 or early 2004. The free product recovery project is not expected to be completed until at least 2010.

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B. Solvent Impacts and Potential Remediation Efforts

Continental's groundwater monitoring data has indicated that the groundwater underlying the LAWA parking lot and undeveloped lot just west of the ACMX Facility, and the taxiway just south of the LAWA undeveloped lot is impacted by solvents or Halogenated Volatile Organic Compounds (HVOCs), including chlorinated solvents such as trichloroethylene ("TCE") and cis-1,2-dichloroethylene ("cis-1,2-DCE"). As discussed below, these areas may be impacted by Alternative D construction activities, including the proposed New Maintenance Facilities and the new West Employee Parking Garage.

To date, the HVOC Plumes in these areas remain under study. The vertical and lateral extent of the HVOC Plumes has not been fully delineated, nor the sources identified. Moreover, there has been no assessment of the risks posed by such contamination, the need for remediation of this contamination, nor the viable means for conducting such remediation. As such, to the extent such remediation ultimately is required, it is unlikely that it would commence before late 2004 or sometime in 2005, at the earliest.

II. Alternative D Construction Activities Proposed Near the ACMX Facility

According to LAWA's June 2003 Addendum to the LAX Master Plan (the "2003 Addendum"), the Alternative D Plan calls for, among other things, the construction of two New Maintenance Facilities totaling approximately 300,000 square feet on the west side of the airport, south of World Way West. This location is just west of the ACMX Facility, in an area that overlays the Free Product Plume and HVOC Plumes. According to the "Construction Sequencing Plan" for Alternative D set forth in section 2.10 of the 2003 Addendum, construction of the New Maintenance Facilities would be step one of "Phase II" of the construction activities to implement the Alternative D Plan. More specifically, according to the Conceptual Summary Schedule included in section 2.10, construction of these New Maintenance Facilities would commence in 2007 (or earlier) and be completed in 2008 (i.e., *three years prior to the "best-case" optimistic estimate for completion of the jet fuel recovery project*).

In addition to the New Maintenance Facilities which are to be constructed over the Free Product Plume and HVOC Plumes, the Alternative D Plan also calls for the construction of a new 12,400 stall employee parking structure on the west side of the airport, south of World Way West (the "West Employee Parking Garage"), a short distance west of the new Maintenance Facilities. The West Employee Parking Garage may overlay portions of the HVOC Plumes. According to the "Construction Sequencing Plan" for Alternative D set forth in section 2.10 of the 2003 Addendum, construction of the West Employee Parking Garage would be part of "Phase I" of the construction activities to implement the Alternative D Plan. More specifically, according to the Conceptual Summary Schedule included in section 2.10, construction of the West Employee Parking Garage is scheduled to commence in 2004 and be completed in 2005. Again, as with the New Maintenance Facilities, to the extent that any of the West Employee Parking Garage construction activities would occur in the area of potential HVOC remediation, the remediation could be delayed or otherwise hindered. In addition, an appropriate safety plan

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would have to be prepared to ensure that proper measures would be taken to minimize exposure to construction workers.

III. Conflict Between Alternative D Plan and Soil and Groundwater Remediation

As discussed above, Alternative D calls for construction of the New Maintenance Facilities in 2007 and 2008, while the RWQCB-approved cleanup plan for the Free Product Plume contemplates a completion date no earlier than 2010. Moreover, although 2010 is the present target date for completion of the jet fuel remediation project, this target date has always been considered aggressive. Actual completion of the jet fuel remediation (even without interference by airport redevelopment activities) might not occur until 2015 or later (for example, if the radius of influence of the recovery wells proves to be less than projected). Thus, the Alternative D Plan calls for construction of the New Maintenance Facilities at least three years, and possible as many as five or ten years, before completion of the free product recovery project.

Construction of the New Maintenance Facilities, according to the plans proposed in Alternative D, would require extensive and expensive alterations to the free product recovery system. Specifically, since the free product recovery will not be completed by the commencement of construction of the New Maintenance Facilities, any extraction wells or related equipment in the area of such construction would have to be abandoned, removed, and/or relocated. Such abandonment, removal and/or relocation of recovery wells or other equipment "in midstream" of the remediation project would require extensive redesign and reconstruction of the system. One hundred or more of the free product recovery wells might have to be removed and/or relocated. Moreover, there is no guarantee that any replacement system could ever be as effective as the system now set for installation (i.e., it may be physically impossible or otherwise infeasible to remove substantially all of the free product without the extraction wells and related equipment contemplated by the approved plan now in place). In sum, this interference could delay, and might even prevent attainment of the cleanup standards established for this site by RWQCB.

Any HVOC remediation determined to be necessary in this area may face a similar fate. As mentioned earlier, the HVOC Plumes are still under investigation. RWQCB has not yet ordered any party to perform remediation of the HVOC Plumes. Thus, any such HVOC cleanup is unlikely to commence before late 2004 or 2005. Thus, to the extent such HVOC remediation is required in this area, it is highly likely that Alternative D construction activities would interfere with such remediation, for all of the reasons discussed above with respect to the jet fuel remediation project (i.e., relocation of wells, etc.). Again, this interference could delay and increase the cost of any such HVOC remediation, and could even prevent the attainment of cleanup standards established by RWQCB.

IV. Inadequate Consideration of these issues in the Environmental Documents

The DEIS recognized that the then-ongoing free product removal at the ACMX Facility (i.e., the very limited "passive" free product recovery effort) was likely to be affected by the

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construction of certain facilities contemplated by the various Master Plan alternatives. Specifically, in Section 4.23 Hazardous Materials, at page 4-986, the DEIS stated as follows:

Due to the extent of excavation needed for the proposed improvements it is likely that part, or all, of the remediation systems in operation at [the ACMX Facility and another LAXFUEL facility] would have to be removed during construction. This would entail destruction of the extraction wells and removal of underground piping and aboveground tanks. Removing the active remediation systems at the LAXFUEL BFSF and the Continental Maintenance Facility for an extended period would interfere with existing cleanup efforts.

The DEIS (again, in Section 4.23 Hazardous Materials, at page 4-986) then proposed the following mitigation measure to address this otherwise significant environmental impact:

To prevent Master Plan-related construction from interfering with planned or ongoing remediation such that environmental contamination is exacerbated or permanent cleanup of sites prevented, LAWA would implement Master Plan Commitment HM-1, Ensure Continued Implementation of Existing Remediation Efforts. Implementation of this commitment would ensure that remediation projects would be completed to the extent possible and necessary before constructing Master Plan improvements, or that alternate clean up methods would be implemented during construction to prevent contaminant migration, if necessary. As part of this commitment, remediation systems would be reinstated following the completion of construction, if required. Therefore, impacts would be less than significant [emphasis added].

The DEIS contained no discussion or analysis of whether the proposed mitigation measure, Master Plan Commitment HM-1, was practical or feasible, nor the extent to which it might successfully mitigate any environmental impacts. Among other things, there was no discussion as to whether free product recovery was even possible once a building had been placed on top of the Free Product Plume (i.e., whether "horizontal wells" or some other alternative remediation method was physically and/or economically feasible under these circumstances). In addition, the DEIS (and its accompanying Technical Report #13, Hazardous Materials Technical Report) considered only the very limited "passive" free product recovery system in operation at the ACMX Facility at that time (consisting of a mere handful of extraction wells, without vacuum enhancement), as opposed to the much more extensive vacuum-enhanced system that is about to be installed at the site (i.e., 244 to 330 vacuum-enhanced extraction wells and related piping and equipment). The DEIS also did not evaluate any other feasible mitigation measures or project alternatives (e.g., *moving new airport facilities to areas other than those overlying the contamination plumes*). As discussed below, these omissions were repeated, continued and exacerbated in the Supplement.

The Supplement and its Technical Report S-8, Supplemental Hazardous Materials Technical Report (dated June 2003) offers no discussion of the magnitude of the new free product recovery system and the severity of likely interference caused by Alternative D. Notwithstanding that as of June 2003, LAWA and its consultant, Camp Dresser and McKee (CDM), were in possession of the detailed RWQCB-approved plans for the new vacuum-

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enhanced free product recovery system underway at the site; and the Alternative D project plans and schedules showing the serious interference and interruption to be caused to that remediation system by the construction of the New Maintenance Facilities beginning in 2007. Instead, the Supplement offers only the following discussion of its mitigation measure, HM-1:

Prior to initiating construction of a Master Plan component, LAWA will conduct a pre-construction evaluation to determine if the proposed construction will interfere with existing soil or groundwater remediation efforts. For sites currently on LAX property, LAWA will work with tenants to ensure that, to the extent possible, remediation is complete prior to construction. If remediation must be interrupted to allow for Master Plan-related construction, LAWA will notify and obtain approval from the regulatory agency with jurisdiction, as required, and will evaluate whether new or increased monitoring will be necessary. . . . As soon as practicable following completion of construction in the area, remediation will be reinstated, if required by the Regional Water Quality Control Board (RWQCB) or another agency with jurisdiction. In such cases, LAWA will coordinate the design of the Master Plan component and the re-design or the remediation systems to ensure that they are compatible, and to ensure that the proposed remediation system is comparable to the system currently in place. If it is determined during the pre-construction evaluation that construction will preclude reinstatement of the remediation effort, LAWA will obtain approval to initiate construction from the agency with jurisdiction.

This passage ignores substantial relevant information in the possession of LAWA and its consultant CDM at the time it was written, and misleads the reader on a number of points critical to any meaningful analysis of the environmental impacts that will result from Alternative D. Most important, the documents in hand – that is, the RWQCB-approved plan for vacuum-enhanced free product removal at the ACMX Facility, the 2003 Addendum, the Alternative D “Construction Sequencing Plan”, and “Conceptual Summary Schedule” – make clear that construction of these Maintenance Facilities would commence in 2007 and be completed in 2008, *approximately three years prior to the “best-case” optimistic estimate for completion of remediation project*. The Supplement simply ignores this obvious conflict. Instead, as mentioned above, the Supplement suggests that “[P]rior to initiating construction of a Master Plan component, LAWA will conduct a pre-construction evaluation to determine if the proposed construction will interfere with existing soil or groundwater remediation efforts” [emphasis added]. Since there already is conclusive evidence that construction of the New Maintenance Facilities will interfere with the free product recovery system at the ACMX Facility, this portion of the Supplement is inaccurate and misleading. Simply put, NEPA and CEQA require that all relevant information bearing on environmental impacts be included in the EIR/EIS to ensure that the decision-makers are making fully informed decisions. In this case, the Supplement appears to intentionally understate the certainty and the extent of the interference caused by the Alternative D construction activities to the ACMX free product recovery system.

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The Supplement (and, hence, any Final EIS/EIR) should and must include a proper analysis of the likelihood and severity of the conflict between the Alternative D construction activities and the ACMX free product recovery system and, just as important, the feasible mitigation measures and project alternatives that are available to avoid or lessen the interference, including but not limited to the possible relocation of the New Maintenance Facilities to avoid the interference. The Supplement does not even consider the possibility of such a relocation, but the significance of this omission is obscured by the failure to discuss the substantial evidence of certainty and substantiality of impact – that is, by understating the certainty and severity of the interference, the Environmental Documents mislead the decision-makers into believing that relocation of the New Maintenance Facilities need not be considered as a viable project alternative to avoid or substantially lessen the impact of the interference between Alternative D and the ACMX Facility remediation system.

In evaluating (or forecasting) future environmental impacts, CEQA requires that a public agency use its best efforts to discover and disclose all reasonably pertinent information. CEQA Guidelines Section 15144. The agency is required to forecast that which could be reasonably expected under the circumstances. *Id.*; *Laurel Heights Improvement Ass'n v. Regents of the University of California*, 47 Cal. 3d 376 (1988). Under the circumstances here, LAWA had extensive detailed information relating to the likelihood and severity of the impact posed by the interference between the Alternative D construction activities and the free product recovery project, but utterly failed to discuss or disclose such information. As such, the Supplement and DEIS understate the likelihood and severity of the impact, and create the false impression that this interference will not be a substantial environmental impact and that the evaluation and analysis of mitigation measures and project alternatives are unnecessary.

CEQA provides that a public agency may not approve a project as proposed if feasible mitigation measures or feasible project alternatives are available that would substantially lessen or avoid a project's significant environmental impacts. Thus, to the extent available, CEQA requires agencies to adopt feasible mitigation measures or feasible environmentally-superior project alternatives to substantially lessen or avoid otherwise significant adverse environmental impacts. Pub. Res. Code sections 21002 and 21081(a). To effectuate this requirement, an EIR must set forth an evaluation of feasible mitigation measures and project alternatives that decision-makers can adopt at the findings stage of the process. Pub. Res. Code section 21100(b)(3). The evaluation of feasible project alternatives is an even more stringent requirement under NEPA. An EIS must rigorously evaluate and compare all reasonable alternatives to provide a clear basis for the choice of options, and the degree of analysis devoted to each alternative must be substantially similar to that devoted to the proposed action. 40 C.F.R. section 1502.14. Again, in this case, LAWA failed to consider and evaluate feasible and available project mitigation measures and project alternatives that might avoid or substantially lessen the interference between the Alternative D construction activities and the environmental remediation at and around the ACMX Facility. Most important, the Supplement failed to consider or evaluate the potential re-location of the New Maintenance Facilities to somewhere other than directly on top of the Free Product Plume and HVOC Plumes.

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As such, the Supplement and, hence, the DEIS in its entirety, violate CEQA and NEPA because they omit and/or conceal relevant evidence pertaining to the interference between the Alternative D construction plans and the ongoing and planned environmental remediation projects in and around the ACMX Facility. They thereby understate the likelihood and severity of such interference and the magnitude of environmental impact resulting therefrom, and they fail to properly consider and evaluate feasible mitigation measures and project alternatives that are available to avoid or substantially lessen the environmental impact.

V. Conclusion

The Supplement (and, hence, any Final EIS/EIR) should and must include a proper analysis of the likelihood and severity of the interference between the Alternative D construction activities and the ACMX free product recovery system and, just as important, the feasible mitigation measures and project alternatives which are available to avoid or lessen the interference. This consideration of alternatives must include the possible relocation of the New Maintenance Facilities to avoid the interference. At present, the Supplement does not consider the possibility of such a relocation, but the significance of this omission is obscured by the failure to discuss the substantial evidence of certainty and substantiality of impact. Thus, by understating the certainty and severity of the interference, the Environmental Documents mislead the decision-makers into believing that relocation of the New Maintenance Facilities does not need to be considered as a viable project alternative to avoid or substantially lessen the impact of the interference between Alternative D and the ACMX Facility remediation system.

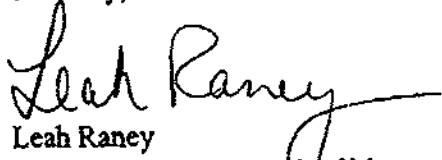
To summarize, at a minimum, CEQA and NEPA require that the final EIS/EIR for this project include a proper analysis (including consideration and disclosure of all relevant information) of the following issues:

- The extent to which the construction activities contemplated by the Alternative D Plan would preclude or interfere with ongoing, planned, or anticipated environmental remediation projects (including an analysis of the likelihood and severity of any interference with the free product recovery project adjacent to the ACMX Facility, as well as the potential HVOC remediation project);
- The extent to which the significant environmental impacts created by the conflict between Alternative D construction activities and soil or groundwater remediation efforts could be avoided or significantly lessened by feasible mitigation measures; and
- The extent to which the significant environmental impacts created by the conflict between Alternative D construction activities and soil or groundwater remediation efforts could be avoided or significantly lessened by feasible project alternatives.

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Failure to adequately consider these matters will render any final EIS/EIR deficient under federal and state law. Thank you for your consideration of these comments. You may reach me at 713-324-6976 with any questions.

Sincerely,


Leah Raney
Director, Environmental Affairs
Continental Airlines, Inc.

cc: Holden Shannon, Continental Airlines
Nene Foxhall, Continental Airlines
Greg Trimarche, Greenberg Traurig
Gary Brown, LAWA - facsimile - 310-646-0686
Steve Durkee, LAWA - facsimile - 310-646-0686
Allan Hsu, RWQCB - facsimile 213-576-6717
David Bacharowski, RWQCB - facsimile - 213-576-6625

Rec'd
11-06-03
9:10am



Land Protection Partners

P.O. Box 24020, Los Angeles, CA 90024-0020
Telephone: (310) 276-2306

To: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

From: Travis Longcore and Catherine Rich

Date: October 23, 2003

Re: Supplement to the Draft Environmental Impact Statement/Environmental Impact
Report Los Angeles International Airport Master Plan

Please find enclosed written comments on the referenced NEPA/CEQA document.

SPC00259



Land Protection Partners

P.O. Box 24020, Los Angeles, CA 90024-0020

Telephone: (310) 276-2306

Review of Biological Resources Analysis in Supplement to Draft Environmental Impact Statement/Environmental Impact Report for LAX Master Plan

**Travis Longcore, Ph.D.
Catherine Rich, J.D., M.A.**

October 20, 2003

Review of Biological Resources Analysis in Supplement to Draft Environmental Impact Statement/Environmental Impact Report for LAX Master Plan

This review pertains to the Federal Aviation Administration/Los Angeles World Airports Supplement to Draft Environmental Impact Statement/Environmental Impact Report (“SDEIS/EIR”) for the LAX Master Plan. The scope of this review is limited to biological resources, and consequently addresses Sections 4.10 (Biotic Communities), 4.11 (Endangered and Threatened Species of Flora and Fauna), 4.12 (Wetlands), 4.14 (Coastal Zone Management and Coastal Barriers), and 4.18 (Light Emissions). The review was prepared by Dr. Travis Longcore and Catherine Rich, who are experts in the ecology and history of the natural communities that would be affected by the proposed airport expansion and in the assessment of environmental impacts under the California Environmental Quality Act, National Environmental Policy Act, and California Coastal Act. Dr. Longcore has co-authored several peer-reviewed scientific articles on the El Segundo dunes and the Los Angeles coastal prairie (including its vernal pools),¹ which both would be adversely affected by the proposed project.

The SDEIS/EIR complements, but does not replace, the original Draft Environmental Impact Statement/Environmental Impact Report (“DEIS/EIR”) for the LAX Master Plan. The SDEIS/EIR does nothing to improve the fatally flawed assessment methodology for direct impacts to sensitive biological resources that was presented in the DEIS/EIR. Rather, the SDEIS/EIR provides only a trivial and meaningless change in the name of the methodology from “modified Habitat Evaluation Procedure” to “Mitigation Land Evaluation Procedure” (“MLEP”). The SDEIS/EIR attempts to improve the analysis of indirect impacts on biological resources, including the effects of light, noise, and air pollution, but the analysis is illogical and unsupported by the literature. Finally, the SDEIS/EIR presents impact analysis for the newly-formulated Alternative D.

With the exception of the analysis of Alternative D, which triggered the preparation of a Supplement, the new biological resources analysis appears to consist primarily of responses to comments on the DEIS/EIR, including those of the resources agencies and perhaps our own.² In our 2001 review, we noted the failure of the DEIS/EIR to provide an adequate assessment of the effects of light and noise on biological resources, illustrated the gross inadequacy of the “modified Habitat Evaluation Procedure,” and identified contradictions in the project description. Because many of the problems that we identified in our 2001 review have not been addressed in the SDEIS/EIR, we incorporate our earlier comments by reference (see attached without appendices). This review evaluates the updated analysis of biological impacts and associated mitigation measures presented in the SDEIS/EIR.

-
1. Mattoni, R., T. Longcore, C. Zonneveld, and V. Novotny. 2001. Analysis of transect counts to monitor population size in endangered insects: the case of the El Segundo blue butterfly, *Euphilotes bernardino allyni*. *Journal of Insect Conservation* 5(3):197–206. Longcore, T., R. Mattoni, G. Pratt, and C. Rich. 2000. On the perils of ecological restoration: lessons from the El Segundo blue butterfly. Pp. 281–286 in J.E. Keeley, M. Baer-Keeley, and C.J. Fotheringham (eds.) *2nd Interface Between Ecology and Land Development in California*. U.S. Geological Survey, Sacramento, California. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445–452. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles coastal prairie, a vanished community. *Crossosoma* 26(2):71–102.
 2. Longcore, T., and C. Rich. 2001. Review of biological resources analysis in LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report. Land Protection Partners, Los Angeles. 27 pp. + appendices.

1.0 Project Description

The maps of land use for the airport properties are updated in the Supplement to depict the four Alternatives. These maps are somewhat clearer than those in the DEIS/EIR about the land use of the ~100 acres of El Segundo dunes not included in the Habitat Restoration Area. While the DEIS/EIR included maps depicting this area as a golf course or resort hotels,³ the SDEIS/EIR identifies that area as “Airfield/Airport Open Space.”⁴ The description of Alternatives does not, however, provide conclusive details about the long-term disposition of this biologically important area.⁵ The long-term plans for this property are important to the analysis of mitigation measures because the SDEIS/EIR contemplates that some habitat mitigation activities will occur in this area, outside of the ~200-acre Habitat Restoration Area.⁶

We note that the depiction of the 100 acres of El Segundo dunes north of the Habitat Restoration Area as “Airfield/Airport Open Space” diverges from the previous positions articulated by the City of Los Angeles. In the staff report for issuance of a Coastal Development Permit for landscaping along Waterview Street at the northern end of this area, the City in 2001 wrote, “The Project, a narrow, landscaped area along the streets, would provide a buffer between the golf course and residential areas....”⁷ As we noted in our previous comments, the zoning for the parcels in the dunes was set at [Q]OS-1-XL in 1994, which disallows development in the dunes habitat preserve and restricts use of the remainder of the property to “a nature preserve and accessory uses only.”⁸ In the Land Use section of the SDEIS/EIR, while the entire 300 acres of the El Segundo dunes are designated as “Open Space,” the map refers to the “Los Angeles Airport/El Segundo Dunes Specific Plan” as the descriptor.⁹ This Specific Plan has been superceded by the 1994 zoning update, but this fact is not reflected in the various maps in the SDEIS/EIR. The restriction of the northern 100 acres of the dunes to “nature preserve and accessory uses” should be clarified in the Final EIS/EIR.

2.0 Direct Impacts

2.1 Mitigation Land Evaluation Procedure (formerly “modified Habitat Evaluation Procedure”)

The modified Habitat Evaluation Procedure presented in the DEIS/EIR has been renamed the Mitigation Land Evaluation Procedure in the SDEIS/EIR.¹⁰ This methodology was rejected outright by the U.S. Fish and Wildlife Service (“USFWS”) and the California Department of Fish and Game (“CDFG”) in comments on the DEIS/EIR, but the SDEIS/EIR retains the methodology while simply changing the name, “to eliminate confusion associated with a similarity in the designation to an unrelated methodology developed by the USFWS.”¹¹ This change in terminology does not correct the faulty

3. DEIS/EIR, Appendix JI. Biological Assessment Technical Report, Figures 8, 11, 14.

4. SDEIS/EIR, Figures S3-2, S3-4, S3-5, S3-6, S3-7, S3-8.

5. SDEIS/EIR, Section 3. Alternatives (Including Proposed Action).

6. SDEIS/EIR, MM-BC-4 through MM-BC-8, MM-BC-10 through MM-BC-13.

7. City of Los Angeles 2001. Coastal Development Permit Application No. 00-05 Final Staff Report, p. 3.

8. City of Los Angeles. Ordinance No. 169,767, effective June 12, 1994.

9. SDEIS/EIR, Figures 4.2-6, 4.2-9, 4.2-12, 4.2-15.

10. SDEIS/EIR, p. 4-449.

11. *Id.*

assumptions of the underlying method, and does nothing to correct the deficiencies in this method that were identified by the USFWS, CDFG, and our previous review.

The SDEIS/EIR uses the Mitigation Land Evaluation Procedure to determine impacts to sensitive vegetation types and to quantify impacts to habitats of sensitive species.¹² The name change is a *de facto* confirmation that the “methodology” is not based on an accepted technique, the “Habitat Evaluation Procedures” (“HEP”)¹³ developed by the U.S. Fish and Wildlife Service, but rather was invented for this analysis. While the HEP is an established method with a history of usage,¹⁴ the MLEP is not a recognized method for the evaluation of impacts to sensitive species or vegetation types, or the determination of mitigation ratios for such impacts. Because the SDEIS/EIR does not reprint the methodology it has renamed MLEP, further discussion of the MLEP must refer to the DEIS/EIR.

The MLEP sets habitat evaluation standards based on an “optimal” site with “a multitude of floral and faunal species.”¹⁵ One would expect that each vegetation type would be compared against an optimal site of that same vegetation type, but this is not the case. Rather, the MLEP inexplicably compares all vegetation types against a valley needlegrass grassland/vernal pool complex. One might also expect that the habitat evaluation for each species would incorporate features relevant to that species’ survival. This is not true either, because the habitat evaluation standards bear no relation to species requirements. For example, we compared the habitat evaluation standards in the MLEP to the habitat requirements of loggerhead shrike (*Lanius ludovicianus*) and black-tailed jackrabbit (*Lepus californicus bennettii*) (Table 1),¹⁶ and found no nexus. The MLEP assigns low values of 0.25 for vegetation types that are occupied by these species (non-native grassland/ruderal), even though this vegetation is quite good habitat for both species. Furthermore, because the MLEP compares all vegetation types against one vegetation type, the MLEP results in the false conclusion that habitat values lost by destruction of one vegetation type can be mitigated by enhancing a completely different vegetation type.

This critical failure bears repeating. The single set of standards used to evaluate all vegetation types does not reflect ecological value, either to sensitive species or as vegetation communities. This problem derives from the physical and biological criteria used to evaluate habitat and the so-called “ecosystem functional integrity” components of the analysis. Rather than developing criteria for each vegetation type, the MLEP evaluates all vegetation types against the characteristics found in a “reference site.” The vegetation type chosen for this standard is that of valley needlegrass grassland/vernal pool complex.¹⁷ For some inexplicable reason, all vegetation types are measured against this standard, including southern foredune, southern dune scrub, and disturbed dune scrub/foredune. Dune vegetation does not exhibit many features found in a valley needlegrass grassland/vernal pool complex. Because dune vegetation does not have vernal pools and associated species, these vegetation dune types are assigned lower

12. DEIS/EIR, p. 4-615, SDEIS/EIR, p. 4-449.

13. U.S. Fish and Wildlife Service. 1996. Fish and Wildlife Service manual, 870 FW 1, Habitat Evaluation Procedures. [online at <http://policy.fws.gov/870fw1.html>]. U.S. Fish and Wildlife Service. 1980. Habitat as the basis for environmental assessment, 101 ESM. U.S. Fish and Wildlife Service. 1980. Habitat Evaluation Procedures (HEP), 102 ESM.

14. Johnson, T.L., and D.M. Swift. 2000. A test of a habitat evaluation procedure for Rocky Mountain bighorn sheep. *Restoration Ecology* 8(4S):47–56.

15. DEIS/EIR, p. 4-616.

16. Because the MLEP is the “modified HEP” with a different name, our analysis is the same as provided in our 2001 comments.

17. DEIS/EIR, p. 4-615.

“habitat” values — 0.35 for both southern dune scrub and disturbed dune scrub/foredune, and 0.45 for southern foredune. This ranking merely illustrates that dune scrub is not good valley needlegrass grassland/vernal pool complex, but it says nothing about whether it is good dune scrub.

Table 1. Relevance of Mitigation Land Evaluation Procedure Standards to Two Sensitive Species

MLEP Standards	Relevance to value of area as black-tailed jackrabbit habitat	Relevance to value of area as loggerhead shrike habitat
TOPOGRAPHY		
Mound-depression microrelief	None. Species occurs in a variety of topographic conditions.	None
Native soils w/ slope <10%	None	None
Areas w/ period of inundation ≥ 30 days	None. Can serve as vectors for seed dispersal between vernal pools, but not necessary for habitat. ¹⁸	None
Summer desiccation	None	None
FLORA		
>10% vegetative cover	Some. Forage and cover must be present.	Some. Vegetation must support prey populations.
Native grasses >10%	None. Will forage on all manner of grasses, forbs, and shrubs. ¹⁹	None
Vernal pool associated species	None	None
Listed vernal pool associated species	None	None
FAUNA		
Domination of native fauna (reproducing)	None	None
Grassland associated species (reproducing)	None	None
Sensitive vernal pool associated species	None	None
Listed vernal pool associated species	None	None
ECOSYSTEM FUNCTIONAL INTEGRITY		
Contiguity w/ wetland and State-designated sensitive terrestrial habitat	None	None
Designated sensitive terrestrial habitat	None	None
Under regulatory conservation	None	None
Variety of pollinator/dispersal mechanisms present (wind, wildlife)	None. Is itself a dispersal agent.	None
Contiguous native habitat > 40 acres	Potentially important. Size of habitat, whether native or not, is important.	Potentially important. Size of habitat, whether native or not, is important.

18. Zedler, P.H., and C. Black. 1992. Seed dispersal by a generalized herbivore: rabbits as dispersal vectors in a semiarid California vernal pool landscape. *The American Midland Naturalist* 128(1):1–10. (Jackrabbits play a similar role in the vernal pool landscape.)
19. Johnson, R.D., and J.E. Anderson. 1984. Diets of black-tailed jack rabbits in relation to population density and vegetation. *Journal of Range Management* 37(1):79–83. MacCracken, J.G., and R.M. Hansen. 1982. Herbaceous vegetation of habitat used by blacktail jackrabbits and Nuttall cottontails in southeastern Idaho. *American Midland Naturalist* 107(1):180–184. Jameson, E.W., Jr., and H.J. Peeters. 1988. *California mammals*. University of California Press, Berkeley.

The portion of habitat value deriving from “ecosystem functional integrity” is another wholesale creation of the DEIS/EIR, and by extension the SDEIS/EIR. The choice of standards is arbitrary, with little to do with the sensitive species and vegetation types under analysis. Whether a site is “under regulatory conservation” does not necessarily have anything do with the ecological value of its vegetation type for sensitive species. Similarly, “contiguity with state-designated habitat” is not an ecological criterion. “Variety of pollinator/dispersal mechanisms present” is oriented toward vernal pool vegetation, and the choice of “contiguous native habitat >40 acres” is arbitrary.

The MLEP fundamentally obscures the reality that sensitive plants and wildlife utilize vegetation that is not dominated by native species. Loggerhead shrikes forage in ruderal and non-native grasslands as well as in dune scrub. Jackrabbits are thriving in an area with little native plant component. Furthermore, the MLEP asserts that landscaped areas within the airport grounds contain “habitat units,” even though these areas support neither sensitive vegetation communities nor sensitive species. The MLEP is therefore of no use in evaluating the impacts to native wildlife, or in devising mitigation schemes for those impacts. The MLEP is so flawed that it completely fails to establish the nexus for mitigation of impacts.

We are not saying that it would be impossible to develop a scheme to assess vegetation communities that assigns lower area equivalence to degraded vegetation. Indeed, the suggestion by CDFG that non-native grasslands be mitigated at a 0.5:1 ratio is implicit recognition of such an approach. A preliminary effort to develop a “habitat hectares” scheme has been published in the scientific literature, but it is fundamentally different from the MLEP.²⁰ A valid “habitat area” approach should include the following features: 1) incremental values of habitat areas are assigned strictly on biological criteria, 2) these criteria are developed separately for each vegetation type, and 3) the results are not applied as proxies for the habitat requirements of individual wildlife species.²¹ The MLEP violates all three of these conditions. (Technically, this type of approach should not be called a “habitat area” approach, because “habitat” is a specific term that is defined relative to an individual species.²²)

2.2 Alternative D

The SDEIS/EIR discloses that the new, preferred Alternative D would result in direct destruction of 1.53 acres of sensitive habitat for the construction of navigational aids and associated service roads within the El Segundo dunes, both inside and outside the Habitat Restoration Area. This would include removal of 0.8 acres of disturbed foredune, 0.5 acres of disturbed grassland, and 0.2 acres of foredune.²³ The acreage may sound minimal to the casual reader, but the raw acreage does not reveal the true extent of project impacts because it conceals the spatial configuration of the development. The Biotic Communities analysis fails to reveal the geographic arrangement of the proposed construction, and does not consider this critical information in the assessment of impacts. This information about configuration is important because if the navigational aids are scattered, a greater area will be subjected to “edge effects” from adjacency to the new infrastructure and the construction. If they are clustered, then

20. Parkes, D., G. Newell, and D. Cheal. 2003. Assessing the quality of native vegetation: the “habitat hectares” approach. *Ecological Management and Restoration* 4:S29–S38.

21. *Id.*

22. Hall, L.S., P.R. Krausman, and M.L. Morrison. 1997. The habitat concept and a plea for standard terminology. *Wildlife Society Bulletin* 25:173–182.

23. SDEIS/EIR, Table S4.10-4.

impacts will be lessened. Clustering of development is one of the basic tenets of conservation planning. Every site of disturbance within the dunes habitat is an area that is more easily invaded by exotic plants and arthropods. It is therefore troubling that the SDEIS/EIR contains no assessment of the configuration of this development footprint.

Configuration of the navigational aids on the dunes is found only in the Coastal Zone Management and Coastal Barriers section. A figure in that section reveals that the navigational aids will be installed at no fewer than 23 separate locations in two lines extending two thirds of the way across the dunes from east to west.²⁴ In addition, existing navigational aids will be removed from 12 other locations both in and out of the Habitat Restoration Area. Each new navigational aid will be 9 feet square, within a 15-foot service buffer. The total area of the new navigational aids is 0.2 acres, so the remaining 1.4 acres of identified disruption must be from new roads or other construction impacts. Therefore, from the new navigational aids alone, nearly 1,300 feet of new habitat edges will be introduced into the El Segundo dunes. It is furthermore unclear if habitat disruption from removal of existing navigational aids has been evaluated.

The impact analysis for Alternative D uses the flawed MLEP to calculate “habitat units” that will be lost for various sensitive species. These habitat units are essentially meaningless; the actual acres of lost habitat should be the basis for impact assessment. According to the SDEIS/EIR the following sensitive species will experience habitat loss in the following amounts: black-tailed jackrabbit, 23.76 acres; western spadefoot toad (*Spea hammondi*), 8.97 acres; loggerhead shrike, 83.25 acres.

The area of impacts to black-tailed jackrabbit is actually much larger than 23.76 acres. The area currently occupied by this species will be used as a construction staging area, which will eliminate far more habitat than the parking garage.²⁵ In addition, the mitigation measure for this species proposes relocating all of the jackrabbits to the El Segundo dunes. The resulting total loss of habitat is therefore closer to the 118.75 acres described for the other Alternatives.

Loss of habitat for jackrabbits, loggerhead shrikes, and western spadefoot toads constitutes a significant impact because the losses would appreciably diminish the ranges of these rare species. LAX supports the only population of jackrabbits in west Los Angeles and indeed, in most of the Los Angeles basin. LAX also supports one of the last western spadefoot toad populations in the Los Angeles basin. Surveys in 2003 for breeding loggerhead shrikes recorded fewer than six pairs within the Los Angeles basin (Kimball Garrett, Los Angeles County Museum of Natural History, pers. comm.), and the species has disappeared in recent years from regularly surveyed sites at Holy Cross Cemetery, Madroña Marsh, and other Los Angeles locations (Professor Hartmut Walter, UCLA Department of Geography, pers. comm.). All three of these species are on the verge of extirpation within a large cismontane geographic area, making any impacts to the populations at LAX highly significant. Cumulative impacts to these species, from the proposed project and other projects in the area, including the Catellus West Bluffs development, are highly significant.

The impact analysis for Alternative D (and the other Alternatives) does not address the “bomb disposal site” located within the Habitat Restoration Area. Consultants to LAX previously recommended that

24. SDEIS/EIR, Figure S4.14-1.

25. SDEIS/EIR, Figure S4.20-1.

this site be moved as part of the Master Plan process so that the ongoing adverse impacts to sensitive habitats (including scraping of restored areas, and disposal of debris within restored areas) could be avoided.²⁶

The impact analysis does not provide a sufficient discussion of chemicals that would be used for dust suppression. The SDEIS/EIR suggests the use of “nontoxic” soil binders to reduce dust, but the compatibility of these chemicals with habitat restoration and biological communities is unknown or not reported, and so cannot be evaluated.

3.0 Indirect Impacts

The SDEIS/EIR provides additional discussion of the effects of light and noise on biological resources. While presenting marginally more information, the analysis and conclusions on both these topics are lacking in logic and scientific support.

3.1 Artificial Night Lighting and Wildlife

Discussion of the impacts of artificial night lighting on wildlife is hampered by the confusing use of terminology in the SDEIS/EIR. The issue is routinely described as an analysis of “light emissions,” and the magnitude of lighting is described in foot-candles (“fc”). The difficulty with this is that foot-candles (or the SI equivalent lux) are measures of illumination within an area, not the emission of light from a source. Light emissions should be described in terms of luminance. Both illumination and luminance are relevant to assessment of the biological impacts of artificial lighting. Luminance is primarily associated with attraction and repulsion of animals, while illumination primarily results in orientation and disorientation.²⁷ Analysis of lighting should therefore clearly distinguish between illumination and luminance in considering impacts to wildlife.

The analysis of lighting impacts from all Alternatives lacks relevant spatial information to reach meaningful conclusions. For example, the baseline conditions within the dunes Habitat Restoration Area are described as ranging from 0.004 fc to 0.26 fc.²⁸ For all build scenarios, the SDEIS/EIR predicts that illumination will increase by 0.34 fc. The spatial distribution of this increase is not described, which makes it difficult to discern how large an area will be subjected to increased lighting from the project.

The SDEIS/EIR tries to reach the conclusion that current lighting levels have no adverse influence on wildlife. This conclusion is not supported by the facts. First, all lighting levels within the dunes were recorded during a night with a clear sky. Light reflected by clouds or fog is at a minimum on clear nights; ambient illumination may increase substantially on overcast or foggy nights.²⁹ The

26. DEIS/EIR, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 509.

27. Health Council of the Netherlands. 2000. *Impact of outdoor lighting on man and nature*. Health Council of the Netherlands, The Hague.

28. SDEIS/EIR, p. 4-452.

29. Moore, M.V., S.M. Pierce, H.M. Walsh, S.K. Kvalvik, and J.D. Lim. 2000. Urban light pollution alters the diel vertical migration of *Daphnia*. *Verhandlungen der Internationalen Vereinigung für Theoretische und Angewandte Limnologie* 27:779–782.

characterization of the baseline conditions does not therefore adequately represent lighting impacts, given the frequency of these meteorological conditions along the coast.

Second, the biological analysis asserts that only nocturnal and crepuscular species could be affected by artificial night lighting. This conclusion reveals a failure to understand basic ecology and an ignorance of the scientific literature. One of the common effects of artificial night lighting is to extend the activity period of a diurnal species into the nighttime hours. This has been well documented for birds,³⁰ and is so notable in reptiles that animals exhibiting such behavior have been characterized as using the “night light niche.”³¹ In another example, seals extended foraging time on salmon by using the lights from a bridge overhead.³² Extended activity times for diurnal species results in disruption of interactions with other species. Species with extended activity periods may 1) subject other species to increased predation, 2) increase competition with nocturnal and crepuscular species, and 3) be subject to additional predation. The outcome of these altered species interactions will be positive, neutral, and negative for different members of the community, be they diurnal, crepuscular, or nocturnal. One experimental investigation reports the outcome of increased foraging time allowed by artificial lighting for butterfly larvae. The higher growth rate associated with longer photoperiod was offset by significantly higher predation on the butterfly larvae from the primary parasitoid species.³³ The SDEIS/EIR errs dramatically in claiming that diurnal species would not be affected by artificial night lighting.

Third, the SDEIS/EIR does not discuss the relevant literature to develop thresholds to determine adverse impacts from lighting. Rather, it draws on the rather illogical statement that because sensitive species are present in the dunes area with existing light levels, the light does not adversely affect these species.³⁴ Presence of a species in a degraded habitat does not mean that the habitat is not degraded. The conclusion of no impact from existing lighting cannot be drawn without knowing the density of sensitive species in the absence of artificial night lighting. Even using the measurements taken on a clear night for the SDEIS/EIR, artificial illumination on the dunes reaches 0.26 fc (2.8 lux), which is an order of magnitude greater than that provided by a full moon (~0.1 lux). The claim that illumination of this magnitude does not affect wildlife is untenable, given the known influences of lunar cycles on wildlife behavior. For example, scorpions stay closer to their burrows during the full moon.³⁵ Other animals,

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30. Goertz, J.W., A.S. Morris, and S.M. Morris. 1980. Ruby-throated hummingbirds feed at night with the aid of artificial light. *Wilson Bulletin* 92:398–399. Freeman, H.J. 1981. Alpine swifts feeding by artificial-light at night. *British Birds* 74(3):149. Hill, D. 1990. The impact of noise and artificial light on waterfowl behaviour: a review and synthesis of the available literature. British Trust for Ornithology Report No. 61, Norfolk, United Kingdom. Frey, J.K. 1993. Nocturnal foraging by scissor-tailed flycatchers under artificial light. *Western Birds* 24(3):200. Negro, J.J., J. Bustamante, C. Melguizo, J.L. Ruiz, and J.M. Grande. 2000. Nocturnal activity of lesser kestrels under artificial lighting conditions in Seville, Spain. *Journal of Raptor Research* 34(4):327–329. Thurber, W.A., and O. Komar. 2002. Turquoise-browed motmot (*Eumomota superciliosa*) feeds by artificial light. *Wilson Bulletin* 114(4):525–526.
 31. Schwartz, A., and R.W. Henderson. 1991. *Amphibians and reptiles of the West Indies: descriptions, distributions, and natural history*. University of Florida Press, Gainesville.
 32. Yurk, H., and A.W. Trites. 2000. Experimental attempts to reduce predation by harbor seals on out-migrating juvenile salmonids. *Transactions of the American Fisheries Society* 129(6):1360–1366.
 33. Gotthard, K. 2000. Increased risk of predation as a cost of high growth rate: an experimental test in a butterfly. *Journal of Animal Ecology* 69(5):896–902.
 34. SDEIS/EIR, p. 4-453.
 35. Skutelsky, O. 1996. Predation risk and state-dependent foraging in scorpions: effects of moonlight on foraging in the scorpion *Buthus occitanus*. *Animal Behaviour* 52(1):49–57.

including snakes,³⁶ small mammals,³⁷ lagomorphs,³⁸ and bats,³⁹ similarly avoid foraging during the full moon to avoid the increased predation risk. With areas of the dunes subjected permanently to illumination brighter than that of a full moon, the conclusion that this baseline condition causes no impacts is not supported by scientific evidence. Even the dimmest illumination found in the baseline conditions at the dunes (0.004 fc = 0.043 lux) is still greater than the light of a quarter moon (0.01 lux), let alone a moonless clear night (i.e., starlight only with no light pollution; 0.001 lux), or a moonless overcast night (i.e., no starlight with no light pollution; 0.0001 lux).

With these natural illumination levels in mind, it becomes evident that impacts from additional light created by the project will be significant to wildlife. All project Alternatives would increase illumination within the Habitat Restoration Area so that illumination would range from 0.344–0.6 fc (3.7–6.5 lux). This illumination is 37 to 65 times brighter than that of a full moon. Given that the wildlife species of the dunes evolved for hundreds of thousands of years with, and are adapted to, a natural light regime with a maximum illumination of the full moon, and some wildlife species may detect and respond to illuminations below 0.01 or even 0.0001 lux,⁴⁰ an increase of 0.34 fc (3.6 lux) constitutes a significant adverse impact.

3.2 Noise and Wildlife

In our 2001 comments on the DEIS/EIR, we requested that the impact of noise on wildlife be analyzed. The SDEIS/EIR presents an analysis, but it is lacking in scope and logic.

The scope of the analysis of noise impacts is limited in the SDEIS/EIR to sensitive species only. While these impacts are important, this scope is unduly narrow, because it ignores impacts to wildlife species not designated as “sensitive” that are found in rare natural communities (also called “sensitive habitats”). Rare natural communities, such as southern foredune, dune scrub, and valley needlegrass grassland, are important for both their flora and fauna. It would defeat the purpose of protecting such sensitive habitats if impacts to the wildlife in those habitats are not analyzed. The noise analysis should therefore be expanded to consider impacts to the wide range of wildlife found in the sensitive habitats at LAX, and not limited to only those individual species designated as sensitive.

The logic of the noise analysis is also flawed. This is exemplified by the conclusion that, “Based on the analysis of existing noise levels at locations occupied by sensitive species, and the presence of sensitive species within these areas, it appears that current noise conditions do not adversely affect sensitive species at LAX.”⁴¹ Again, as is the case with the analysis of artificial night lighting, insufficient information is available in the SDEIS/EIR to draw this conclusion. If the density of sensitive species

36. Clarke, J.A., J.T. Chopko, and S.P. Mackessy. 1996. The effect of moonlight on activity patterns of adult and juvenile prairie rattlesnakes (*Crotalus viridis viridis*). *Journal of Herpetology* 30(2):192–197. Klauber, L.M. 1939. *Rattlesnakes: their habits, life histories, and influence on mankind*. Second edition. Vol. 1. University of California Press, Berkeley.

37. Lima, S.L. 1998. Stress and decision making under the risk of predation: recent developments from behavioural, reproductive, and ecological perspectives. *Advances in the Study of Behavior* 27:215–290.

38. Gilbert, B.S., and S. Boutin. 1991. Effect of moonlight on winter activity of snowshoe hares. *Arctic and Alpine Research* 23(1):61–65.

39. Rydell, J. 1992. Exploitation of insects around streetlamps by bats in Sweden. *Functional Ecology* 6:744–750.

40. Tarano, Z. 1998. Cover and ambient light influence nesting preferences in the Tungara frog *Physalaemus pustulosus*. *Copeia* 1998(1):250–251.

41. SDEIS/EIR, p. 4-453.

without elevated noise levels were known, and those densities remained the same with elevated noise, then perhaps a conclusion of no impact could be reached. But the SDEIS/EIR does not report density of occupation by any sensitive species (except El Segundo blue butterfly, *Euphilotes bernardino allyni*) and presents no comparison to suggest that densities would be the same in the absence of the noise associated with the fourth largest airport in the United States. Without these critical parts of a logical argument, the conclusion that existing noise does not affect sensitive species at LAX is unfounded.

Beyond the faulty conclusion that *current* noise levels do not affect sensitive species at LAX, the SDEIS/EIR also asserts that *increased* noise would not affect sensitive species. This conclusion is a result of the inappropriately narrow scope of the analysis and a failure to consider reasonable thresholds for noise effects. A rather exhaustive body of literature is referenced, but glossed over by the SDEIS/EIR, that illustrates the adverse impacts of airport noise on vertebrates, even at levels far below the thresholds in the SDEIS/EIR. Chronic noise, even at low levels, is associated with elevated stress hormone levels, higher blood pressure, faster heart rates, and other physiological effects.⁴² As a result, birds, mammals, and other vertebrates may show anatomical differences (smaller body size, enlarged adrenal glands) from prolonged exposure to noise.

A study of the influence of aircraft overflights on birds is cited in the SDEIS/EIR, noting that “there were no major differences in the nesting productivity of the most abundant species, and the nesting success was high and similar for both the control site and the test site.”⁴³ This reference is rather disingenuous, because it neglects to inform the reader that the Alaska study site experienced L_{max} below 70 dB(A) while the L_{max} at LAX ranges 90–140 dB(A) under the various Alternatives. This represents a considerable difference, because decibels are measured on a logarithmic scale.

Road noise, which is several orders of magnitude quieter than aircraft noise, has been documented to exert an adverse impact on breeding birds. Of 45 bird species investigated in woodlands in The Netherlands, 33 showed significantly depressed breeding density in response to increased noise levels near roads. All species in the small passerine families Sylviidae, Fringillidae, and Emberizidae were affected by noise.⁴⁴ Empirical measurement of the threshold value triggering decreased density in woodlands shows that for all bird species combined the threshold value is 42–52 dB(A), with individual species exhibiting thresholds as low as 36 dB(A) and as high as 58 dB(A).⁴⁵ Furthermore, years with overall low population densities showed lower threshold levels. Similar research has been conducted for

42. Manci, K.M., D.N. Gladwin, R. Villella, and M.G. Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. U.S. Fish and Wildlife Service National Ecology Research Center, Ft. Collins, Colorado. NERC-88/29. 88 pp.

43. Rozell, K.B. 2001. Effects of military overflights on nesting neotropical migrant birds. Alaska Bird Observatory, Fairbanks.

44. Reijnen, R., R. Foppen, and G. Veenbaas. 1997. Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation* 6:567–581.

45. Reijnen, R., R. Foppen, C. ter Braak, and J. Thissen. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology* 32:187–202. Reijnen, R., and R. Foppen. 1995. The effects of car traffic on breeding bird populations in woodland. IV. Influence of population size on the reduction of density close to a highway. *Journal of Applied Ecology* 32:481–491. Reijnen, R., R. Foppen, and H. Meeuwssen. 1996. The effects of traffic on the density of breeding birds in Dutch agricultural grasslands. *Biological Conservation* 75:255–260.

grasslands. Overall, this research shows that breeding bird habitat is degraded at noise levels as low as 36 dB(A).⁴⁶

Mammals are likewise vulnerable to impacts from chronic airport noise:

Only a few studies of the physiological effects of noise on rodents have involved wild animals. A field study by Chesser et al. (1975) involved two populations of house mice near the end of a runway at Memphis International Airport. Adult mice also were collected from a rural field 2.0 km from the airport field. Background noise levels at both fields were 80–85 dB. Noise levels of incoming and outgoing aircraft at the airport field averaged 110 dB, with the highest reading reaching 120 dB. Total body weights and adrenal gland weights of mice from the fields were measured. Additional mice were captured from the rural field, placed in the laboratory, and exposed to 1 minute of 105-dB recorded jet aircraft noise every 6 minutes to determine if noise was the causative factor. Control mice were not subjected to noise. After 2 weeks, the adrenals were removed and weighed. Adrenal gland weights of male and female mice from the airport field were significantly greater than those of mice from the rural field. The noise-exposed mice in the laboratory study had significantly greater adrenal gland weights than the control mice. After ruling out stress factors, such as population density, Chesser et al. (1975) concluded that noise was the dominant stressful factor causing the adrenal weight differences between the two feral populations.⁴⁷

While house mice are of no regulatory concern, native small mammals on the El Segundo dunes include harvest mouse, *Reithrodontomys megalotis*, and desert wood rat, *Neotoma lepida*, which are locally significant. But again, the SDEIS/EIR does not analyze these impacts because it concentrates only on sensitive species, and not on the full range of wildlife species in sensitive habitats.

The scientific literature provides ample evidence to conclude that the sensitive habitats at LAX are degraded by noise from airport operations and that increased noise would constitute a significant adverse impact.

4.0 Mitigation Measures

The SDEIS/EIR, because it relies on the MLEP to formulate mitigation measures for impacts to sensitive species and biotic communities, contains deeply flawed mitigation measures.

The SDEIS/EIR reports that all of the proposed project Alternatives will destroy four seasonal ponds occupied by western spadefoot toads on the south airfield. These populations number at least several hundred adults and all sites would be destroyed by the various project Alternatives. The SDEIS/EIR estimates occupied area as 8.97 acres of ephemeral wetted areas and adjacent upland habitats. Spadefoot toads require upland habitats surrounding their aquatic habitat.⁴⁸ It is unclear how upland habitats were measured for the SDEIS/EIR. Critically important in the analysis is that the species is found in four separate areas. Even though the areas are close to each other, the existing configuration of

46. Reijnen, R., R. Foppen, and H. Meeuwssen. 1996. The effects of traffic on the density of breeding birds in Dutch agricultural grasslands. *Biological Conservation* 75(3):255–260. Reijnen, R., R. Foppen, and G. Veenbaas. 1997. Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation* 6(4):567–581.

47. Mancini, K.M., D.N. Gladwin, R. Villella, and M.G. Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. U.S. Fish and Wildlife Service National Ecology Research Center, Ft. Collins, Colorado. NERC-88/29. 88 pp.

48. Ruibal, R., L. Trevis, and V. Roig. 1969. The terrestrial ecology of the spadefoot toad *Scaphiopus hammondi*. *Copeia* 572–584.

habitat patches is important to reduce risk to the species from a catastrophic event (e.g., chemical spill). Depending on the separation of the pools, there may still be genetic exchange among the populations in each. These risk dynamics should be considered when evaluating the impact on the species and potential mitigation measures.

Loss of the LAX population of western spadefoot toads would cause a significant restriction of the range of the species. Because of the significance of the LAX population to the range of the species, mitigation areas should be as close as possible to the existing sites. The first choice should be within the 100 acres north of the Habitat Restoration Area where vernal pools were found historically.⁴⁹ This site would not require land acquisition and would be consistent with achieving other mitigation goals within this area. Furthermore, the biological consultants for the LAX Master Plan recommend that this site be restored with vernal pools.⁵⁰ The second priority for creation of habitat and reintroduction of western spadefoot toad is the West Bluffs site. While this site is currently graded for development, the owner is willing to sell the property, which historically supported appropriate vernal pool habitat. The area of the reintroduction site must at least equal the area occupied at LAX. Given the difficulty of restoring habitat and establishing rare species, a 3:1 mitigation ratio for pool surface area would be more appropriate. This surface area must be accompanied by surrounding upland habitat at a ratio of 10 to 15 acres for each acre of pool surface area. Ideally the mitigation pool surface area would be divided among at least three pools to minimize the effects from a possible catastrophic event.

Mitigation for impacts to Riverside fairy shrimp (*Branchinecta sandiegoensis*) should use the same pool system as developed for the western spadefoot toad.

The SDEIS/EIR suggests that the impact of destroying at least 83 acres of habitat for loggerhead shrike can be mitigated by enhancing habitat within the El Segundo dunes. As proposed, this mitigation measure will not be successful. It suggests that the loss of 83 acres of habitat can be offset by enhancing habitat within 300 acres of existing, occupied habitat. The SDEIS/EIR presents no evidence that the 300 acres of the El Segundo dunes could support a greater density of shrikes. Surveys of the El Segundo dunes in 1995 and 1998 showed this area to be occupied by breeding shrikes.⁵¹ An average of six individuals per survey were seen within the Habitat Restoration Area in 1995.⁵² Territory size for loggerhead shrikes on the Channel Islands is large, 34 ha (~84 acres),⁵³ while mainland territories are somewhat smaller, 4.4–16.0 ha (~10.9–39.5 acres).⁵⁴ Assuming the Habitat Restoration Area supports three pairs of breeding shrikes, the territory size would be ~27 ha (~66.7 acres). Experts familiar with shrikes and the El Segundo dunes doubt that the mitigation measure would be successful in increasing shrike density in this occupied habitat (Professor Hartmut Walter, UCLA Department of Geography, pers. comm.).

49. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles coastal prairie, a vanished community. *Crossosoma* 26(2):71–102.

50. DEIS/EIR, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 508.

51. DEIS/EIR, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 227.

52. DEIS/EIR, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, pp. 469–483.

53. Scott, T.A., and M.L. Morrison. 1990. Natural history and management of the San Clemente loggerhead shrike. *Proceedings of the Western Foundation for Vertebrate Zoology* 4:23–57.

54. Miller, A.H. 1931. Systematic revision and natural history of the American shrikes (*Lanius*). *University of California Publications in Zoology* 38:11–242.

Only one of the three proposed enhancement activities (removal of roads) could be conducted within the Habitat Restoration Area. The other enhancement activities would be conducted outside the Habitat Restoration Area. If enhancement will occur outside the Habitat Restoration Area, then the mitigation measure must establish that restored areas will be protected permanently as natural habitat. The SDEIS/EIR fails to state that mitigation areas outside of the Habitat Restoration Area will be permanently protected.

Enhancement to improve habitat for loggerhead shrikes might also have adverse consequences on other species. Shrikes are fond of Jerusalem crickets as forage.⁵⁵ The Jerusalem cricket found at the El Segundo dunes is a sensitive endemic species.⁵⁶ This is meant only to illustrate that artificially increasing the density of one species is not necessarily consistent with management for other species or for maximum biological diversity. Similarly, as discussed below, enhancement to support a large population of jackrabbits would conflict with the provision of habitat for El Segundo blue butterflies.

The proposed mitigation for impacts to black-tailed jackrabbits involves relocation from a ruderal grassland to the Habitat Restoration Area, which contains southern dune scrub and foredune scrub vegetation. It is likely that this mitigation measure will not succeed. First, the 200 acres (81 ha) of the Habitat Restoration Area will support a lower density of jackrabbits than the open grassland they now inhabit. Black-tailed jackrabbits are generalist herbivores, and therefore can survive in a range of vegetation types. The density of jackrabbits differs, however, with the composition of the vegetation. Sites that have very high grass cover relative to shrubs and forbs support far greater densities. For example, a steppe habitat with 59% grass, 10% forb, and 31% shrub cover supported 18.4 jackrabbits per ha, and density decreased with increasing shrub cover to 1.4 individuals per ha at 91.0% shrub cover.⁵⁷ Because the Habitat Restoration Area is intended to support scrub habitats, jackrabbits could only persist at a far lower density than they do in their current habitat at the Airport Operations Area, meaning a much larger area would be required to support the population. Furthermore, the SDEIS/EIR does not consider the possible reasons that black-tailed jackrabbits are no longer present on the dunes, even though they were present historically. For some reason the population was extirpated, and unless the forces that caused the extirpation are removed, the mitigation will fail. We see two possible explanations. First, the small population size within the Habitat Restoration Area was vulnerable to random events simply because it was small. If this is true, then the relocation will eventually fail unless the dunes are managed to maintain a larger population size to the detriment of other sensitive species on the dunes, including El Segundo blue butterfly. A second possible explanation for the disappearance of jackrabbits from the dunes can be deduced from the timing of their extirpation. According to surveys in the DEIS/EIR, jackrabbits died out (or were killed) sometime between surveys in 1978 and 1988.⁵⁸ The other major change in the mammal fauna between 1978 and 1988 was the appearance of the non-native red fox as a breeding resident on the dunes. Red fox are recorded predators of black-tailed jackrabbits, so the invasion and success of this predator may have resulted in the elimination of jackrabbits. If this is true, any jackrabbit relocation program must be accompanied by a humane red fox (and feral cat/dog) control program.

55. Myers, H.W. 1922. *Western birds*. The Macmillan Company, New York, p. 249.

56. Mattoni, R.H.T. 1990. Species diversity and habitat evaluation across the El Segundo sand dunes at LAX. Los Angeles Department of Airports, Los Angeles.

57. Johnson, R.D., and J.E. Anderson. 1984. Diets of black-tailed jack rabbits in relation to population density and vegetation. *Journal of Range Management* 37(1):79-83.

58. DEIS/EIR, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 493.

Mitigation for Lewis' evening primrose (*Camissonia lewisii*) does not ensure that a replacement population of the species will be created, only that more individuals will be grown on the El Segundo dunes, where the species is already found. In addition to establishing a numerical goal for the number of individuals to be replaced, mitigation should ensure that the area occupied by the species will increase by at least the 2.5 acres that would be lost. Because there is a risk-spreading benefit in the disjunct configuration of the impacted population, the mitigation site should be geographically distinct from currently occupied sites.

Mitigation Measure MM-ET-4 describes actions to mitigate impacts to El Segundo blue butterfly from Alternative D. It contains the following provisions, summarized and quoted from here, that deserve comment based on our previous experience⁵⁹ with such mitigation efforts: 1) avoid flight season for construction, such that construction occurs between October 1st and May 31st, 2) mitigate the number of plants of coast buckwheat at 1:1 ratio, 3) "salvage existing coast buckwheat plants and any larvae on the plant or in the soil below the plant that would be removed," and 4) salvage any El Segundo blue butterfly larvae from plants that are not salvaged.⁶⁰ While it may seem intuitive to avoid construction during the adult flight season, the species may indeed be more vulnerable at other times because individuals are in diapause as pupae in the sand beneath the plants. While flying adults can escape physical disturbance in the environment, pupae cannot move to avoid being crushed. If the Section 7 consultation with USFWS results in a "no jeopardy" determination, the following strategy would reduce impacts to the butterfly. Plants that will be impacted should be carefully removed in the late Spring before adult butterflies eclose by cutting them at the surface of the sand. This minimizes disturbance to pupae in the duff and sand below. Then construction should be delayed until after the ensuing flight season. Butterflies that emerge to find their plants gone will be forced to emigrate to nearby habitat. If desired, the affected areas can be searched for pupae after the flight season to locate any pupae in multiple-year diapause. Relocation of mature coast buckwheat plants is not a cost efficient means of mitigation. Most plants will die, and the butterfly would be better served by restoring more habitat with container plants. Given the timing of the construction phase, the existing measure incorrectly refers to salvage of larvae at a time when only pupae would be found. Finally, mitigation at a 1:1 ratio for plants is insufficient. The mitigation ratio for direct impacts to this rare natural community should be at a 5:1 ratio on an area basis rather than a per plant basis. The impacts to 0.24 acres of occupied El Segundo blue butterfly habitat (which will be scattered across the Habitat Restoration Area) should be mitigated by restoration of 1.25 acres of the vegetation type in similar topoclimatic configuration. Impacts to backdune areas should be mitigated by restoring backdune vegetation, not by planting a remote foredune area as contemplated by the mitigation measure.

5.0 Conclusion

The full DEIS/EIR, including the new Supplement, fails to provide a realistic assessment of the impacts of the proposed project on biological resources, including sensitive species and rare natural communities. The centerpiece of the analysis of direct impacts is a fatally flawed methodology. This methodology confuses the distinction between habitat and vegetation type, and even fails to account for

59. Longcore, T., R. Mattoni, and A. Mattoni. 2003. Final report for Palos Verdes blue butterfly pupal salvage on Palos Verdes and San Pedro housing, San Pedro, California. The Urban Wildlands Group, Los Angeles (Department of the Navy Letter Agreement # N68711-02-LT-C3001). 9 pp.

60. DSEIS/EIR, p. 4-494.

differences between vegetation types. The assessment of indirect impacts relies on illogical assertions (e.g., if a habitat is degraded for a species then further degradation will have no adverse impact), and fails to consider the scientific literature and its application to the impact analysis.

The magnitude of the LAX Master Plan development and its impacts to wildlife habitat for all four Alternatives, combined with the regional setting and cumulative impacts from development in the City of Los Angeles, lead to the conclusion that implementation of the Master Plan will have significant adverse impacts on biological resources. The mitigation measures proposed to offset these impacts are wholly insufficient to reduce these impacts to a less than significant level.

Appendix A

**Review of Biological Resources Analysis in LAX Master Plan
Draft Environmental Impact Statement/Environmental Impact Report**



Land Protection Partners

P.O. Box 24020, Los Angeles, CA 90024-0020
Telephone: (310) 276-2306

Review of Biological Resources Analysis in LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report

August 8, 2001

**Travis Longcore, Ph.D.
Catherine Rich, J.D., M.A.**

Review of Biological Resources Analysis in LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report

This review pertains to the Federal Aviation Administration and Los Angeles World Airports Joint Draft Environmental Impact Statement/Environmental Impact Report (“EIS/R”). It addresses Sections 4.10 (Biotic Communities), 4.11 (Endangered and Threatened Species of Flora and Fauna), 4.12 (Wetlands), 4.14 (Coastal Zone), and 4.18 (Light Emissions). The review was prepared by Dr. Travis Longcore and Catherine Rich, who are experts in the ecology and history of the natural communities that would be affected by the proposed airport expansion. Dr. Longcore has co-authored several peer-reviewed scientific articles on the El Segundo Dunes and the Los Angeles Coastal Prairie (including its vernal pools),¹ which both would be adversely affected by the proposed project.

The presentation of information in the EIS/R about biological resources is segmented into several sections. For the purpose of this review, however, all biological resource issues are treated together, because mitigation measures for biological impacts are largely the same.

1.0 Project Description

For the purpose of discussing the impacts to biological resources, the EIS/R does not provide a complete project description. Within the extent of the Master Plan boundaries, it is unclear what the disposition of certain areas of biologically significant property will be. In maps of the various project alternatives, the legend indicates useless designations such as “Airport Related.”² There is no way to ascertain with certainty what the use of such land will be under the various alternatives.

1.1 Failure To Analyze Northside/Southside Project

The EIS/R describes the LAX Northside Project as “Collateral Development” that previously has been entitled through the CEQA process.³ Reliance on old CEQA documentation is problematic, and development of this project would seem to require a reopening of the environmental review, especially given the changed conditions since the approval in 1983. However, the real difficulty is that the EIS/R replaces the LAX Northside Project with the Westchester Southside Project in each of the three build alternatives for the Master Plan. These projects are not the same, and even if the CEQA documentation for the Northside Project is deemed adequate, the Southside Project must be fully analyzed under CEQA. The EIS/R does not completely describe or analyze the biological impacts of the Southside Project.

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1. Mattoni, R., T. Longcore, C. Zonneveld, and V. Novotny. 2001. Analysis of transect counts to monitor population size in endangered insects: the case of the El Segundo blue butterfly, *Euphilotes bernardino allyni*. *Journal of Insect Conservation* 5(3):197–206. Longcore, T., R. Mattoni, G. Pratt, and C. Rich. 2000. On the perils of ecological restoration: lessons from the El Segundo blue butterfly. Pp. 281–286 in J.E. Keeley, M. Baer-Keeley, and C.J. Fotheringham (eds.) *2nd Interface Between Ecology and Land Development in California*. U.S. Geological Survey, Sacramento, CA. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445–452. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles Coastal Prairie, a vanished community. *Crossosoma* 26(2):71–102.
 2. EIS/R, Figures 3-6, 3-11, 3-15.
 3. EIS/R, pp. 3-20, 3-29.

The Westchester Southside Project, as depicted in the EIS/R,⁴ would include the conversion of 100 acres of the El Segundo Dunes to a golf course. (Several figures in the EIS/R appendices map this area at the northern portion of the dunes as “golf course/open space” and include “Resort Hotels” within the same color designation. At a minimum the maps indicate some level of development of the dunes as part of the Westchester Southside Project.) The dunes golf course/open space development was not included in the CEQA analysis for the LAX Northside Project, and remains unanalyzed for compliance with any environmental laws (CEQA, NEPA, California Coastal Act). It is inappropriate for the EIS/R to rely on the Westchester Southside Project — which is a site for relocation of displaced businesses⁵ — for mitigation, and not to evaluate the full impacts of the development. While all of the El Segundo Dunes are within the Master Plan area, and the alternatives themselves show no development on the 100 acres at the northern end of the dunes, the result of adopting any of the three project alternatives is to develop 100 acres of dunes in association with “Resort Hotels” and “golf course/open space.”⁶ The resource value of this area is discussed later, but the analysis of the Westchester Southside Project should not be piecemealed. Currently, the biological impacts of the Westchester Southside Project do not seem to be analyzed fully, nor are they included in the discussion of cumulative impacts for the project. Even if one accepts the premise of the EIS/R that the project will proceed absent approval of the Master Plan, the Westchester Southside Project is “reasonably foreseeable” — in fact relied upon for mitigation — and all of its impacts must be disclosed and mitigated as part of the Master Plan EIS/R.

The decision not to address the biological impacts of the Westchester Southside Project can be interpreted as a strategic choice to avoid disclosure of the full impacts of the airport expansion project. From a biological standpoint, the Westchester Southside Project, even though it would involve fewer square feet of built space than the LAX Northside Project (2.6 million square feet vs. 4.5 million square feet), it has a larger geographic footprint and greater biological impact. Any of the three build alternatives plus the Westchester Southside Project would be a catastrophe for the biological resources found at LAX.

1.2 Previous Failure To Disclose Impacts of Development on El Segundo Dunes

Los Angeles World Airports (“LAWA”) has previously failed to disclose impacts of development on the El Segundo Dunes. In 1999, a newspaper story announced that LAWA was planning to install landscaping on the northern end of the El Segundo Dunes, along Waterview, Rindge, and Napoleon streets. The Urban Wildlands Group, a Los Angeles-based nonprofit whose board includes the authors of this letter, contacted LAWA to inform project managers of the sensitive resources present and request that the project not include invasive plants that would degrade the dunes. LAWA promised, but then failed to provide, the plant list for the project. LAWA proceeded to implement the project, but failed to secure the proper permits from the City of Los Angeles as required under the California Coastal Act. After installing a new walkway and over 90 mature, non-native palm trees in a sensitive habitat area,⁷

4. EIS/R, Appendix J1. Biological Assessment Technical Report, Figures 8, 11, 14.

5. EIS/R, pp. 3-33, 3-47, 3-56.

6. City of Los Angeles Ordinance 169,767 restricts use of the northern 100 acres of the El Segundo Dunes at LAX to “nature preserve and accessory uses only.” This ordinance was passed unanimously by the City Council on April 6, 1994 as part of the General Plan/Zoning Consistency Program. Given this unequivocal direction from the City, it is unclear why the Master Plan is ambiguous about the disposition of this area, unless the intention is to attempt to remove the development conditions from the property and seek another use as part of the Westchester Southside Project.

7. Installation of palm trees is damaging ecologically, and also provides sites for birds to perch, potentially increasing bird strikes with aircraft. Consultants for the airport report that “[t]he El Segundo Dunes provides relatively few attractants

(cont’d)

LAWA was instructed to stop work by the California Coastal Commission, told that it must obtain a permit, and subsequently applied for a permit from the City. The Urban Wildlands Group opposed the permit application for the partially implemented project because it would significantly disrupt habitat values of an environmentally sensitive habitat area (“ESHA”), as defined under the California Coastal Act.⁸ The City analysis of the project also agreed that the site was an ESHA.⁹ The appeal of the permit was denied by the City of Los Angeles Board of Public Works with the stipulation that LAWA resolve the issue in consultation with The Urban Wildlands Group and those residents opposed to the palm trees. This has not yet happened.

LAWA steadfastly maintains that the 100 acres outside of the El Segundo Blue Butterfly Preserve is not part of the El Segundo Dunes and that it will be developed as a golf course.¹⁰ The area, however, is within the jurisdiction of the California Coastal Commission, and no approved Local Coastal Plan has been produced that would allow for a golf course. The EIS/R provides even more information to join previously published sources¹¹ showing that the area is an environmentally sensitive habitat area and therefore protected by Section 30240(a) of the California Coastal Act. For example, the EIS/R itself discloses that El Segundo blue butterflies (*Euphilotes bernardino allyni*) occupy one subsite,¹² sensitive Lewis’ evening primrose (*Camissonia lewisii*) occupies seven subsites,¹³ and the area is occupied by sensitive species such as silvery legless lizard (*Anniella pulchra*), San Diego horned lizard (*Phrynosoma coronatum blainvillei*),¹⁴ loggerhead shrike (*Lanius ludovicianus*; breeding),¹⁵ and Dorothy’s sand dune weevil (*Trigonoscuta dorothea dorothea*).¹⁶ The golf course or other development on the dunes should either be analyzed as part of the Master Plan EIS/R for conformance with applicable laws, including the California Coastal Act, or be explicitly deleted from the plans for the area. The EIS/R should offer some certainty about what development will take place within the Master Plan boundaries and disclose the impacts of that development.

to birds which may partially account for the significantly lower percentage of strikes occurring over this area than over the approach area. The El Segundo Dunes naturally supports very few trees — the only trees present are non-native trees that have been planted....” (EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 341). Without complete environmental review, LAWA planted more attractants for birds in the form of palm trees. The EIS/R also reports that the native birds of the dunes are not involved in bird strikes, while species promoted by urban development, such as pigeons and gulls, are involved in the most strikes.

8. California Public Resources Code §§ 30107.5, 30240.
9. City of Los Angeles. 2001. Coastal Development Permit Application No. 00-05 Final Staff Report, p. 5, “Consequently, for Coastal Act analysis purposes, the Project site is within an environmentally sensitive habitat area....”
10. Personal communication with Steve Crowther, LAWA Environmental Management Bureau, March 9, 2000, by telephone with Dr. Travis Longcore. City of Los Angeles 2001. Coastal Development Permit Application No. 00-05 Final Staff Report, p. 3, “The Project, a narrow, landscaped area along the streets, would provide a buffer between the golf course and residential areas....”
11. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445–452.
12. EIS/R, Appendix J1. Biological Assessment Technical Report, Figure 20.
13. EIS/R, Figure 4.10-2.
14. EIS/R, Figure 4.10-4.
15. EIS/R, Figure 4.10-5. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 244.
16. EIS/R, Appendix J1. Biological Assessment Technical Report, p. 214.

2.0 Current Conditions

The description of current conditions of the biological resources within the Master Plan boundaries is biased toward underestimating the value of the habitats that will be impacted.

2.1 Surveys

A great deal of effort was expended surveying the insects of the El Segundo Dunes, especially within the El Segundo Blue Butterfly Preserve, even though this area is not targeted for direct development. Surveys for areas that would be subject to significant direct impacts were inadequate. It appears that only one type of survey — sweep netting — was conducted east of Pershing Drive in the areas that would be most affected by development. This single method would not detect all of the sensitive species that might occur in the area. For example, the El Segundo Jerusalem cricket (*Stenopelmatus* sp.), a burrowing insect, would not be detected with sweep netting. Pitfall trapping would be required to ascertain its presence, and should be performed in the areas of project impacts east of Pershing Drive. Other survey methods, including black lighting and malaise trapping, were conducted only west of Pershing Drive on the El Segundo Dunes, not in the areas of direct project impacts.

While the extensive surveys conducted on the El Segundo Dunes may be useful for evaluating the impacts of the Westchester Southside Project, which the EIS/R does not do, they offer little information to understand the biological communities supported in the open spaces that would be developed under the three development alternatives. For example, the EIS/R provides no summary of the bird surveys conducted at the ephemeral wetlands and open spaces found in the western area of the airport, and provides only handwritten notes buried in the appendices.¹⁷ A summary would be useful to understand the character of the biotic communities in these areas. Species of local conservation concern such as Costa's hummingbird (*Calypte costae*), western meadowlark (*Sturnella neglecta*), and common yellowthroat (*Geothlypis trichas*) were recorded in these areas, yet no complete description of the communities is provided in the text of the document. The biological consultants for the EIS/R report that the ephemeral wetland area at the west end of the airport "provides resting and foraging habitat for numerous resident and migratory bird species,"¹⁸ but the EIS/R provides no summary of these observations or description of the impact of development on these species.

For the El Segundo Dunes, an extensive list of birds is found, complete with species that are almost certainly not present at all. The "Floral Compendium" and "Faunal Compendium" include "species observed or expected to occur on or in the immediate vicinity of the site."¹⁹ On this list are found species that are highly unlikely to be present on the dunes or even near the dunes. For example, acorn woodpecker (*Melanerpes formicivorus*) is not likely to be found on the El Segundo Dunes now or in recent history. Acorn woodpeckers in Los Angeles would be associated with coast live oaks, which are found nowhere on the El Segundo Dunes or the Los Angeles Coastal Prairie. The rather excessive bird list in the Faunal Compendium is made ever more curious by the statement elsewhere by the biological

17. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, pp. 224 (Memo-Results of Directed Surveys for American Peregrine Falcon, et al., 1998), 292 (Memo-Results of Spring Directed Surveys for Burrowing Owl, 1998), 311 (Memo-Results of Winter Directed Surveys for Burrowing Owl, 1998), 416 (Memo-Wildlife Survey of the Argo Ditch, 1997).

18. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 340 (Memo-Aircraft Bird Strike Literature Review).

19. EIS/R, Appendix J1. Biological Assessment Technical Report, Appendix A, pp. 1-5.

consultants for the EIS/R that “the Dunes does not support a large resident bird population.”²⁰ It is odd to include these ambitious lists, because the biological analysis does not evaluate the impacts of the three alternatives on the species of wildlife in them.

2.2 “Determined Absent”

The summary table for sensitive species provided in Section 4.10 of the EIS/R is misleading. For many species, the table indicates that they have been “determined absent” from the Master Plan boundaries based on directed surveys. When dealing with small arthropods that are difficult to capture, persist at low numbers, and may have large annual variation in numbers, one cannot conclude that a species is “determined absent.” All that can be done is to state that the species was not found during a certain duration and intensity of searching. It is likely that the survey methodology did not possess sufficient statistical power to detect the species.²¹ Presence may be determined conclusively, but absence cannot, especially for cryptic (i.e., small or camouflaged) species. Some degree of certainty about absence could be derived if one had knowledge of the population size, yearly variation in population size of the species, and the trapping efficiency of the survey methods. This information is not available, and therefore no statistically defensible declaration of absence can be made about the sensitive arthropod species.

In other instances, the declaration of absence is contradicted by the reports upon which the section is based. For example, Table 4.10-2 claims that the following species are absent from the Master Plan boundaries: Henne’s ecosman moth (*Eucosa hennei*), Rivers’ dune moth (*Euxoa riversii*), Ford’s sand dune moth (*Psammobotrys fordii*), El Segundo scythrid moth (*Scythris new sp.*), lesser dunes scythrid moth (*Scythris new sp.*), El Segundo goat moth (*Comadia intrusa*), and Santa Monica dunes moth (*Copeblepharon sanctamonicae*). However, in the underlying report, Frank Hovore, the surveyor, writes:

Sensitive moth species (general *Comadia*, *Copeblepharon*, *Euxoa*, *Psammobotrys* [sic], *Scythris*) — A wide variety of moth specimens, including some possibly representing all of these species except *Psammobotrys* [sic], were taken in light traps, but moths in the traps were rendered unidentifiable by the combination of alcohol and churning actions of other species. All of the moth species previously known to occur on the dunes probably persist, because all of the known larval hosts are present. For most moth species, focused light collecting would be necessary to determine presence and distribution, using dry traps or light sheets. Very large numbers of *Psammobotrys* [sic] were collected on the dunes historically (LACM collection), and it is assumed that this species is present, but is highly seasonal and difficult to collect without sustained and focused field efforts.²²

The text presented in Table 4.10-2 of the EIS/R contradicts the surveys that were conducted. Far from being absent, as maintained in Table 4.10-2, a qualified surveyor determined that the methodology was insufficient to determine presence of these moth species, but that the species were indeed probably

20. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 342 (Memo-Aircraft Bird Strike Literature Review).

21. Gibbs, J.P., S. Droege, and P. Eagle. 1998. Monitoring populations of plants and animals. *Bioscience* 48(1):935-940.

22. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 214 (Memo-Results of Spring Surveys for Gastropods and Arthropods, 1998).

present. Mischaracterization such as this undermines the credibility of the description of current conditions presented in the EIS/R.

2.3 Terminology

The EIS/R is inconsistent in its use of terminology describing the 100 acres north of the El Segundo Blue Butterfly Preserve. This area, along with the preserve, is part of the El Segundo Dunes.²³ It has been degraded through residential construction and intrusion of exotic plant species, but it remains of significant biological value and is itself a sensitive habitat (see above, Section 1.2). In various places in the EIS/R, this area is referred to as “dunes and adjacent landforms,” “non-restructured dunes,”²⁴ “100 acres north of Sandpiper Street,”²⁵ and “the 100-acre open space north of the preserve.”²⁶ Implicit in the choice of terminology for this area is perhaps the intention to construct a golf course upon it. The Los Angeles Airport/El Segundo Dunes Specific Plan, adopted in 1992, incorrectly claims that “approximately 100 acres of the Dunes ... do not contain significant habitat resources.”²⁷ The Specific Plan requires the proposed golf course to provide revenue for the upkeep of the dunes habitat preserve,²⁸ thereby lifting that burden from LAWA, which perhaps partially explains LAWA’s enthusiasm for the idea. However, existing zoning for the area — established more recently than the Specific Plan — is as a nature preserve. EIS/R maps should be consistent with the existing “nature preserve” zoning and should consistently acknowledge this area as part of the El Segundo Dunes.

The EIS/R also exhibits some difficulty with terminology to describe the habitat that formerly was found throughout the entire project area inland of the El Segundo Dunes. In a published article, Mattoni and Longcore describe this area as the Los Angeles Coastal Prairie, and document the historic plant diversity and the presence of extensive vernal pools.²⁹ The article has been commended as an exemplar of the practice of historical ecology in *The Historical Ecology Handbook: A Restorationist's Guide to Reference Ecosystems*.³⁰ For some reason, the EIS/R avoids using the Mattoni and Longcore article where it could be useful. For example, Mattoni and Longcore provide documentation of many sensitive species historically present within the study area from herbarium label texts. This includes a full list of vernal pool species historically found in the area, as well as upland forbs, grasses, and shrubs. Instead, the EIS/R chooses to classify the site as Valley Needlegrass Grassland. The historic evidence does not support the assumption that this area was dominated by perennial grasses; rather it was dominated by forbs. This is an important conclusion of Mattoni and Longcore’s research that the EIS/R neither accepts nor attempts to dispute.

23. Mattoni, R.H.T. 1992. The endangered El Segundo blue butterfly. *Journal of Research on the Lepidoptera* 29(4):277–304. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles Coastal Prairie, a vanished community. *Crossosoma* 26(2):71–102. U.S. Fish and Wildlife Service. 1998. *Recovery plan for the El Segundo blue butterfly (Euphilotes battoides allyni)*. U.S. Fish and Wildlife Service, Portland, Oregon, 67 pp.

24. EIS/R, p. 4-619.

25. EIS/R, p. 4-614 (this is listed separately from “the Los Angeles/El Segundo Dunes”).

26. EIS/R, p. 3-20.

27. City of Los Angeles General Plan, Los Angeles Airport/El Segundo Dunes Specific Plan. Ordinance No. 167,940. June 28, 1992.

28. *Id.* at 6.

29. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles Coastal Prairie, a vanished community. *Crossosoma* 26(2):71–102.

30. Egan, D., and A. Howell. 2001. Introduction. Pp. 1–23 in D. Egan and A. Howell (eds.) *The Historical Ecology handbook: a restorationist's guide to reference ecosystems*. Washington, D.C.: Island Press.

2.4 Disturbed Dune Scrub/Foredune

Concurrent with the changing terminology about the portion of the El Segundo Dunes not found within the habitat preserve is the decision to classify all dune scrub/foredune outside of the preserve area as disturbed dune scrub. While it is true that the dunes area outside the habitat preserve has a heavier exotic species load, and does not support coast buckwheat (*Eriogonum parvifolium*), it nevertheless has more biological value than is implied by the description. For example, this area supports sensitive plants (Lewis' evening primrose, *Camissonia lewisii*), birds (loggerhead shrike, *Lanius ludovicianus*), and arthropods (see above, Section 1.2). Mattoni et al. describe the ex-residential area in their 2000 article:

Removal of the residences in the 1970s was superficial, leaving some foundations, substantial rubble, foreign soil, roads, and other infrastructure. Vegetation regenerated without assistance, producing a cover of predominately iceplant (*Carpobrotus edulis*) and acacia (*Acacia cyclopis*) with patches of a few highly dispersive dune shrub species.³¹

However, not all ex-residential sites supported the same arthropod communities. Some sites within the ex-residential area supported terrestrial arthropod communities (including rare and sensitive species) that were similar to those found on undisturbed foredune and undisturbed backdune sites.³² This variation in the vegetation and associated wildlife across the 100 acres should be reflected in the EIS/R. The wholesale characterization of the area as "disturbed dune scrub/foredune" is misleading in terms of its value to the dune system and proper statutory designation as an ESHA.

2.5 El Segundo Blue Butterfly

Much ado is made over the population size of the El Segundo blue butterfly ("ESB"). However, the methodology used to calculate population size by LAWA is flawed and overestimates population size by at least 400%. While many methods to track trends in butterfly population size exist in the scientific literature,³³ when LAWA hired consultants in 1994 to prepare the EIS/R, they inexplicably used none of the established methods. While consultants continued walking a transect to count butterflies established by Mattoni in 1984, they stopped conducting surveys throughout the entire season. It is absolutely

31. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445-452, at 446.

32. *Id.* at Table 1, Figure 2.

33. Pollard, E., D.O. Elias, M.J. Skelton, and H.A. Thomas. 1975. A method of assessing the abundance of butterflies in Monks Wood National Nature Reserve in 1973. *Entomologist's Gazette* 26:79-88. Pollard, E. 1977. A method for assessing change in the abundance of butterflies. *Biological Conservation* 12:115-132. Pollard, E. 1984. Synoptic studies of butterfly abundance. Pages 59-61 in R.I. Vane-Wright and P.R. Ackery (eds.) *The biology of butterflies*. Academic Press, London. Pollard, E. 1988. Temperature, rainfall and butterfly numbers. *Journal of Applied Ecology* 25(3):819-828. Zonneveld, C. 1991. Estimating death rates from transect counts. *Ecological Entomology* 16:115-121. Moss, D., and E. Pollard. 1993. Calculation of collated indices of abundance of butterflies based on monitored sites. *Ecological Entomology* 18(1):77-83. Pollard, E., D. Moss, and T.J. Yates. 1995. Population trends of common British butterflies at monitored sites. *Journal of Applied Ecology* 32(1):9-16. Van Strien, A.J., R. Van De Pavert, D. Moss, T.J. Yates, C.A.M. Van Swaay, and P. Vos. 1997. The statistical power of two butterfly monitoring schemes to detect trends. *Journal of Applied Ecology* 34(3):817-828. Brown, J.A., and M.S. Boyce. 1998. Line transect sampling of Karner blue butterflies (*Lycaeides melissa samuelis*). *Environmental and Ecological Statistics* 5(1):81-91. Royer, R.A., J.E. Austin, and W.E. Newton. 1998. Checklist and "Pollard walk" butterfly survey methods on public lands. *American Midland Naturalist* 140(2):358-371. King, R.S. 2000. Evaluation of survey methods for the Karner blue butterfly on the Necedah wildlife management area. *Transactions of the Wisconsin Academy of Sciences Arts and Letters* 88:67-75.

essential to survey throughout the flight season of the butterfly to obtain an estimate of total population size. Furthermore, rather than using an established method to analyze transect counts, Dr. Andrew Huang, an engineer at LAWA, constructed his own method to estimate population size. This method is flawed, and these flaws were explained by Dr. Travis Longcore to Dr. Huang in an email earlier this year, portions of which bear repeating here. The message describes methods used to estimate population size of the ESB by Longcore and others in a scientific article that was at that time in review and has subsequently been accepted for publication in an international scientific journal, the *Journal of Insect Conservation*.

The first method [of calculating population size] was the Pollard Index, which is quite straightforward and about which there can be no argument. There is not a lot of latitude in summing the average weekly count over the course of the season.

The second method is essentially the same as your numerical approximation. This method is first used, albeit with different data sources, by Watt et al in 1977 (Watt, Ward B., Frances S. Chew, Lee R. G. Snyder, Alice G. Watt, and David E. Rothschild. 1977. Population structures of Pierid butterflies I. Numbers and movements of some montane *Colias* species. *Oecologia* 27:1-22.) Watt et al. estimated "total animals [butterflies] present in the brood" by estimating daily butterfly numbers through MRR and extrapolation, summing them to calculate total animal-days, and multiplying this number by the death rate (determined by MRR). Dividing by the longevity (or residence time) would yield the same result. This is what we did, using Arnold's 1979 residence time estimates (ave 6.1 days). Your model does not divide by average longevity, but rather another figure. This is what I don't understand. What is wrong with the logic (used by Watt et al. as well) that the total brood size is equal to the total number of butterfly-days divided by the average butterfly longevity?

$$\frac{\text{butterfly-days}}{\text{longevity (days)}} = \text{butterflies}$$

Your model does something similar, calculating total butterfly days by integrating under the curve (gaussian or not) and dividing by a figure. The question, and the crux of the differences in our results, is the number that you divide by, which is 1.59. You get your number by parameterizing based on the recapture rates. I think the difficulty with this is that you do not know the age of the butterflies that were initially captured. Your method would work if all of the butterflies captured by Arnold on the first day were freshly eclosed adults. However, they cannot be. Some of them will be one, two, or more days old. Failure to account for this will skew your estimate of longevity downwards, and your total population estimate upwards. Now, I am going to guess that you will say that 1.59 days is not the longevity. But if it is not, what is it? Can you see a flaw in the logic of the Watt et al. method or otherwise reconcile it with your method?

One last thing on this method. Our application of it gave a population estimate for 1984 at LAX of 432, while Arnold's MRR estimate was 664, and the Zonneveld model estimated 910. Application of your method would give an estimate of 1,658. (Note: in case you want to calculate these numbers, with the exception of Arnold's estimate, they include an adjustment for the number of flowerheads) (Arnold, R.A. (1986) Studies of the El Segundo blue butterfly - 1984. Inland Fisheries Administrative Report 86-4.)

The third method that we used was the Zonneveld model. What is interesting is that our estimates of death rate (3.3-5.9 days), which vary from year to year, are similar to those given by Arnold (2.3-7.3 days) from MRR. We followed the model as set out by Zonneveld in the 1991 paper. We did not doubt the magnitude of the results because of the correspondence with the Watt et al method, the Pollard index, and the reasonableness of the longevity estimates.³⁴

34. Longcore, T. 6 March 2001. Email to Dr. A. Huang.

Dr. Huang did not defend his method, stating in a response to Dr. Longcore, “You have raised many outstanding issues. ... I am very busy with a number of projects. I won’t be able to respond to your questions for awhile.”³⁵ To date, he has not provided a substantive response. The EIS/R should therefore be adjusted to reflect El Segundo blue butterfly population numbers that are calculated using the best available scientific methods. Three methods of evaluating the transect counts are given in the *Journal of Insect Conservation* paper, the proofs of which are appended to this report.³⁶

As is evident from the literature about butterfly population size estimation,³⁷ the block counts promoted in the EIS/R are useful only to determine presence of the butterfly, not to estimate population size. The most perplexing part of the discussion of ESB population size by LAWA, both in reports by its consultants and in the EIS/R, is that none of the relevant scientific literature is referenced. Butterflies are conspicuous organisms, and schemes were developed in the 1970s to track population size, yet these are ignored. Sometimes remaking the wheel can lead to innovation, but in this instance it has led to confusion and the propagation of the myth that there are 40,000–80,000 El Segundo blue butterflies on the LAWA property. For example, LAWA claims that in 1998 there were roughly 12,000 ESB along the transect,³⁸ while proper analysis of the data indicates a population of $3,356 \pm 805$ S.D.³⁹ Similarly extravagant claims for the period 1996–2000⁴⁰ should be revised.

The EIS/R discussion of the ESB population size provides a diversion from the real issues at hand. Recovery of the species and downlisting from endangered to threatened status requires securing all of the El Segundo Dunes, including that area not currently in the habitat preserve.⁴¹ The 200-acre preserve is still vulnerable to disease, adverse weather, fire, and other accidents. Long-term extinction risk for the butterfly can be minimized through increasing habitat area, not simply by relying on existing areas to provide spectacular numbers. Furthermore, concentration on the El Segundo blue butterfly draws attention away from the ten other endemic invertebrates found on the dunes whose continued persistence depends on habitat values beyond those needed to maintain the butterfly.⁴²

LAWA’s persistent strategy has been to focus on the butterfly and the 200-acre preserve to the exclusion of all else. For example, in the above-described Waterview Street Landscaping Project, LAWA’s main claim in support of the project was that it did not affect the butterfly preserve or the butterfly. None of the appellants had argued that the project directly affected the butterfly, and pointed instead to the other sensitive species and habitats found on the project site. This notwithstanding, there are legitimate impacts to the El Segundo blue butterfly that would result from the alternatives in the EIS/R.

35. Huang, A. 7 March 2001. Email to Dr. T. Longcore.

36. Mattoni, R., T. Longcore, C. Zonneveld, and V. Novotny. 2001. Analysis of transect counts to monitor population size in endangered insects: the case of the El Segundo blue butterfly, *Euphilotes bernardino allyni*. *Journal of Insect Conservation* 5(3):197–206.

37. *Id.*

38. Huang, A. November 25, 1998. Estimate of LAX El Segundo Blue Butterfly (ESB) Population (unpublished report).

39. Mattoni, R., T. Longcore, C. Zonneveld, and V. Novotny. 2001. Analysis of transect counts to monitor population size in endangered insects: the case of the El Segundo blue butterfly, *Euphilotes bernardino allyni*. *Journal of Insect Conservation* 5(3):197–206, at Table 2.

40. EIS/R, Appendix J1. Biological Assessment Technical Report, Table 4.

41. U.S. Fish and Wildlife Service. 1998. *Recovery plan for the El Segundo blue butterfly (Euphilotes battoides allyni)*. U.S. Fish and Wildlife Service, Portland, Oregon, 67 pp.

42. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445–452, at 450.

3.0 Assessment of Impacts

While the EIS/R identifies impacts to biological resources, its improper quantification of those impacts results in an underestimation of the actual biological consequences of the build alternatives and ultimately the incorrect conclusion that those impacts can be mitigated to a less than significant level.

3.1 Direct Impacts

The EIS/R uses what it calls a “modified Habitat Evaluation Procedure” to determine impacts on sensitive vegetation types and to quantify impacts to habitats of sensitive species.⁴³ This procedure is supposedly based on “Habitat Evaluation Procedures” (“HEP”)⁴⁴ previously developed by the U.S. Fish and Wildlife Service that have some degree of scientific validity and history of usage.⁴⁵ However, the methodology employed in the EIS/R uses the name of this procedure without incorporating any of the essential elements of the analysis. By comparing existing habitat for sensitive species against an abstracted, ideal habitat type, the EIS/R argues that loss of up to 500 acres of habitat for sensitive species can be mitigated by “improving” 100 acres of land already in a nature preserve. This conclusion is not supported by any accepted methodology of impact assessment and seems to have been specifically designed to underestimate the actual impacts to sensitive species at LAX.

HEP was designed for use with target species by the U.S. Fish and Wildlife Service in the 1970s to provide a form of standardization and comparability for environmental analysis. In HEP implementation, the term “habitat” is defined as the biophysical requirements of an individual species (e.g., bald eagle habitat), not as a general term synonymous with vegetation type (e.g., grassland habitat). The U.S. Fish and Wildlife Service states this in the guiding policies for HEP implementation:

HEP is a species-habitat approach to impact assessment; and habitat quality for selected evaluation species is documented with an index, the Habitat Suitability Index (HSI). This value is derived from an evaluation of the ability of key habitat components to supply the life requisites of selected species of fish and wildlife.⁴⁶

The explicit species-based approach of the HEP is apparent in the manual describing the procedure:

HEP is a species-based assessment methodology. It is applicable only for the species evaluated and does not directly relate that species with other ecosystem components. HEP conceptually addresses only the issues of species populations and habitats.⁴⁷

The “modified” HEP in the EIS/R does not establish which species will be used to evaluate the value of the reference sites, nor does it create HSIs for them. Rather, it sets habitat evaluation standards based on an “optimal” site with “a multitude of floral and faunal species.”⁴⁸

43. EIS/R, p. 4-615.

44. The EIS/R refers to a “Habitat Evaluation Procedure” in the singular form, while the U.S. Fish and Wildlife Service manual calls the method “Habitat Evaluation Procedures” in the plural form. We abbreviate both as “HEP” and treat the acronym as a singular noun indicating a methodology.

45. For example, see Johnson, T.L., and D.M. Swift. 2000. A test of a habitat evaluation procedure for Rocky Mountain bighorn sheep. *Restoration Ecology* 8(4S):47–56.

46. U.S. Fish and Wildlife Service. 1996. Fish and Wildlife Service manual, 870 FW 1, Habitat Evaluation Procedures. [online at <http://policy.fws.gov/870fw1.html>].

47. U.S. Fish and Wildlife Service. 1980. Habitat as the Basis for Environmental Assessment, 101 ESM.

The “modified” HEP does not provide information about the value of habitats within the subject site for several of the sensitive species found there. For example, it does not consider the habitat requirements of loggerhead shrike (*Lanius ludovicianus*) or black-tailed jackrabbit (*Lepus californicus bennettii*). It assigns values of 0.25 for vegetation types that are occupied by these species (Non-Native Grassland/Ruderal). By definition under a true HEP, occupied sites would score much higher. By “modifying” the HEP to address an abstract ideal habitat, actual habitat values to sensitive species are ignored (see below, Table 1).

In fact, the “modified” HEP resembles actual HEP implementation only superficially, in that values between 0 and 1 are assigned to certain arbitrary standards for vegetation types within the study area. None of the essential features of HEP are present in the modified method; the “modified” HEP therefore does not provide the basis for impact assessment in the project area.⁴⁹

Not only is the “modified” HEP quite different from the actual procedure, the standards used to evaluate habitats do not reflect ecological value. This problem derives from the physical and biologic criteria used to evaluate habitat and the so-called “ecosystem functional integrity” components of the analysis. Rather than using target species and HSIs to characterize vegetation types as required in HEP, the EIS/R evaluates whether each of the vegetation types in the project area meets the characteristics found in a “reference site.” The habitat type chosen for this standard is that of Valley Needlegrass Grassland/Vernal Pool complex⁵⁰ (i.e., Los Angeles Coastal Prairie). For some inexplicable reason, all habitats are measured against this standard, including Southern Fore dune, Southern Dune Scrub, and Disturbed Dune Scrub/Fore dune. Of course these dune habitats do not have features found in a needlegrass grassland/vernal pool complex. Therefore, because of their failure to have vernal pools and associated species, these vegetation classifications are assigned lower habitat values, 0.35 for both Southern Dune Scrub and Disturbed Dune Scrub/Fore dune, and 0.45 for Southern Fore dune. These values are ludicrous, first because habitat values and “Habitat Units” are supposed to be relevant to individual species, and second because one vegetation type is measured by the features of another. *The analysis succeeds only in illustrating that dune habitats are not the same as vernal pool/grassland complexes.*

The portion of habitat value deriving from “ecosystem functional integrity” is another wholesale creation of the EIS/R. These standards are not part of HEP, and the choice of standards is arbitrary, with little to do with the sensitive species and vegetation types under analysis. Whether a site is “under regulatory conservation” does not necessarily have anything do with the ecological value of its vegetation type to sensitive species. Similarly, “contiguity with state-designated habitat” is not an ecological criterion. “Variety of pollinator/dispersal mechanisms present” is oriented toward vernal pool habitats, and the choice of “contiguous native habitat >40 acres” is arbitrary. Throughout, the analysis avoids recognition that sensitive plants and wildlife utilize habitats that are not dominated by native species. Loggerhead shrikes forage in ruderal and non-native grasslands as well as in dune scrub. Jackrabbits are thriving in an area with little native plant component. A true HEP would calculate the value of the areas being utilized by carefully selected individual species and use those values to quantify impacts. The EIS/R’s “modified” HEP is fatally flawed and must either be revised to follow established procedure, or be abandoned.

48. EIS/R, p. 4-616.

49. U.S. Fish and Wildlife Service. 1980. Habitat Evaluation Procedures (HEP), 102 ESM.

50. EIS/R, p. 4-615.

3.1.1 Sensitive Vegetation Types

With the exception of the ambiguous treatment of the 100 acres on the northern portion of the El Segundo Dunes, the EIS/R claims not to be proposing direct impacts to sensitive vegetation types. The vegetation types to be removed by the three build alternatives are 306–404 acres of Non-Native Grassland/Ruderal and 60–96 acres of Disturbed/Bare Ground. Although these are not sensitive vegetation types, they are used extensively by sensitive species. Whereas the impacts of removal are to sensitive species, the EIS/R proposes mitigation of abstract “Habitat Units” using the “modified” HEP. The result of the use of the “modified” HEP is to underestimate the effects on the species that use these habitats. The “modified” HEP does not evaluate the value of non-native grassland and disturbed areas to each of the species involved, but rather compares those habitats against an idealized habitat. This allows the EIS/R to state losses and to mitigate in “Habitat Units” instead of acres. ***“Habitat Units” calculated in the HEP do not reflect the value of the habitats to the sensitive species.*** The EIS/R considers these “Habitat Units” as fungible entities, and thereby proposes to mitigate effects to one vegetation type by enhancing another habitat type. Also, by ranking vegetation types on the dunes by comparing them with Valley Needlegrass Grassland/Vernal Pool complex, the EIS/R creates an artificial deficit of “Habitat Units” within the dunes area. The EIS/R then proposes to mitigate for the loss of Non-Native Grassland (occupied by sensitive species) by enhancing the habitat within the already-preserved and restored area of the El Segundo Dunes. If one accepts the logic of the EIS/R’s HEP and mitigation scheme, the loss of Non-Native Grassland can be mitigated by making the El Segundo Dunes more like a Valley Needlegrass Grassland/Vernal Pool complex. (The EIS/R actually claims to restore these areas to Southern Dune Scrub, but does not reconcile that the “deficit” in habitat values on the dunes was caused by the “failure” of dune scrub to have vernal pool/grassland characteristics.) So by the twisted logic of the “modified” HEP, the loss of 366–500 acres of vegetation types occupied by sensitive species putatively can be mitigated by “improving” roughly 100 acres already protected as a nature reserve or zoned as such.⁵¹ Because the “modified” HEP does not measure habitat values for the sensitive species involved, the description of impacts in terms of “Habitat Units” will drastically underestimate the impacts to those vegetation types. Again, it must be noted that the procedure used in the EIS/R *has no basis in scientific literature* and resembles the actual HEP in name only.

All alternatives propose the removal of sensitive habitats within the El Segundo Dunes to allow construction of navigational aids. These impacts range from 640–1,344 square feet. While this does constitute a significant impact, it is dwarfed in comparison to the other direct and indirect impacts proposed under the three build alternatives.

The discussion of acreage and “Habitat Units” lost under each alternative is not clear with respect to the Westchester Southside Project. Some impacts from the Westchester Southside Project are included (e.g., loss of mature trees), but the effects of the “Resort Hotels” and golf course/open space development are not discussed. The No Action/No Project Alternative explicitly includes the loss of habitat from the LAX Northside and Continental City projects. As mentioned above, this improperly assumes completion of the LAX Northside Project even though changed conditions should result in reopening of the environmental analysis. Inclusion of these speculative developments as part of the No Project alternative serves only to make the impacts of the Master Plan alternatives appear smaller.

51. While there are certainly adequate opportunities to enhance the habitat on the El Segundo Dunes through road/infrastructure removal and revegetation, the area available is simply inadequate to compensate for the loss of sensitive species habitat under the three build alternatives.

The EIS/R mentions but does not discuss adequately one impact of the Westchester Southside development: the removal of 300 mature trees that are used as “nursery” sites for raptors.⁵² The biological appendix contains no reference to this impact, or the abundance and species of raptors involved.⁵³ Neither is a description immediately apparent in the “Biological Resources Memoranda for the Record on Floral and Faunal Surveys.”⁵⁴ The EIS/R should contain a full description of the species of raptors involved, their relative abundance, the location of the trees, and behaviors observed to allow a full evaluation of the impacts.

3.1.2 Sensitive Species

The faulty “modified” HEP results in the underestimation of impacts on sensitive species in the EIS/R. The statement of the impacts to populations are low, which results in improper conclusions about mitigation (see below, Section 4.0).

Lewis’ evening primrose (*Camissonia lewisii*). All alternatives acknowledge direct impacts to Lewis’ evening primrose. This is expressed in terms of the number of individuals that would be affected. While the number of individuals is important, the area that these individuals occupy is as important to the conservation of the species. However, the map showing the distribution of the species indicates locations only on the El Segundo Dunes west of Pershing Drive. No indication is given of the location of areas occupied east of Pershing Drive, which total 2.5 acres.⁵⁵ Populations separated from one another offer some degree of insurance against catastrophic losses at individual sites. The complete geographic distribution of the species at LAX should be provided in the EIS/R.

Belkin’s tabanid dune fly (*Brennania belkini*). The EIS/R does not acknowledge the loss of habitat for the Belkin’s tabanid dune fly, which is a sensitive species.⁵⁶ This species was recorded as present in the “north runway expansion area.”⁵⁷ The report indicates that the species may disperse into suitable habitat areas. The presence of this dune-associated species and the sensitive Lewis’ evening primrose in the north runway expansion area suggests that this area has a substrate suitable for dune obligate species. This may be the result of previous grading, but the value of this site to these and other sensitive species (e.g., potentially El Segundo crab spider, *Ebo* new sp.⁵⁸) should be noted.

San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). The EIS/R acknowledges direct impacts to the habitat of this species, west of the southern runway, east of Pershing Drive. Each of the alternatives would result in the loss of 118.75 acres of occupied area, consisting of the entire population at LAX. The EIS/R maintains that these 118.75 acres equal 14.91 “Habitat Units,” or roughly 15 acres of ideal vernal pool/grassland complex. As discussed above, this conversion to “Habitat Units” is misguided and wrong. Only two of the sixteen standards for calculating “Habitat Units” are even remotely related to the value of these areas to black-tailed jackrabbit.

52. EIS/R, pp. 4-657, 4-658, 4-663.

53. EIS/R, Appendix J1. Biological Assessment Technical Report.

54. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys.

55. EIS/R, p. 4-664.

56. California Department of Fish and Game Natural Diversity Database. 1999. Special Status Plants, Animals and Natural Communities of Los Angeles County. U.S. Fish and Wildlife Service. 1998. *Recovery plan for the El Segundo blue butterfly (*Euphilotes battoides allyni*)*. U.S. Fish and Wildlife Service, Portland, Oregon, 67 pp.

57. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 213.

58. *Id.* at 209.

Table 1. Relevance of “Modified” Habitat Evaluation Procedure Standards to Two Sensitive Species

HEP Standards	Relevance to value of area as black-tailed jackrabbit habitat	Relevance to value of area as loggerhead shrike habitat
TOPOGRAPHY		
Mound-depression microrelief	None. Species occurs in a variety of topographic conditions.	None
Native soils w/ slope <10%	None	None
Areas w/ period of inundation ≥ 30 days	None. Can serve as vectors for seed dispersal between vernal pools, but not necessary for habitat. ⁵⁹	None
Summer desiccation	None	None
FLORA		
>10% vegetative cover	Some. Forage and cover must be present.	Some. Vegetation must support prey populations.
Native grasses >10%	None. Will forage on all manner of grasses, forbs, and shrubs. ⁶⁰	None
Vernal pool associated species	None	None
Listed vernal pool associated species	None	None
FAUNA		
Domination of native fauna (reproducing)	None	None
Grassland associated species (reproducing)	None	None
Sensitive vernal pool associated species	None	None
Listed vernal pool associated species	None	None
ECOSYSTEM FUNCTIONAL INTEGRITY		
Contiguity w/ wetland and State-designated sensitive terrestrial habitat	None	None
Designated sensitive terrestrial habitat	None	None
Under regulatory conservation	None	None
Variety of pollinator/dispersal mechanisms present (wind, wildlife)	None. Is itself a dispersal agent.	None
Contiguous native habitat > 40 acres	Potentially important. Size of habitat, whether native or not, is important.	Potentially important. Size of habitat, whether native or not, is important.

The conversion of occupied area to “Habitat Units,” based on the standards listed here, is a misapplication of HEP. The extent of habitat loss to the species is on the order of 119 acres. The use of improperly-defined “Habitat Units” to quantify this loss implies that 15 acres of ideal vernal pool/grassland could support as many black-tailed jackrabbits as 119 acres of non-native grassland.

59. Zedler, P.H., and C. Black. 1992. Seed dispersal by a generalized herbivore: rabbits as dispersal vectors in a semiarid California vernal pool landscape. *The American Midland Naturalist* 128(1):1–10. (Jackrabbits play a similar role in the vernal pool landscape.)
 60. Johnson, R.D., and J.E. Anderson. 1984. Diets of black-tailed jack rabbits in relation to population density and vegetation. *Journal of Range Management* 37(1):79–83. MacCracken, J.G., and R.M. Hansen. 1982. Herbaceous vegetation of habitat used by blacktail jackrabbits and Nuttall cottontails in southeastern Idaho. *American Midland Naturalist* 107(1):180–184. Jameson, E.W., Jr., and H.J. Peeters. *California mammals*. Berkeley: University of California Press.

This is not possible; 15 acres is substantially smaller than the smallest recorded home range for the species (256 acres).⁶¹

Surveys determining the area occupied by black-tailed jackrabbit may underestimate the area currently occupied. Research indicates that jackrabbits may move from 2 to 10 miles during a day, from shrub cover where the species conceals itself during the day, to foraging habitat in the late afternoon and evening.⁶² The EIS/R does not provide sufficient survey information to establish if the grasslands and disturbed areas to the west of the southern runways provide only foraging habitat, and whether other locations (e.g., El Segundo Dunes) are already occupied at different times of the day. This is also suggested by studies of home range. In a study of big sagebrush and black greasewood, black-tailed jackrabbit ranges were larger (256–768 acres)⁶³ than the presumed occupied area at LAX (119 acres). This raises the question whether the species actually occupies a greater area at LAX, especially during the night and crepuscular periods when no surveys were undertaken.

Loggerhead shrike (*Lanius ludovicianus*). The same difficulties found quantifying habitat of black-tailed jackrabbit are found with description of impacts to loggerhead shrike. According to the EIS/R, the species currently occupies 171.86 acres that would be unusable following implementation of any of the project alternatives. (Such precision in habitat quantification is illusory; the EIS/R extrapolates occupied area by vegetation type, providing an *estimate* of habitat area that may differ from the area actually utilized.) Similarly, the EIS/R claims that this impact equals 22.88 “Habitat Units,” suggesting that roughly 23 acres of optimum habitat could mitigate for the loss of 172 acres of occupied habitat. This is false, and grossly underestimates the impacts to the species. No data are provided that link vegetation type to shrike density, as would be necessary to support this claim. The HEP standards are no more relevant to loggerhead shrike than they are to black-tailed jackrabbit. Unless an actual Habitat Suitability Index is developed for loggerhead shrike, all discussion of direct impacts should refer to the area of occupied habitat destroyed, not to the hypothetical “Habitat Units.” It is furthermore unclear whether the area of the Westchester Southside Project was surveyed, and whether these impacts are included.

Burrowing owl (*Athene cunicularia*). Surveys located burrowing owls within the project boundaries, though found no direct evidence of breeding. The EIS/R claims that the species “was determined not to breed within the Master Plan boundaries.”⁶⁴ This contradicts the previous assessment made by EIS/R consultant Jim Jennings, who concluded that “there is the potential that they may still breed in the project area.”⁶⁵ Because burrowing owl densities fluctuate from year to year, burrowing owls were observed in the project area, and potential burrow sites were found, the conservative approach would be to implement measures to ensure the conservation of the species. This species has recently lost much of its local habitat and if extirpated from the project site will disappear from west Los Angeles as a whole.

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61. Smith, G.W. 1990. Home range and activity patterns of black-tailed jackrabbits. *Great Basin Naturalist* 50(3):249–256. This study found home ranges of 0.4–1.2 square miles for big sagebrush and black greasewood communities in northern Utah. Many factors may allow higher densities at LAX, such as more forage provided by dense non-native grasses and forbs, but there is no evidence that 15 acres of even the best habitats could compensate for the loss of 119 acres.
 62. Dunn, J.P., J.A. Chapman, and R.E. Marsh. 1982. Jackrabbits: *Lepus californicus* and allies. Pp. 124–125 in J.A. Chapman, and G.A. Feldhamer (eds.). *Wild mammals of North America: biology, management and economics*. Baltimore: The Johns Hopkins University Press.
 63. Smith, G.W. 1990. Home range and activity patterns of black-tailed jackrabbits. *Great Basin Naturalist* 50(3):249–256.
 64. EIS/R, Tables 4.10-2, 4-630.
 65. EIS/R, Technical Report 7. Biological Resources Memoranda for the Record on Floral and Faunal Surveys, p. 463.

Western spadefoot toad (*Spea hammondi*). The EIS/R reports that the proposed project alternatives will destroy four seasonal ponds occupied by western spadefoot toads on the south airfield.⁶⁶ These populations number at least several hundred adults and all would be destroyed by the various project alternatives. The EIS/R estimates occupied area as 8.97 acres of ephemeraally wetted areas and adjacent upland habitats. Spadefoot toads require upland habitats surrounding their aquatic habitat.⁶⁷ It is unclear how this area was determined for the EIS/R. Critically important in the analysis is that the species is found in four separate areas. Even though the areas are close to each other, the existing configuration of habitat patches is important to reduce risk to the species from a catastrophic event (e.g., chemical spill, disease). Depending on the separation of the pools, there may still be genetic exchange among the populations in each. These risk dynamics should be considered when evaluating the impact on the species and potential mitigation measures. Loss of the LAX population of western spadefoot toad would cause a significant restriction of the range of the species.

Riverside fairy shrimp (*Branchinecta sandiegoensis*). LAX represents the only known coastal population of Riverside fairy shrimp in Los Angeles County. Loss of this population, which is spread among nine sites on the western portion of the property, would be a significant impact. The EIS/R asserts that because the sites where fairy shrimp cysts were found do not have characteristic vernal pool plants, no suitable habitat is found for the species. This conclusion is false — fairy shrimp require vernal pool hydrology, not vernal pool plants, for their existence. This condition would exist, were the management practices at LAX to remove standing water in these pools. It is indeed LAWA's own management scheme that prevents Riverside fairy shrimp from completing its life cycle; LAWA, therefore, should incur liability for "take" of the species under the Endangered Species Act. LAWA fails to recognize that once the presence of fairy shrimp cysts was detected in the vernal pools at LAX, the airport should have ceased its activities that inhibited the life cycle of the species. Instead, the proposal is to destroy all of the areas currently occupied.

The description of acreage for this species does not seem to include the size of the cachmentments necessary to fill the "ephemeraally wetted areas." These areas are necessary to formulate appropriate mitigation measures and evaluate impacts.

The EIS/R is insistent that "there are no extant vernal pools within the [Airport Operations Area]."⁶⁸ This statement is meant within the definition of vernal pools as a vegetation type. However, the term "vernal pool" may be used to refer to pools with standing water during the winter and spring, regardless of the presence of certain plant species. As defined by the U.S. Fish and Wildlife Service, "a vernal pool is a natural habitat of the Mediterranean climate region of the Pacific coast covered by shallow water for extended periods during the cool season but completely dry for most of the warm season drought."⁶⁹ The definition of the term is hydrological, not botanical. The EIS/R should therefore explicitly disclose that the statement "no vernal pools" refers to a botanical definition. Given the near complete destruction of vernal pools in Los Angeles County,⁷⁰ even loss of sites with vernal pool

66. *Id.* at 248.

67. Ruiibal, R., L. Trevis, and V. Roig. 1969. The terrestrial ecology of the spadefoot toad *Scaphiopus hammondi*. *Copeia* 572-584.

68. EIS/R, p. 4-691.

69. Zedler, P.H. 1987. *The ecology of southern California vernal pools: a community profile*. U.S. Fish and Wildlife Service Biological Report 85(7.11), p 1.

70. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles Coastal Prairie, a vanished community. *Crossosoma* 26(2):71-102.

hydrology and any remnant species (plant or invertebrate) represents a significant impact. The EIS/R emphasizes that Riverside fairy shrimp habitat is degraded through the presence of exotic plant species, presumably to suggest how much better mitigation sites will be than current conditions. However, the degradation of the habitat by exotic plant species is irrelevant to the quality of the pool as habitat for Riverside fairy shrimp. Other degradation to the habitat results directly from LAWA's management;⁷¹ this degradation is avoidable.

3.2 Indirect Impacts

As a whole, indirect impacts are not well described in the EIS/R. Those that are described are dismissed with little or no data offered in support, leaving the probability of much greater indirect impacts from the project alternatives than those disclosed.

3.2.1 Light

Night lighting has an effect on bird species composition in an area. A study in Sacramento showed that American crows (*Corvus brachyrhynchos*) roost in areas with high nighttime lighting levels.⁷² It is hypothesized that artificial lighting allows them to reduce predation from owls.⁷³ Crows are native, but they are also aggressive, and artificially increased population levels can be detrimental to other native bird species, including such sensitive species as loggerhead shrike. Artificial night lighting has also been shown to affect the behavior of nocturnal frogs, reducing their visual acuity and ability to consume prey, an impact that may befall those amphibians found within Master Plan boundaries.⁷⁴ Many larval forms of arthropods are positively phototactic (e.g., attracted to light, even artificial light), which poses a threat to the many sensitive insect species found on the El Segundo Dunes.⁷⁵ Artificial lighting results in increased mortality of moths and other nocturnal insects.⁷⁶ Night lighting can also affect kestrels as seen from observation of lesser kestrel (*Falco naumanni*), but also applicable to American kestrel (*Falco sparverius*), found on the El Segundo Dunes.⁷⁷ In fact, artificial night lighting affects singing and foraging time of many bird species.⁷⁸ Increased lighting even affects gastropods, which would include the sensitive Trask's snail (*Helminthoglypta traskii*).⁷⁹

71. EIS/R, p. 4-699.

72. Gorenzel, W.P., and T.P. Salmon. 1995. Characteristics of American Crow urban roosts in California. *Journal of Wildlife Management* 59(4):638-645.

73. Brody, J.E. 1997. The too-common crow is getting too close for comfort. *New York Times*, May 27.

74. Buchanan, B.W. 1993. Effects of enhanced lighting on the behaviour of nocturnal frogs. *Animal Behaviour* 45(5):893-899.

75. Summers, C.G. 1997. Phototactic behavior of *Bemisia argentifolii* (Homoptera: Aleyrodidae) crawlers. *Annals of the Entomological Society of America* 90(3):372-379.

76. Frank, K.D. 1988. Impact of outdoor lighting on moths: an assessment. *Journal of the Lepidopterists' Society* 42(2):63-93. Koelligs, D. 2000. Ecological effects of artificial light sources on nocturnally active insects, in particular on butterflies (Lepidoptera). *Faunistisch-Oekologische Mitteilungen Supplement*(28):1-136.

77. Negro, J.J., J. Bustamante, C. Melguizo, J.L. Ruiz, and J.M. Grande. 2000. Nocturnal activity of Lesser Kestrels under artificial lighting conditions in Seville, Spain. *Journal of Raptor Research* 34(4):327-329.

78. Outen, A. 1998. *The possible ecological implication of artificial lighting*. Hertfordshire, UK: Hertfordshire Biological Records Centre. Bergen, F., and M. Abs. 1997. Etho-ecological study of the singing activity of the blue tit (*Parus caeruleus*), great tit (*Parus major*) and chaffinch (*Fringilla coelebs*). *Journal fuer Ornithologie* 138(4):451-467. Derrickson, K.C. 1988. Variation in repertoire presentation in northern mockingbirds. *Condor* 90(3):592-606. Hoetker, H. 1999. What determines the time-activity budgets of avocets (*Recurvirostra avosetta*)? *Journal fuer Ornithologie* 140(1):57-71. Frey, J.K. 1993. Nocturnal foraging by Scissor-Tailed Flycatchers under artificial light. *Western Birds*

(cont'd)

These effects may seem to be relatively innocuous, except that species that extend their activity periods into nighttime are often exposed to drastically increased predation threats. In a study of butterfly larvae, a higher growth rate associated with longer photoperiod (as would be caused by artificial light) resulted in significantly higher predation on the butterfly larvae from the primary parasitoid species.⁸⁰ Similar tradeoffs will likely occur for the El Segundo blue butterfly with increased lighting on the El Segundo Dunes. While the increased light may increase larval development, the time of activity may also increase predation and parasitism.

The conclusion in the EIS/R that the increased levels of night lighting will have no effect on the El Segundo blue butterfly is completely unsupported by current scientific knowledge of the mechanisms of such effects on ecological systems. The EIS/R concentrates on the adult form of the El Segundo blue butterfly, which only constitutes a minute fraction of the lifecycle of the organism, and ignores published scientific literature documenting the tradeoffs of increased lighting on larval forms of butterflies. Furthermore, the EIS/R includes no discussion of bat species that may forage on the El Segundo Dunes. Many bat species found in Los Angeles County are considered sensitive species, and their foraging patterns are affected by lighting levels. Some faster-flying species congregate at streetlights, while slower-flying species avoid them.⁸¹ The EIS/R should document the bat species foraging within the project site and evaluate the impacts of lighting and other development on them.

The increased nighttime light levels on the El Segundo Dunes constitute a significant adverse impact, and should be avoided. One method to decrease the impacts of nighttime lighting is to use low pressure sodium lamps in place of other lighting types. Yellow light from these sources has less ecological impact. Other possible mitigation measures include using full cut-off lighting fixtures and mandating operational controls.

3.2.2 Noise

The effects of airport noise on the fauna of the project area are not considered at all. Perhaps this results from the noise analysis, which improperly chooses 1996 — prior to the introduction of quieter airplanes — as the baseline for noise impacts, rather than what noise conditions would be in the absence of the proposed project. Through this careful choice of baseline, the EIS/R argues that there would be virtually no change in the noise levels on the El Segundo Dunes. However, this is not the case. Noise would be more constant under increased passenger capacity — more planes would be traveling in and out of the airport. Increased noise levels on the El Segundo Dunes will have significant adverse effects on the wildlife found there, effects that are evident from the available scientific literature.

The use of a weighted average to describe noise levels (CNEL) precludes and obfuscates analysis of actual noise impacts. From the standpoint of wildlife, and indeed human physiological responses, it is relevant to know what maximum noise levels are experienced, and at what duration. While the average noise levels described in the EIS/R offer some indication of which areas are louder than others,

24(3):200. Hill, D. 1992. *The impact of noise and artificial light on waterfowl behavior: a review and synthesis of available literature*. British Trust for Ornithology Research Report No. 61.

79. Lamiot, F. 1998. Impacts écologiques de l'éclairage nocturne. Premier Congrès européen sur la protection du ciel nocturne, June 30–May 1, Paris.

80. Gotthard, K. 2000. Increased risk of predation as a cost of high growth rate: an experimental test in a butterfly. *Journal of Animal Ecology* 69(5):896–902.

81. Rydell, J., and H.J. Baagoe. 1996. Bats & streetlamps. *Bats* 14(4):10–13.

maximum noise levels are necessary to evaluate potential hearing loss, startle reactions in animals, barriers to vocal communication, and other significant impacts to the fauna of the El Segundo Dunes.

The body of research on the effects of noise on vertebrates shows that chronic noise, even at low levels, is associated with elevated stress hormone levels, higher blood pressure, faster heart rates, and other physiological effects.⁸² As a result, birds, mammals and other vertebrates may show anatomical differences (smaller body size, enlarged adrenal glands) from prolonged exposure to noise. Species that use vocalizations to communicate may be excluded altogether from noisy areas. The effects of noise on birds and mammals in particular are relevant to the EIS/R.

Birds. Of 45 bird species investigated in woodlands in The Netherlands, 33 showed significantly depressed breeding density in response to increased noise levels near roads. All species in the small passerine families Sylviidae, Fringillidae, and Emberizidae were affected by noise.⁸³ This research also showed that noise effects followed a threshold model.⁸⁴ This means that up to a certain noise level, no decrease in density is observed. When noise increases beyond that threshold level, bird density decreases dramatically in the area between the location at which that threshold is met and the road. The decreased density over the area with noise greater than the threshold level ranges from 30% to 100% and is known as the “decrease factor.”⁸⁵

These two variables, the threshold value and the decrease factor, describe the impact of noise on breeding birds. Empirical measurement of the threshold value in woodlands shows that for all bird species combined the threshold value is 42–52 dB(A), with individual species exhibiting thresholds as low as 36 dB(A) and as high as 58 dB(A).⁸⁶ Furthermore, years with overall low population densities showed lower threshold levels.

Similar research has been conducted for grasslands. Overall, this research shows that breeding bird habitat is degraded at noise levels as low as 36 dB(A). Minimum noise levels on the El Segundo Dunes are 70 dB(A) CNEL,⁸⁷ a quantification that does not even provide maximum noise levels. There is no question therefore that noise from LAX operations affects breeding bird densities on the El Segundo Dunes.

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82. Manci, K.M., D.N. Gladwin, R. Vilella, and M.G. Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. U.S. Fish and Wildlife Service National Ecology Research Center, Ft. Collins, Colorado. NERC-88/29. 88 pp. Such effects are found in humans too; children exposed to chronic noise greater than 60 dB “experienced marginally higher resting systolic blood pressure, greater heart rate reactivity to test, and higher overnight cortisol levels, which are signs of modestly elevated physiological stress” (Environmental News Network. 24 May 2001. Noisy neighborhoods harmful to childrens’ health).
83. Reijnen, R., R. Foppen, and G. Veenbaas. 1997. Disturbance by traffic of breeding birds: evaluation of the effect and considerations in planning and managing road corridors. *Biodiversity and Conservation* 6:567–581.
84. Reijnen, R., R. Foppen, C. ter Braak, and J. Thissen. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology* 32:187–202.
85. *Id.* at 192.
86. Reijnen, R., R. Foppen, C. ter Braak, and J. Thissen. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology* 32:187–202. Reijnen, R., and R. Foppen. 1995. The effects of car traffic on breeding bird populations in woodland. IV. Influence of population size on the reduction of density close to a highway. *Journal of Applied Ecology* 32:481–491. Reijnen, R., R. Foppen, and H. Meeuwssen. 1996. The effects of traffic on the density of breeding birds in Dutch agricultural grasslands. *Biological Conservation* 75:255–260.
87. EIS/R, Figures 4.2-15, 4.2-19, 4.2-23.

Mammals. Chronic noise is a problem for native mammals on the El Segundo Dunes, as it is for humans in surrounding neighborhoods. The description of one study on the effect of airport noise on a small mammal illustrates one example of this problem:

Only a few studies of the physiological effects of noise on rodents have involved wild animals. A field study by Chesser et al. (1975) involved two populations of house mice near the end of a runway at Memphis International Airport. Adult mice also were collected from a rural field 2.0 km from the airport field. Background noise levels at both fields were 80–85 dB. Noise levels of incoming and outgoing aircraft at the airport field averaged 110 dB, with the highest reading reaching 120 dB. Total body weights and adrenal gland weights of mice from the fields were measured. Additional mice were captured from the rural field, placed in the laboratory, and exposed to 1 minute of 105-dB recorded jet aircraft noise every 6 minutes to determine if noise was the causative factor. Control mice were not subjected to noise. After 2 weeks, the adrenals were removed and weighed. Adrenal gland weights of male and female mice from the airport field were significantly greater than those of mice from the rural field. The noise-exposed mice in the laboratory study had significantly greater adrenal gland weights than the control mice. After ruling out stress factors, such as population density, Chesser et al. (1975) concluded that noise was the dominant stressful factor causing the adrenal weight differences between the two feral populations.⁸⁸

While house mice are of no regulatory concern, native mammals on the El Segundo Dunes include some native small mammals (harvest mouse, *Reithrodontomys megalotis*, desert wood rat, *Neotoma lepida*) which are locally significant. Impacts of noise to the habitat quality of the El Segundo Dunes for native mammals should be evaluated.

Reptiles and Amphibians. Spadefoot toads may be induced to emerge from their burrows in response to loud noises (95 dB(A) recordings of motorcycle noise in one experiment).⁸⁹ Fringe-toed lizards are rendered deaf after 9 minutes exposure to 95 dB(A) noise in the same study. Some snakes will show alert behavior in response to airplanes flying overhead.⁹⁰

The EIS/R should evaluate the effects of noise on the biota of the El Segundo Dunes. It is likely that if the noise baseline were set at current conditions rather than before the implementation of quieter planes, this analysis would reveal significant impacts on the ability of the El Segundo Dunes to support populations of some species of birds, mammals, and other vertebrates. Such significant impacts should be identified and mitigated.

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88. Mancini, K.M., D.N. Gladwin, R. Villella, and M.G. Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. U.S. Fish and Wildlife Service National Ecology Research Center, Ft. Collins, Colorado. NERC-88/29. 88 pp.
89. Brattstrom, B.H., and M.C. Bondello. 1983. Effects of off-road vehicle noise on desert vertebrates. Pp. 167–206 in R.H. Webb and H.G. Wilshire, eds. *Environmental effects of off-road vehicles. Impacts and management in arid regions*. New York: Springer-Verlag.
90. Yahya, S.A. 1978. Hearing ability of brown tree snake (*Oendrelaphis tristis*). *Journal of the Bombay Natural History Society* 75:930–931.

3.2.3 Pollution

The discussion in the EIS/R about pollution effects on the El Segundo blue butterfly deserves comment. The EIS/R makes the statement, “Monitoring results indicate that current levels of vanadium are not adversely affecting the El Segundo blue butterfly population at the Habitat Restoration Area since counts for the year 2000 showed a significant increase in the population when compared to 1999.”⁹¹ Many factors influence butterfly abundance from year to year; changes from 1999 to 2000 provide no information about the effect of pollution on the butterfly. This statement is indicative of a fundamental misunderstanding of the process of deductive reasoning. The reality is that we have no idea what effect pollution has on the populations of sensitive species on the El Segundo Dunes, including the El Segundo blue butterfly. Population trends cannot be derived from two years of data, and are even difficult with ten years of measurements.⁹²

3.2.4 Landscaping

The EIS/R does not assess the detrimental impacts of landscaping adjacent to the El Segundo Dunes. LAWA has planted invasive exotic species as landscape plants in the past, resulting in a greater load of exotic seed rain on the El Segundo Dunes.⁹³ Exotic landscaping material, and associated irrigation, can cause significant adverse effects on the biological resources of the El Segundo Dunes.

Installation of permanent irrigation in new areas along Pershing Drive would result in an expansion of the invasive exotic arthropod community on the El Segundo Dunes. Water sources promote population increases of non-native Argentine ants (*Linepithema humile*), European earwigs (*Forficula auricularia*), and other exotic species, which displace native insect species, an effect that has recently been documented to extend 200 m into native habitats.⁹⁴ Argentine ants are found on the El Segundo Dunes already, but the explosion in numbers associated with permanent irrigation will wreak havoc on native arthropod communities. This is shown by consistent decreases in native arthropod diversity in response to increased Argentine ant abundance.⁹⁵ Argentine ants would displace native ants surrounding the project site. This extirpation reverberates up the food chain, as some native reptiles (e.g., coast horned

91. EIS/R, Appendix J1. Biological Assessment Technical Report, p. 91.

92. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445–452.

93. Kowsky, K. 24 April 1995. Plant-life dispute blooms at airport; environmentalist sees exotic plants at LAX as threat to survival of endangered butterfly. *Los Angeles Times*, B-1. Gregor, I. 1 April 2000. Seeds of trouble: airport landscaping project has environmental groups up in arms. *Daily Breeze*, B-1.

94. Holway, D.A. 1998. Factors governing rate of invasion: a natural experiment using Argentine ants. *Oecologia* 115(1-2):206–212. Suarez, A.V., D.T. Bogler, and T.J. Case. 1998. Effects of fragmentation and invasion on native ant communities in coastal southern California. *Ecology* 79(6):2041–2056.

95. Erickson, J.M. 1971. The displacement of native ant species by the introduced Argentine ant *Iridomyrmex humilis* (Mayr). *Psyche* 78:257–266. Cole, B.J. 1983. Assembly of mangrove ant communities: patterns of geographic distribution. *Journal of Animal Ecology* 52:339–348. Human, K.G., and D.M. Gordon. 1996. Exploitation and interference competition between the invasive Argentine ant, *Linepithema humile*, and native ant species. *Oecologia* 105(3):405–412. Human, K.G., and D.M. Gordon. 1997. Effects of Argentine ants on invertebrate biodiversity in Northern California. *Conservation Biology* 11(5):1242–1248. Holway, D.A. 1998. Effect of Argentine ant invasions on ground-dwelling arthropods in northern California riparian woodlands. *Oecologia* 116(1-2):252–258. Kennedy, T.A. 1998. Patterns of an invasion by Argentine ants (*Linepithema humile*) in a riparian corridor and its effects on ant diversity. *American Midland Naturalist* 140(2):343–350. Longcore, T.R. 1999. Terrestrial arthropods as indicators of restoration success in coastal sage scrub. Ph.D. Thesis, Department of Geography, University of California, Los Angeles.

lizard, *Phrynosoma coronatum*, found on the El Segundo Dunes) preferentially feed on native ants and decline in their absence.⁹⁶

The EIS/R should require as a mitigation measure that in areas adjacent to the El Segundo Dunes, all landscaping plants be limited to locally native species, and that irrigation be limited to winter only.

3.3 Cumulative Impacts

The analysis of cumulative impacts is woefully inadequate and is inconsistent with previous conclusions reached by the City of Los Angeles in environmental impact reports. The discussion of cumulative impacts in Sections 4.10 and 4.11 of the EIS/R consists of a description of the Master Plan area and the following statement:

Areas surrounding the study area consist largely of developed areas with little or no habitat value. However, two biologically significant open spaces, the Ballona Wetlands and the Ballona Bluffs, remain extant within the vicinity of the study area.⁹⁷

However, in the Final Environmental Impact Report for the West Bluffs Project — a project to build residences on the last open space on the Ballona Bluffs — the City of Los Angeles found:

The contribution of the proposed project to impacts on plant and animal life from ongoing development in the region is not considered to be significant, due to the disturbed nature and correspondingly low resource value of the project site.⁹⁸

The current EIS/R is inconsistent with the above statement. To the contrary, the current EIS/R states that:

The cumulative impacts on biotic communities from development of the LAX Master Plan Improvements, and other proposed projects in the area, most notably the Playa Vista Master Plan Project and the Catellus residential proposal on the Ballona Bluffs, are considered significant due to the limited amount of extant natural habitat in the vicinity of the study area, particularly wetlands.⁹⁹

The EIS/R then argues that implementation of the LAX Master Plan will not contribute to these cumulative impacts. The City of Los Angeles seems to claim that whichever project is under review does not contribute to cumulative impacts, yet once approved, the City's subsequent environmental review documents acknowledge that projects did contribute to cumulative impacts. The reality is that both the Catellus West Bluffs Project and the LAX Master Plan will contribute to significant cumulative impacts on natural resources.

Upland foraging habitat for grassland songbirds and raptors will be nearly eliminated by the combination of the LAX Master Plan, the West Bluffs Project, Playa Vista Phase I, and the potential

96. Suarez, A.V., J.Q. Richmond, and T.J. Case. 2000. Prey selection in horned lizards following the invasion of Argentine ants in southern California. *Ecological Applications* 10:711–725.

97. EIS/R, pp. 4-663, 4-706.

98. City of Los Angeles. October 1998. EIR No. 91-0675. West Bluffs Project Section IV.D.3.

99. EIS/R, p. 4-664.

Playa Vista Phase II. The Ballona Creek watershed (with the exception of the Baldwin Hills) will no longer support many bird species as a result of the cumulative impacts of these developments. Western meadowlark, white-tailed kite, California horned lark, loggerhead shrike, sharp-shinned hawk, northern harrier, Cooper's hawk, and American kestrel will experience significant declines in suitable habitat as a result of these cumulative impacts. Peregrine falcon will experience significant losses of foraging habitat. Many birds associated with the Ballona Wetlands forage in upland habitats, especially during the winter and spring rains. For example, great blue heron and snowy egret forage in the ephemeral wetlands at LAX and the West Bluffs site. If all of these projects are completed, all remnants of vernal pools in the northern portion of the former Los Angeles Coastal Prairie will be obliterated. Vernal pool hydrology at the West Bluffs site and at LAX would be destroyed, yet the EIS/R claims that no significant cumulative impacts will result from the project.

This is the end of the line for open space in west Los Angeles. The City of Los Angeles must recognize that the current project, plus the others previously approved by the City, have significant, irreversible, cumulative impacts on biological resources.

4.0 Mitigation Measures

The mitigation measures that rely on the "modified Habitat Evaluation Procedure" are insufficient to offset the significant impacts that would result from the build alternatives. The use of "Habitat Units" in mitigation measures MM-BC-2, MM-BC-4, MM-BC-5, MM-BC-6, and MM-BC-7 is fundamentally flawed.

The all-purpose mitigation measure "Conservation of Faunal Resources" (MM-BC-4) is completely inadequate to address impacts to sensitive species from the project alternatives. The conversion to "Habitat Units" is spurious; all mitigation must replace lost habitat with an equal or greater area.

4.1 Lewis' Evening Primrose

Mitigation for Lewis' evening primrose does not ensure that a replacement population of the species will be created, only that more individuals will be grown on the El Segundo Dunes, where the species is already found. In addition to establishing a numerical goal for the number of individuals to be replaced, mitigation should ensure the area occupied by the species will increase by at least the 2.5 acres that would be lost. Because there is a risk-spreading benefit in the disjunct configuration of the impacted population, the mitigation site should be geographically distinct from currently occupied sites.

4.2 Western Spadefoot Toad

Mitigation for the western spadefoot toad ignores the geographic configuration of the impacted population(s). These toads are found in four distinct ephemerally wet areas on the LAX property, all of which would be destroyed by the build alternatives. Division of the population into separate, hydrologically distinct pools with different cachements is a benefit to the population. Mitigation for these losses cannot be achieved through creation of 1.24 acres of ideal habitat (the "Habitat Units"), but rather must consist of four separate pools and associated cachements of at least 9 acres.

The choice of mitigation location is important as well. The top choice would be on the areas of the former Los Angeles Coastal Prairie west of Pershing Drive. However, the EIS/R claims that allowing a vernal pool in this area would encourage bird life as well, and would therefore pose a hazard to aircraft.

If off-site mitigation is necessary, the first choice should be the West Bluffs property, currently subject to development by the Catellus Corporation. The West Bluffs site has vernal pool hydrology and is the only candidate site within a reasonable distance of LAX. Distant sites such as Madrona Marsh and potentially California State University Dominguez Hills (where spadefoot toads possibly persist in a vernal pool but are subject to imminent extirpation from construction), should be utilized only in addition to a more proximate site. If no proximate sites are secured (e.g., the West Bluffs property is unobtainable), then the conclusion of the EIS/R must be that the impacts to the species cannot be mitigated to a less than significant level. Without the LAX population, or a possible West Bluffs replacement, the range of the species in the region will be significantly diminished, even with more distant offsite mitigation.

4.3 Riverside Fairy Shrimp

A similar analysis applies to the proposed mitigation for the loss of habitat for the Riverside fairy shrimp. The species is currently found in at least nine areas affected by the build alternatives. The proposed mitigation is for “no more” than 1.3 acres of replacement habitat.¹⁰⁰ To the contrary, loss of this occupied habitat should be mitigated by provision of nine pools with associated upland catchment areas to support vernal pool hydrology. While the mitigation measure suggests one location with 0.75 habitat value (i.e. restoration of vernal pool plants and other vernal pool characteristics), it is more important to the fairy shrimp that multiple locations be acquired. Population models for species found in habitat patches (e.g., metapopulations) show that persistence is enhanced not by density at a single site — although patch size is important — but by maximizing the number of occupied patches.¹⁰¹ To trade occupied sites for other biological values such as presence of sensitive plant species decreases the long-term persistence possibilities for the fairy shrimp. Certainly full vernal pool restoration would be a noble conservation goal, but it does not mitigate the impacts to the Riverside fairy shrimp. The potential mitigation sites should be chosen by proximity to LAX. The West Bluffs site could provide one, possibly two pools. Additional pools should be identified to mitigate fully the impacts to the species.

4.4 San Diego Black-tailed Jackrabbit

As discussed above, the proposed mitigation for the San Diego black-tailed jackrabbit is insufficient to offset the losses to the species. The loss of 119 acres of occupied habitat must be offset by the provision of at least 119 acres of additional habitat. The EIS/R provides no evidence to show that the species can be supported at similar densities in the Habitat Restoration Area on the dunes, nor that the “Habitat Units” of restoration on the dunes will make the area more suitable for jackrabbits. Black-tailed jackrabbits require mixed grasses, forbs, and shrubs for food; dune scrub may provide less preferred forage than exotic grassland. The Habitat Restoration Area therefore may support lower densities of the species than currently occupy the 119 acres of exotic grassland. Furthermore, the EIS/R provides no estimate of the size of the population to be impacted, or the diel¹⁰² patterns of movement exhibited by the species, information that is necessary to formulate an effective mitigation measure. Any release program on the El Segundo Dunes must be accompanied by a humane control program for the exotic red fox (*Vulpes vulpes*).

100. EIS/R, p. 4-708.

101. Hanski, I. 2000. *Metapopulation ecology*. London: Oxford University Press.

102. “Diel” refers to a 24-hour period, a full day and night.

4.5 Loggerhead Shrike

The EIS/R proposes to mitigate for loss of occupied loggerhead shrike habitat (172 acres) with restoration on the El Segundo Dunes in the form of 22.88 “Habitat Units.” Implicit in this proposal is the assumption that the density of loggerhead shrikes on the El Segundo Dunes can be increased to accommodate those displaced by the loss of 172 acres of occupied habitat. The EIS/R provides no information about densities of loggerhead shrike to support this implicit assumption. To the contrary, because the El Segundo Dunes are already occupied with breeding loggerhead shrikes, and the shrike’s use of habitat is not tied to whether the vegetation is native or not (or to the arbitrary habitat standards of the HEP), restoration on the El Segundo Dunes is not likely to appreciably increase the density of shrikes found there. Mitigation for this impact must be found elsewhere, in the form of 172 acres of shrike habitat. Loggerhead shrike are found at the West Bluffs site, but the site is only 44 acres and so could only offer partial mitigation for impacts at LAX. Other additional mitigation sites include properties covered under the Playa Vista master plan, or in the Baldwin Hills. However, if 172 acres of shrike habitat in addition to the El Segundo Dunes cannot be identified and acquired as mitigation, then the significant impact to this species cannot be mitigated to a less than significant level. The impacts are certainly not mitigated by the proposal to provide 23 extra “Habitat Units” in currently occupied habitat.

4.6 Los Angeles Coastal Prairie

Prescriptions for restoration of Valley Needlegrass Grassland described in MM-BC-5, MM-BC-6, and MM-BC-7 are not consistent with evidence of the historic vegetation in the area, which Mattoni and Longcore have described as Los Angeles Coastal Prairie. The prescription is for a needlegrass dominated habitat, with four common subshrubs. First, five plant species are insufficient to restore this habitat type; the actual plant diversity of the habitat was significantly higher. Second, the relative abundance of species is nothing approaching historical conditions. A transect along a historic photograph of the Coastal Prairie (or “meadow” as described by Pierce¹⁰³), shows the following coverage: *Lupinus bicolor* (39%), *Camissonia bistorta* (18%), *Phacelia stellaris* (14%), *Lotus strigosus* (8%), *Festuca megalura* (4%), *Cryptantha intermedia* (1%), and open (16%).¹⁰⁴ A mitigation measure should bear at least some resemblance to the vegetation type that it proposes to emulate. Furthermore, the standard of 10% native cover for successful restoration is outrageous. The claim that this is defensible because 10% is deemed significant for the identification of a native grassland by the California Department of Fish and Game is equally stunning. Ten percent cover represents the most degraded grasslands, not a standard to achieve in restoration. If the success criterion for grassland mitigation were followed, the vegetation created would score very low on the “modified” HEP touted in the EIS/R.

4.7 Restoration Performance Criteria

The performance criteria for the restoration efforts are all exceedingly weak. The only quantifiable standard for revegetation performance is attainment of native cover, the highest of which is 45%. Ecologists have developed many measures of habitat quality that are available to define performance

103. Pierce, W.D. 1938. The fauna and flora of the El Segundo sand dunes: 1. General ecology of the dunes. *Bulletin of the Southern California Academy of Sciences* 37(3):93-97.

104. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles Coastal Prairie, a vanished community. *Crossosoma* 26(2):71-102, at 87.

standards for revegetation, including many measures of plant diversity and plant structure.¹⁰⁵ Wetland mitigation must meet stringent standards quantifying wetland functions and values.¹⁰⁶ Terrestrial arthropods have been used to assess the performance of revegetation in re-creating native habitats.¹⁰⁷ The performance criteria for restoration should provide more ecological information than simply percent native cover, especially when so many measures are readily available. Without true ecological assessment of restored areas, the success of the mitigation will be forever unknown.

4.8 Raptor “Nursery Sites”

Insufficient information about the impact to raptors using mature trees is provided to allow assessment of whether the mitigation measure (MM-BC-3) would be effective for replacement of mature trees. The location of this mitigation would be important, and the destruction of nearly all of the open space used for foraging by raptors may render “nursery sites” extraneous, with no raptors to use them.

5.0 California Coastal Act

None of the build alternatives in the Master Plan would be consistent with the California Coastal Act. First, there would be many impacts to the environmentally sensitive habitat area on the El Segundo Dunes through the indirect effects of increased construction, light, landscaping, pollution, and road construction. The mitigation measures proposed are insufficient to mitigate for these significant disruptions of habitat values. Even though the development is designed to occur outside the coastal zone boundary, Section 30240(b) of the Coastal Act provides that:

Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.¹⁰⁸

Second, the EIS/R does not discuss impacts to marine biological resources, which could occur as a result of runoff into and jet fuel dumping over the ocean. Impacts to marine biological resources should be described and appropriate changes implemented before preparation of a final EIS/R.

105. Magurran, A.E. 1988. *Biological diversity and its measurement*. Princeton: Princeton University Press, 179 pp.

106. Rheinhardt, R.D., M.M. Brinson, and P.M. Farley. 1997. Applying wetland reference data to functional assessment, mitigation, and restoration. *Wetlands* 17(2):195–215.

107. Mattoni, R., T. Longcore, and V. Novotny. 2000. Arthropod monitoring for fine scale habitat analysis: a case study of the El Segundo dunes. *Environmental Management* 25(4):445–452. Bisevac, L., and J.D. Majer. 1999. Comparative study of ant communities of rehabilitated mineral sand mines and heathland, Western Australia. *Restoration Ecology* 7(2):117–126. Holl, K.D. 1996. The effect of coal surface mine reclamation on diurnal lepidopteran conservation. *Journal of Applied Ecology* 33(2):225–236. Longcore, T.R. 1999. Terrestrial arthropods as indicators of restoration success in coastal sage scrub. Ph.D. Thesis, Department of Geography, University of California, Los Angeles. Parmenter, R.R., and J.A. Macmahon. 1987. Early successional patterns of arthropod recolonization on reclaimed strip mines in southwestern Wyoming [USA]: the ground-dwelling beetle fauna (Coleoptera). *Environmental Entomology* 16(1):168–177. Wheater, C.P., W.R. Cullen, and J.R. Bell. 2000. Spider communities as tools in monitoring reclaimed limestone quarry landforms. *Landscape Ecology* 15(5):401–406. Williams, K.S. 1993. Use of terrestrial arthropods to evaluate restored riparian woodlands. *Restoration Ecology* 1:107–116. Williams, K.S. 1997. Terrestrial arthropods as ecological indicators of habitat restoration in southwestern North America. Pp. 238–258 in K.M.N.R.W. Urbanska and P.J. Edwards (eds.), *Restoration ecology and sustainable development; First International Conference, Zurich, Switzerland*. Cambridge: Cambridge University Press.

108. California Public Resources Code § 30240(b).

6.0 Conclusion

The EIS/R treatment of biological resources represents the result of significant effort and expenditure on the part of the preparers. Unfortunately, the resulting analysis is deeply flawed, unscientific, and improperly reaches the conclusion that the mitigation measures would reduce impacts to a less than significant level. To the contrary, implementation of any of the three build alternatives would be catastrophic for the biological resources on the project site and result in a significant local and cumulative impact on sensitive species. If approved and implemented, the Master Plan will permanently degrade the diversity and abundance of native wildlife in west Los Angeles. The last refuges of birds and mammals depending on large open spaces will be erased from the landscape.

Appendix B

Qualifications of Travis Longcore and Catherine Rich

TRAVIS LONGCORE

P.O. Box 24020
Los Angeles, California 90024-0020
Telephone: (310) 247-9719

EDUCATION

- Ph.D., Geography, University of California, Los Angeles 1995–1999
Dissertation Title: *Terrestrial Arthropods as Indicators of Restoration Success in Coastal Sage Scrub*
- M. A., Geography, University of California, Los Angeles 1993–1995
Thesis Title: *Risk, Technology, and Place: Siting a Radioactive Waste Dump in California's Ward Valley*
- Honors B. A., Geography *summa cum laude*, University of Delaware 1989–1993
Thesis Title: *Information Technology and World City Restructuring: The Case of New York City's Financial District*

PROFESSIONAL EXPERIENCE

- Research Assistant Professor, Center for Sustainable Cities, Department of Geography,
University of Southern California 2001–present
- Lecturer, UCLA Department of Geography, UCLA Department of Organismic Biology,
Ecology and Evolution, UCLA Institute of the Environment 2000–present
Lower division: Biogeography, People and the Earth's Ecosystems, Ecology and Conservation of California Oaks. Upper division: World Vegetation, Forest Ecosystems, Ecology, Environmental Impact Analysis.
- Co-founder and Science Director, The Urban Wildlands Group 1996–present
Organization studies and works to protect species, habitats, and ecological processes within urban and urbanizing areas. Projects include restoration and management of habitat supporting endangered butterfly species, education of policymakers on impacts of artificial light and noise on wildlife, research on minimizing ecological effects of fuel modification.
- Principal, Land Protection Partners 1998–present
Consultant to attorneys in land protection actions (primarily California Environmental Quality Act, California Coastal Act, and federal Endangered Species Act). Services include issue identification, preparation of biological analysis with supporting scientific literature review, and communication with resource agency personnel.
- Research Associate, Sustainable Cities Program, University of Southern California 1999–2001
- Summer Instructor, UCLA Graduate School of Education and Information Studies 1997–1999
- Staff Researcher, UCLA Department of Geography 1996–1999
- Teaching Assistant, UCLA Department of Geography 1995–1996
- Geographic Information System Technician, Water Resources Agency, New Castle
County, Delaware 1992–1993

GRANTS, HONORS, AND AWARDS

Professional

- Santa Monica Bay Restoration Commission 2003
Grant of \$131,000 to Los Angeles Conservation Corps and The Urban Wildlands Group to restore coastal dune and bluff vegetation and develop a master plan for restoration of El Segundo dune and bluff habitat.
- Defense Logistics Agency 2003
Contract for \$43,779 to The Urban Wildlands Group to conduct experimental captive propagation of endangered Palos Verdes blue butterfly.
- James C. Zumberge Fund for Innovation, University of Southern California 2003
Grant of \$50,000 for interdisciplinary investigation of phytoremediation with native plants.
- Conservation and Research Foundation 2003
Grant of \$5,000 to The Urban Wildlands Group to support preparation of book, *Ecological Consequences of Artificial Night Lighting*.
- California ReLeaf 2003
Grant of \$7,500 to The Urban Wildlands Group for project, "Urban Forest Assessment and Outreach at UCLA."
- U.S. Department of the Navy 2002
Contract for \$12,000 to The Urban Wildlands Group to salvage Palos Verdes blue butterfly pupae from Navy property to be disposed and developed.
- U.S. Fish and Wildlife Service 2002
Contract for \$10,000 to The Urban Wildlands Group to draft management plan for endangered Kern primrose sphinx moth.
- U.S. Fish and Wildlife Service 2002
Contract for \$24,000 to The Urban Wildlands Group to draft species recovery plan for endangered Calippe silverspot butterfly.
- International Dark-Sky Association Executive Director's Award 2002
- National Fish and Wildlife Foundation 2002
Grant of \$5,000 to The Urban Wildlands Group to support conference *Ecological Consequences of Artificial Night Lighting*.
- Electric Power Research Insitute 2002
Grant of \$2,000 to The Urban Wildlands Group to support conference *Ecological Consequences of Artificial Night Lighting*.
- Defense Logistics Agency 2002
Contract for \$42,665 to The Urban Wildlands Group to conduct experimental captive propagation of endangered Palos Verdes blue butterfly.
- U.S. Fish and Wildlife Service Landowner Incentive Program 2001
Grant of \$37,300 to The Urban Wildlands Group to restore habitat for endangered El Segundo

blue butterfly on private property in Torrance, California.

John Randolph Haynes and Dora Haynes Foundation 2000

Co-author of \$398,000 grant to USC Sustainable Cities Program to assess benefits of urban greening in a dense inner-city neighborhood.

Los Angeles Department of Water and Power 2000

USC Sustainable Cities Program awarded \$9,000 contract to assess "Cool Schools" tree planting program.

New Research Design Award for a More Sustainable Los Angeles Region, John Randolph Haynes and Dora Haynes Foundation 2000

Awarded \$5,000 to develop a research design for the use of native plants in phytoremediation.

Graduate

Conference Travel Grant, UCLA Department of Geography 1999

Dissertation Improvement Grant, National Science Foundation (\$8,000) 1998

Distinguished Doctoral Scholar Fellowship, UCLA Alumni Association (\$17,500) 1998

Portable Fellowship, UCLA Graduate Division (\$18,500) 1997

Graduate Research Fellowship, National Science Foundation (\$64,400) 1993

Chancellor's Fellowship, UCLA Graduate Division (declined) 1993

Undergraduate

Alexander J. Taylor Award ("Outstanding Senior Man"), University of Delaware 1993

Geography Faculty Award, University of Delaware 1993

Mid-Atlantic Region Finalist, Rhodes Scholarship 1992

Fellow, Arizona Honors Academy, Northern Arizona University 1992

Marie Donaghay Award for Excellence in Geography, University of Delaware 1992

Phi Beta Kappa 1992

Phi Beta Kappa Clift and DeArmond Award, University of Delaware 1991

George and Margaret Collins Seitz Award, University of Delaware 1991

Eugene duPont Memorial Distinguished Scholar Award, University of Delaware (\$44,500) 1989

PUBLICATIONS AND PRESENTATIONS

In Preparation

1. Rich, Catherine, and Travis Longcore (eds.). *Ecological consequences of artificial night lighting*. Island Press (scheduled 2004).
2. Longcore, Travis. Christina Li, and John P. Wilson. Nature's services in a dense urban neighborhood. *Environmental Management*.

In Review

4. Longcore, Travis and Catherine Rich. Ecological light pollution. *Frontiers in Ecology and Environment*.
3. Longcore, Travis, Catherine Rich, and Dietland Müller-Schwarze. Management by assertion: beavers and vireos at Lake Skinner (Riverside County, California). *Ecological Restoration*.
2. Longcore, Travis, Christina Li, and John P. Wilson. Applicability of CITYgreen urban ecosystem analysis software to a dense urban neighborhood. *Urban Geography*.
1. Longcore, Travis. Ecological effects of fuel management practices around residential development. Sidebar for chapter by Kevin Shafer in text on California fire ecology.

Peer Reviewed Publications

11. Longcore, Travis. Arthropods as indicators of restoration success in coastal sage scrub (California, U.S.A.). *Restoration Ecology* 11(4):00–00 (2003).
10. Mattoni, Rudi, Travis Longcore, Zdenka Krenova, and Alison Lipman. Mass rearing the endangered Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*: Lycaenidae). *Journal of Research on the Lepidoptera* 37:55–67 (2003).
9. Longcore, Travis, Rudi Mattoni, Cor Zonneveld, and Jorn Bruggeman. INsect Count Analyzer: a tool to assess responses of butterflies to habitat restoration. *Ecological Restoration* 21(1):60–61 (2003).
8. Zonneveld, Cor, Travis Longcore, and Claudia Mulder. Optimal schemes to detect presence of insect species. *Conservation Biology* 14(2):476–487 (2003).
7. Longcore, Travis. Ecological effects of fuel modification on arthropods and other wildlife in an urbanizing wildland. Pp. 000–000 in Galley, Krista E.M., Robert C. Klinger, and Neil G. Sugihara (eds.). *Proceedings of Fire Conference 2000: The First National Congress on Fire Ecology, Prevention, and Management*. Miscellaneous Publication No. 13, Tall Timbers Research Station, Tallahassee, Florida (2003).
6. Mattoni, Rudi, Travis Longcore, Cor Zonneveld, and Vojtech Novotny. Analysis of transect counts to monitor population size in endangered insects: the case of the El Segundo blue butterfly, *Euphilotes bernardino albyni*. *Journal of Insect Conservation* 5(3):197–206 (2001).
5. Longcore, Travis, Rudi Mattoni, Gordon Pratt, and Catherine Rich. On the perils of ecological restoration: lessons from the El Segundo blue butterfly. Pp. 281–286 in Keeley, Jon, Melanie Baer-Keeley, and C. J. Fotheringham, eds. *2nd Interface Between Ecology and Land Development in California*, U.S. Geological Survey Open-File Report 00-62, Sacramento, CA (2000). (Abstracted in *Ecological Restoration* 19(2):125 (2001).)
4. Mattoni, Rudi, Vojtech Novotny, and Travis Longcore. Arthropod monitoring for fine scale habitat analysis: A case study of the El Segundo sand dunes. *Environmental Management* 25(4):445–452 (2000).
3. Mattoni, Rudi and Travis R. Longcore. The Los Angeles coastal prairie, a vanished community. *Crossosoma* 23(2):71–102 (1997).

2. Mattoni, Rudi, Gordon F. Pratt, Travis R. Longcore, John F. Emmel and Jeremiah N. George. The endangered Quino checkerspot butterfly, *Euphydryas editha quino* (Lepidoptera: Nymphalidae). *Journal of Research on the Lepidoptera* 34:99–118 (1997).
1. Longcore, Travis R. and Peter W. Rees. Information technology and downtown restructuring: the case of New York City's financial district. *Urban Geography* 17(4):354–372 (1996).

Book Reviews

2. Longcore, Travis. Review of *From Coastal Wilderness to Fruited Plain: A History of Environmental Change in Temperate North America from 1500 to Present*, by Gordon G. Whitney. *Ethics, Place and Environment* 4(3):278–279 (2001).
1. Longcore, Travis. Review of *Butterflies on British and Irish Offshore Islands: Ecology and Biogeography*, by Roger Dennis and Tim Shreeve. *Journal of Research on the Lepidoptera* 35:139–140 (2000).

Scientific Reports and Publications

31. U.S. Fish and Wildlife Service [Anderson, Alison, with Edith Allen, Mark Doder, Travis Longcore, Dennis Murphy, Camille Parmesan, Gordon Pratt, and Michael Singer]. Recovery plan for the Quino checkerspot butterfly (*Euphydryas editha quino*). Portland, Oregon, U.S. Fish and Wildlife Service, x + 179 pp. (August 11, 2003)
30. Longcore, Travis, and Catherine Rich. Review of biological impact analysis in Initial Study and Mitigated Negative Declaration (PD-S-942/TT5411), City of Simi Valley. Los Angeles, Land Protection Partners, 15 pp. (July 24, 2003).
29. Longcore, Travis, and Catherine Rich. Conservation value of Catellus West Bluffs property justifies purchase with public funds, Los Angeles, Land Protection Partners, 11 pp. (May 2, 2003).
28. Pincetl, Stephanie, Jennifer Wolch, John Wilson, and Travis Longcore. Toward a sustainable Los Angeles: a "nature's services" approach. Los Angeles, USC Center for Sustainable Cities, 47 pp. (report to John Randolph Haynes and Dora Haynes Foundation, February 2003).
27. Longcore, Travis, Catherine Rich, John Marzluff, and Barbara Nightingale. Peer review of artificial light and noise impact analysis in *Sand Point Magnuson Park Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project Final Environmental Impact Statement [Seattle, Washington]*. Los Angeles, Land Protection Partners, 15 pp. (January 16, 2003).
26. Longcore, Travis, and Catherine Rich. Review of biological resources analysis in Malibu Bay Company Development Agreement Draft Environmental Impact Report. Los Angeles, Land Protection Partners, 28 pp. (November 11, 2002).
25. Longcore, Travis, and Catherine Rich. Action plan for Kern primrose sphinx moth (*Euproserpinus euterpe*) at Carrizo Plain National Monument. Los Angeles, The Urban Wildlands Group. 15 pp. (report to U.S. Fish and Wildlife Service, November 1, 2002).
24. Longcore, Travis, Rudi Mattoni, Alison Lipman, Zdenka Krenova, and Catherine Rich. Final report for Palos Verdes blue butterfly year 2002 captive rearing on Defense Fuel Support Point, San Pedro, California. Los Angeles, The Urban Wildlands Group (Defense Logistics Agency Agreement # N68711-02-LT-00010). 18 pp. (October 1, 2002).
23. Longcore, Travis, and Catherine Rich. Effects of light and noise from a proposed Wal-Mart

- “Supercenter” on the wildlife of Penjajawoc Marsh (Bangor, Maine). Los Angeles, Land Protection Partners. 18 pp. (June 7, 2002).
22. Longcore, Travis and Catherine Rich. Protection of environmentally sensitive habitat areas in proposed Local Coastal Plan for City of Malibu. Los Angeles, The Urban Wildlands Group. 19 pp. (May 2002).
 21. Mattoni, Rudi and Travis Longcore. Census results for Palos Verdes blue butterfly and associated species, 1994–2001. Pp. 2–10 in Mattoni, Rudi (ed.) *Status and trends: habitat restoration and the endangered Palos Verdes blue butterfly at the Defense Fuel Support Point, San Pedro, California, 1994–2001*. Los Angeles, The Urban Wildlands Group (April 2002).
 20. Mattoni, Rudi, Travis Longcore, and Alison Lipman. Description of habitat characteristics of the Palos Verdes blue butterfly. Pp. 11–15 in Mattoni, Rudi (ed.) *Status and trends: habitat restoration and the endangered Palos Verdes blue butterfly at the Defense Fuel Support Point, San Pedro, California, 1994–2001*. Los Angeles, The Urban Wildlands Group (April 2002).
 19. Longcore, Travis. Invertebrate community composition as an indicator of restoration success. Pp. 52–68 in Mattoni, Rudi (ed.) *Status and trends: habitat restoration and the endangered Palos Verdes blue butterfly at the Defense Fuel Support Point, San Pedro, California, 1994–2001*. Los Angeles, The Urban Wildlands Group (April 2002).
 18. Longcore, Travis and Jeremiah George. Habitat Evaluation for El Segundo Blue Butterfly (*Euphilotes bernardino allyni*) at Malaga Bluffs. Los Angeles, The Urban Wildlands Group (report to U.S. Fish and Wildlife Service Cooperative Agreement #1448-11430-1-J041, December 30, 2001).
 17. Longcore, Travis and Catherine Rich. A review of the ecological effects of road reconfiguration and expansion on coastal wetland ecosystems. Los Angeles, The Urban Wildlands Group. 12 pp. (November 14, 2001).
 16. Longcore, Travis and Catherine Rich. Review of biological resources analysis in draft Sully-Miller/Fieldstone Communities Environmental Impact Report (SCH#99101125). Los Angeles, Land Protection Partners. 15 pp. (October 19, 2001).
 15. Longcore, Travis and Catherine Rich. Review of biological resources analysis in LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report. Los Angeles, Land Protection Partners. 27 pp. (August 8, 2001).
 14. Longcore, Travis and Catherine Rich. Review of biological resources analysis in City of Malibu Negative Declaration No. 00-010 (Kempin Single Family Residence). Los Angeles, Land Protection Partners. 5 pp. (July 23, 2001).
 13. Young, Terrence, with Travis Longcore. *Creating Community Greenspace: A Handbook for Developing Sustainable Open Spaces in Central Cities*. Los Angeles, California League of Conservation Voters Education Fund. 64 pp. (2000).
 12. United States Fish and Wildlife Service (Alison Anderson, Edith Allen, Mark Doderer, Camille Parmesan, Travis Longcore, Gordon Pratt, Dennis Murphy, and Michael Singer). Draft Recovery Plan for the Quino Checkerspot butterfly (*Euphydryas editha quino*). Portland, Oregon (2000).
 11. Longcore, Travis, Kyle Fitzpatrick, and Maureen Phelan. Assessment of Los Angeles Department of Water and Power Cool Schools Program, University of Southern California Sustainable Cities Program (report to Los Angeles Department of Water and Power, December 2000).

10. Mattoni, Rudi and Travis Longcore. 2000 Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*) Adult Population Survey (report to U.S. Fish and Wildlife Service, August 28, 2000).
9. Lassiter, Unna, Travis Longcore, and Stephanie Pincetl. 53rd and Latham: Residents' Preferences for Amenities for an Urban Park, University of Southern California Sustainable Cities Program (report to City of Los Angeles, Department of Recreation and Parks, January 2000).
8. Mattoni, Rudi, Travis Longcore, and Rick Rogers. 1999 Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*) Adult Population Survey (report to U.S. Fish and Wildlife Service, August 28, 1999).
7. Lipman, Alison, Travis Longcore, Rudi Mattoni, and YinLan Zhang. Habitat Evaluation and Reintroduction Planning for the Endangered Palos Verdes Blue Butterfly (report to California Department of Fish and Game, June 1, 1999).
6. Mattoni, Rudi, Travis Longcore, Jeremiah George, Gordon Pratt, and Chris Nagano. Recovery Plan for the El Segundo Blue Butterfly (*Euphilotes battoides allyni*). Portland, Oregon (September 9, 1998).
5. Mattoni, Rudi, Travis Longcore, and Rick Rogers. 1998 Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*) Adult Population Survey (report to U.S. Fish and Wildlife Service, June 10, 1998).
4. Mattoni, Rudi, Gordon Pratt, Travis Longcore, Jeremiah George, and Jan Leps. Interim Report 1997: Conservation Planning for the Endangered Laguna Mountains Skipper, *Pyrgus ruralis lagunae* (report to U.S. Forest Service, January 1998).
3. Pratt, Gordon, Rudi Mattoni, Travis Longcore, Jeremiah George, Cecelia Pierce, and Chris Nagano. Distribution of Quino Checkerspot Butterfly (*Euphydryas editha quino*) in Southern San Diego County and Related Observations (report to U.S. Bureau of Land Management, January 1998).
2. Mattoni, Rudi, Arthur Bonner, Jeremiah George, and Travis Longcore. 1997 Annual Report: Defense Fuel Support Point Revegetation, Chevron Pipeline Mitigation (report to U.S. Fish and Wildlife Service, August 1, 1997).
1. Mattoni, Rudi, Arthur Bonner, Jeremiah George, Travis Longcore, Catherine Rich, and Rick Rogers. 1997 Palos Verdes Blue Butterfly (*Glaucopsyche lygdamus palosverdesensis*) Adult Population Survey (report to U.S. Fish and Wildlife Service, June 30, 1997).

Popular Articles and Miscellaneous Reports

10. Longcore, Travis, and Catherine Rich. Urban oaks and urban oak woodlands. *Oaks* (newsletter of the California Oak Foundation), pp. 3, 7 (2003).
9. Longcore, Travis. Fire clearance. *Los Angeles Times* (April 29, 2000)
8. Longcore, Travis. Further enlightenment. *Malibu Times* (February 4, 1999).
7. Longcore, Travis. Ask campus community about changes. *Daily Bruin*, p. 12 (May 19, 1998).
6. Longcore, Travis, editor. Biological assessment: coastal sage scrub at University of California, Los

Angeles. Prepared by Geography 123, Dr. Rudi Mattoni, Lecturer (unpublished report, December 1997).

5. Longcore, Travis. The Endangered Delhi sand dunes. *Western Tanager* 63(8):1-2 (1997).
4. Longcore, Travis. LAAS Year in review. *Western Tanager* 63(7):1-3 (1997).
3. Longcore, Travis. Election special: comparative excerpts from party platforms. *Western Tanager* 63(3):1-3 (1997).
2. Longcore, Travis. Big Birdathon Day. *Western Tanager* 63(1):1-3 (1997).
1. Rich, Catherine and Travis Longcore. Consultation issues at UCLA: landscape and construction (unpublished report, February 1996).

Conference Presentations

15. Longcore, Travis and Catherine Rich. Ecological Consequences of Artificial Night Lighting in Natural Lands Management. Invited paper presented at George Wright Society Biennial Conference (San Diego, California, April 14-18, 2003).
14. Li, Christina, Travis Longcore, and John Wilson. The Association of American Geographers 98th Annual Meeting (New Orleans, Louisiana, March, 2003)
13. Longcore, Travis, Cor Zonneveld, Jorn Bruggeman, and Rudi Mattoni. *Tracking population responses of the endangered Palos Verdes blue butterfly to habitat enhancement using INCA (INsect Count Analyzer)*. The Ecological Society of America 87th Annual Meeting/Society for Ecological Restoration 14th Annual International Conference (Tucson, Arizona, August 4-9, 2002)
12. Longcore, Travis and John P. Wilson. *Applicability of CITYgreen urban ecosystem analysis software to a densely built urban neighborhood*. The Association of American Geographers 98th Annual Meeting (Los Angeles, California, March 19-23, 2002).
11. Longcore, Travis. *Obvious and insidious effects of sprawl on wildlife* (invited plenary speaker). Smart Growth for Californians and Wildlife, National Wildlife Federation and Planning and Conservation League (San Diego, California, May 19-20, 2001)
10. Longcore, Travis. *Ecological effects of fuel modification on arthropods and other wildlife in an urbanizing wildland*. Fire Conference 2000: The First National Congress on Fire Ecology, Prevention and Management (San Diego, California, November 27-December 1, 2000).
9. Longcore, Travis. *Response of terrestrial arthropod communities in coastal sage scrub to short-term climate change*. The Association of American Geographers 96th Annual Meeting (Pittsburgh, Pennsylvania, April 5-9, 2000).
8. Longcore, Travis. *Terrestrial arthropods and restoration: if you build it, will they come?* Society for Ecological Restoration Eleventh Annual Conference/Xerces Society Annual Meeting (The Presidio of San Francisco, September 23-25, 1999).
7. Longcore, Travis. *Putting the bugs in: assessing ecological restoration with terrestrial arthropods*. The Association of American Geographers 95th Annual Meeting (Honolulu, Hawaii, March 23-27, 1999)
6. Longcore, Travis and Catherine Rich. *419 acres: UCLA's natural history. 1. Land use, 2. Biological*

- homogenization, 3. Island biogeography*. Poster series and display presented at California's Biodiversity Crisis: The Loss of Nature in an Urbanizing World (UCLA, October 24–25, 1998).
5. Mattoni, Rudi, Jeremiah George, Travis Longcore, and Gordon Pratt. *Scale and the resonating impact of an exotic plant*. Southern California Academy of Sciences Annual Meeting (California State University, Fullerton, May 2–3, 1997).
 4. Longcore, Travis, Rudi Mattoni, Gordon Pratt, and Catherine Rich. *On the perils of ecological restoration: lessons from the El Segundo blue butterfly*. 2nd Interface Between Ecology and Land Development in California (Occidental College, Los Angeles, California, April 18–19, 1997).
 3. Mattoni, Rudi, Travis Longcore, Jeremiah George, and Catherine Rich. *Down memory lane: the Los Angeles coastal prairie and its vernal pools*. Poster presented at 2nd Interface Between Ecology and Land Development in California (Occidental College, Los Angeles, California, April 18–19, 1997).
 2. Longcore, Travis. *The role of science in Natural Community Conservation Planning*. Restoring Our Commitment to Recovery in the Era of the Habitat Conservation Plan, Endangered Species Defense Coalition (Starr Ranch, California, July 30, 1996).
 1. Longcore, Travis. *Mainland colonization by endemic insular taxa*. XXXth Annual Southwest Population Biology Conference (James Reserve, California, April 20–21, 1996).

INVITED PRESENTATIONS

South Coast Wildlands Project Missing Linkages Workshop, August 2002
University of Southern California, Department of Geography, February 2002
Santa Monica Mountains Conservancy, September 2001
California Native Plant Society, South Coast Chapter, August 2001
California State University, Northridge, Olivatt Library, April 2001
University of California Natural Resources Continuing Conference, Wrigley Institute for Environmental Studies, April 2001
Society for Ecological Restoration, California Chapter Annual Conference, October 2000
University of Stockholm, Department of Zoology, September 2000
University of Gothenberg, Department of Applied Environmental Science, September 2000
Lorquin Entomological Society, Los Angeles, California, June 2000
University of California, Los Angeles, Department of Geography, May 2000
Southern California Institute of Architecture, June 1998
Los Angeles Unified School District Target Science, "Butterflies in the City" Workshop Series, South Central Los Angeles Leadership Team, October 1998

PROFESSIONAL SERVICE

Referee, *Restoration Ecology, Journal of Research on the Lepidoptera, Environmental Management, Transactions in GIS*

Independent Scientific Advisor (Quino checkerspot butterfly), County of San Diego, 2002
Baldwin Hills Park Citizens Advisory Committee, 2002
Conference Co-Chair, The Urban Wildlands Group and UCLA Institute of the Environment, *Ecological Consequences of Artificial Night Lighting*, 2001–2002
Member, Advisory Council, Yosemite Restoration Trust, 1999–present
Member, Recovery Team (Technical Subteam), Quino Checkerspot Butterfly, U.S. Fish and Wildlife Service, 1999–present
Newsletter Layout, Endangered Habitats League, 1998–2002
Member, Conference Steering Committee, UCLA Institute of the Environment, *California's Biodiversity Crisis: The Loss of Nature in an Urbanizing World*, 1998
Managing Editor, *Journal of Research on the Lepidoptera*, 1997–1999
Member, Recovery Team, El Segundo Blue Butterfly, U.S. Fish and Wildlife Service, 1997–1998
Member, Environmental Review Board, County of Los Angeles (appointed by Los Angeles County Board of Supervisors), 1997–present
Editor, *Western Tanager*, newsletter of the Los Angeles Audubon Society, 1997
Vice President, Los Angeles Audubon Society, 1995–1997
Coordinator, Los Angeles Audubon Society Birdathon, 1996 (recognized by National Audubon Society, “Most Money Raised by a Rookie,” September-October issue of *Audubon* magazine)
Graduate Student Association Representative, UCLA Academic Senate Council on Planning and Budget, 1996–1999
Member, Graduate Affairs Committee, UCLA Department of Geography, 1995–1997
Member, Instructional Technology Committee, UCLA Department of Geography, 1993–1995

PROFESSIONAL AFFILIATIONS

Member, Ecological Society of America
Member, Association of American Geographers
Member, Society for Ecological Restoration
Member, Southern California Botanists
Member, California Botanical Society

PUBLIC COMMUNICATION

Associated Press, *Boston Globe*, *Daily Breeze* (Torrance, California), *Daily Bruin* (Westwood, California), *Los Angeles Times*, *Metro Santa Cruz* (Santa Cruz, California), *Riverside Press-Enterprise* (Riverside, California), *Sacramento News and Review* (Sacramento, California), *San Jose Mercury News*, Scripps Howard News Service (Washington, DC), *The Christian Science Monitor* (Boston), *The Globe and Mail* (Toronto), *California Wild*, *Discover*, *Life*, *People*, *Science*, *Science News*, *Reader's Digest* (Canada), National Geographic Television (“America’s Endangered Species: Don’t Say Goodbye”), NBC Nightly News, ABC News, CNN Radio Español, National Public Radio (“Talk of the Nation”), BBC World Service

CATHERINE RICH
P.O. Box 24020
Los Angeles, California 90024-0020
Telephone: (310) 276-2306

Education

UCLA Department of Geography, M.A. June 1997. Emphasis in biogeography, urban wildlife, environmental philosophy. Thesis: *Poliophtilaphilia? Toward an Understanding of the Role of Human Emotion in Nature Preservation*. Teaching Assistant: Biogeography, Physical Geography, People and the Earth's Ecosystems.

UCLA School of Law, J.D. June 1981. Member, State Bar of California. Co-founder and Associate Editor, *UCLA Journal of Environmental Law and Policy*. Co-founder and officer (faculty liaison), UCLA Environmental Law Society.

University of California, Berkeley, A.B. March 1978 (with Distinction). Pre-medical course, psychology major. Member, Board of Directors, U.C. Berkeley CalPIRG (1976–1977). Co-founder, U.C. Berkeley CalPIRG (1976).

Professional Experience

Co-founder and Executive Officer, The Urban Wildlands Group (1996–present). Organization studies and works to protect species, habitats, and ecological processes within urban and urbanizing areas. Projects include restoration and management of habitat supporting endangered butterfly species, public education about effects of noise and artificial night lighting on wildlife, promotion of humane approaches to wildlife management, research on minimizing ecological effects of fuel modification.

Principal, Land Protection Partners (1998–present). Consultant to attorneys in land protection actions (primarily California Environmental Quality Act, California Coastal Act, federal Endangered Species Act). Services include issue identification, preparation of biological analysis with supporting scientific literature review, communication with resource agency personnel.

Contract Attorney, Law Offices of Jonathan Kirsch (1999–present). Trademark and publishing law.

Copy Editor, *Journal of Research on the Lepidoptera* (1997–1999).

Legal/Policy Consultant (1989–1992). Projects included assisting in the preparation of lawsuit (*Nordlinger v. Lynch*) challenging property tax assessment scheme mandated by Proposition 13 (for Center for Law in the Public Interest).

Deputy, Los Angeles City Councilman Marvin Braude (1987–1988). Formulated and developed environmental policies and programs. Represented councilman before city boards,

commissions, and committees, and at community meetings. Coordinated councilman's reelection campaign for seat on AQMD Board.

Community Representative (1985–1986). Directed successful effort to prevent developer from demolishing five contiguous apartment buildings in an unredeveloped Westwood neighborhood. Persuaded Los Angeles City Council to enact a local building moratorium, then successfully represented local community before Planning and Environment Committee of the City Council in a hardship exemption hearing requested by developer. Prepared architectural and historical documentation for Historic Preservation Overlay Zone application.

Staff Attorney, California Commission on Campaign Financing (1984–1985). Contributed to two-volume report on legislative campaign financing (*The New Gold Rush: Financing California's Legislative Campaigns*).

Full-time staff member, Gary Hart presidential campaign (1984). Field desk contact for Northern California; Los Angeles regional co-coordinator. Appointed to Credentials Committee of the 1984 Democratic National Convention.

Attorney, Paul, Hastings, Janofsky & Walker (1983). General civil litigation.

Editor/Assistant, Professor Charles M. Firestone (1982–1983). Edited Firestone and Johnson's *Cases and materials on communications law and policy*; assisted in preparations for conference, UCLA Communications Law Program/International Bar Association Symposium on International Satellite Television.

Research Assistant, Professor Richard Abel (Summer 1980). Compiled information on workplace exposure to toxic substances.

Intern, Hollywood Revitalization Committee (funded by National Trust for Historic Preservation) (Summer 1979). Evaluated feasibility of establishing a façade easement program for Hollywood's historic buildings.

Research Assistant, Professor Laura Nader (funded by National Highway Traffic Safety Administration) (Spring 1978). Research on social costs of automobile accidents.

Research Assistant, Professor Laura Nader (Summer 1977). Participated in study funded by Energy Research & Development Administration evaluating feasibility of alternative energy systems in California. Interviewed officials involved with the implementation of Energy Conservation Standards for New Residential Buildings.

Peer Reviewed Publications

Rich, Catherine, and Travis Longcore (eds.). *Ecological consequences of artificial night lighting*. Island Press (in preparation for 2004 publication).

Longcore, Travis, and Catherine Rich. Ecological light pollution. *Frontiers in Ecology and Environment* (in review).

Longcore, Travis, Catherine Rich, and Dietland Müller-Schwarze. Management by assertion: beavers and vireos at Lake Skinner (Riverside County, California). *Ecological Restoration* (in review).

Longcore, Travis, Rudi Mattoni, Gordon Pratt, and Catherine Rich. On the perils of ecological restoration: lessons from the El Segundo blue butterfly. Pp. 281–286 in Keeley, Jon, Melanie Baer-Keeley, and C.J. Fotheringham, eds. *2nd Interface Between Ecology and Land Development in California*, U.S. Geological Survey Open-File Report 00-62, Sacramento, CA (2000). (Abstracted in *Ecological Restoration* 19(2):125 (2001).)

Scientific Reports

Longcore, Travis, and Catherine Rich. Review of biological impact analysis in Initial Study and Mitigated Negative Declaration (PD-S-942/TT5411), City of Simi Valley. Los Angeles, Land Protection Partners, 15 pp. (July 24, 2003).

Longcore, Travis, and Catherine Rich. Conservation value of Catellus West Bluffs property justifies purchase with public funds. Los Angeles, Land Protection Partners, 11 pp. (May 2, 2003).

Longcore, Travis, Catherine Rich, John Marzluff, and Barbara Nightingale. Peer review of artificial light and noise impact analysis in Sand Point Magnuson Park Drainage, Wetland/Habitat Complex and Sports Fields/Courts Project Final Environmental Impact Statement [Seattle, Washington]. Los Angeles, Land Protection Partners, 15 pp. (January 16, 2003).

Longcore, Travis, and Catherine Rich. Adequacy of biological resources analysis in Heschel West School Draft Environmental Impact Report. Los Angeles, Land Protection Partners, 23 pp. (December 11, 2002).

Longcore, Travis, and Catherine Rich. Review of biological resources analysis in Malibu Bay Company Development Agreement Draft Environmental Impact Report. Los Angeles, Land Protection Partners, 28 pp. (November 11, 2002).

Longcore, Travis, and Catherine Rich. Action plan for Kern primrose sphinx moth (*Euproserpinus euterpe*) at Carrizo Plain National Monument. Los Angeles, The Urban Wildlands Group, 15 pp. (report to U.S. Fish and Wildlife Service, November 1, 2002).

Longcore, Travis, Rudi Mattoni, Alison Lipman, Zdenka Krenova, and Catherine Rich. Final report for Palos Verdes blue butterfly year 2002 captive rearing on Defense Fuel Support Point, San Pedro, California. Los Angeles, The Urban Wildlands Group (Defense Logistics Agency Agreement # N68711-02-LT-00010), 18 pp. (October 1, 2002).

Longcore, Travis, and Catherine Rich. Effects of light and noise from a proposed Wal-Mart "Supercenter" on the wildlife of Penjajawoc Marsh (Bangor, Maine). Los Angeles, Land Protection Partners, 18 pp. (June 7, 2002).

Longcore, Travis, and Catherine Rich. Protection of environmentally sensitive habitat areas in proposed Local Coastal Plan for City of Malibu. Los Angeles, The Urban Wildlands Group, 19 pp. (May 30, 2002).

Longcore, Travis, and Catherine Rich. A review of the ecological effects of road reconfiguration and expansion on coastal wetland ecosystems. Los Angeles, The Urban Wildlands Group, 12 pp. (November 14, 2001).

Longcore, Travis, and Catherine Rich. Review of biological resources analysis in draft Sully-Miller/Fieldstone Communities Environmental Impact Report (SCH #99101125). Los Angeles, Land Protection Partners, 15 pp. (October 19, 2001).

Longcore, Travis, and Catherine Rich. Review of biological resources analysis in LAX Master Plan Draft Environmental Impact Statement/Environmental Impact Report. Los Angeles, Land Protection Partners, 27 pp. (August 8, 2001).

Longcore, Travis, and Catherine Rich. Review of biological resources analysis in City of Malibu Negative Declaration No. 00-010 (Kempin Single Family Residence). Los Angeles, Land Protection Partners, 5 pp. (July 23, 2001).

Mattoni, Rudi, Arthur Bonner, Jeremiah George, Travis Longcore, Catherine Rich, and Rick Rogers. 1997 Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*) adult population survey (report to U.S. Fish and Wildlife Service, June 30, 1997).

Rich, Catherine, and Travis Longcore. Consultation issues at UCLA: landscape and construction (unpublished report, February 1996).

Nader, Laura, Norman Milleron, Joseph Palacios, and Catherine Rich. Belief, behavior, and technologies as driving forces in transitional stages — the people problem in dispersed energy futures. Pp. 177–238 in *Distributed energy systems in California's future: a preliminary report, Volume 2*. Washington, D.C.: Energy Research & Development Administration (September 1977).

Conference Presentations

Longcore, Travis, and Catherine Rich. Ecological consequences of artificial night lighting in natural lands management. Invited paper presented at George Wright Society Biennial Conference, San Diego, California (April 14–18, 2003).

Longcore, Travis, and Catherine Rich. *419 acres: UCLA's natural history. 1. Land use, 2. Biological homogenization, 3. Island biogeography*. Poster series and display presented at California's Biodiversity Crisis: The Loss of Nature in an Urbanizing World (UCLA, October 24–25, 1998).

Longcore, Travis, Rudi Mattoni, Gordon Pratt, and Catherine Rich. *On the perils of ecological restoration: lessons from the El Segundo blue butterfly*. Paper presented at 2nd Interface Between Ecology and Land Development in California (Occidental College, Los Angeles, California, April 18–19, 1997).

Mattoni, Rudi, Travis Longcore, Jeremiah George, and Catherine Rich. *Down memory lane: the Los Angeles coastal prairie and its vernal pools*. Poster presented at 2nd Interface Between Ecology and Land Development in California (Occidental College, Los Angeles, California, April 18–19, 1997).

Grants and Awards

Santa Monica Bay Restoration Commission. Grant of \$131,000 to Los Angeles Conservation Corps and The Urban Wildlands Group to restore coastal dune and bluff vegetation and develop a master plan for restoration of El Segundo dune and bluff habitat (2003).

Defense Logistics Agency. Contract for \$43,779 to The Urban Wildlands Group to conduct experimental captive propagation of endangered Palos Verdes blue butterfly (2003).

Conservation and Research Foundation. Grant of \$5,000 to The Urban Wildlands Group to support preparation of book, *Ecological Consequences of Artificial Night Lighting* (2003).

California ReLeaf. Grant of \$7,500 to The Urban Wildlands Group for project, “Urban Forest Assessment and Outreach at UCLA” (2003).

U.S. Department of the Navy. Contract for \$12,000 to The Urban Wildlands Group to salvage Palos Verdes blue butterfly pupae from Navy property to be disposed and developed (2002).

U.S. Fish and Wildlife Service. Contract for \$24,000 to The Urban Wildlands Group to develop Recovery Plan for endangered Callippe silverspot butterfly in San Francisco area, California (2002).

U.S. Fish and Wildlife Service. Contract for \$10,000 to The Urban Wildlands Group to develop Action Plan for endangered Kern primrose sphinx moth on BLM land in the Carrizo Plain National Monument, California (2002).

National Fish and Wildlife Foundation. Grant of \$5,000 to The Urban Wildlands Group to support conference, *Ecological Consequences of Artificial Night Lighting* (2002).

Electric Power Research Institute. Grant of \$2,000 to The Urban Wildlands Group to support conference, *Ecological Consequences of Artificial Night Lighting* (2002).

Defense Logistics Agency. Contract for \$42,665 to The Urban Wildlands Group to conduct experimental captive propagation of endangered Palos Verdes blue butterfly (2002).

U.S. Fish and Wildlife Service Landowner Incentive Program. Grant of \$37,300 to The Urban Wildlands Group to restore habitat for endangered El Segundo blue butterfly on private property in Torrance, California (2001).

International Dark-Sky Association Executive Director's Award, "In recognition of her enthusiastic efforts in the pursuit of the promotion of Dark Skies" (2002).

International Dark-Sky Association Executive Director's Award, "For outstanding service in protecting our nighttime environment" (2001).

Selected Activities and Memberships

Conference Co-Chair, The Urban Wildlands Group/UCLA Institute of the Environment, *Ecological Consequences of Artificial Night Lighting* (2002)

Advisor, California Wildlife Foundation (2002–present)

Member, Advisory Council, California Oak Foundation (1999–present)

Member, Conference Steering Committee, UCLA Institute of the Environment, *California's Biodiversity Crisis: The Loss of Nature in an Urbanizing World* (1998)

President, Los Angeles Audubon Society (1996–1997)

Conservation Co-Chair, Los Angeles Audubon Society (1995–1996)

Second Vice President, Los Angeles Audubon Society (1994–1995)

Member, Advisory Committee, Los Angeles County 1996 Proposition A. Successfully lobbied for inclusion of, and wrote, statement in Proposition A's preamble pertaining to the importance of maintaining biological diversity within the County, and successfully lobbied for creation of a competitive grant category for habitat acquisition and/or restoration.

Member, Society for Conservation Biology

Member, Cooper Ornithological Society



November 7, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

VIA MESSENGER & U.S. MAIL

*c/o #1 World Way
Los Angeles CA 90045*

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

VIA U.S. MAIL

Re: Comment letter re LAX Master Plan EIS/EIR

Dear Messrs. Ritchie and Kessler:

Kilroy Realty Corporation is a Southern California-based real estate investment trust active in the commercial office and industrial property markets of the western United States.

Near LAX Airport, Kilroy Realty Corporation owns and manages 1.5 million square feet of office and industrial properties, including

- 909 and 999 North Sepulveda Boulevard, at Imperial Highway and Sepulveda (across the street from LAX), in El Segundo
- 2240, 2250, 2260 East Imperial Highway (Kilroy Airport Center – also across from LAWA-owned LAX property), in El Segundo
- 2031 East Mariposa Avenue, near Nash, in El Segundo
- 181, 185 South Douglas, in El Segundo
- 2260 East El Segundo Boulevard, in El Segundo
- 2265 East El Segundo Boulevard, in El Segundo
- 2270 East El Segundo Boulevard, in El Segundo

As an immediate neighbor to LAX, we have reviewed the LAX Master Plan EIS/EIR and offer the following comments:

1. Related to the proposed 12,000-space parking structure near Imperial Highway and Pershing Drive for LAX employee parking, there is inadequate analysis in the EIS/EIR concerning the traffic impacts to Imperial Highway from having the majority of LAX employees utilize one central parking area, presumably traversing Imperial Highway for ingress and egress, to the proposed parking site. Further, in the South Cargo Complex-West, an additional 99,000 square feet of cargo facilities will be developed, pursuant to Figure 2.5-1 of the LAX Master Plan EIR, which will create additional truck traffic on Imperial Highway.
2. In addition to traffic impacts, the isolation of employee parking in one area would appear to create safety and operational impacts, as it segregates employee parking in one primary area, which could create a target for a terrorist incident. There is inadequate analysis in the EIS/EIR related to the safety and operational impacts of segregating most of LAX employee parking into one area, and what a security incident could do to the main arterial – Imperial Highway – leading to and from the parking area.
3. Related to the proposed 9,100 parking space structure and proposed 5,500 parking lot at Imperial and Aviation adjacent to the future Intermodal Transportation Center, there is inadequate analysis in the EIS/EIR pertaining to traffic and air quality impacts. The creation of a total of 14,600 parking spaces, where today there are virtually no parking spaces, will bring traffic and air quality impacts to an area of Imperial Highway that is already experiencing degradation in Levels of Service and air emissions. There is inadequate analysis in the EIS/EIR as to what mitigation measures will be utilized to bring the traffic and air quality impacts to acceptable levels. The EIS/EIR indicates that the Intermodal Transportation Center at Imperial and Aviation would handle approximately 31% of LAX passengers. Under Alternative D, LAX would accommodate 78.9 million annual passengers. That would mean that almost 25 million passengers would pass through the proposed Intermodal Transportation Center annually, where today no airline passengers come near this area. With 14,600 parking spaces and 25 million annual passengers traversing this area, common sense would indicate that a major traffic bottleneck could occur at Imperial Highway and Aviation from thousands of vehicles trying to access this site for parking or passenger drop-off/pick-up. Yet, there is not adequate analysis in the EIS/EIR related to measures to improve the existing roadway

system to mitigate the significant influx of vehicular trips congregating to the area and corresponding air quality impacts.

4. There is mention in the EIS/EIR of a proposed new interchange off the I-405 Freeway to be called "Lennox" interchange. However, no real funds have been identified to pay for such an interchange, nor have funds been identified to pay for the land acquisition to facilitate the interchange. Without identified funding, this interchange is nothing more than a "wish" and should not be used as a mitigation measure related to traffic and/or air quality impacts.
5. The EIS/EIR's analysis of the noise impacts of moving the southern runway (7R/25L) fifty-six (56) feet closer to Imperial Highway relies on presumption that the new generation of Group VI aircraft, which will presumably be quieter than current aircraft, will replace existing, noisier aircraft on a fairly aggressive timetable. However, there are no guarantees as to how soon and how many future aircraft will be of the Group VI aircraft variety. This could take a generation or more for the predominant aircraft taking off or landing on the southern-most runway near Imperial Highway, to be of the new, quieter generation of aircraft. If the southern runway is moved 56 feet closer to Imperial Highway, and thus 56 feet closer to businesses and residents in El Segundo, there are not adequate mitigation measures described in the EIS/EIR to reduce the noise impacts to acceptable levels if the conversion to the newer Group VI aircraft takes longer than projected. In fact, moving the southern runway 56 feet closer to Imperial Highway seems to be at the top of the list in terms of implementation of the LAX Master Plan, but the new quieter generation of aircraft utilizing 7R/25L is not yet reality. The EIS/EIR does not adequately address what will happen during this interim time, or how these noise impacts will be mitigated to acceptable levels to protect businesses and residents south of Imperial Highway.
6. In addition to noise impacts from moving the southern runway 56 feet closer to Imperial Highway, a new 121,000 square foot General Aviation facility will be developed near the intersection of Imperial Highway and Sepulveda Boulevard on the northwest corner of Imperial and Sepulveda. This additional General Aviation facility will also generate noise impacts in close proximity to existing businesses and residences, though it is not clear from reviewing the EIS/EIR how the noise impacts from the new General Aviation facility will be mitigated.

7. With the southern runway (7R/25L) moved 56 feet closer to Imperial Highway, there may be vibration impacts due to the proximity of jets taking off, landing and taxiing 56 feet closer to businesses and residents in El Segundo, just to the south of Imperial Highway. However, there is virtually no discussion in the EIR of the vibration impacts as a result of moving the runway closer to existing structures and people.

The above list is not meant to be exhaustive of our concerns regarding the adequacy of the EIS/EIR's analysis. Given the length of the EIS/EIR, which is 10 volumes and over 5,400 pages in length, we are relying on Section 21177(a) of the California Public Resources Code, which states:

*"No action or proceeding may be brought pursuant to Section 21167 unless the alleged grounds for noncompliance with this division were presented to the public agency orally or in writing by **any** person during the public comment period provided by this division or prior to the close of the public hearing on the project before the issuance of the notice of determination."*

Pursuant to Public Resources Code Section 21177(a), we reserve the opportunity to affirm and incorporate certain oral and written comments provided by others to LAWA and the FAA in connection with the LAX Master Plan EIS/EIR.

Very truly yours,

KILROY REALTY CORPORATION



John T. Fucci, CPM®
Senior Vice President
Asset Management



Public Comments

Please print.

Name (First MI Last, or Organization):

MINNIE GIBSON

Date: 11-5-03

Address:

10229 So. 7th Ave.

City:

Inglewood

State:

Cal.

Zip Code:

90303

Document:

Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number:

Title:

? info for given by Congressman Harwood 1000-92216

Comments:

Dear Mr. Ritchie - City of the World Airports

Office Use Only

I live at 10229 S. 7th Ave in Inglewood CA 90303.

My house is under the last loud noise before the plane lands. Since a plane needs enough gas to go to the next city until they get an okay to land, where does that fuel go since it's a few violations to land with fuel?

Since the cars/trucks/traffic is making the black spots (Per Air Pollution - Plans) in Diamond Bar aren't they coming to the airport to pick up goods for all of Southern California? Could the debris and black spots or rotten food on road in areas be covered with washing - Are there any funds for this?

Why has the value of my house gone down? Before the airport it was worth more. Other homes are going up & ours are going down. Please tell me why?

I received Doors and windows from LAX. Is there a lien on my house?

Are there any funds to replace the broken windows at Morrisville HS school that are broken.

I am thanking you in advance for your time.

Thank you
Minnie Gibson

323-779-2935

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216

Recd
11-07-03
10:00 am

SPC00261



Public Comments

Please print.

Name (First MI Last, or Organization): **AUDREY PATTON, Captain**
50th St. BLOCK CLUB Date: **04 Nov 03**

Address: **1639 W. 50th St.**

City: **Los Angeles, CA** State: Zip Code: **90062**

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable): Number: Title: **Approval of Alternative D** **LAX Master Plan**

Comments: *The members of our block club have read and approved Alternative D as the best plan for the improvement of the airport at LAX.*

Audrey Patton

See attached rationale and comments, 11 individual comments

Office Use Only

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Rec'd
11-07-03
10:00 am



50th St. Block Club
(Between Western and Denker)
"Strength In Unity / Fuerza en Unidad"

04 November 03

The attached comments are based on the following rationale:

The City has other airports in Van Nuys, Ontario, and Palmdale. With the increased use of these airports, we would not need increased or extended runways, additional terminals, or land acquisition as Alternatives A, B, and C would require. Also, Increased use of these other airports would decrease automobile traffic (especially on the San Diego Freeway — the 405) which is a nightmare almost any time of day. Incessant lines of planes flying low over the southern end of the City would, hopefully, be decreased with the extension of the other airports — we definitely don't want them increased.

Alternative D improves the security problems found at LAX, without the acquisition of more space; "D" also "eliminates all passenger associated traffic on the Central Terminal Area (CTA) roadways, increasing the ability to secure the environment. There are changes which will cost — the primary change — the re-positioning of existing runways to decrease the danger of accidents, the institution of a shuttle to bring people from parking lots outside of the terminal and the extension of the Green Line ("eliminating all "passenger associated traffic" within the terminal).

The Alternatives A, B, C, feature the creation of jobs as an economic benefit. "Today, in Los Angeles City there are approximately, 158,000 jobs directly linked to LAX. 408,000 in the region, 328,000 in the County." That means over half the jobs (250,000) are NOT in LAX. Anyway, most of the construction jobs are awarded to contractors who, if they employ people from the inner city, only employ a token force.

There is one problem that I see in plan D — the elimination of gates and replacing them with "shops and such." There's enough congestion as it is when people are boarding or deboarding. It seems that the elimination of gates would only increase this congestion. Also, the supplies needed by the "shops and such" that would replace the gates could breach the security. It would be very easy to bring in harmful devices, masked as supplies. **It would make sense to put the "shops and such" out in the parking area.**

We, in the innercity, are paying exorbitant sewage costs now because of the erection of new central City complexes, buildings, and multiunit structures from which we will see little if any benefit. The money their presence creates for the City does not filter back to the average citizen. Our taxes increase; the City cannot afford adequate police; the City cannot afford adequate schools or quality teachers; our streets are in disrepair; we have to cajole the sanitation department for proper service. But the City keeps building and telling us that it will benefit our economy.

SPC00262



Public Comments

Please print.

Name (First MI Last, or Organization): ONE WILLIAMS Date: 11-4-03

Address: 1537 W 50th St

City: LOS ANGELES CA State: CA Zip Code: 90062

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments: Office Use Only

Master Plan Alternative
D. That will enhance our
community - better than
the other plans.
Thank you

One Williams
50th Street place

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): Maria Guzman 50th club Date: 11-4-03

Address: 1649 W. 50th St

City: Los Angeles State: CA Zip Code: 90062

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments:

Office Use Only

I would like to see the
Master Plan Alternative D.
approved.

Maria Guzman

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): *George Corabian* Date: *11/4/03*

Address: *8101 S. Vermont Ave*

City: *Los Angeles* State: *Calif* Zip Code: *90044*

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments:

Office Use Only

Master Plan "D" appears to be the best plan to go forward with.

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization):

50th Street Bldg Club

Date:

11/04/03

Address:

City:

Los Angeles

State:

CA

Zip Code:

90062

Document:

Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number:

Title:

Comments:

I certainly and honestly feel that Master Plan "D" will serve the purpose.

Office Use Only

Charles B. Yaszien
4919 So. Harvard Blvd.
Los Angeles, CA 90062

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

SPC00266



Public Comments

Please print.

Name (First MI Last, or Organization):

BOLDEXI B ROBERTSON 507th S. WEST SHOCK CLUB

Date:

7/16/2003

Address:

1548 W 50th STREET

City:

Los Angeles

State:

CA

Zip Code:

90062

Document:

Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number:

Title:

Comments:

MASTER PLAN ALTERNATIVE "D" WOULD
~~BE BE~~ BE BEST FOR THE CITY AS A WHOLE

Office Use Only

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

SPC00267



Public Comments

Please print.

Name (First MI Last, or Organization): *Alice Jones* Date: *11-4-03*

Address: *1610 W 50th Street*

City: *LOS ANGELES* State: *CALIF.* Zip Code: *90062*

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title: *50th Street Block Club*

Comments:
Master plan D. is our choice

Office Use Only

Alice B. Jones

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization):

ADA M. BLAIR

Date:

11-4-03

Address:

1611 W. 50th St.

90062

City:

Los Angeles

State:

CA

Zip Code:

Document:

Draft Master Plan Addendum

Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number:

Title:

50th St Block Club B

Comments:

Master Plan is our choice

Office Use Only

Ada M. Blair

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): 50st Block Party Carlos Moreno Date: 11/04/03

Address: 1635 W. 50th

City: LA

State: CA

Zip Code: 90062

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title: Masterplan

Comments:

I support ^{Master} Alternative D-~~Enhanced~~ Plan.

Carlos Moreno

Office Use Only

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization):
MARY K. LEMMONS

Date: 11-4-03

Address: 1566 W. 50th St.

City: L.A.

State: Ca.

Zip Code: 90062

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title: Master Plan D (L.A. P)

Comments:

D plan
Master Plan D is the best for us.

Office Use Only

Attach additional sheets if necessary.

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City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

JAMES WATT McCORMICK

November 7, 2003
VIA FACSIMILE

Mr. Jim Richie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
PO Box 92216
Los Angeles, CA 90009-2216

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

CITIZEN COMMENT REGARDING LAX MASTER PLAN ALTERNATIVES UNDER
CURRENT EIS/EIR PROCESS
RECOMMEND REJECTION OF ALTERNATIVE D

Political decisions made in the wake of the national hysteria following 9/11/2001 have ordained a cobbled together proposal in "Alternative D" that is insufficiently elaborated to establish a valid basis for assessing its environmental impacts or reasonable assurances that its benefits outweigh the costs to the public or the environment.

The objective of enhanced security is an important element of any conception of modernizing LAX but must not become the "sheep's clothing" under which a poorly conceived of and insufficiently elaborated alternative is rushed through the public review processes.

The magnitude of the importance of effectively addressing the Los Angeles Regions' requirements for an air transportation system for the 21st Century cannot be overstated but the overwhelming evidence in the public's reaction to the solutions advanced as proposals to this date is that we have not yet produced the comprehensive approach that is a satisfactory response to this requirement.

I recommend that we continue our work toward the end of an exceptionally well conceived of and comprehensive approach to the Los Angeles Regions' requirements for an air transportation system for the 21st Century and reject the Recommended Alternative as poorly conceived of and insufficiently elaborated to fully meet the legal tests of adequacy for environmental review.

Sincerely,



JAMES McCORMICK & COMPANY

A PUBLIC TRUST COMMONWEALTH DEVELOPER

Vox: 310-459-8516 Fax: 310-459-7260

E-Mail: bldg@common-wealth.net

Date : 11/7/2003

Pages: 2

To: Mr. Jim Richie

Fax #: +1 (310) 6461891

From: James Watt McCormick

SUBJECT: COMMENT EIS/EIR LAX Master Plan
Addendum & Supplement

NOV-07-2003 13:07

P.01

SPC00272

Mr. Jim Ritchie

City of Los Angeles

Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Lax Environmental Justice / Expansion Master Plan Growth 2003

This is a letter in response to your Environmental Justice meeting held at Inglewood, Ca., in regards to LAX Expansion. You 'offered' us sound insulation, a nighttime curfew on flights, 'less' pollution, noise, and traffic, and jobs. I find all to be unacceptable and not doing enough to assist residents east of LAX. Instead of working harder for residents to the east of LAX, LAX recently passes a law that aimed to stop Hare Krishna and other religious groups from soliciting donations in open areas, but restricting them to out of the way booths." LAX officials say the law is needed because solicitors are annoying, distracting, increase congestion " from the Daily Breeze April, May 2003. Funny, that is how a lot of us feel about LAX, in our communities to the east. Annoying, Dsitracting, Increase congestion. I hope this is taken into account for our communities.

The Residential Sound Insulation / soundproofing does not appear to be going in noise order across all affected communities. Why is it separated into multiple (at least three) programs? Houses here in Inglewood are done in an apparent 'random' order, probably to placate residents in various neighborhoods. I was never invited to participate in the program here in Inglewood, despite living under the north runway flight path for many years, and had to apply in person @ the Inglewood Residential Sound Insulation office, even as I watched neighbors being invited to meetings discussing the program, and their houses being done. It also took an excessive (2 + years) amount of time from applying to completion. From the research I have conducted, Manchester Square and other homes in other neighborhoods are not exposed to the same high levels of airport noise, but are receiving more money than Inglewood and Lennox. Numerous friends in the Lennox / La County areas have not heard of the programs, and have not been invited to participate, despite being subject to large amounts of noise & overflights being under the flight paths to the major south runway complex. This inequity needs to be looked at immediately.

In regards to the promised nighttime flight curfew, I find this amusing. I had filed complaint forms with the LAX Noise website numerous times in 2002. Eventually (6 + months, on average), I received responses back. Included in that information, it appears Westchester, Playa Del Rey, and El Segundo (to the north and south of LAX) 'benefit the most' from a 10:00 PM - 7:00 AM curfew on the outer runways, as well as various restrictions on engine run ups and maintenance. Many flights overflew my neighborhood and there was no explanation given as to why many of these overflights occurred (unknown was given on the forms mailed to me). There needs to be better communication from LAX, the airlines that commit these 'violations', and the FAA to the affected neighborhoods. Eventually, I believe, after filing many complaints, the amount of complaints investigated was limited to 5 per household per month. No additional measures were implemented to handle relations & communication with affected areas after this limit of 5 complaints was set. If the records were to be checked, it would be apparent that there have been thousands of curfew 'violations' over the years to the neighborhoods to the east. But the residents of Hawthorne / Manhattan Beach / Hermosa Beach etc. received some relief from their overflights. According to the Daily Breeze and other sources, the Hawthorne / Manhattan Beach / Hermosa Beach residents had approximately 91 easterly takeoffs over 18 months. Letters were written to airlines asking them to discontinue this practice. Millions of dollars are

SPC00273

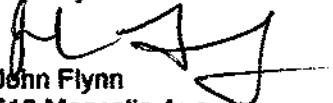
being spent on a Part 150 noise study. I see this east takeoff as being used for safety reasons, yet LAX / FAA chooses to accommodate Hawthorne / Hermosa Beach / Manhattan Beach / etc. residents, instead of east neighbors. Yes, safety is as big a concern for me as it is for LAX. But it appears 'safety' is used more when it affects communities to the east, rather than to the north and south of the airport. Do the residents to the east get a soundwall built? Northern (Westchester) residents received them years ago. Where is Inglewood's and Lennox's Part 150 study?

Less pollution and traffic should be given top priority by the LAX expansion project. If the Manchester Square check in center is built, it will greatly increase traffic and pollution in the Inglewood area. La Cienega, Aviation, Century, Airport Blvd. and Arbor Vitae streets will need major improvements to accommodate the larger number of vehicles that will travel there. Why is the Green line not being continued to the Inglewood / Westchester area? This is the perfect opportunity to 'do it right', but I don't believe this project will be 'done right'. The residents to the east will be forced to deal with more traffic, noise and pollution. Our houses and cars get dirty from the planes and traffic. A recent flight path change for takeoffs has benefitted the southern communities (El Segundo, Hermosa Beach, Manhattan Beach, Palos Verdes, etc) while imposing more noise and pollution on communities to the north and east of LAX. How will construction of the new facilities affect residents to the east? We bear too much of the noise & pollution burden now. We don't want any more.

Jobs are important for the residents to the east. I hope this matter is truly open to the residents here. Good paying jobs with a future. Training and education. We will see if LAX can truly make this happen, instead of outsiders and consultants running all projects, except for a small amount of local workers performing menial tasks.

Seeing the process of LAX airport expansion over the years, I have seen many proposals changed to accommodate the north and south neighbors. In my opinion, a third runway should be built to the north, but probably won't due to Westchester local opposition. Please don't forget us to the east. Many things are included in the Environmental Justice plan, but more need to be included. After September 11, 2001 terrorist attacks, I immediately thought of how Israel conducts their airplane industry. We need to copy what they have done, not reinvent the wheel and waste countless dollars in the process, accommodating business concessions and special interests in the process. Israel has been very successful. Please study what they have done. Yes, the travellers need to get through the process in a relative short time, but it seems that the whole process is geared to the traveller and business concerns. Please do not relax security just for convenience of travellers, at the expense of residents to the east. Many new improvements could be built into the existing LAX complex, without affecting the eastern communities as much as the Manchester Square check in facility would.

Thank you


John Flynn
518 Magnolia Ave.
Inglewood, Ca 90301

11/6/2003

11/6/2003

SPC00273



8726 South Sepulveda Boulevard, PMB 191A
Los Angeles, CA 90045
213.473.7023 ph
310.301.3564 fx
email: inquiries@ncwpdr.org
www.ncwpdr.org

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Robert Weldon
William West
Barbara Yamamoto

November 4, 2003

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Dear Mssgrs Kessler and Ritchie:

Enclosed are the "Neighborhood Council of Westchester/Playa del Rey LAX Master Plan Position Paper" and the "Community Questions on the LAX Master Plan EIS/EIR." The position paper is submitted as a comment on the LAX Master Plan and was approved by our Board of Directors on Tuesday, October 21st. The questions were compiled from local stakeholders and the questions were unanimously approved at the same meeting for submittal to you.

We look forward to seeing your written responses to our comments and questions submitted on the LAX Master Plan.

Sincerely,


Gwen Vuchsas
President

Cc: Mayor James Hahn
Councilwoman Cindy Miscikowski
Mr. Greg Nelson, Department of Neighborhood Empowerment

LAX Master Plan Position Paper

Airport Relations Committee recommends adoption of this report by the
Neighborhood Council of Westchester/Playa del Rey Board of Directors

Approved by the Airport Relations Committee on Saturday, October 18, 2003

Ayes:	7
Noes:	1
Abstain:	2

Approved by the NCWPDR Board of Directors, Tuesday, October 21, 2003

Ayes:	<u>13</u>
Noes:	<u>3</u>
Abstain:	<u>3</u>

Notes:

LAX Master Plan Position Paper

1 INTRODUCTION

2

3 The Neighborhood Council of Westchester/Playa del Rey (NCWPDR) is the
4 recognized Neighborhood Council for Westchester/Playa del Rey. The Los
5 Angeles International Airport (LAX) is included in the Council's boundaries. Los
6 Angeles World Airports (LAWA), the City of Los Angeles agency that operates
7 LAX has released a Supplement to the Draft Environmental Impact
8 Statement/Environmental Report (EIS/EIR) for the LAX Master Plan (hereafter
9 referred to as "Alternative D" [July 2003]). Many of the stakeholders that
10 comprise our community (residents, businesses and real property owners)
11 expect NCWPDR to take a position on the LAX Master Plan and to ask
12 questions about the EIS/EIR document. This position paper and accompanying
13 questions respond to those expectations.

14

15 NCWPDR represents a community of over 55,000 residents and a variety of
16 businesses, institutions and government facilities. LAX has been a stakeholder
17 in NCWPDR since its inception in 2002. It has been and continues to be the
18 intention of NCWPDR to maintain a positive working relationship with LAX.

19

20 The NCWPDR Board of Directors understands the need for a safe and secure
21 airport. The NCWPDR Board also understands the needs of the residents and
22 local businesses to not be negatively impacted by airport operations. NCWPDR
23 stakeholders are also shareholders in City assets such as LAX. There is a

LAX Master Plan Position Paper

1 reasonable expectation on the part of citizens that government will take good
2 care of publicly owned facilities. Airports are unique government owned
3 facilities as they provide both transportation options and economic
4 development. Airports are also unique in the types of problems that they
5 present for neighbors- noise, traffic, pollution and a potential terrorist target.

6
7 There is a long history between LAX and Westchester/Playa del Rey residents
8 where some very important promises on development issues have been made
9 and not been kept -- issues such as ground radar and a new passenger
10 airport in Palmdale.

11
12
13 **POSITION PAPER**

14
15 NCWPDR has examined the Supplement to the LAX Master Plan Draft EIS/EIR.
16 The question used to come to a decision was, "Is the LAX Master Plan
17 beneficial to the community?" The answer is "no." NCWPDR requests that the
18 Board of Airport Commissioners (BOAC), Federal Aviation Administration (FAA),
19 the Los Angeles City Council and Mayor Hahn reject all LAX Master Plan
20 alternatives produced thus far and start over with active input from the
21 surrounding communities and the airlines to design a new LAX Master Plan
22 which all parties can support.

LAX Master Plan Position Paper

1 REGIONAL SOLUTION

2

3 There are other viable alternatives to expanding or modernizing LAX such as a
4 truly regional plan. It is well known and understood that LAX alone cannot meet
5 the future passenger and cargo capacity needs of Southern California. There
6 are several commercial airports in the area that can provide the necessary
7 capacity to meet the projected doubling of worldwide commercial air traffic in
8 2020. Some airports, notably Burbank and Long Beach, are constrained by
9 noise regulations and field size from handling additional significant growth.

10

11 LAWA is in the driver's seat in meeting future airport capacity needs with its
12 ownership and operation of Ontario International Airport and Palmdale
13 Regional Airport. While new master plans are under development for both of
14 these airports, there needs to be the leadership within City Hall to make certain
15 that construction plans are made and literally poured into concrete.

16

17 Ultimately, outlying airports such as Ontario and Palmdale will need to be built
18 into modern air terminals with high speed rail and freeway connections
19 integrated into their facilities. The longer we wait, the more expensive and
20 more difficult it will become to complete these projects. As opposed to
21 spending \$9.6 billion at LAX, LAWA can build new over 100 million annual
22 passengers (MAP) capacity at both Ontario and Palmdale for about half of what
23 is proposed for Alternative D. Furthermore, for homeland security purposes,

LAX Master Plan Position Paper

1 improved airports at Ontario and Palmdale can provide relief capacity in case of
2 a terrorist attack at LAX. Therefore, Southern California will not be completely
3 cut-off by air from the rest of the nation and the world. Building for the future
4 means that Ontario and Palmdale must be built now.

5

6 The LAX Master Plan EIS/EIR must include definitive programs, proposals and
7 plans for LAWA and the City of Los Angeles to put into effect to achieve a
8 regional solution. The City must make a formal commitment to undertake
9 these actions.

10

11

12 **PRIOR PROPOSALS**

13

14 At the outset, it should be absolutely clear that NCWPDR rejects the previous
15 Master Plan Alternatives A, B and C. All three of these plans are designed for
16 the express purpose of increasing the capacity of LAX to handle more
17 passengers and do not even attempt to improve the existing facilities for safety.
18 These plans were too invasive to the surrounding community with the
19 introduction of such elements as a ring road, western terminal and runway
20 reconfigurations that would have placed runways closer to the community and
21 dislocated hundreds of residents and local businesses. The literal purpose of
22 placing a new terminal at the west end of LAX was to create a new second path
23 to the airport directly through our communities. The location of a west end

LAX Master Plan Position Paper

1 terminal also necessitated the ill-advised "ring road" which in addition to
2 destroying a massive portion of the Westchester Business district, would also
3 disrupt existing traffic flow on North/South surface routes without any mitigation
4 proposed, or for that matter even possible.

5

6

7 **ALTERNATIVE D - Mayor James K. Hahn's "Safety and Security Plan"**

8

9 While Alternative D does in fact remove the most abhorrent parts of Alternatives
10 A, B and C, and is preferable to those alternatives, unfortunately it creates a
11 new and different set of problems that ultimately cause the committee to reject
12 it as well. Primary among our concerns is that Alternative D is not a safety and
13 security plan. Second, the proposed cost far outweighs any perceived benefits.
14 Third, Alternative D does not adequately mitigate traffic impacts.

15

16

SUMMARY ON CONCLUSIONS

17 1. The Neighborhood Council of Westchester/Playa del Rey does not
18 support Alternative D.

19

20 2. The objective of enhanced security is not met.

21

22 3. The stated cost of Alternative D is excessive relative to all benefits that
23 are described in the plan.

LAX Master Plan Position Paper

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4. Unlike the history of LAWA, this Alternative D does not treat the airlines as partners.
5. Alternative D requires the dislocation of over 7,000 residents, of which 3,500 have already been relocated, at a time all affordable housing is in the shortest supply ever experienced in our region.
6. Alternative D requires removal and relocation of elementary schools when there is a need for school facilities.
7. Alternative D does not utilize LAX's physical facilities, Terminals 1, 2 and 3, that already represent a substantial investment, both public and private.
8. The physical construction of Alternative D will create a long-lasting and disruptive impact on the residents and businesses within the sub-region. The negative impact of this disruption has not been netted out from the projected economic benefits.
9. While the plan calls for a 78.9 MAP there is no feasible method of controlling the number of passengers. Alternative D does not adequately address the traffic impacts, mitigation, and transportation

LAX Master Plan Position Paper

1 operation required for 78.9 MAP on the incremental passengers which
2 could be 10 to 20 million more. The 405, 105, and 110 freeways and
3 major thoroughfares and intersections are at a point where physical
4 traffic mitigation of the impacts generated by 78, 88, or 98 MAP is not
5 feasible. Overriding considerations are not an acceptable strategy for
6 any plan.

7
8 10. The environmental impacts of Alternative D, particularly air pollution and
9 noise, will be substantial during the physical construction as well as the
10 operation of Alternative D.

11
12 For any sizeable project in our sub region, at least 2 to 3 years has been
13 required to achieve a reasonably acceptable plan. The EIS/EIR as presented
14 does not adequately satisfy the objectives outlined above. Therefore, we
15 recommend additional study to prepare a revised plan which meets the stated
16 objectives for LAX's modernization.

17
18 *Alternative D does not adequately address safety and security needs.*

19
20 The chief safety issue that the LAX Master Plan seeks to address is runway
21 incursions. LAWA has proposed center line taxiways between the runways to
22 accomplish this goal. According to FAA records, LAX has not had a runway
23 incursion with an aircraft in the past five years. We also congratulate LAWA on

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 not having any incursions in the past 12 months. In 1996, LAX opened a new
2 control tower that gives controllers an unobstructed view of the whole airfield.
3 The new tower was constructed in response to a 1991 ground collision
4 involving a Skywest turboprop that taxied onto a runway where a USAir 737 jet
5 was coming in for a landing. LAX also eliminated mid-field take-offs for
6 turboprops as a result of the accident. To our knowledge, another
7 recommendation never implemented in the aftermath of the crash was the
8 installation of ground radar. It is essential that the ground radar be installed as
9 soon as possible. As has been proven with signage along the runways and
10 departure procedures for preventing early turns over El Segundo and Playa del
11 Rey, so too can electronic traffic signals along runway exits and arrival
12 procedures be implemented to prevent aircraft incursions.

13

14 Another stated goal of the center line taxiway is to accommodate New Large
15 Airplanes (NLA's). The 555 seat A380 super jumbo jet, presently being built by
16 the European consortium Airbus in Toulouse, France, is an NLA. We are
17 aware from reading magazines such as *Aviation Week and Space Technology*
18 that Airbus officials have met with LAWA officials concerning runway, taxiway
19 and ground handling requirements for the A380 which is scheduled to enter
20 service with such foreign flag carriers as Air France, Lufthansa, Qantas and
21 Singapore in January 2007. LAWA apparently has incorporated some of those
22 requirements into the reconfiguration of the north runway complex, 24L and
23 24R.

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1

2 We also understand that several Asian airlines that ordered over 60 A380
3 aircraft told LAX officials that unless the LAX airfield and gates are ready for the
4 A380 in 2007, they will land elsewhere.

5

6 We see from the Airport Layout Plan that LAWA intends to use the FAA's
7 proposed Group VI airfield arrangement. We want to point out that the Group VI
8 airfield specifications have not been adopted by the FAA and that LAWA has
9 "modified" (i.e. diminished) some proposed Group VI airfield specifications
10 towards the east end of the newly relocated 24L, 340 feet south of its current
11 location. We are not satisfied that this new runway arrangement will meet the
12 need of the A380's and other future NLA's by compromising the runway and
13 taxiway arrangements at the outset.

14

15 There is also the issue of runway length. The longest runway at LAX is the
16 south inboard runway 25R with 12,000 in length. Although there may be
17 assurances that the A380 can take off on runways less than that length, the
18 aircraft has not been produced and tested to verify projected operational
19 capacities. LAWA should not be reckless with the public's money and begin
20 construction by pouring concrete only to find out not too much later that
21 additional changes are needed. As shown in the experience of building Denver
22 International Airport (*Denver International Airport: Lessons Learned*), making

LAX Master Plan Position Paper

1 changes after construction begins will greatly increase costs; this is partially
2 how a proposed \$1.5 billion project became a \$4.5 billion project.

3

4 While the stated intention of Alternative D is to cap LAX at 78.9 MAP, we do not
5 see how adding center taxiways, and therefore increasing the throughput on
6 the runways, will meet that goal. Airlines will increase flights to meet
7 passenger demand which is expected to rise to 165 MAP regionally during the
8 next 20 years. Even with 11 contact gates removed and the proposed 747-
9 compliant replacement gates along the length of the Terminal 1, 2 and 3
10 ticketing areas, we still see that the increased runway and taxiway efficiency
11 could more than compensate for the reduced number of gates.

12

13 Alternative D does not make LAX more secure. By increasing the airport
14 perimeter to Manchester Square and Continental City with the proposed
15 Ground Transportation Center (GTC) and Intermodal Transportation Center
16 (ITC) at these respective locations, LAWA is actually making LAX a larger,
17 1-1/8+ miles of additional target opportunities for terrorists. The EIS/EIS
18 document reads as though protecting buildings are more important than
19 protecting the people inside them. LAWA has already proven that it can make
20 LAX secure. We applaud LAWA for having LAX be the only top 20 airport
21 (Category X) in the United States that met the December 31, 2002 deadline for
22 baggage screening.

23

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 Alternative D relies on security technology that does not exist or is unproven.
2 Again, as in the case with Denver International Airport, LAWA should use only
3 proven off of the shelf technology. The automated baggage system was
4 replaced at DIA with a traditional belt system because the automated system
5 had never been used elsewhere. This baggage system replacement was
6 done at great expense was the cause of several delays in the grand opening of
7 Denver International.

8

9 *Alternative D does not adequately address traffic issues.*

10

11 Traffic issues will not be significantly mitigated in Westchester/Playa del Rey
12 with Alternative D. As written in the EIS/EIR, LAWA relies on other government
13 agencies to make street and highway improvements, if they are even feasible.
14 Due to the current state budget crisis, those improvements are unlikely as the
15 Legislature had depleted the state highway building fund in order to balance
16 the 2002-2003 budget. Although the Ground Transportation Center (GTC)
17 relies on freeway connections, there is not enough freeway capacity to handle
18 the load. As such, travelers will find other alternatives to access the airport
19 such as the consolidated rental car facility (RAC). The RAC's proposed
20 location on 98th Street between Sepulveda and Airport is already a problem
21 because it does not stop the existing problem of motorists cutting through
22 Westchester/Playa del Rey neighborhoods such as Osage Park, Westport
23 Heights, Kentwood and Loyola Village to access the airport. Construction of

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 Alternative D will also bring many traffic detours as a parade of trucks moves
2 dirt and brings in concrete and other building supplies.

3

4

5 *The proposed cost far outweighs any perceived benefits.*

6

7 LAWA officials have continually touted the positive economic benefits that LAX
8 provides to the Southern California economy. However, by making the journey
9 from the curb to the gate more cumbersome, LAWA will succeed in driving
10 away passenger traffic- the exact opposite of preserving LAX's touted role as
11 one of the region's economic engines. Planning must be done for queuing of
12 automobiles and people.

13

14 With costs for just the EIS/EIR work already having spiraled out of control, we
15 are extremely worried that the projected \$9.6 billion to implement Alternative D
16 will balloon to an even higher amount and cause extreme financial difficulties
17 for LAX and its tenant airlines. It is generally considered that contingency costs
18 (i.e. construction overruns) are 3% of Alternative D when most projects have a
19 10% contingency. As stated previously, more capacity can be built for less
20 money at Ontario and Palmdale.

21

22

LAX Master Plan Position Paper

1 CONCLUSION

2

3 The Neighborhood Council of Westchester/Playa del Rey rejects LAX Master
4 Plan Alternatives A, B, C and D due to their excessive costs and negative
5 impacts on the community. We further note that Alternatives A, B and C overtly
6 increase capacity. The NCWPDR Board of Directors supports a truly regional
7 solution for meeting Southern California's airport capacity needs by building
8 out airports in Ontario and Palmdale. While the NCWPDR Board has rejected
9 the LAX Master Plan alternatives presented thus far, the Board does support a
10 safe and secure LAX and would be willing to work with LAWA, the airlines and
11 other communities in developing a LAX Master Plan which is directly tied to a
12 truly regional solution with implementation budgets and schedules.

Community Questions on the LAX Master Plan EIS/EIR

Airport Relations Committee recommends adoption of this report by the
Neighborhood Council of Westchester/Playa del Rey Board of Directors

Approved by the Airport Relations Committee on Saturday, October 18, 2003

Ayes:	10
Noes:	0
Abstain:	0

Approved by the NCWPDR Board of Directors, Tuesday, October 21, 2003

Ayes:	<u>19</u>
Noes:	<u>0</u>
Abstain:	<u>0</u>

Notes:

Neighborhood Council of Westchester/Playa del Rey
Community Questions on the LAX Master Plan EIS/EIR

QUESTIONS ON THE LAX MASTER PLAN EIS/EIR

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1. What programs or activities are the FAA and LAWA participating in or working towards creating a regional airport plan other than Ontario International Airport (ONT) as recommended by SCAG?
2. Is there any cost analysis showing the impact of increased costs at LAX if Alternative D were to be constructed? What is the breakdown of costs to the passengers, airlines, bondholders, concessionaires? For what period of time will those increased costs be in effect? Will Passenger Facility Charges (PFC's) increase? How much for each carrier?
3. Where is the cost analysis showing the impact on neighboring communities in terms of businesses during construction? Health issues such as loss of hearing, increased respiratory diseases, cancers, and stress? Loss to employers and employees for sick time due to these health issues?
4. How will LAWA retain low cost airlines (e.g. Southwest, Frontier, etc.) at LAX who will be displaced from their existing passenger terminal facilities by Alternative D?
5. What other costs that are not a part of the projected \$9.6 billion will need to be borne by the City of Los Angeles, County of Los Angeles, State of California and the United States of America for impacts related to LAX? What costs will incurred by these levels of government for health issues created by LAX?

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 6. If 78.9 million annual passengers (MAP) is the proposed maximum number of
2 passengers to be handled at LAX in a calendar year, then what do you
3 anticipate will be the number of passengers per gate when you reach that
4 level?
- 5 7. Does the budget for the LAX Master Plan include potential litigation costs?
6 What is the budget amount? Are litigation expenses included in costs
7 analyses? Are settlement costs budgeted and for what amount?
- 8 8. Is the financing to acquire the properties in Manchester Square and Belford
9 Square considered to be a part of the financing for the LAX Master Plan?
- 10 9. What amount of property is to be acquired via eminent domain?
- 11 10. How many Airbus A380 aircraft are expected to fly into LAX? How many
12 flights per day? To what extent must passenger terminals be redesigned to
13 accommodate these aircraft? How many gates will be established for these
14 aircraft and at which terminal buildings?
- 15 11. Why are some numbers explained as percentages in the draft EIS/EIR
16 document? Can you explain the numbers instead of a percentage?
- 17 12. In the LAX Master Plan press kit, a section covering noise mitigation notes
18 some of LAWA's initiatives- residential acquisition, soundproofing and
19 enforcement of over-ocean operations during the night. How effective has
20 sending letters to the Chief Pilots of airlines been in affecting compliance with
21 LAX noise regulations? What other enforcement measures has LAWA used
22 and is legally available to LAWA to use to mitigate noise?

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 13. Why are there no studies being conducted to study the health effects of LAX
2 on surrounding residents?
- 3 14. Is LAWA recording and tracking low frequency noise generated at LAX?
4 What mitigation measures are being employed to reduce low frequency
5 noise? Low frequency noise must be studied, mitigated and abated.
- 6 15. At what location do you anticipate placing the run-up enclosure? Will the
7 enclosure prevent high and low frequency noise from going out into the
8 surrounding community? What will the hours of operation be for the run-up
9 enclosure? How will aircraft be moved to and from the enclosure- aircraft
10 under power, electric tugs, etc.?
- 11 16. How will biological incursions by non-native plants, animals and insects be
12 handled?
- 13 17. What is the amount of time each runway will be out of service when a runway
14 is moved and/or extended?
- 15 18. What is the construction route? Will existing streets be blocked and/or
16 detours put into place? For how long will these happen? What will the
17 operating hours of the construction route?
- 18 19. Why didn't you use World Health Organization (WHO) documentation to
19 support your Federal Interrogatory Committee on Aircraft Noise (FICAN)
20 information? Also, why was FICAN not used for Sound Exposure Level
21 (SEL)?
- 22 20. What mitigation measure did you include for SEL? If there were none, then
23 why were they not included? What abatement measures have been done

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 elsewhere for any kind of single event noise, not limited to airports? How
2 successful were those abatement measures?
- 3 21. Where else in the world, and in the United States in particular, has habitat
4 relocation been attempted? Has this effort been successfully implemented?
5 If it is not successful, then what penalty will LAWA suffer for non-compliance
6 with the EIS/EIR?
- 7 22. In cases of Single Event Noise/Sound Noise Level, what would be the AdBA
8 for serious annoyance and speech intelligibility and moderate annoyance?
- 9 23. How does LAWA propose to evaluate and mitigate noise impact on the
10 learning process of students in schools?
- 11 24. Why is there no specific noise study in the community on schools impacted
12 by LAX?
- 13 25. Why is there not a report of the origin and destination of passengers at LAX?
- 14 26. Why does the EIS show an improvement in air quality in the area north and
15 east of Manchester Square under Alternative D vs. No Action No Plan even
16 though Alternative D relocates an enormous amount of vehicular traffic to the
17 immediate area?
- 18 27. How were the projected 2015 levels of air pollution arrived at for the area
19 north and east of Manchester Square for the No Action No Plan Alternative in
20 the EIS? Were mitigation measures implemented by LAWA between the
21 1996 baseline and the present accounted for in the projections?
- 22 28. It would seem that the reconfiguration of the north runway complex
23 proposed under Alternative D leaves room for a fifth runway on the

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 north side of LAX. What measures are included in Alternative D that
2 would prevent the construction of such a runway at a later date?
- 3 29. What fleet mix was anticipated in Alternative D for 2015? Airlines
4 continue to purchase turbo prop aircraft. Were these aircraft included in
5 the noise projections?
- 6 30. Why was there an assumption that the current Part 161 study would
7 develop mitigation actions. Nothing can be assumed until the study is
8 complete.
- 9 31. Where is a firm commitment by LAWA and the city of Los Angeles to
10 the CNEL and over-ocean procedures included in the EIS/EIR?
- 11 32. Where are the studies of increased traffic on 6L and 6R during easterly
12 operations.
- 13 33. Where is the study on single-event noise generated by easterly take-
14 offs?
- 15 34. Over 20,000 would be newly exposed to 94dBA SEL noise under the
16 EIS/EIR. What time of day would these impacts occur? What
17 mitigation measures were included for SEL impacts?
- 18 35. To reach the proposed Ground Transportation Center (GTC) at
19 Manchester Square, people will continue to exit the 405 Freeway at the
20 Howard Hughes Center and then cut through Westport Heights and
21 Osage seeking airport access. Why were the following intersections
22 and/or roadway links not studied: Airport Blvd and 74th, 76th, and 78th;

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

1 La Tijera and 74th, 78th-79th, and 83rd; Hindry and Aviation; Osage
2 and Manchester?

3 36. The GTC could not have all the protection for hazardous materials,
4 decontamination, bomb detection and disposal that the airfield would
5 have. How would all the necessary emergency vehicles, materials, and
6 staff gain access to the GTC? To come from the airfield, they would
7 have to travel on city streets which would be clogged in the event of an
8 attack or accident.

9 37. How could the GTC be evacuated in the case of an emergency or
10 attack? What roads could/would be used? Where would pedestrians
11 and vehicles be directed? How could security get people and vehicles
12 out of the danger zone and still maintain security? And be sure that the
13 parties responsible were not escaping?

14 38. What amount of traffic is being assumed for the LAX Northside area? It
15 seems that the NA/NP figures are higher than the Alternative D figures.
16 Were the impacts (in terms of traffic and air pollution) for the full
17 entitlement under the 1983 EIR charged to the NA/NP, but not to
18 Alternative D?

19 39. What is the cost difference for Alternative D if non-union labor is used
20 instead of union labor? Will a Project Labor Agreement (PLA) be used
21 for Alternative D? What is the cost difference between the PLA, union
22 and non-union labor?

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 40. In 2002, American Airlines published a volume regarding human health
2 risk assessment for their operations at LAX. Why did not LAWA publish
3 a similar comprehensive human health risk study for the LAX Master
4 Plan?
- 5 41. Why were the comments submitted by November 2001 not answered
6 before (or with) the release of the Alternative D Plan in July 2003?
7 (Executive Summary, page 24)
- 8 42. Numerous data issues were identified in 2001. How is the integration of
9 more data into questionable data expected to be satisfactory?
10 (Executive Summary, page 24)
- 11 43. If the purpose and need for the LAX Master Plan has not changed since
12 the publication of the Draft EIS/EIR and there have been significant
13 political event changes in addition to the Mayor's no expansion pledge,
14 why is one of the three major project objectives to "Ensure that new
15 investments in airport capacity are..." Also, we are told that the major
16 emphasis is for "Security and Safety." Why is this not even mentioned in
17 the list of project purpose and need? (Executive Summary, page 24)
- 18 44. Based on 2.8% growth from present we will be at 78 MAP in 2015. Is
19 this a realistic growth rate? (Executive Summary, page 25, table ES-1)
- 20 45. Compare this runway spacing with other statements in the document
21 which appear to differ. This one is 340 ft south of existing centerline.
22 (Executive Summary, page 26, table ES-2)

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 46. 2.8M sq ft of terminal space added by Alternative D without any
2 capacity enhancement? If the capacity is not expanding why are there
3 about 4600 more employee parking spaces? (Executive Summary,
4 page 27, table ES-2)
- 5 47. How are the schools impacted/removed related between Alternative D
6 and NA/NP? Alternative D shows a private elementary and a Hollywood
7 CPR(?) not in the NA/NP. (Executive Summary, page 28, table ES-2)
- 8 48. What are the values of NA/NP for Office Use, Retail Use Acquired and
9 Hotel Use that are not shown in the table? How does this compare to
10 Alternative D? More or less? Why? (Executive Summary, page 28, table
11 ES-2)
- 12 49. This table assumes the higher value of development of LAX Northside
13 in NA/NP and Alternative D but Westchester South (the reduced) for
14 A,B,C. Why? Isn't this assumption different in other areas of the
15 documentation? (Executive Summary, page 29, table ES-2)
- 16 50. If LAWA doesn't own Manchester Square, why does it assume airport
17 use in all but Alternative A? How is it going to be procured? Eminent
18 Domain? Why is it in conflict with the Westchester-Playa del Rey
19 Community Plan? (Executive Summary, page 29, table ES-2)
- 20 51. Greater outside impacts under Alternative D. Why? What specific
21 areas? (Page 4-215, last paragraph)
- 22 52. What is the threshold of significance for outdoor noise levels? How were
23 they determined and applied? (Page 4-216, "Although increases in

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

1 outdoor noise levels within the 65 to 75 CNEL contours would occur
2 under the build alternatives, these increases would not exceed
3 thresholds of significance.”)

4 53. Alternative D more extensive changes than other alternatives. Is it so
5 extensive that a new EIS/EIR required? (Page 4-217)

6 54. Since 2008 is the peak construction period for Alternative D and
7 2004/2013 for the others, how does this impact noise distribution due to
8 flight track differences. (Page 4-217)

9 55. What are the construction model assumptions and where are they
10 delineated? (Page 4-217)

11 56. Does inbound and outbound counts refer to the upper and lower levels
12 (aircraft arrivals/departures)? Otherwise they should be equal. Is there
13 an explanation for inbound consistently higher increases? (Page 4-221)

14 57. Why are the peak hours that different? What are the correct ones?
15 (Page 4-221)

16 58. Why isn't there pollution and health studies for aircraft engines while
17 idling and taking off?

18 59. Why do some of the charts have dates of 2001 and 2002 while the data
19 represented on those charts has dates of 1996 and 1997?
20

Proposed amendments to reports

LAX Master Plan Position Paper

Several suggestions to be submitted separately by Barry Weiss.

Community Questions on the LAX Master Plan EIS/EIR

I would like to add a few questions to those already posed. In my review of the LAX Master Plan there has been almost no attention to cargo handling facilities and their role in public safety.

Why have cargo handling facilities also not received the same scrutiny over security as passenger facilities?

Why are cargo facilities, after implementation of any of the alternatives of the LAX Master plan, still located all over the place without regard to a security plan?

What security measures does the LAX Master Plan have in place for the handling of cargo that will insure the safety of the public? Both in the air and on the ground.

Why aren't cargo facilities centralized in order to insure the safety of the public?

Why does the LAX Master Plan spend so much money on facilitating the A-380, a yet to be built, unproven European aircraft based in Toulouse, France, while American aircraft manufacturers struggle to stay alive?

Submitted by: David Coffin, NCWPDR District 10 Seat

Los Angeles Airlines Airport Affairs Committee

8939 S. Sepulveda Blvd., Ste. 102
Los Angeles, CA 90045

310-642-0980
FAX 310-642-0512

October 20, 2003

Mr. Robert Acherman
6055 West 75th Place
Westchester, CA 90009-2216

Dear Mr. Acherman:

The airlines serving LAX feel strongly that the airport needs to be modernized in order to effectively serve the traveling public and remain the key economic engine to the region. They further support the planning objectives of a safer, more secure and user-friendly LAX; however, Alternative D to the LAX Master Plan falls short of reaching these objectives, which the carriers think could be better achieved through a modification of Alternative D.

To that extent the airlines appreciate the opportunity to work with the Westchester/Playa del Rey community, and discuss alternatives that address the LAX master plan objectives. The airlines, having recently been provided with a copy of the Alternative E-1 concept, are very encouraged with our progress to date and believe that we are close to identifying a concept that is acceptable to the City of Los Angeles and the key stakeholders, including the local community and the airlines.

Thanks you. We look forward to continuing our working relationship.

Sincerely,

Kelley A. Brown
Executive Director

cc. Ms. Gwen Vuchsas

DEC 7 10:00

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Recd
11-06-03
4:30pm

**Los Angeles
International Airport Area
Advisory Committee**

November 5, 2003

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
Department, AWP-611.2
LAX Master Plan Office
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
P.O. Box 92216
Los Angeles, CA 90009-2214

Dear Sirs:

The LAX Area Advisory Committee (LAXAAC) members have been appointed by the governing city mayor or county supervisor in the following areas surrounding LAX: El Segundo, Lennox, Hawthorne, Inglewood, Culver City, Marina del Rey, and the Westchester and Playa del Rey sections of Los Angeles. These areas tend to be the most severely impacted by noise, traffic, and air pollution due to LAX operations. We were created to advise the Board of Airport Commissioners and other interested groups.

The members of LAXAAC strongly support a regional approach to air traffic in the Los Angeles basin. Any proposal for improvements to LAX must include specific, detailed procedures that could be undertaken by LAWA and the City of Los Angeles to achieve a more equitable sharing of the air passenger and cargo traffic.

The members of LAXAAC find serious deficiencies, inadequacies, omissions, and inaccuracies in the EIS/EIR LAX Master Plan, Alternative D. Therefore, we find this proposal to be fatally flawed.

While it is noted that Alternative D would not be as onerous as Alternatives A, B, or C, the No Action/No Project alternative is still this committee's preference.

Alternative D has been deemed a safety and security attempt – yet it would not provide either safety or security for the traveling public or the surrounding communities. It would provide a modicum of security for the CTA, but our committee thinks that protecting facilities at the expense of people is the wrong approach.

There have been very few Category A runway incursions at this airport, especially after the new control tower came on line. In fact, the LAX air traffic controllers handled more than 1 million take-offs and landings since June 2002 with no operational errors. Congratulations are in order for the FAA's air traffic controllers at LAX.

LAWA also is to be congratulated for being the only major airport to achieve the December 31, 2002, federal security requirements – a major accomplishment!

The Manchester Square location for the proposed Ground Transportation Center is of particular concern to the surrounding communities. This area was not part of LAX in 2002 when all the mayoralty candidates signed the ARSAC pledge, which included, in Section 2, a commitment to not increase LAX beyond its existing boundaries. Since the pledge was signed, LAWA has been acquiring the residential properties in Manchester Square. However, due to various reasons, including litigation over the process and monetary issues, the area may not be available until 2008 or beyond.

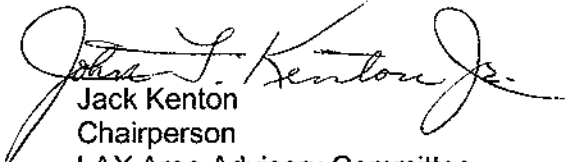
LAX will be required, therefore, to continue to meet security requirements with its present configuration – a requirement that can and will be met without spending over \$9 billion. Although the funding for Alternative D would officially come from various sources, the ultimate payers would be air passengers, air cargo shippers and receivers, and tax payers.

We also ask the Los Angeles City Attorney of the potential conflict of interest of LAWA Commissioner Miguel Contreras to vote on various proposals coming before the Commission to expand/modernize the airport, given that he spoke out in favor of Alternative D as a representative of a labor union at a public meeting held at the Furama Hotel on August 23, 2003.

An overall question raised by our committee is why do so many of the mitigations or requirements for action cited in the EIR/EIS require action by other agencies, and not on the part of LAWA?

Our committee's comments on the Alternative D proposal are attached. We look forward to the response to our questions and concerns.

Sincerely,


Jack Kenton
Chairperson
LAX Area Advisory Committee

Attachment

Cc: Congresswoman Jane Harmon
Congresswoman Maxine Waters
Mayor James Hahn
Board Of Airport Commissioners, City of Los Angeles

Questions and Comments

1. EIR/EIS Section and Page Number: Executive Summary, pp. ES-6. ES-20; Section 3, p. 3-56; Section 4.20, Construction Impacts, p. 4-540.

Question or Statement: The executive summary indicates that there were 20 acres devoted to fuel farms in 1996 and that that number would stay the same under the No Action, No Project Alternative, but would diminish to 14 acres under Alternative D. The reconfiguration is expected to start in 2010, but there does not appear to be a discussion of how it will be reconfigured. This reconfiguration raises a number of questions:

How would that reduction be accomplished?

Where are the six acres located?

How would the remediation of those six acres be accomplished?

What would the cost of that remediation be?

Where is all of this described in the EIR/EIS?

2. EIR/EIS Section and Page Number: Executive Summary, ES-41, and 4.9.1, p. 4-438

Question or Statement: Alternative D does not require the relocation of Hangar One, as did one of the prior alternatives. Given that Hangar One is a National Register listed historic property that is currently not open to the general public, would it make sense and is it possible to relocate Hangar One to an area that would be accessible to the public?

Alternative Solutions or Options: Relocate Hangar One.

3. EIR/EIS Section and Page Number: 4.6 Air Quality, pp. 4-355-356, 4-383, 4-386, and 4-387-392.

Question or Statement: How many of the "extensive list of mitigation measure components" that LAWA proposes to implement are measures that it could implement under the No Action/ No Project alternative and how many of them are dependent upon Alternative D's adoption? Have these currently available

mitigation measures been taken into account in the estimations of the operational emissions for the No Action/No Project alternative?

Alternative Solutions or Options: It would appear that many of these measures are ones LAWA could currently adopt without waiting for approval of Alternative D or another alternative, including:

- Require or promote the conversion of airport tenant and user equipment to alternative fuels.
- Establish a network of remote transit facilities serviced by LAX-dedicated clean fuel buses,
- Promote the expansion of LAWA's ride-sharing program to include all airport tenants,
- Develop infrastructure to allow employee telecommuting and video-conferencing,
- Provide fee-incentives and preferential parking locations for low emissions vehicles, and
- Reduction in aircraft maintenance activities at LAX, shifting them out of South Coast Air Basin (p. 4-386). (How will this be accomplished?)

Additional Comments: The mitigation measures discussed at pages 3-387-392 do not appear to have been considered for the No Action/No Project alternative, yet many of them could be adopted without waiting for final approval of the EIR/EIS and would have substantial effect on the air quality related to the No Action/No Project alternative. It is inappropriate for LAWA to ignore the impact of such measures on the No Action/No Project alternative.

4. EIR/EIS Section and Page Number : 4.6 Air Quality, p. 4-356 - 357

Question or Statement: The EIR/EIS recognizes that none of the alternatives would meet the California Ambient Air Quality Standards for fine particulate matter. What is the impact of violating such standards other than that specified on page 4-357, regarding the preparation of an analysis and conformity determination? Is it clearly legal to violate these standards?

Alternative Solutions or Options: Were any alternatives considered that would meet California Ambient Air Quality Standards?

Additional Comments: Although certain of the alternatives are proposed as better than others for meeting the California Ambient Air Quality Standards, it does not seem appropriate to propose an alternative that admittedly does not

meet such standards, particularly given the amount of money and effort involved in adopting the alternative.

5. EIR/EIS Section and Page Number : 4.6 Air Quality, p. 4-360

Question or Statement: Does the fact that the modeling method for carbon monoxide emissions for Alternative D involved 24 more intersections than that used for the other alternatives skew the results? Why did you not do the analysis using those 24 intersections for the No Action/No Project alternative, even if not Alternatives A, B and C?

Alternative Solutions or Options: Conduct the analysis of carbon monoxide emissions using the same information for all alternatives.

6. EIR/EIS Section and Page Number : 4.6 Air Quality, p. 4-386

Question or Statements: This section notes that Alternative D's unique proposed Ground Transportation Center ("GTC") and Intermodal Transportation Center ("ITC") would move parking and traffic emissions to a new location, around the GTC and ITC, however, there does not seem to be a specific discussion of air quality impacts on the neighborhoods immediately adjacent to the GTC and ITC. Has LAWA evaluated the impact of Alternative D on those neighborhoods, comparing and contrasting it with the No Action/No Project alternative?

Additional Comments: Without an analysis of the environmental impact of the GTC and ITC on the neighborhoods that would abut these new facilities, the EIR/EIS is incomplete.

7. EIR/EIS Section and Page Number : 4.24, p. 4-613 and p. 4-614

Question or Statement: Like the prior comment, it appears that the Human Health and Safety Risk for residents in the area immediately adjacent to the GTC and ITC will be adversely affected, but the EIR/EIS does not appear to discuss this with any specificity. This section notes that "Some health risks for maximally exposed individuals . . . would increase slightly in small areas adjacent to the airport. . . ." but notes that these increases are "less than significant." Precisely what are these areas, how many people are affected, and can anything be done to mitigate this "slight" increase?

Moreover, given that the EIR/EIS recognizes (p. 4-614, under "Methods for Estimating Impacts to Human Health") that studies of inhalation of toxic air

pollutants from airport operations are out-of-date, having been conducted more than 15 years ago, what confidence does LAWA have that its determination that the supposed "less than significant" increase health risks in this area is in fact, accurate?

Additional Comments: LAWA clearly recognizes the inadequacy of the data used for this determination, but it seems that this issue is important enough not to be decided on the basis of antiquated data. LAWA should require additional studies of the health risks of inhalation of toxic air pollutants from airport operations.

Even where the increase in cancer risks or other non-cancer health risks is "less than significant," as defined by CEQA, it would probably be considered "significant" to those individuals who are affected. Accordingly, as a matter of environmental justice, this risk should be spelled out so that those affected are informed of the increased risks.

8. EIR/EIS Section and Page Number : 4.6 Air Quality, p. 4-387

Question or Statement: The EIR/EIS analyses the impact of the Playa Vista development on Alternative D, but does not appear to consider its impact on the No Action/No Project alternative. Has this been done? What impact are traffic improvements required by or associated with the Playa Vista project likely to have on the No Action/No Project alternative?

9. EIR/EIS Section and Page Number : 4.6.8.1, p. 4-392-393

Question or Statement: Similar to Comment 3 above, the EIR/EIS does not appear to take inventory of the operational mitigation measure components with respect to the No Action/No Project alternative. Has such an analysis been made? If not, what is the impact of any operational mitigation measure components that could be adopted without approval of any of the other alternatives?

Alternative Solutions or Options: Consider the impact of all presently available operational mitigation measure components on the No Action/No Project alternative.

10. EIR/EIS Section and Page Number : 4.6.8.6, p. 4-397 and 4.6. 9, pp. 4-397-4-402.

Question or Statement: The footnotes to Table S4.6-22 appear to contemplate that the No Action/No Project alternative would be included in this analysis of mitigation measures, but the actual chart does not include that alternative. Where is the analysis of the mitigation operational air pollutant concentrations for the No Action/No Project alternative?

Additional Comments: Unless mitigation measures that are available to LAWA regardless of approval of the Master Plan are analyzed for their impact on the No Action/No Project alternative, the comparisons of air quality for that alternative with the other alternatives are biased and inadequate.

11. EIR/EIS Section and Page Number : Section 4.19.5, p. 4-534 and 4.19.8, p. 4-537; Section 5.2, p. 5-10.

Question or Statement: Just as certain air quality mitigation measures could be implemented without approval of the Master Plan, so too might certain solid waste generation mitigation measures be adopted. Has the EIR/EIS evaluated the impact of implementing such mitigation measures on the No Action/No Project alternative?

Alternative Solutions or Options: Certainly LAWA could implement a more aggressive recycling program (pp. 4-534 and pp. 5-10) without approval of the Master Plan.

Additional Comments: To avoid biasing the analysis, the impact of such mitigation measures should be considered for the No Action/No Project alternative.

12. EIR/EIS Section and Page Number : 4.20 Construction Impacts, p. 4-544 and Technical Report S-4, Attachment D, Construction Activities Emissions Inventories

Question or Statement: Is the analysis here premised on average vehicle occupancy of two people? If so, what data support that assumption?

Alternative Solutions or Options: As the South Coast Air Quality Management District ("SCAQMD") pointed out in its comments on the initial draft EIR/EIS, dated September 21, 2001, it is optimistic to assume that each vehicle will contain two people. Instead, the SCAQMD suggested that "a more conservative" assumption of one person per vehicle should be used unless LAWA can support its assumption of two people with actual data.

Additional Comments: Given the EIR/EIS's apparent assumptions, the emissions from construction activities appear to be substantially understated.

13. EIR/EIS Section and Page Number): 5.2, p. 5-3

Question or Statement: What is the purpose of the community outreach efforts, including public notification and public meetings, when new development on airport property is in proximity to and could potentially affect nearby residential uses?

Additional Comments: Although the LAXAAC is obviously in favor of public involvement in airport development, such development should be intended to afford the people living in the airport vicinity a voice in determining the future of the airport or at least to help mitigate the impact of LAX building projects on them. Public meetings should not be merely for window dressing or as a requirement to check off before proceeding as planned. If the public's input is not valued and is not considered, public meetings should not be held.

14. EIR/EIS Section and Page Number : Sections 5.2, pp. 5-2 – 5-15

Question or Statement: It does not appear that LAWA has formulated definite plans for its Master Plan commitments about what it would do under the various alternatives proposed to mitigate the environmental impacts on the community. Most of the matters discussed here are discussed in generalities, so that what will eventually be accomplished cannot be evaluated at this time. For example, at p. 5-8, LAWA indicates that it will prepare a specific Standard Urban Storm water Mitigation Plan to address water quality and drainage issues; at p. 5-9, it states that it will implement a utilities relocation program to minimize interference with existing utilities. Several other examples exist. As a result, not only is the environmental impact of LAWA's proposed alternative impossible to assess, so is its ultimate cost.

Alternative Solutions or Options: Prior to proceeding with any alternative, LAWA should have a better understanding of what will be required to be done and its likely cost. Does this exist within LAWA?

15. VOLUME ONE PAGE 2-1 Purpose and need for the proposed action?

The Executive Summary of the Draft EIS/EIR summarizes the purpose and need for the LAX Master Plan as follows:

The purpose of the LAX Master Plan is to help provide a level of airport passenger and freight improvements that will support the future economic growth and vitality of the five-county Los Angeles region. An overarching consideration

during the planning process has been to achieve the project objectives in an environmentally sound manner. In particular, the Master Plan project objectives are to:

1. Respond to local and regional demand for air transportation during the period 2000 to 2015, taking into consideration the amount, type, location, and timing of such demand.
2. Ensure that new investments in airport capacity are efficient and cost-effective, maximizing the return on existing infrastructure capital.
3. Sustain and advance the international trade component of the regional economy and the international commercial gateway role of the City of Los Angeles.

16. Alt D is a safety and security plan and a 'modernization' plan

The LAX Master Plan Supplemental to the Draft EIS/EIR Question and Answer handout by LAWA has on page 2, Q6, "How would safety be affected by the Master Plan? The first sentence in the answer to that question is, "LAX operates safely today and it will operate safely tomorrow."

Why, then, is there a need to spend billions of dollars for safety improvements if LAX is already safe. Please comment.

17. According to the EIS/EIR, Alternative D would improve the level of passenger service throughout the CTA by including new passenger and baggage processing facilities where the public parking garages are located today. Does removing public access to the CTA by placing the GTC one or two miles to the east improve the level of passenger service?

18. In addition, Alternative D states that it would provide for construction of new aircraft parking gates as well as demolition of some existing gates. As a result, Alternative D would have fewer total gate positions than the existing conditions or the No Action/No Project Alternative. As a result, all aircraft parking would be adjacent to a terminal or concourse, eliminating the current need to bus passengers to remote aircraft parking positions. When would the removal of remote gates take place? Is there an expectation that some of the remote gates later could be reinstated, once again to improve service to the passengers?

19. "Deterrence and prevention of terrorist attacks are essential considerations of the Alternative D plan. Its elements include

(1) avoiding concentration of people in the public areas, to the greatest extent possible, so as to reduce the likelihood and potential lethality of terrorist attacks with bombs or firearms." The term "greatest extent possible" is left to the discretion of the BOAC and staff. Doesn't having three entrance areas leave the possibility of a greater concentration of people than 7 or 8 entry points?

(2) moving passengers and their baggage through check-in and security screening and into the secure areas as quickly as possible. How quick is "quickly as possible"? And

(3) permitting only known, screened, and controlled vehicles into the Central Terminal Area (CTA), and avoiding concentration of unscreened vehicles and people at the curbs of the proposed Ground Transportation Center (GTC), Intermodal Transportation Center (ITC), and the Consolidated Rental Car (RAC) facility. Alternative D would use an expanded LAWA-operated Flyaway program throughout the region to disperse passenger processing. This service would include remote check-in of passengers and baggage, and provide direct access into the CTA. Although we are referred to Appendix I for a detailed assessment of the security and safety features of Alternative D, Appendix I doesn't indicate how and where the vehicles will be checked prior to entering the CTA? Why?

20. The RAC would include fueling, car washing, maintenance and repair facilities etc. What safety and security measures are included for these facilities? How close to residential areas will these facilities be located?

21. According to the EIS/EIR, Alternative D would consolidate parking and curb front areas at a new GTC. This facility would become the primary point of pick-up and drop-off for passengers using LAX. The facility would combine a controlled and monitored roadway access system with first-level passenger security screening and profiling to further enhance the safety and security of all passengers using LAX. How would LAX and others treat an unidentified object left in the GTC or ITC or RAC, especially in the GTC? Would it be different from the program LAX now uses in the existing CTA?

22. According to the EIS/EIR, a new ITC would provide a more efficient connection than currently exists between the existing MTA Green Line station and the CTA. The airport's rental car facilities would be in one location, referred to as the RAC, to simplify passenger access to these services. On paper this is a good idea.

A new Automated People Mover (APM) system would connect the GTC, ITC, and RAC to the redeveloped CTA. The end goal of this design concept is to achieve a new balance between the needs of both passenger security and passenger convenience. How is passenger safety and security to be incorporated on the APM? Wouldn't the multi-mile APM be more difficult to protect from whatever security risks exist?

23. North (24L 340") and South (25L 50") runway movements are not necessary as far as safety and security is concerned. Of the ten surface incursions in the first ten months of fiscal 2003, two were category B, two C and two D AND NO CATEGORY 'A'. The taxiway between the runways will not stop aircraft from crossing from the outer runways across the inner runways to the

terminals.

The statement of the EIS/EIR that "The new center taxiways will improve airfield safety and reduce the possibility of runway incursions" is an accurate statement. If we put traffic signals on the freeway we could reduce traffic accidents and improve safety. Regardless of what anyone says, the moving and extending of any runway is a modernization, (expansion, improvement) program.

25L runway allows aircraft to depart that runway and cross diagonally while the modernization program would have the aircraft cross perpendicular to 25R. What are the safety gains of this procedure?

24. Los Angeles LAX 1.29 incursions per 100,000 operations

Runway incursion as defined by the FAA.

What is an incursion? Most dramatically referred to as a "near-miss," an incursion can actually take an almost benign form. For example, the least dangerous form might apply if a pilot edged the nose of his plane over a "stop line," akin to going a little too far when approaching a stop sign on the road. And an incursion isn't merely when two planes are headed for a collision; about 20% of cases involve pedestrians and vehicles.

Types of Incursions by Severity.

The National Airspace System managed 268 million takeoffs and landings at 488 towered airports from 1998-2001. Of that number, 1,460 resulted in "runway incursions"; all 1460 occurred in 84 of the 488 airports studied; the other 404 had no incursions at all.

The FAA groups incursion severity into four categories:

Category D: "Little or no chance of collision but meets the definition of runway incursion," as in the stop sign analogy above. The danger factor: pretty much zilch.

Category C: "Separation decreases but there is ample time and distance to avoid a potential collision." Danger level is low.

Category B: "Separation decreases and there is a significant potential for collision." Danger level increases considerably.

Category A: "Separation decreases and participants take extreme action to narrowly avoid a collision, or the event results in a collision."

A Category A incursion is what most of us would call a "near-miss"; in other words, darn near a collision. (In fact, an actual collision is a type of Category A incursion, but even then the collision might be with a runway sign or some other relatively impermanent object.) The FAA calls this a "severe situation where the margin of safety is so low that a collision is barely avoided." The danger level: extremely high.

Distribution of the 1460 Incursion, 1998-2001

Category A: 6% Category B: 11 % Category C: 35% Category D: 48%

1999-2002-

Category A: 5% Category B: 10% Category C: 33% Category D: 52%

LAX had 34 incursions from 1999 to 2002 and no category A incursions.

So, nearly half the incursions were of the nature of an airplane sliding a couple feet past a stop line, a dog running across the tarmac, or a fuel truck being slightly out of position.

25. Types of Incursions by Cause: Who, What, and Why?

The FAA has three "error categories" to classify the who, what, and why of incursions: (1) pilot deviations, (2) operational errors, and (3) vehicle/pedestrian deviations.

Pilot deviations account for the majority of incursions at 58%. These errors include failing to stop on time at a "hold-short" line in simple cases, or taking off without clearance at the other extreme. The year 2000 was a particularly bad year for pilot deviations, but 2001 saw considerable improvement.

Operational errors, which account for 23% of incursions, include miscommunications such as "hear back/read back" errors, mistaking the location of an aircraft or vehicle on a runway, or use of a closed runway.

The third and least common errors are "vehicle/pedestrian deviations," instances of people or vehicles entering a runway without authorization, which are pretty much what they sound like; folks and vehicles (e.g., fuel trucks, fire trucks, tug-vehicles) in places they're not supposed to be.

Incursions by Plane Type

The FAA also has three classes of flights: commercial, general aviation, and military. General aviation planes account for more than 65% of incursions, with commercial flights at 38% and military flights at 4-5%.

A recent report indicated that LAX has not had a serious incident in more than 14 months (more than 1,000,000 operations).

Why do you insist that the moving and/or lengthening of three of the four runways are being done for reasons of safety? Isn't it obvious, with this FAA information, that the cost associated with the alterations is outside the realm of

reality? Please explain your rationale.

26. Page 4-715 It states "...not all safety areas and safety zones surrounding the four LAX runways universally meet today's recommended dimensions for new airport development."

Is this statement a demand for runway relocations and extensions? Please explain a yes or no answer. Would the airport be closed down if there was no reconfiguration of the runways? Please explain a yes or no answer.

27. CTA

The removal of most vehicles from the Central Terminal Area (CTA) is a positive safety and security program because it limits the possibility of a large explosive device being carried in a vehicle. It makes it more difficult to have large structural damage and great loss of life in the CTA.

This change, however, also creates a problem of how to get the passengers to the terminals. The Supplemental Draft EIR/EIS has a Ground Transportation Center (GTC), an Intermodal Transportation Center (ITC), Consolidated Rental Car Facility (RAC). All of these centers rely on an Automated People Mover (APM) to transport passengers via the APM. This increases the area that must be covered to curtail terrorist activity. To say that the GTC, ITC, RAC and the APM will have a less than significant impact (ES 4.26.2) on the number of security personnel, the type of equipment and the utilization of that equipment is not reasonable or logical. It is critical to insure the safety and security of the passengers. A closing down of any of these centers would have a very negative effect

The CTA has several terminals for passenger access through various means of transportation at the present time. As the past several months have shown, a suspicious article has caused a particular terminal to close down and to have passengers removed from the area. If the GTC were to have a similar type of a problem, many terminals would be affected and create a greater problem depending on the severity of the problem at the GTC. The same could apply to the RAC and ITC, only not as severe a problem.

The term 'Level One' security check of passengers and baggage has not been easy to determine, at least as yet. The method and procedure is very important. The GTC, ITC, and RAC are all to have Level One security checks BEFORE anyone boards the APM. Questions to still be investigated are the methods vehicles would be checked as they come into those areas and the procedure for getting the passengers and luggage to the security check area are still undetermined.

Arriving passengers, as now, will have been checked at some other airport. An area of concern would be how to get the arriving passengers and baggage back to their point of landside surface departure if the APM is malfunctioning for

whatever reason.

The "concentric rings of security" as illustrated in Figure 4-1, imply that because of the distant location of the GTC, ITC, RAC etc., law enforcement personnel will have additional time to assess any inappropriate activity prior to the problem reaching the APM or CTA. This could be a positive security measure depending on the programs that are set up.

The Flyaway buses need to have at least Level One security for passengers and baggage at the depots, given that they will be allowed to go directly to the CTA. As of this time, we do not know of any planned inspection of vehicles allowed into the CTA to service the concessionaires. Where and when will the inspection of the Flyaway vehicles be inspected after leaving the Flyaway station and before entering the CTA?

28. We have heard that LAX is as safe as it can get. The airport, airlines and all other airport-related activities encourage the public to use the airlines and airport. They encourage the public to travel. Yet all the consultants, including the Comparative Study Analysis hired by LAWA, can find NOTHING good about the system now employed. In every instance cited by the consultants Alt. D noted as superior to NA/NP. Who would want to travel in an airport with as many flaws as the NA/NP that we are using at the present time? We must question the validity of any report that presents only the positives of one program and the negatives of another. Credibility would be questioned if anyone were to evaluate Alt. D in the same way EIS/EIR has evaluated NA/NP.

Please explain what constitutes an Aircraft Accident and an Aircraft Incident as shown in Table S4.24.3-1. Please describe the accidents and incidents listed in that same Table. Based on that Table, it appears LAX operates a relatively safe airport.

29. Section 4.24.3.6.2 refers to environmental impacts related to safety located in 4.24.3.6. There is not any information in the later section pertaining to Environmental Consequences. Section 4.24.3.6.2 states, "The ability to accommodate future federal airport security requirements under the NA/NP Alternative MAY be constrained by the space limitations of existing facilities, particularly the CTA." Do you know what the future federal requirements may be? How could LAWA improve the CTA to handle potential federal requirements? What would the consultants discover if they were told to find additional space in the CTA area? What other interim measures could be incorporated by modifying the existing CTA facilities?

30. 9/11/01 was a day when aircraft, fully loaded with fuel, destroyed buildings and killed people. Terrorists using commercial aircraft would find it much more difficult to conduct a similar activity today. However, with more than 40 airfields in

the area, how will can the GTC, ITC, and RAC be protected from other aircraft, loaded with explosives, causing great harm to facilities and passengers?

To summarize, although the LAXAAC considers Alternative D preferable to Alternatives A, B and C, it considers Alternative D to have significant flaws and to be less preferable to the No Action/No Project alternative.

Additional points, Noise Committee:

31. The number of residents in Manchester Square that would lose their housing is over 7,000 (12.5 percent of the population of the Westchester area). There is very little affordable housing available in this area for them. Where was the negative economic impact on the local communities included for removing these residents in Manchester Square? Are the costs of relocation, litigation and eminent domain included in the Draft EIS/EIR?

32. What flight mix was anticipated in Alt. D? Would the flight mix be able to achieve the LAX noise abatement program (e.g., take-offs on in-board runways, and over-ocean operations)?

33. Although moving runway 24L 340 feet south is obviously planned to accommodate the New Large Airplanes (NLA), this runway may not be long enough for the NLAs. According to literature on the yet-to-be-released aircraft, they need a runway at least as long as 25R. Counting the unpaved ground at either end of 24L as part of the qualifying length is specious and potentially dangerous.

34. Why was the A-380 single-event noise not included?

35. The 94 SEL noise level used for the threshold of significance for sleep interference is too high. The levels selected by the World Health Organization (55 SEL outside, 35 SEL indoors) should be used.

There is an assumption that the Part 161 Study will develop mitigation actions; this can not be counted on nor included until the Part 161 Study is complete (and it is doubtful that there will be any real mitigation measures recommended).

Has irregular terrain been considered in formulating CNEL contours?

36. Why is low-frequency noise not addressed?

37. Noise from construction should never exceed maximum allowable noise levels. What provisions have been made to insure this is the required policy?

Notes on Alt.D Noise, Section 4.1

General comments:

38. None of the noise analyses deal with low-frequency noise, yet this form of noise has been identified as extremely detrimental to overall health, not just to hearing. Residents in areas that had not previously expressed concern about noise impacts (Ladera, for instance) are probably being impacted by low-frequency noise. Low-frequency noise needs to be recorded, integrated in the contours, and mitigation measures included.

39. The only noise contour in the Noise section that shows projected 2015 Alt. D noise is Figure S6 (from the Supplement), Alternative D 2015 (with Part 161 Mitigation) vs. Alternative D 2015 Without Mitigation. Figure S6 is in error for showing mitigation measures generated from the Part 161 study – this study is currently underway; no mitigation measures have been recommended nor adopted from the study as of this time.

40. There is no contour map included showing 1996 baseline, the Year 2000, and projected Alt. D 2015 impacts. There are some figures, (S4.2-16 through S4.2-19) that do compare a noise contour for Alt. D 2015 with 1996, NA/NP, and Single Event noise, but they are included in the Land Use section, not the noise section of the Alt D EIS/EIR.

A firm commitment to the CNEL and over-ocean procedures needs to be clearly defined in the EIS/EIR. The over-ocean procedures were established as extending to 7:00 a.m. However, at several locations in the proposal, the time has changed to 6:30 a.m. The EIS/EIR should state what the original procedure was and, if it has been officially changed, when and how it was changed. Otherwise, the 7:00 a.m. time should be reaffirmed and language clearly delineating LAWA's unequivocal commitment to it must be included. As an inducement to follow the over-ocean procedure, LAWA should formally request that the FAA establish a procedure to track pilot (or FAA) requests for an easterly take-off when LAX is in the over-ocean mode. These requests must list weather conditions and the reasons an easterly take-off was requested. Monthly reports of these requests should be made to the public.

41. Table S4.1-1, Aircraft Noise Exposure by Noise Level Range – 1996 and Year 2000 Conditions: It is not stated whether the Manchester Square area is included as residential in the 1996 and 2000 figures. For an analysis of Alt. D, the estimated noise exposure must be included for 2015.

42. Table S20 (from Supplement), Grid Points Within Future Alternatives That Experience Significant or Other Reportable Increases in CNEL – Comparison of Future Alternatives to 1996 Baseline, Year 2000 Conditions, and 2015 No

Action/No Project Alternative: This data is shown only in a table. It must also be shown in a contour map form.

Section 4 Noise Screening of Alt. D Track Changes above 3,000 Ft Altitude

43. On what basis is the assumption made that the Alt. D flight tracks would not increase noise by at least 5 decibels? What aircraft mix was assumed? Turbo-props are still being purchased by the airlines; were they included in the mix?

44. Moving 24L/6R 340 feet to the south would certainly have a serious impact on Inglewood and south Los Angeles; on both take-off and landing aircraft would be below 3,000 feet. This would impact areas that are clearly eligible for Environmental Justice relief.

45. As shown on Figure S4, easterly departures from 6L and 6R would go directly over the Osage area of Westchester at altitudes considerably below 3,000 feet. Where did the EIR/EIS study include studies of increased traffic on these runways during easterly operations? Was there any study done of more commuter aircraft being routed to the north? Especially to 6L? Where is the study on single-event noise generated by easterly take-offs over this area? These issues must be addressed.

46. During normal operating conditions, if commuter aircraft are routed to the north complex, specifically to 24R, there is a greater opportunity for early approaches coming in over eastern Westchester and early turns on take-off over Playa del Rey which would be considerably lower than 3,000 feet in altitude. Where is the study of these eventualities? Especially the single-event noise impacts?

47. The eastern part of Westchester (the Osage area) is already subjected to serious aircraft noise, in both easterly and westerly operating conditions. Alt. D would have the potential to greatly increase this noise impact to more than unacceptable levels.

What is the aircraft fleet mix upon which the 2015 noise estimates were made? How many aircraft take-offs and landings were assumed to be during the day, evening, and night? Airlines are still purchasing turbo-prop aircraft. Were these included in the noise estimates?

48. Alt. D estimates that cargo will triple by 2015. What cargo aircraft fleet mix was assumed? Many of the loudest nighttime aircraft are cargo flights taking off between 12:00 midnight and 2:00 a.m. How many cargo aircraft take-offs and landings were assumed to be during the day, evening, and night in the 2015 noise estimates?

49. In Figure S4.2-16, Alt. D vs. 1996 Baseline, there is an indication that there would be over 1.5 dB increase in noise for the area near Sepulveda and Westchester Parkway, and an area extending eastward from the end of Runway 24L to approximately Western Ave, which is as wide as 9-10 blocks from La Cienega to La Brea. It is estimated, however, that these areas would still remain within the 65 dB contour. Are these 1.5 dB increases due to the New Larger Airplane (NLA) departures?

50. Was it assumed that the NLAs would be departing only from the north complex? Literature on the NLAs indicates that they would need a runway at least as long as 25R. Runway 24L would not be as long, even if the changes in Alt. D came to pass. Was the ground at either end of the runways included as runway length when determining aircraft safety requirements? Considering the size and weight of the NLAs, unimproved, unpaved ground is not adequate for problems that may occur during take-offs or landings. What would happen if the longest runways were not available, e.g., during maintenance or an accident?

51. Figure S4.2-18 shows two areas, that would experience new exposure to 94 dBA SEL noise under Alt. D (as compared to the 1996 baseline). One area would be a rather narrow (3 to 6 blocks wide) corridor north of the north complex, running from La Tijera to almost Prairie Ave. The other area lies between the approaches to the north and south complex, running from La Cienega to Van Ness and from Century Blvd up to Manchester Blvd. Much of these areas qualify for Environmental Justice relief. Alt D. would expose almost 20,000 more people to this noise which is approximately equivalent to a gas lawn mower at 3 feet. What is not shown is what time of day these new noise impacts would occur -- day, evening, or night? The time of day (or night) needs to be clearly defined. Also, there need to be specific mitigation measures included to handle single event noise impacts.

52. Why are the predicted noise contours for Alt. D and NA/NP in 2015 about the same? The expected MAP and cargo in 2015 would also be about the same as NA/NP. So, if we would be able to handle the traffic with NA/NP, why go to a \$9 billion expense that would not provide more security, but would just transfer the security risk to the community?

53. As we have the capability to explore "single event" cases for pollution sake, we believe noise pollution to be as dangerous as air or water pollution and therefore feel it should be studied within the EIR in both the single event and cumulative form.

University studies have documented that exposure to noise artificially raises blood pressure by at least 10 to 25 points. This presents a very real health threat and as the effects were noted to retain the higher pressure for at least 10 minutes, we feel the elevation can remain constant during peak noise times

causing potential life threatening health risks. Can we please see what studies have been compiled to negate or create a mitigation for this problem in the EIR?

54. We have read many studies documenting the noise levels surrounding many types of "plants" such as industrial and airport. The noise created by these uses create problems in the central nervous system resulting in low concentration levels, lower test scores and higher instances of A.D.D. Why is there no study discussing how to counteract these problems created by "Plan D" which calls for runways to be moved closer to residential areas?

55. The FAA and LAWA have repeatedly admitted to the extreme noise levels created by this airport by designing and paying for "sound-proofing". Why is there no explanation of what steps they will take to mitigate the increased noise of moving the runways closer to El Segundo? As it is LAWA's choice to increase the size and nearness of the runways and to include the use of the newer airbus, why is there no mention of what noise levels we can expect from these combined incidents?

56. There have been some relatively new studies tying various forms of "rage" (road rage, line rage etc.) to noise exposure. In a plan that has been created to reduce risk and insure safer operations, why is there no allowance to further examine the validity of these studies on stress caused by noise exposure?

57. Why are there NO guarantees that the southern or western most gates will not "reappear" to accommodate additional needs in upcoming years and where are the studies to reflect the effects on the overall noise contours of these potential uses?

58. What is currently being done and where is the future plan to control the extensive ground noises frequently experienced by communities surrounding the airport, as they will exponentially increase? Since the north and south runways will be moved closer to residential areas, why haven't noise studies been done in regards to go-arounds/overflys impact on these neighborhoods?

59. Is there going to be any time restriction on east-west overland operations such as the 12 midnight to 6 A.m. curfew that had recently been put in place on behalf of eastern corridor cities?

60. The proof of the accuracy of noise studies should have been supplied by the applicant of the EIR that is asking for so many physical changes, which will create noise abuse to surrounding communities and negate the "friendly neighbor" statements including in the EIR.

61. In reporting on noise sufficient for awakenings of persons adjacent to the airport, why did you not report on noise sufficient for annoyances? The decibel

level used in the EIR for awakening levels is stated as 94 dBA for exterior and 81 dBA for interior. These levels are not compatible and in concert with the more widely accepted noise levels, both exterior and interior as stated currently by the World Health Organization. Why, for these tests and potential mitigation were the more universally acceptable standards of the World Health Organization used by LAWA?

62. Why is there no mitigation proposed for the severe noise cited for the People Mover?

63. What provision has been made for the mitigation of noise, vibration, traffic and parking during construction? Specify the mitigations by phase of construction.

Notes on Transportation

64. We are now in the year 2003. Yet many of the estimates are based on 1996 (or, at best, 2000) data. Traffic on the 405 and 105 freeways has increased greatly from 2000 to the present. During the same period, there has been reduced airport traffic, so baseline figures need to be revised. Why are current traffic figures not used?

65. Most traffic data seem to reflect peak-hour traffic, yet traffic has increased all during the day and night. Why are 24-hour traffic figures not included?

66. Tables S4/3/2-3, S4.3.2-4, and S4.3.2-8, which discuss the number of intersections and freeways that would be affected, does not identify what the basis is for the baseline. This must be clearly stated and must reflect current figures.

67. Table S4.3.2-8 does not include the impact on off-airport surface transportation facilities during the a.m., p.m., and airport peak hours during the peak construction year (2008). Instead the Alt. D proposal states that "the project would be managed to ensure that there would not be any notable construction-related traffic generated by the project during those critical hours." How the traffic would be managed must be included.

68. People will increase their efforts to avoid traffic on the freeways by using Culver Blvd and Pershing Drive. The levels of impact would be much higher than indicated in the tables listed. Also, drivers would continue to exit at the Howard Hughes Center and then spread out through the Westport Heights and Osage areas of Westchester, seeking access to the airport. Yet none of these intersections and/or roadway links was studied (Airport Blvd and 74th, 76th, and 78th; La Tijera and 74th, 78th-79th, and 83rd; Hindry and Aviation; Osage and

Manchester). These traffic impacts must be included and mitigation measures must be included to prevent this cut-through traffic.

69. What amount of traffic is being assumed for the LAX Northside facility? It seems that NA/NP figures are higher than Alt. D for this area. What was the assumption based on? This area has not been developed since the EIR was approved in 1983. Were the full entitlements charged (in terms of traffic and air pollution) to the NA/NP figures?

70. How would trucks hauling dirt out and bringing construction materials in get from Westchester Parkway to the proposed Employee parking lot at the west end of the airport? Would they use airport property or Pershing Drive?

71. The extensive roadway bringing traffic into the proposed Ground Transportation Center (GTC), along with the adjacent people mover (APM), would create a terrorist target, as would the concentration of people in the proposed GTC. Terrorists do not target facilities alone, they target concentrated groups of people. Our committee members do not want the GTC, along with the terrorist opportunities, traffic problems, and air pollution, placed in the Westchester community and adjacent to the City of Inglewood.

The GTC could not be protected with hazardous materials, decontamination, bomb detection and disposal materials and staff. These would have to be transported from the airfield along city streets which would be immediately clogged and impassable if there were to be any kind of attack or accident. This leaves the traveling public and the community completely vulnerable. How would all the necessary emergency vehicles be able to gain access to the GTC? How could the CTC be evacuated in case of an emergency? What roads could/would be used? How would airport personnel be able to achieve an evacuation?

72. How would the general public be prohibited from entering the taxi holding area at the proposed GTC (especially if the entrance to the area is on Arbor Vitae)?

73. Proposed parking areas for construction and airport employees need to be specified in detail, along with the access roads and additional traffic impacts.

74. While some of the proposals in Alt. D bear investigation, they could be done without expending over \$9 billion to achieve them. The LAXAAC would be interested in seeing some improvements made in the freeway access – especially the 405 and 105 freeway access into LAX. The Lennox interchange should be thoroughly explored.

75. Our committee members are in favor of the Fly Away program. Again, this program could continue to be expanded without developing Alt. D.

Comments on Definitions

76. In order to understand the potential impacts of Alternative 'D,' it is extremely important to know the definition and interpretation of words that are used in this document. One of the more important words the public needs to understand is the word 'significant.'

The word "significant" is used throughout the SUPPLEMENT TO THE DRAFT EIS/EIR MASTER PLAN for LAX. We have come to the conclusion, after making several inquiries about the definition of the word "significant" to high-level Deputy Executive Directors of LAWA and others, that there is no one definition capable of applying to all instances of its use. The Executive Summary of this Supplemental Draft EIS/EIR does not address the definition of "significant." Therefore, it is necessary to ask the same question about similar but different statements included in the Supplemental Draft EIS/EIR. Please refer to the Executive Summary, Volume One of the Supplemental Draft of the EIS/EIR for titles and page numbers of the Executive Summary Tables. It would be helpful for the reader to have the definitions of the term "significant" (and similar qualifiers) spelled out where the term is used, so that the impacts described can be readily understood. Please do not use words that are synonymous with 'significant' to explain, define, and interpret the word 'significant.' Some of the words to avoid in explaining the definition are: important, meaningful, weighty, notable, profound, pivotal, serious, momentous, substantial, and other synonyms of this type. Facts, figures, noise levels, estimated values, decibels, and comparisons would be greatly appreciated. Where NEPA or CEQA or other laws or agencies have defined thresholds for significance, it would be useful to include them or annotate them where the conclusions are reported.

In other words, be specific.

ES pages 51 through 76

4.1 Noise

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
2. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
3. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
4. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
5. Please define, explain, quantify, and interpret the word 'significant' as it is used

in this section.

6. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

7. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

Roadway Noise

8. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

9. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

Construction Noise

10. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.2 Land Use

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

2. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

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11. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

12. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

Surface Transportation

4.3.1 On-Airport

4. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
5. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
7. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
8. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.3.2 Off-Airport

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3. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
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5. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.4.2 Relocation of Residences and Businesses

2. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.4.4. Community Disruption from Alteration of Surface Transportation

2. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.5 Induced Socio-Economic Impacts (Growth Inducement)

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
2. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.6 Air Quality

1. Please define, explain, quantify, and interpret the word 'significant' as it is used

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4.7 Hydrology and Water Quality

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5. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.9 Historic/Architectural, and Archeological/Cultural Resources

4. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
5. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
7. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.92 Paleontological Resources (CEQA)

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.10 Biotic Communities (including both flora and fauna)

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
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14. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.11 Endangered and Threatened Species of Flora and Fauna

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2. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

3. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.12 Wetlands

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.13 Floodplains

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.14 Coastal Resources

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

2. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

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4.17 Energy Supply and Natural resources

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

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4.17.2 Natural Resources

3. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.18 Light Emissions

3. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
4. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
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4.19 Solid Waste

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
3. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.21 Design, Art, and Architectural Application/Aesthetics

4. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
5. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
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4.22 Earth/Geology (CEQA)

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4.23 Hazardous Materials

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4.24 Human Health and Safety

4.24.1 Human Health Risk Assessment (CEQA)

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

3. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

Please define, explain, quantify, and interpret the word 'Beneficial' as it is used in the sections of 2,5, and 6.

4.24.2 Health Effects of Noise (CEQA)

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.24.3 Safety (CEQA)

1. Please define, explain, quantify, and interpret the word 'significant' as it is used

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4.24 Public Utilities (CEQA)

4.25.1 Water Use (CEQA)

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4.25.2 Wastewater (CEQA)

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4.26 Public Services (CEQA)

4.26.1 Fire Protection

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4.26.2 Law Enforcement (CEQA)

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4.26.3 Parks and Recreation (CEQA)

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.26.4 Libraries (CEQA)

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.27 Schools (CEQA)

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
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Public Comments

Please print.

Name (First MI Last, or Organization): Brian J. Weis Date: 11/6/03

Address: 8836 Croydon Ave

City: Westchester State: CA Zip Code: 90045

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments:

The Sepulveda tunnel passes under all the south runways and taxiways for LAX. The location of the tunnel relative to the runway length is about at the 40% length position. This 3-lane roadway is also Pacific Coast Highway which is a major north/south corridor providing access to the communities in the South Bay and West side of Los Angeles, in addition to access into and around LAX.

The world witnessed how a truck bomb made with ordinary fertilizer and diesel fuel destroyed the massive Federal Building in Oklahoma City, OK. Such an attack could destroy the south runways and taxiways. Assuming nothing is done to totally eliminate the possibility of such an attack from occurring, i.e. move the start of the south runways west of the tunnels, or eliminate the tunnels by rerouting the road, and an attack occurs.

Such an attack could destroy the south runways and taxiways. Assuming nothing is done to totally eliminate the possibility of such an attack from occurring, i.e. move the start of the south runways west of the tunnels, or eliminate the tunnels by rerouting the road, and an attack occurs. Assuming LAWA will not

How will LAWA shield itself from the catastrophic economic fallout of the lost revenue from lost cargo operations and the attendant loss of passenger traffic?

The fall from losing 50% of the runways at LAX and essentially all the cargo capacity from such a disaster would be devastating.

The public outcry, critics and politicians would most likely not allow LAWA to rebuild a tunnel ever again, even with improvements and vehicle limitations, etc.

What would be LAWA's contingency plan be to get the south runways operational again? Why does LAWA not address this huge security problem (the tunnels) that no other major airport has in the world?

Attach additional sheets if necessary.

Office Use Only

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



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Address: 8836 Croydon Ave

City: Westchester **State:** CA **Zip Code:** 90045

Document: **Draft Master Plan Addendum** **Supplement to the Draft EIS/EIR**

Subsection (if applicable): Security by definition requires the restriction of access. Security can only be as strong as the easiest access point to the area trying to be secured (a chain is only as strong as its weakest link).
Number: **Title:**

Comments:

The Sepulveda tunnel passes under all the south runways and taxiways for LAX. The location of the tunnel relative to the runway length is about at the 40% length position. This 3-lane roadway is also Pacific Coast Highway which is a major north/south corridor providing access to the communities in the South Bay and West side of Los Angeles, in addition to access into and around LAX.

The world witnessed how a truck bomb made with a few hundred gallons of diesel fuel and ordinary fertilizer destroyed the massive Federal Building in Oklahoma City, OK. A similar attack but much larger in size several thousand gallons could destroy the south runways and taxiways. Assuming nothing is done to totally eliminate the possibility of such an attack from occurring, i.e. move the start of the south runways west of the tunnels, or eliminate the tunnels by rerouting the road, and an attack occurs.

Will LAWA carry sufficient "Terrorist Act Insurance" to prevent the tax payers from ultimately servicing the debt of the project, since the project debt will no longer be paid by landing fees from the airlines, LAX related concessions and bonds holders, which will experience an overwhelming loss of business?

The Federal Government may cover the replacement of the damaged buildings, etc., but certainly not all the lost revenue over the time to return operational.

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Comments:

Building any of the alternatives, except no change alternative will involve a tremendous level of disruption to the surrounding community in regards to construction traffic, noise, dirt and dust, etc., which will last for several years. This will undoubtedly have a negative effect on the quality of life as well as the value of the homes forever after.

Has LAX included the cost of litigation and settlements for class action suit plaintiffs over airport changes that effect the noise level and value of the homes after the project?

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Alternative D includes creating rental car parking lots and extending the north runway further east and moving the southern most runway further south. Both of these changes, compared to the no change alternative will undoubtedly greatly increase the noise levels and traffic for residents in the adjacent area.

Has LAX included the cost of litigation and settlements for class action suit plaintiffs over airport changes that effect the noise level and value of the homes after the project?

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Comments:

Increasing capacity at LAX does nothing to reduce the traffic on the 405 which carries the bulk of all passengers to LAX. The huge building growth in Orange County will only continue to add to the traffic burden to the 405 going to LAX.

Why does LAWA continue to "put all the eggs in one basket" with LAX and not advocate a regional approach that would add some redundancy and traffic mitigation?

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How can LAWA justify spending many billions of dollars on a LAX which only adds about an additional ten million annual passengers over the maximum carried in during the peak travel year? In comparison to the advantage provided by having another larger capacity airport in the region which, would add some redundancy and traffic mitigation.

Attach additional sheets if necessary.

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Comments:

How will LAWA guarantee that the project is paid for not by the taxpayers, but as planned through landing fees from the airlines, LAX related concessions and bonds holders in the event of unforeseen cost overruns and the possibility of future terrorist events which would greatly reduce travel to LAX?

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Security by definition requires the restriction of access. Security can only be as strong as the easiest access point to the area trying to be secured ("a chain is only as strong as its weakest link").

The Sepulveda tunnel passes under all the south runways and taxiways for LAX. The location of the tunnel relative to the runway length is about at the 40% length position. This 3-lane roadway is also Pacific Coast Highway which is a major north/south corridor providing access to the communities in the South Bay and West side of Los Angeles, in addition to access into and around LAX.

The world witnessed how a truck bomb made with ordinary fertilizer and diesel fuel destroyed the massive Federal Building in Oklahoma City, OK. Such an attack could destroy the south runways and taxiways. Assuming nothing is done to totally eliminate the possibility of such an attack from occurring, i.e. move the start of the south runways west of the tunnels, or eliminate the tunnels by rerouting the road, and an attack occurs.

How would a massive, multiple truck bomb attack, which could easily be carried out by simply driving trucks or busses into the tunnels and simultaneously detonating them be prevented?

What is LAWA's contingency plan to handle all the cargo carriers, since nearly all cargo carriers are located east of the tunnels which would cutoff access to load planes if such a disaster occurs?

Attach additional sheets if necessary.

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The Sepulveda tunnel passes under all the south runways and taxiways for LAX. The location of the tunnel relative to the runway length is about at the 40% length position. Accordingly, the runway is needed for both take offs and landings. This 3-lane (each direction) roadway is also Pacific Coast Highway which is a major north/south corridor providing access to the communities in the South Bay and West side of Los Angeles, in addition to access into and around LAX.

What other major airports in the world have unrestricted public highways that pass under the mid section of the runways?

If any exist, how do they secure their tunnels to prevent a massive truck bomb attack?

Attach additional sheets if necessary.

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U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Rec'd
11-07-03
10:00 am

Matthew L. Hetz

November 5, 2003

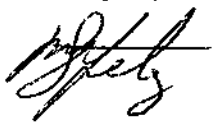
Mr. Jim Ritchie
City of LA, LAWA
LAX Master Plan Office
PO Box 92216
LA, CA 90009-2216

Dear Mr. Ritchie,

I write regarding the proposed expansion of Los Angeles International Airport, LAX, under plans put forth by the Los Angeles World Airport, LAWA, and James Hanh, the Mayor of Los Angeles. The favored plan is no Schedule D. I am concerned about security, particularly the grouping of all passengers onto one area outside the airport proper. I think this would make it easier for acts of terrorism to occur as the grouped masses of people would make for easier targets. I also do not see how this would solve ground transportation problems at LAX.

However, in whatever configuration that is approved, or even if the changes keep the basic configuration of LAX as it now stands, there must be better mass transit to LAX. This includes the continuation of the Green Line light rail closer to the airport and connected to some type of transit system that would move passengers from the Green Line to the airport. There is a proposal from LAWA for an automated People Mover system, which is acceptable, but it must be directly connected to the Green Line. LAWA must also assume financial responsibility for any mitigation efforts that may be required to deal with any electromagnetic and or electronic interference that may hypothetically occur between the radar and communication signals of the jets and ground communication and the Green Line power lines. This must be done to ensure that the Green Line continues north to Westchester and beyond so that residents north of LAX have mass transit options. Schedule D plan has no consideration for mass transit for residents north of LAX.

Thank you,



6211 W. 78th Street Los Angeles, CA 90045
Ph: 310.645.8518 e-mail: Hermes333@aol.com

SPC00285



November 6, 2003

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
PO Box 92007
Los Angeles, California 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
PO Box 9216
Los Angeles, California 90009-2216

Dear Messrs. Kessler and Ritchie:

H.F.H., LTD. has owned property in the Westchester Central Business District for close to 20 years. I wish to express our grave concerns with Alternate D proposed Master Plan Improvements for LAX. We very much oppose this plan for several reasons:

1. The forced relocation of residents of Manchester Square seems unfair and will have a disastrous effect upon local business that now serve those residents.
2. Plan D, now pegged to cost in excess of \$8 billion, appears to offer no real security enhancements. It would be very wasteful of taxpayer's money.
3. Plan D will likely result in excessive inconveniences for LAX passengers. The extended demolition/construction period will be incredibly disruptive to the local area for several years.
4. I am aware that Mr. David Janssen, the Chief Administrative Officer of the County of Los Angeles has contacted you citing several elements of the environmental review which are seriously flawed. It would be a shame to waste any more taxpayers' money in an attempt to fix the EIR as well as trying to "spin" this disastrous plan to appear more palatable.

I appreciate your consideration of these concerns.

Yours very truly,

H.F.H., LTD.

William F. Allen
General Partner

WFA:bs

cc: Ms. Cindy Miscikowski, Councilwoman

**Bel-Air Beverly Crest Neighborhood Council
100 Bel-Air Road
Los Angeles, CA 90077**

November 3, 2003

**Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007**

**RESPONSE TO EIR RE: PLAN D LOS ANGELES INTERNATIONAL
AIRPORT**

The Bel-Air Beverly Crest Neighborhood Council, mandated by the new Los Angeles City Charter, comprised of 25,000 stakeholders voted the following at its September 2003 meeting:

- 1. The council did not accept or reject Mayor Hahn's Plan D LAX Plan in its entirety.**
- 2. The council voted unanimously to encourage the expansion of the Palmdale and Ontario Airports.**
- 3. The council voted to approve the runway design expansion as proposed in Plan D at LAX. Once again the vote was unanimous.**
- 4. The council again voted unanimously to encourage the development of a fast train (180 mph) linking LAX to Ontario and Palmdale.**

The Bel-Air Beverly Crest Neighborhood Council covers the territory from Sepulveda Blvd. and the 405 to Laurel Canyon and from Sunset Boulevard to Mulholland Drive, excluding Beverly Hills.

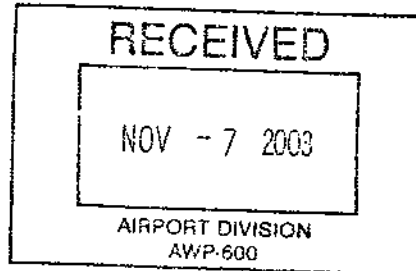


**Stephen C. Twining
President**

SPC00287

Diane Sambrano
3640 West 111th Place
Inglewood, CA 90303
November 6, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan/Room 218
P.O. Box 92216
Los Angeles, CA 90009-2216



Mr. David B Kessler, AICP, AWP611.2
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007
World Way Postal Center

Re: LAX Master Plan - Public Comments

As a resident of the City most impacted by the increases in air traffic at LAX I find the impacts presented in the EIR/EIS to be less than realistic. While my home does NOT lie within the current noise contours, I have been awakened on a regular basis almost every night. This serves as great testimony to the concept of midnight to 6:00 am over ocean operations. Very rarely is there a full 6-hour quiet time. The theory of the day appears to be that as long as the people are too tired, too exhausted, or too apathetic to call the noise complaint line more east bound departures (when most people are asleep), will become the norm. The disregard for the local community members by these airlines reflects the lack of importance Los Angeles World Airports has placed on exercising its authority to fine offending airlines. No other business entity would be allowed to violate the basic right to sleep if it were not part of a legislative organization. There would be no question if LAX was simply a traditional business the city would not allow the noise, pollution, or traffic which so negatively impacts so many to impact so many more as the proposed project options would generate.

Alternative D has been proposed as an attempt to provide safety and security. In reality it simply relocates at great expense any possible threat closer to and into residential neighborhoods

The concept of bringing all passengers to one security checkpoint (Ground Transportation Center) provides a much better target for even the least skilled of terrorist. If anyone would foolishly believe that deterring terrorism is the goal, why on earth would you gather potential victims together into one bigger target as opposed to spreading potential victims out at several smaller targets? The Alternative D plan only serves as a flimsy veil to disguise the incremental footprint expansion of a greedy cash hungry entity.

That a fly away is considered just a three major intersection drive from the GTC is further insult to the community already suffering from significant noise impacts, air quality issues, and traffic congestion. To imply that traffic is reduced by the flyaway is simply untrue. Passengers will still come to the area in personal vehicles. The vehicles will not avoid the freeways, nor will they avoid the surface streets. They will simply speed through our residential neighborhoods, barely missing most of our pedestrians, spew more toxins in our community and provide another target for terrorism in our neighborhood when they drive to and park at the fly away. While some might suggest that the Hollywood Park property is perfect since it has been a parking lot for many years that logic fails to take into consideration that the racing season is an extremely limited number of days and certainly was not a 24 hour/ seven day operation.

SPC00288

The Consolidation of Rental Car Facilities claims to reduce the number of shuttle vans in the Central Passenger Area. News Flash! Fewer shuttle van trips could currently be realized if a shuttle van financed by several rental agencies delivered customers to various car rental agencies. This would simply reverse what they do when the car return customers/airline passengers are dropped off at various airline terminals. The same traffic reduction concept could be used for all Century to La Cienega area Hotels. Much of the concern about lost car rental return drivers could be solved by making the roadside directional signs large enough to read (They currently are in small print in unlit areas. Only those stopped near the signs with excellent vision can read the "directional signage").

Out of date statistics, absolute contradictions (i.e.: There will be no home acquisitions Vs, relocation and eviction costs), insufficient data, and unrealistic conclusions fill the pages of the EIR. Among the most ridiculous is that the same entity which eliminated so many homes in its prior growth spurts (Playa Del Rey, Westchester, Airport Junior High) would somehow now manage to function at the proposed 78 Million Annual Passenger level. It is no secret that LAWA does not turn airplanes away per FAA restrictions. To pretend that voluntary cut back in flight schedules would happen is less than sincere, much like believing a bowl of candy in an grammar school lunch area would not be emptied if children were told one time that the candy was for those promising to do all their homework. The SCAG concept of limiting capacity to 78 MAP is already violated by the .9 million addition within the EIR!

To imply that such a capacity limit will be implemented is not followed through with even a single realistic method for limitation. If a full 78 MAP is reach by October 15th of any year, are local residents to believe the airport will magically close its skyward doors and place a "Sorry we're closed" sign in the air? We've lived the ALWAYS OPEN experience!!

With an anticipated increase in Cargo, what better target for terrorism could be created? Not only would the local areas be at risk, 75% of the goods serving the entire SCAG region could be halted. The Orange County elite somehow seems to believe their essential goods should pollute the air, cause sleepless nights, and present traffic problems only for others. Master plan designers have demonstrated their agreement with that opinion. This action reminds me of the school yard children that bully a weaker child because the teacher hasn't stopped them. To concentrate cargo deliveries in one area one must assume the cargo does not get to Orange County or San Diego by magic carpet. The failure to address the ground traffic impact is consistent with the other "send the problem to Minority Communities like Lennox and Inglewood" attitudes which are prevalent throughout the EIR/EIS.

It is short sighted to present the proposals of "Safety and Security" as anything more than a cash grabbing attempt to place even a further burden on those least able to defend themselves. To believe that the community leaders (Inglewood City Council, Inglewood Unified School District and the Inglewood Chamber of Commerce) actually represent the wishes and interests of the people of Inglewood, one must ignore some basic facts. The residents were throughout the comment period NEVER given the opportunity, by their own City Elected, to see a presentation of the Master Plans Alternatives complete with impacts, to contribute their thoughts on the plan, or to vocalize their concerns regarding what comments were to be submitted on their behalf. These same politicians currently face a lawsuit regarding their unwillingness to adhere to the roll back of their 400% Salary Increase. This despite 70% of the voters desire that they reverse the full time pay for the less than part time attendance.

The historic practice of the wealthy getting wealthier at the expense of the health and well being of the less fortunate by simply paying off a few, appears to be no strange concept to the LAX Safety and Security plan. The burdens of the greater society once again will be placing an even greater significant burden on those of color and less financially able to hire environment justice attorneys, this may in fact be a significant part of the plan. The elected may be comfortable exchanging the health, safety and future livability of the community for the trinkets of a few low paying jobs and contract arrangements for their friends. Those who agree to the Master Plan may be viewed by historians as similar to the greedy Slave traders-who sold their countrymen in the name of economic development. They may also be compared to the too trusting Indian Leaders who accepted the disease carrying blankets from the "thoughtful" army, or the unwise original occupants of Manhattan who traded for a few necklaces.

The obvious political pay back of tax dollars amongst family members and friends should not be overlooked:

* Former LAWA Executive Director Lydia Kenard persuaded the Inglewood City Council to approve the February 6, 2001 Memorandum of Understanding. This document was not made available for public comment but rather voted on in closed session without public disclosure until after it was voted on. Her sister Gail Kenard later received a consultant contract to design the City's Senior Citizens Center. Then surprise, surprise, behind closed doors the City response to the EIR/EIS, again without public input calls for a "firm, binding commitment to fund new senior housing."

*Coincidentally the Ministers of the Church now occupying the once Fabulous Forum appeared at SCAG to sing the need for the Arbor Vitae Interchange for its Congregation. You know, the one that meets on Sunday when there is no rush hour traffic, which rarely has any events scheduled other than Sundays except when they get the Taxpayers to pay \$20,000 for the one High School Graduation event. Is it a mystery which church is meant in the City's EIR response of a "firm binding commitment to sound attenuate.... noise impacted churches?"

*The most entertaining of course is "a firm, binding commitment to fund the replacement of the existing YMCA at 102nd Street and Prairie." This must be the one carefully disguised to resemble a tumbleweed patch - so well done, not a single child has enjoyed the non-existent basketball court or non-existent swimming pool. But hey, it sounds good! Just like the "New Police Station Property" which Inglewood residents were promised as a gift from Hollywood Park for their "no negative impact" casino improvements - AKA: the hooker magnet

*Lest I forget, there's the golly, gee whiz, wow you'll get so much tax revenue Casino itself, which of course was granted a Tax Relief Schedule after it so passionately appealed before SCAG that its traffic generation alone required the Arbor Vitae Interchange. Now the City EIR response stipulates a "firm binding commitment to locate a fly away facility at the proposed location of the corner of Prairie Avenue and Century Blvd. Is this yet another example of the great return value of campaign contributions?"

Alas, alas, I do believe one does not need corrective lasik surgery to see the connections. My community will be paying dearly with their quality of life for those well invested (in campaigns) to fly to and play with those in the big houses to the North. Does anyone actually believe this proposal would be considered for even a minute if it weren't for those election time donations and carefully crafted pleas of Inglewood's Partners for Oppression? In the final analysis the Safety/Security and Expansion Plans of LAX are no less disgusting than the imitation irritation we exhibit over third world child labor issues. As long as a few can reap the benefit the majority are content that many are abused in the name of Profit Margin.

Isn't that a wonderful legacy for the generation to come? No doubt history will repeat itself, I only hope it will not be Inglewood where the destruction of homes, neighborhoods, and an entire community is overlooked in the name of greed, with only a footnote to describe the incredible sacrifice.

Sincerely,



L. Diane Sambrano

Funny, I feel compelled to remark- I would not be surprised if the City of Inglewood Response is accidentally not submitted on time.

**GALANTER AND COMPANY
P.O. BOX 66494
LOS ANGELES, CA 90066**

November 5, 2003

David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Re: Draft EIS/EIR released July 9 for Proposed Master Plan Improvements at Los Angeles International Airport

Gentlemen:

Having followed for over 16 years the various master plans proposed for LAX expansion, I wish to state unequivocally that you still haven't got it right. Alternative D is different, but it is not an improvement for the following reasons:

it requires rebuilding a substantial part of the existing airport, tearing down terminals, parking lots, and other facilities in order to rebuild them elsewhere

it requires construction of new roadways, which will necessarily involve displacement of other (job- and revenue-producing) activities

it will remove desperately needed housing, which will not be replaced

it will decimate those commercial centers LAX has left standing from previous expansions, which removed substantial amounts of the customer base

construction will disrupt both airport operations and the surrounding communities for at least a decade, probably more

alleged increases in safety and security are unproven and have been seriously challenged by several expert reviews

SPC00289

all these activities will create deterioration of air quality, ground mobility, and public health for no conceivable benefit except somebody's giant ego trip.

Alternative D is bad aviation planning, and it is bad public policy. It is bad aviation policy because intensifying concentration of aviation at one difficult-to-access location means passengers and cargo must travel ever more hours to reach the airport. A regional approach, diversifying closer to where the people and the cargo originate, would save time and aggravation, produce less air pollution, and decrease the chances of a terrorist act or an accident wiping out air capacity in the region. It is bad public policy because it will intensify both the acute housing shortage and the acute shortage of school classrooms, both of which cost more to replace than to maintain. It will also, I suspect, eliminate as many jobs as it might create.

That said, let us look at the DEIS/DEIR. The entire DEIS/DEIR is seriously flawed by its failure to include as a project alternative the dispersion of airport capacity. All you have done is compare proposals for expanding LAX, leaving the Board of Airport Commissioners and the Mayor and City Council with inadequate information to make a sensible decision benefiting the maximum number of people and communities. Furthermore, Alternative D is arguably a totally different project from Alternatives A, B, and C with which you do compare them. Since the proposed road system is different, the configuration of terminals is different, the traffic patterns for passengers are different, you need different studies, not just extra paragraphs tagged on to the old ones for the earlier projects.

The single biggest environmental issue in Southern California is our air quality. No adequate study has been done to evaluate the effect on local residents, schools, and recreation areas of additional air traffic and the additional ground traffic proposed in this plan on congestion, resulting additional air pollution from ground traffic, and air toxics from airplane fuel. Surely the LAUSD or some entity with the US Department of Health and Human Services has the means to determine what will happen to the children of Lennox (and their teachers and parents), but this has not been done. Why not?

Much has been written about the negative economic impacts as well as the negative environmental impacts arising from traffic jams, but not in this report. Your report should evaluate the difference in congestion increases between this plan and regional dispersion of the anticipated increase in air traffic. Surely the studies of congestion caused by trucks going to/from the Port of Los Angeles have lessons to teach us here.

In light of the fact that prevailing winds will blow any increased air pollution over the communities of Lennox, Inglewood, and South Los Angeles, what is the differential impact of this proposal on majority and minority communities? How does that compare

with the potential impacts of a dispersed regional expansion instead of a concentration at LAX?

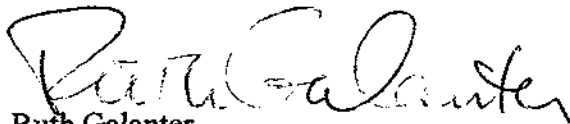
Proponents of expanding LAX argue that it will increase jobs, but where in your report is the other side of the equation: the jobs that will be eliminated?

LAWA has repeatedly stated that LAX is safe and secure today. Why then is it necessary to undertake this massive construction "for safety and security?" Where is the study proving that LAX will be safer and more secure, and again how does that compare with the safety and security of a regionally dispersed airport system in which disruption at any single facility leaves the rest in operation?

In sum, this plan needs significantly more and better environmental studies before decisionmakers will be adequately equipped to adopt a plan. Most significantly, the EIS/EIR must compare the environmental impacts (and the economic impacts wouldn't hurt either) of concentrated versus dispersed airport capacity investments.

Thank you for your attention. I look forward to your thoughtful response.

Yours truly,

A handwritten signature in cursive script, appearing to read "Ruth Galanter".

Ruth Galanter

Former Councilmember, former Chair of the CENR Committee

Matthew L. Hetz

November 5, 2003

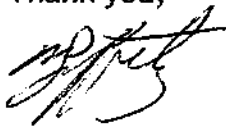
Mr. David Kessler, AICP
US Dept. of Transportation
FAA
PO Box 92007
LA, CA 90009-2007

Dear Mr. Kessler,

I write regarding the proposed expansion of Los Angeles International Airport, LAX, under plans put forth by the Los Angeles World Airport, LAWA, and James Hanh, the Mayor of Los Angeles. The favored plan is no Schedule D. I am concerned about security, particularly the grouping of all passengers onto one area outside the airport proper. I think this would make it easier for acts of terrorism to occur as the grouped masses of people would make for easier targets. I also do not see how this would solve ground transportation problems at LAX.

However, in whatever configuration that is approved, or even if the changes keep the basic configuration of LAX as it now stands, there must be better mass transit to LAX. This includes the continuation of the Green Line light rail closer to the airport and connected to some type of transit system that would move passengers from the Green Line to the airport. There is a proposal from LAWA for an automated People Mover system, which is acceptable, but it must be directly connected to the Green Line. LAWA must also assume financial responsibility for any mitigation efforts that may be required to deal with any electromagnetic and or electronic interference that may hypothetically occur between the radar and communication signals of the jets and ground communication and the Green Line power lines. This must be done to ensure that the Green Line continues north to Westchester and beyond so that residents north of LAX have mass transit options. Schedule D plan has no consideration for mass transit for residents north of LAX.

Thank you,



2003

6211 W. 78th Street Los Angeles, CA 90045
Ph: 310.645.8518 e-mail: Hermes333@aol.com

SPC00290



P.O. Box 91014 • Los Angeles, California • 90009-1014

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P O Box 92007
Los Angeles, CA 90009-2007

Dear Mr. Kessler:

I am writing to you on behalf of the Members of the Board of Directors of the Westchester Association. The Westchester Association is comprised of 43 property owners in the Westchester Business District and their properties are located on the east side of Sepulveda Boulevard, between Manchester Avenue on the North , and Westchester Parkway on the South.

At a recent meeting of the Board of Directors, a very lengthy discussion was held regarding Mayor James Hahn's Airport Plan, "Alternative D". The Board members have all previously had the opportunity to read and hear about the Alternative D plan, and they wish to go on record as being strongly opposed to this particular plan.

The Board of Directors are very much concerned that this plan will cause approximately 6200 citizens of Westchester to be relocated from both the Manchester Square and Belford areas of the community and that this plan would have a very negative impact on their tenants and businesses. Some of the Board members have been in this area for many years and they remember years ago when the airport expanded and approximately 10,000 residents had to move out of the area. That airport expansion caused many of the businesses to close their doors permanently, and the Board is afraid that will happen again.

Therefore, the Board wishes to go on record as being strongly opposed to "Alternative D".

Yours very truly,

Robert E. Smith
Business Manager

2003



Member:
ICSC
BOMA

H.B. DROLLINGER CO.
Developers • Property Management • Commercial Brokers



Recd
11-07-03
11:15 am

November 5, 2003

Via Federal Express

Mr. David B. Kessler, AICP
U.S. Department Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Re: Response and Comments on
The Draft Environmental Impact Statement/Environmental Impact (SDEIS/EIR) Report
released July 9, 2003 for Proposed Master Plan Improvements at Los Angeles World
Airports (LAX)

Gentlemen:

The purpose of this letter is to voice our strong concerns about the SDEIS/EIR released July 9, 2003 for public comment and Plan D relative to modernizing LAX. While we agree that LAX needs modernizing in order to effectively serve the traveling public and continue to remain a key economic engine in our region, Plan D and the supplemental EIS/EIR fail in these goals.

According to Jim Ritchie, Deputy Director at LAWA, at his 11/3/03 presentation to the Westchester Vitalization Board of Directors and his 10/28/03 presentation to the Neighborhood Council of Westchester/Playa del Rey Board of Directors, LAX is being operated in a very safe and secure manner today. Mr. Ritchie went on to say LAX is continuing to improve its security by adding perimeter security cameras, additional police officers & security dogs, plus TSA has over 2,000 employees at LAX continually screening luggage and passengers with "modern technology devices", as well as more customary x-ray and visual screening. Mr. Ritchie assured both Boards that LAX is operating safely and securely.

That being said, it is the opinion of the H. B. Drollinger Co. that LAWA is proposing to implement a flawed project, and that LAWA has developed an inadequate environmental document to review the project. The following are just a few issues that support our position:

- Plan D will not constrain growth at LAX. In fact, it adds capacity at gates by increasing the speed aircraft may be loaded/unloaded by up to 50% and does not remove any concrete.
- Plan D does not meet its safety and security goal for which Plan D was formulated as outlined in the Rand Report July 2003 and LA County Supervisors official position report dated October 15, 2003.
- Plan D's security plan relies heavily on technologies, some of which have been discredited (facial recognition surveillance). Over-dependence on security technology may lead to higher risk of error, and, ironically diminished protection.
- Use of a Supplement to the 2001 Draft EIS/EIR was improper under guidelines of CEQA. LAWA should have addressed Plan D in a comprehensive revised draft EIS/EIR in which the full record of information was available for review.
- The SDEIS/EIR relies on a baseline now 7 years old; conditions in 1996 do not represent the baseline of 2003, especially after the events of 9/11/01.
- The 2001 DEIS/EIR was found to lack even the most elementary NEPA requirements for environment justice; many deficiencies remain in the 2003 SDEIS/EIR. In particular, Plan D shifts many impacts toward the more economically disadvantaged communities east and northeast of LAX and appears to protect biological resources at the expense of residents in Lennox, Inglewood, Manchester Square, Westchester, and Playa del Rey.
- The report fails to disclose issues and concerns raised in Environmental Justice (EJ) workshops, defers evaluation of critical environmental justice impacts (including air quality and health effects) due to lack of data, offers ill-defined mitigations, and offers a preferred project that protects butterflies at the expense of residents and schoolchildren.
- The 2001 EIS/EIR acknowledged that it omitted quantitative assessment of toxic air pollutant exposure due to lack of time; the 2003 document also omitted this assessment, but did not so note.
- The stated cost of Plan D is excessive relative to all benefits described in the Plan.
- Unlike the history of LAWA, Plan D does not trust the airlines as partners.
- Plan D requires the dislocation of over 7000 residents at a time all affordable housing is in the shortest supply ever experienced in our region. Please recall in the early seventies the airport eliminated 3400 homes and dislocated 10,000 people in the name of airport expansion and this plan does it again.

- This plan requires removal and relocation of 98th Street Elementary School site, when there is a need for school facilities (LAUSD has determined a need for over 60,000 seats in schools over the next five (5) years).
- Plan D does not utilize LAX's physical facilities that already represent a substantial investment both public and private.
- The physical construction of Plan D will create a long-lasting and disruptive impact on the residents, businesses and negatively impact over 20,000 jobs that are likely to be lost in the Westchester/Inglewood area and throughout the sub-region (the negative impact of this disruption has not been netted out from the projected economic benefits).
- While the plan calls for a map of 78 million there is no feasible method of controlling the number of passengers (the Plan D does not adequately address the traffic impacts), mitigation, and transportation operation required for 78 map on the incremental passengers (10-20 million) more that are likely to come. The 405, 105, and 110 freeways and major thoroughfares and intersections are at a point where physical traffic mitigation of the impacts generated by 78, 88, or 98 map is not feasible (overriding considerations are not an acceptable strategy for any plan). There is no way a City can restrict the number of passengers at LAX unless they go through a judicial proceeding like Long Beach did for its airport traffic.
- The environmental impacts of Plan D particularly air pollution and noise will be substantial during the physical construction as well as the operation of Plan D.

For any sizeable project in our sub region, at least 2/3 years has been required to achieve a reasonably acceptable plan. Therefore, we recommend additional study to prepare a revised plan which meets the stated objectives for LAX's modernization. The EIS/EIR as presented does not adequately satisfy the objectives outlined above.

In light of the above referenced items, we are respectfully asking for answers to these concerns.

In conclusion, The H. B. Drollinger Co., a 56 year old property management and development company, located just ¼ mile north of LAX, does not support Plan D and believes LAWA is proposing to implement a flawed project and that the process is further compromised by an inadequate environmental review. The SDEIS/EIR falls short of satisfying safety/security concerns, relies on out dated baselines, has incomplete analysis of noise, air quality including toxic air emission data, inadequate and misleading assessment of impacts on biological habitat.

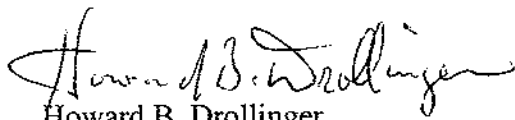
We agree with all five (5) of the LA County Supervisors, City council of Culver City and other elected officials, business leaders in our area, and the Neighborhood Council of Westchester/Playa del Rey that the problem with the 2001 and 2003 environmental documents are so serious, pervasive, and universal that the only practical remedy is to start the process over again and prepare a truly comprehensive revised EIS/EIR.

The revised document would need to provide comprehensive scoping, an updated and consistent baseline, identify and assess a reasonable range of feasible alternatives, be free of internal inconsistencies after proper levels of analysis and explanation and present an entirely new impact assessment that does not defer critical decisions. Only with these extensive modifications can the LAX Master Plan and associated EIS/EIR be rendered adequate.

I hope the federal government will join me in seeking to maintain a quality environment for Residents and businesses as well as airplanes.

Sincerely yours,

H. B. Drollinger Co.



Howard B. Drollinger
President

HBD/mp

- C: Mayor James Hahn
City Attorney Rock Delgadillo
L.A. County Board of Supervisors
L.A. City Council
Inglewood City Council
Culver City City Council
El Segundo City Council
Westchester/LAX/Marina Del Rey Chamber of Commerce
Downtown LA Chamber of Commerce
Southbay Chamber of Commerce
West L.A. Chamber of Commerce
LA Unified School District Board of Directors
Neighborhood Council of Westchester/Playa del Rey
Westchester Vitalization Corporation

Enclosures (1)



H.B. DROLLINGER CO.'S

WESTCHESTER FORUM

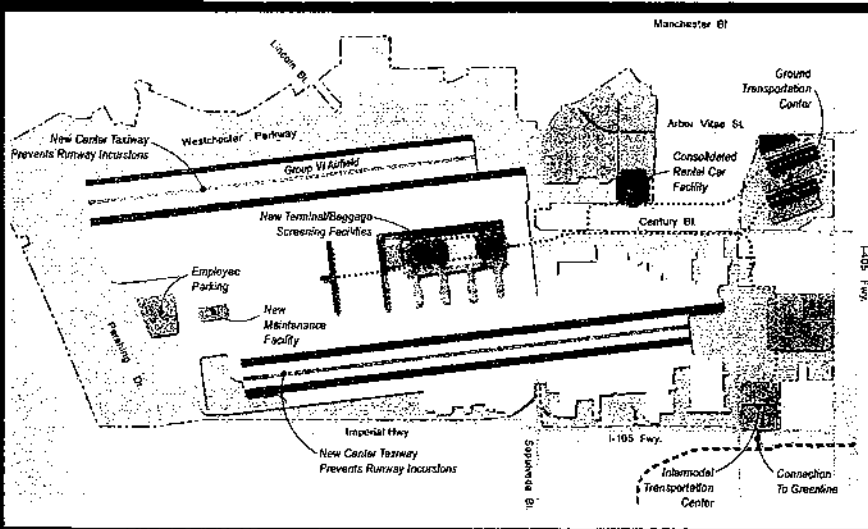
November 2003

Printed Quarterly

Issue 3 • Volume 10

Westchester News and Information for Friends & Tenants of H.B. Drollinger Co.

Mayor's Airport Plan (Alt. D) Would Destroy Local Businesses



Los Angeles International Airport

Alternative D

Forget for a moment the \$9+ billion price tag. Mayor James Hahn's plan for the expansion of Los Angeles International Airport will likely do more to hurt the community than even the airport's removal of thousands of homes in the 1970s.

H.B. Drollinger Co. research indicates that relocating the "front door" of the airport to the Manchester Square area could drastically reduce the number of retail customers (approximately 7,000) and airport employees who shop in the central business district.

To combat the mayor's plan, the H.B. Drollinger Co. has hired former Los Angeles City Councilwoman Ruth Galanter to spearhead the effort. During her 16 years on the Council, Galanter was instrumental in protecting the community from the airport's efforts to expand, and consistently fought airport policies that negatively impacted the surrounding community.

H.B. Drollinger Co. is joining a growing list of organizations, business people, airlines and government bodies opposed to the mayor's plan, routinely called "Alternative D."

Recently, Los Angeles County Supervisor Don Knabe voiced his opposition to the plan after reviewing a county study that indicated that "the security plan relies heavily on technologies, some of which have been discredited, and does not address serious security exposures." The study went on to say "additional environmental documentation is lacking, and LAWA decision-makers will be unable to make an informed project determination until inadequacies in the (environmental impact report) are remedied."

In addition, the Neighborhood Council of Westchester/ Playa del Rey, the area's chief advisory body to the Los Angeles City Council, voted overwhelmingly to oppose the mayor's plan. If the plan materializes in its current form, travelers will no longer be able to drive into the Central Terminal Area to drop off passengers or baggage at curbside. Instead, they will have to drive to Manchester Square, go through a cursory security screening and then take a 1 1/2-mile trip on a people-mover to what is now the Central Terminal Area, where they will undergo yet another series of security screenings before proceeding to their gate.

"We have grave concerns about this plan because it does nothing to improve security, has disastrous impacts on the community and carries with it a huge price tag," said H.B. Drollinger Co. General Manager Bill West.

All official comments regarding the Supplement to the Draft Environmental Impact Statement/ Environmental Impact Report (EIS/EIR) must be received by 5 p.m. on FRIDAY, NOVEMBER 7, 2003.

We invite and encourage you to thoroughly review these documents and provide written comments to either or both of the following:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airport
EAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

2 Community Plan Flaws Limit Improvements

Hurts Flight Path Opens New Museum

3 Wells Fargo, Credit Union Open Doors

President's Message

4 Property Corner

The Parking Spot Unveils Partnerships

SPC00292

Tenant Anniversaries

We thank and congratulate the following tenants who have renewed their leases with H.B. Drollinger Co. this quarter:

Gary Feldman
Keystone Acupuncture
Maria Francisco Capellino
Animal Magnetism
Henry Bissell
Apollo Couriers
Pro Path
Maleman Ink Public Relations
David Mellen
Cingular Wireless
The Book Market
Jatsa, Inc.
Dr. Peace
Foster & Stella Nwaigbo
Dr. O'Connor and Dr. Feldsher

The Parking Spot-Sepulveda Lends Vans to Playa Vista

The Parking Spot-Sepulveda was pleased to provide numerous vans to shuttle people to the new homes at Playa Vista as part of the Playa Vista Premiere Weekend September 20 and 21.

"We're happy to see Playa Vista finally taking shape, and we were glad to play a part in helping hundreds of people see these beautiful new homes," said Howard Drollinger.

Playa Vista recently released the draft environmental impact report for its second phase, "The Village," which will include shops, restaurants, homes and five new parks. For more information, visit www.playavista.com.

Flawed Community Plan Update Would Impact Efforts to Revitalize Sepulveda

Proposed revisions to the Westchester/Playa del Rey Community Plan, the primary land-use document for the area, would have significant negative impact on future plans to revitalize Sepulveda Boulevard.

The Community Plan, which has not been updated since 1974, will be reviewed by the Los Angeles City Planning Commission at a public hearing at 9:30 a.m., November 13, at City Hall, 200 North Spring St., Room 1010, in downtown Los Angeles.

The document proposes to cut building allowances on the west side of Sepulveda from a 6-to-1 floor-area ratio (FAR) to a 3-to-1 FAR, meaning that only three square feet of building space would be allowed on each square foot of land.

Such a restriction would severely limit the kind of redevelopment that could occur in

Westchester's Central Business District.

Specifically, it would all but eliminate the possibility for creating a new, mixed-use project any site along that stretch of Sepulveda Boulevard.

Property owners on the east side of Sepulveda are already in that boat, having had their property "downzoned" to a 3-to-1 FAR in the 1990s with notice whatsoever from the city's Planning Department.

"It is outrageous that the city can make such radical change affecting the current and future possibilities for the Business District without notifying the property owners," said Howard Drollinger.

"At a time when the community is looking for new ways to improve Westchester's downtown, this downzoning severely limits the kinds of improvements that we believe are in the best interest of the community."

Flight Path Celebrates LAX's 75th Anniversary by Opening Long-Awaited Aviation Museum

The Flight Path Learning Center of Southern California and Los Angeles World Airports celebrated the October 1, 1928, 75th anniversary of the airport with the opening of a major exhibition of airport historical memorabilia during "A Celebration of Flight," Flight Path's seventh annual gala dinner on October 2.

The new museum and special exhibition has been opened to the public since October 7.

The exhibition features an array of aviation memorabilia, including historic photos, murals, aircraft models and other artifacts - many never before displayed. The exhibition showcases the development of LAX since its opening as Mines Field in 1928, as well as the 100th anniversary of the first powered flight by the Wright Brothers on December 17, 1903. Colorful exhibits include salutes to early airlines and aircraft manufacturers at LAX. A special area commemorates World War II military and manufacturing activities at the airport.

The "Celebration of Flight" dinner program honored several aviation pioneers: the late enter-

tainer Bob Hope, who logged a record number of air miles from LAX on USO tours to entertain troops; Capt. Lillian Kinkella Keil, the most decorated flight nurse in U.S. military history; Jerome Lederer, benefactor of the Flight Safety Foundation; the late Clifton A. Moore, longtime LAWA executive director and an authority on international airport management; John Myers, former Northrop Aircraft chief test pilot; and Marsha Toy, nationally recognized aviation educator.

The Flight Path Learning Center at the LAX Imperial Terminal will be staffed by volunteers and will be open to the public on Tuesdays and Thursdays from 10 a.m. to 2 p.m. School and group tours will be conducted on Wednesdays by appointment. Research in the Flight Path aviation archives can be arranged by appointment. The center is located at 6661 West Imperial Highway, one block west of Sepulveda Boulevard. Free public parking is available immediately west of the facility. For more information, please call (310) 215-5291.

In the District

From the Westchester Area ...

New Banking Institutions Show Westchester the Money

Downtown Westchester is where the money is. With the recent opening of two new banking institutions – a full-service Wells Fargo Bank and the Department of Water and Power Community Credit Union – and the renovation of the Citibank Building at the corner of Sepulveda and La Tijera boulevards, the Westchester Business District is becoming the community's financial center.

Wells Fargo is now open at 8814 S. Sepulveda Boulevard. The new full-service facility offers a wide range of banking, loan, investment and insurance services.

For more information about Wells Fargo, please call branch manager Paul Maynard at (310) 216-5025.

The DWP Community Credit Union is now open at 8800 S. Sepulveda Blvd., and offers a variety of services to credit union members and the public, as well as a full line of loan services, including auto, home equity and real estate.

For more information about the credit union, please call John Marco at (800) 300-9728, ext. 1736.

The credit union is located in the Citibank building, which has completed its first major renovation in nearly 30 years, including an updated facade.



Two recent ribbon cuttings at Wells Fargo, above, and at the DWP Credit Union, below, reinforce downtown Westchester as the community's banking hub.



Sepulveda's New Look: Workshop Participants Review Potential Designs for the Street

The Westchester Streetscape Improvement Association (WSIA) held the second in a series of three design workshops for Sepulveda Boulevard on October 2.

More than 120 Westchester residents, business owners and other community members selected their preferred choices for everything from trees to crosswalks to bus shelters.

With the voting complete, design experts will use the input to develop an illustrated design concept for Sepulveda from Centinela Avenue to Lincoln Boulevard.

With that concept in hand, WSIA members will begin seeking funding from state, federal and local government sources as well as other organizations focused on streetscape improvements to add to the \$5.8 million MTA project that will add a full-time parking lane in the business district and make other needed improvements.

The final illustrated concept, which will include feedback from the public gleaned from the first two workshops, will be presented at the last workshop later this year.



President's Message

During the 1960s and 1970s, scores of young men from Westchester and Playa del Rey were sent to participate in a largely unpopular conflict in Southeast Asia. Those veterans did not receive the broad support of the public our military enjoys today, but they still fought valiantly and in many cases paid the ultimate price – they died in the fields of Vietnam and Cambodia.

In 1970, a monument was erected in their honor. It was a beautiful granite slab with more than 20 names inscribed on it, plus two granite meditation benches where friends and family would often sit and remember their fallen soldiers.

Erected at the corner of Manchester Avenue and Lincoln Boulevard, the monument is now routinely sprayed with graffiti and damaged by teenagers as they wait for their bus to arrive at the adjacent bus stop. For several years, veterans have painted out graffiti on a daily basis and organized surveillance teams in an attempt to catch the vandals who regularly desecrate the monument. Despite their efforts and those of the Los Angeles

(continued on Page 4)

President's Message (cont'd.)

Police Department's Pacific Station and Neighborhood Watch groups, the monument continues to be damaged. Several arrests have been made in conjunction with these efforts, but the vandals always return.

I am proud to announce that the H.B. Drollinger Co. will be donating more than \$14,000 in development art fees and relocation costs to help relocate the monument to its new site.

I want to thank Councilwoman Cindy Miscikowski and her Chief Field Deputy Sharon Sandow and the Westchester Vitalization Corp., for working with us to make this relocation possible.

Without their help and approval from the city's Cultural Affairs Commission, the monument would continue to be subjected to desecration. With Veterans Day quickly approaching, it is important for us to remember those veterans from our community who served their country and died protecting the freedoms we enjoy today.

This project will restore the monument and benches, which have been broken beyond repair, and place it 100 yards east at a new city-owned location near the entrance of Councilwoman Miscikowski's field office and near the new Westchester Library.

We are delighted to be a part of this important project, and look forward to the rededication ceremony.

Yours for a greater Westchester,

Howard

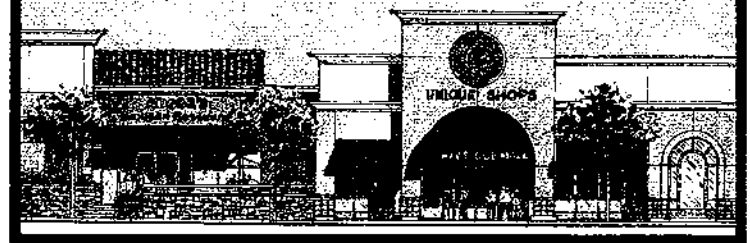
Neighborhood Council, Chamber Endorse Decron Plan for Furama

The Decron Properties plan for the current Furama Hotel site has been endorsed by both the Westchester/LAX-Marina del Rey Chamber of Commerce and the Neighborhood Council of Westchester/ Playa del Rey.

The more than 500-unit apartment complex would include the renovation of the existing hotel tower and the demolition of the low-level hotel buildings that would be replaced by apartments. In addition, the project would add a new commercial and restaurant area on the ground floor at the corner of Lincoln Boulevard and Manchester Avenue.

The project is currently winding its way through the city approval process and is expected to reach the City Council early in 2004. Decron has also promised to give a major facelift to the bowling alley, market and shops it owns on the adjacent parcel of property.

Property Corner



Retailers: Locate in Westchester Center!

Attention, retail and service businesses! Westchester currently offers store space from 810 sq. ft. to 30,000 sq. ft., and office space from 257 sq. ft. to 1,505 sq. ft. Join with other successful tenants and make Westchester your home!

Current Listings for Lease

Retail

- 8631 Truxton Ave. -- 865 sq. ft.
- 8655 Sepulveda Blvd. -- 30,000 sq. ft. retail
- Ralphs Westchester Village -- 100% leased

Office

- 8929 & 8939 Sepulveda Blvd. -- 410 sq. ft. and 11,675 sq. ft.
- 8703 La Tijera Blvd. -- 273 sq. ft.
- 8921 Sepulveda Blvd. -- 241 sq. ft.
- 6310 W. 89th Street -- 324 sq. ft.

For more information on any H.B.D. Co. managed site, call (310) 417-8048 or visit www.HBDrollinger.com.

The Parking Spot Announces New Partnerships

The Parking Spot-Sepulveda has announced new partnerships with Westchester-based Loyola Marymount University and Otis College of Art and Design. The partnerships will allow LMU and Otis to receive significant discounts on parking at The Parking Spot.

In addition, look for The Parking Spot's new advertising campaign at the Staples Center.

During Los Angeles Kings hockey games, check out The Parking Spot's familiar spotted logo behind the penalty box and on the "jumbotron" above the ice.

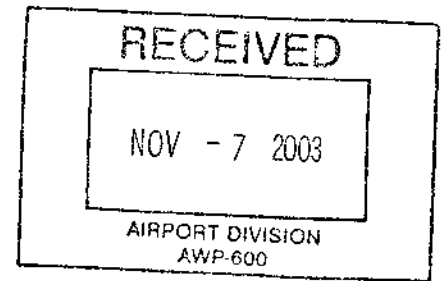


El Segundo Chamber

• The Voice for Business •

November 6, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan/ Room 218
Post Office Box 92216
Los Angeles, CA 90009-2216



Dear Mr. Ritchie:

In accordance with Section 102(2)(c) of the National Environmental Policy Act of 1969, the California Environmental Quality Act of 1970, Section 509(b)(5) of the Airport and Airway Improvement Act of 1982, as amended, the El Segundo Chamber of Commerce Board of Directors and its LAX Task Force, chaired by Ed Peura, has reviewed the Los Angeles International Airport (LAX) Draft Master Plan Addendum and the Supplement to Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR).

While we applaud the efforts by the Hahn administration to work toward limiting air traffic at LAX to 78 million annual passengers (MAP), and encourage continued implementation of a regional airport system, we have two overriding concerns with the EIS/EIR.

- 1) It is not clear how this plan can ensure that 78 MAP will be an absolute maximum in practice.
- 2) Traffic mitigation plans are woefully inadequate for 78 MAP and earlier plans were never implemented for the 1980 expansion to 40 MAP.

We will summarize our concerns in this letter and the attached comments. We respectfully request that you address these issues.

We believe a strong regional economy requires a regional air transportation system capable of continued accommodation of demands for such services. In this regard, we find projected shortfalls of 10 to 30 million annual passengers (MAP) disconcerting. Furthermore, when LAX was expanded in the early 1980s, the EIS/EIR called for expansion to be capped at 40 MAP. Obviously, that cap proved meaningless.

That experience vividly points out the fact that an effective regional airport system demands that some entity other than the airlines to determine which airports are served. We are not advocating the return to a regulated environment and reestablishing the Civil Aeronautics Board abolished by the federal Airline Deregulation Act. However, we are pointing out that under the current unregulated environment, any identified caps on numbers of flights are meaningless. Additionally, the suggested allocations of future demand aren't realistic unless and until the sponsors of the other regional airports make changes to their airports to handle their share.

Because of our proximity to LAX, many of our business members participate in international trade and will benefit from increased air transportation into and out of LAX. Yet because of this

proximity, they (and their employees) disproportionately feel the negative impacts of increased automobile and truck traffic into and out of our area from any growth at LAX. For this reason, our attached detailed assessment is focused on those portions of the Addendum and Draft EIS/EIR Supplement dealing with surface transportation and ground access.

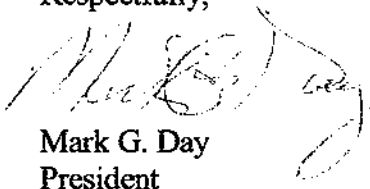
Previous experience strongly suggests that our concern about the caps on the number of flights, the inadequacy of identified traffic mitigation measures, the lack of funding for mitigation measures, and the historic non-implementation of the identified mitigation is completely justified. When the airport was expanded in the early 1980s, the traffic mitigation measures identified at that time were inadequate (and similarly not funded) at the 40 MAP level, let alone at today's level of operations. Our issues with traffic mitigation plans are two-fold.

- 1) The plans largely ignore areas south of the airport and focus primarily on areas within the LADOT jurisdiction. An effective mitigation plan **MUST** address areas as far south as it does north, if the impacts of the project indeed occur to the south as we believe they do. Specific areas are addressed in the attachment.
- 2) A strategy for funding these mitigation measures must be developed to access all funding sources (city, county, state and federal). Our understanding of CEQA is that improvements offered as "mitigations" must be feasible and must be financed by the project. To identify a "mitigation program" and then to question the availability of funding in the DEIR is to admit that there is no mitigation program.

In addition, this plan must contain specific funding sources, schedules, legally binding commitments to implement signed by the responsible agencies, and remedies in the case of non-performance. Without such funding sources, implementation commitments and remedies, any mitigation measures must be considered illusory.

For the reasons previously stated, we would like to be supportive of this Addendum and Alternative D. However, we cannot until the issues we raise in this letter and enclosure are resolved. We will work with you as necessary to see to their resolution. If you have any questions or require clarification of any of our comments, please contact me.

Respectfully,



Mark G. Day
President

LAX Master Plan Addendum
And
Supplement to Draft EIS/EIR
Comments

General

1. Considerable uncertainty regarding Los Angeles World Airports' (LAWA's) intention to complete proposed mitigation measures is raised by the following comment:
"Mitigation measures are applicable only to the extent that the use of airport revenues to fund such measures is permissible under federal law and policies."
(Technical Report 2a, page 41 and elsewhere as indicated by specific comments below.) CEQA requires that mitigation be feasible. If you cannot guarantee that the project will indeed fund the mitigation program, you do not have an acceptable mitigation program.
2. As with the 2001 Draft Master Plan and Draft Environmental Impact Statement/Environmental Impact Report Draft EIS/EIR, the study area for Off-Airport Ground Access is primarily north of LAX. Little attention is paid to streets and freeways south of the airport. More significantly, mitigation measures appear to be limited to LADOT jurisdictions with little regard to traffic problems created in surrounding areas outside of the City of Los Angeles. How was the study area defined?

EIS/EIR Supplement, Chapter 4, Affected Environment, Consequences, and Mitigation Measures

1. Page 4-2 to 4-3, Mitigation Measures Bullet, – The comment – "It should be noted that mitigation measures, as well as Master Plan commitments, are applicable to the extent that the use of airport revenue to fund such measures and commitments is permissible under federal law and policies." creates considerable uncertainty regarding the validity of any proposed mitigation measures.
2. Page 4-3, The Environmental Baseline, – Using the 1998 Revision to CEQA Guidelines - "as they exist at the time the notice of preparation is published...." as a basis for establishing an environmental baseline ignores all environmental impacts since LAX was expanded in the 1980s and 1990s from 40 MAP to the current baseline. Unmitigated impacts have resulted in uncontrolled traffic growth with significant impact on neighborhoods north, south, and east of LAX.
3. Pages 4-3 and 4-4, The Environmental Baseline, Third Paragraph - The discussion in this paragraph regarding "incremental" and "cumulative" impacts raises the issue of incremental changes to LAX since the last Draft EIS/EIR of 1978 from 40 MAP to the current baseline. Our view is these incremental changes and their impacts, especially

with regard to traffic, should be addressed by this Supplement to allow mitigation to 40 MAP.

4. Page 4-6, Formulation of Master Plan Commitments and Mitigation Measures, Third Paragraph – What is the timetable for “formulation” of the referenced Mitigation Monitoring Plan? How will mitigation measures be enforced?

EIS/EIR Supplement, Chapter 4.3.2, Off-Airport Surface Transportation

1. Page 4-243, 4.3.2.2 General Approach and Methodology, Second Bullet, Third Sentence and Figure S4.3.2-1, Off-Airport Surface Transportation Study Areas – What is the rationale for limiting the area of study south of LAX to north of Rosecrans while including a more extensive area north and east of LAX? As indicated in our June 12, 2001 comments, the study area is biased toward those areas within the jurisdiction of LADOT to the exclusion of other neighboring jurisdictions.
2. Page 4-247, Sixth Paragraph, Last Sentence – What is the rationale for limiting coordination to LADOT?
3. Pages 4-248 to 4-250, 4.3.2.5 Master Plan Commitments – Will off-airport traffic control actions, necessitated by these commitments, be coordinated with jurisdictions other than LADOT?
4. Pages 4-254 to 4-261, Figure S4.3.2-4, Year 2015 Alternative D Levels of Service (Adjusted Environmental Baseline Comparison) – What are the pre- and post-project Levels of Service and incremental Project Impacts on the following intersections:
 - Sepulveda and Marine,
 - Sepulveda and Manhattan Beach,
 - Aviation and Marine,
 - Aviation and Manhattan Beach,
 - Nash and El Segundo,
 - Douglas and El Segundo,
 - La Cienega and El Segundo (east of the 405),
 - La Cienega and Rosecrans,
 - Inglewood and El Segundo,
 - Inglewood and Rosecrans,
 - Inglewood and Marine,
 - Inglewood and Manhattan Beach,
 - Hawthorne and El Segundo,
 - Hawthorne and Rosecrans,
 - Hawthorne and Marine, and
 - Hawthorne and Manhattan Beach/Artesia?
5. Pages 4-254 to 4-261, Figure S4.3.2-4, Year 2015 Alternative D Levels of Service (Adjusted Environmental Baseline Comparison) – What are the pre- and post-project Levels of Service and incremental Project Impacts on the following links:
 - Sepulveda south of Rosecrans,
 - Sepulveda Tunnel,
 - Aviation south of Rosecrans,
 - Inglewood south of Imperial,

- Hawthorne south of Imperial, and
 - Rosecrans west of Hawthorne?
6. Pages 4-254 to 4-261, Figure S4.3.2-4, Year 2015 Alternative D Levels of Service (Adjusted Environmental Baseline Comparison) – What are the pre- and post-project Levels of Service and incremental Project Impacts for the following Freeway Ramps:
 - I-405 NB off-ramp and El Segundo,
 - I-405 SB off-ramp and LA Cienega S/O Century,
 - I-405 NB off-ramp and Rosecrans, and
 - I-405 NB off-ramp and Inglewood?
 7. Pages 4-265 to 4-269, Table S4.3.2-8, Year 2008 Alternative D Levels of Service (Adjusted Environmental Baseline Comparison) – Concerns regarding status of Intersections, Links, and Freeway Ramps expressed in comments 4 to 6 above also apply to this table and supporting analysis.
 8. Page 4-273, 4.3.2.8 Mitigation Measures – The statement in this paragraph: *The following mitigation measures are applicable only to the extent that the use of airport revenue to fund such measures is permissible under federal law and policies* casts doubt regarding the validity of any proposed mitigation measures. What agency will make the determination regarding use of airport funds? When will this decision be made? Will the City of Los Angeles guarantee the mitigation program in the event that federal policies prevent LAX funds from implementing the mitigation program.
 9. Pages 4-275 to 4-278, Table S4.3.2-11, Year 2008 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison) – The assumed proposed improvement by County of Los Angeles of the Intersection of Aviation and El Segundo is not substantiated by the *Coastal Corridor Transportation Study, Phase II, Figure 9, Roadway Improvements Funded*, South Bay Cities Council of Governments, 2003. Widening of Aviation is funded, but intersection improvements are not funded.
 10. Pages 4-275 to 4-278, Table S4.3.2-11, Year 2008 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison) and Pages 4-279 to 4-284, Table S4.3.2-12, year 2015 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison) – The unstudied Intersections, Links, and Freeway ramps identified in comments 4 to 6 above must be added to planned mitigation measures as appropriate.
 11. Page 4-295, 4.3.2.10.2 Alternative D – Enhanced Safety and Security Plan, Second Paragraph – Leaving two critical intersections nearest the new Ground Transportation Center and Intermodal Transportation Center (Century at La Cienega and Imperial at La Cienega) unmitigated will lead to serious access problems for vehicles from the South Bay using arterial highways. What is the intended plan? It is critical that this issue is addressed.

Technical Report S-2a. - Supplemental On-Airport Surface Transportation

1. Pages 24 and 25, Table 5, Key Assumptions/Inputs 2015 Alternative D, Planned – Regional Access/Egress Directional Distributions and Attachment A – What is the basis for allocation of percentages of passengers between entrances and ramps?
2. Page 62, Table 17, Key Assumptions/Inputs 2015 Alternative D, Refined System – Regional Access/Egress Directional Distributions – What is the basis for allocation of percentages of passengers between entrances and ramps?

Technical Report S-2b. - Supplemental Off- Airport Surface Transportation

1. Page 3 and Figure 1, Revised Study Area and Key Study Locations – Why have study areas been limited to areas north of Rosecrans?
2. Page 8, Planned Development Projects Added to Background Assumptions, - Hawthorne should be included in your list for projects.
3. Page 25, 3.2. Geographical Distribution of Trips – As indicated in above comments regarding Technical Report 2a, the basis for trip allocation is not obvious. Here the implication is “Passenger Surveys”. Have these surveys been documented? If so where? If the basis is *Technical Report 2b, Off-Airport Surface Transportation, LAX Master Plan Off-Airport Existing 1996 Transportation Conditions Report* of the Draft EIS/EIR, the validity of this allocation is questionable. The intersections surveyed in that study were biased toward the use of I-405 to access the CTA via Imperial and Century. None of the intersections surveyed were west of I-405 and south of Imperial. Consequently no data was collected regarding LAX traffic from Palos Verdes, Beach Cities, and bailouts from I-405 northbound onto surface streets.

How does the geographic distribution of project trips reported in the DEIR compare to the distribution of trips in the SCAG model used to develop the Regional Transportation Plan and to the distribution of airport and airport-related trips in the City of Los Angeles General Plan model? If there are differences, please explain the rationale for using the assumptions in the Airport DEIR.

4. Page 26, Table S9, Existing and Future Transportation Deficiencies (RTP Background Assumptions) – What is the justification for arbitrarily limiting the study area to north of Rosecrans? If the following intersections, links, and ramps had been included in the analysis, the number impacted would probably be higher:
 - Sepulveda and Marine,
 - Sepulveda and Manhattan Beach,
 - Aviation and Marine,
 - Aviation and Manhattan Beach,
 - Nash and El Segundo,
 - Douglas and El Segundo,
 - La Cienega and El Segundo (east of I 405),
 - La Cienega and Rosecrans,
 - Inglewood and El Segundo,
 - Inglewood and Rosecrans,
 - Inglewood and Marine,
 - Inglewood and Manhattan Beach,
 - Hawthorne and El Segundo,
 - Hawthorne and Rosecrans,
 - Hawthorne and Marine,

- Hawthorne and Manhattan Beach/Artesia,
 - Sepulveda south of Rosecrans,
 - Sepulveda Tunnel,
 - Aviation south of Rosecrans,
 - Inglewood south of Imperial,
 - Hawthorne south of Imperial,
 - Rosecrans west of Hawthorne,
 - I-405 NB off-ramp and El Segundo,
 - I-405 SB off-ramp and LA Cienega S/O Century,
 - I-405 NB off-ramp and Rosecrans, and
 - I-405 NB off-ramp and Inglewood.
5. Page 27, Third Paragraph and Figure S3, Differences in LAX Passenger Trips – 2015 PM Peak Hour - Alternative D – Adjusted Environmental Baseline – What is the basis for the conclusion that shifting passenger access to the eastern end of the airport will cause a measurable shift in traffic using I-405? Should Lincoln be included in the discussion in the third paragraph? Reduction of traffic on Lincoln is not reflected in Figure S3.
 6. Page 27, Fifth Paragraph and Figure S4, Differences in Total Vehicle Trips – 2015 PM Peak Hour – Alternative D – Adjusted Environmental Baseline – What is the basis for the conclusion regarding traffic shift?
 7. Page 28, Table S10, Master Plan Impacts on Surface Streets, Freeways, and Intersections vs. Adjusted Environmental Baseline: RTP Background Assumptions – See comment 5 above regarding Table S9.
 8. Pages 33 and 34, 4.2 Study Area Transportation Benefits, Table 11 Study Area Average Speed and Congested Lane Miles, and Table S12 Study Area VMT and VHT – The conclusions reflected in these tables probably result from the arbitrary conclusion that traffic will shift as a result of the proposed shift in passenger access to the east.
 9. Pages 35 and 36, Essential Neighborhood Traffic Management Elements – Does this philosophy extend to neighborhoods outside of the City of Los Angeles? If not, it should. Because of the reference to LADOT procedures in the third paragraph, the impression is created that the intent is to limit to the City of Los Angeles. The new interchange at Lennox and shift of passenger access to the east will not increase the capacity of NB I-405 south of the new interchange. Consequently, the risk of driver bailout using El Segundo, Rosecrans, and Inglewood Off-Ramps remains. This may well result in cut through traffic into neighborhoods south of LAX. This should be examined.
 10. Page 36, 5.2 Mitigation Measures for Alternative D, third paragraph and Figure S6 Changes in Total Traffic Volumes Due to Lennox/I-405 Interchange and I-105 Ramps – 2015 PM Peak Hour – What is the basis for these conclusions?
 11. Page 36, 5.2 Mitigation Measures for Alternative D, third paragraph, last sentence – Does this conclusion include the potential for increased bailouts from I-405 as discussed in comment 10?
 12. Page 41, First Complete Paragraph – Leaving two critical intersections nearest the new Ground Transportation Center and Intermodal Transportation Center (Century at La Cienega and Imperial at La Cienega) unmitigated will lead to serious access problems for vehicles from the South Bay using arterial highways. What is the intended plan? To ignore the issue is not acceptable.

13. Page 41, Fourth Paragraph – What agency will decide which mitigation measures will be funded with airport revenues? In the event airport revenues are not to be used to fund the recommended mitigation measures, will any further growth in MAP cease?
14. Page 41, 5.3 Alternative Mitigation Plan for Alternative D, First Paragraph – Which agency has the authority to approve the proposed Lennox Interchange and when will they decide? If they decide against the proposed interchange, how will the conclusions of the traffic growth change?
15. Page 41, 5.3 Alternative Mitigation Plan for Alternative D, Fourth Paragraph – Lennox Interchange should be deleted from the mitigation measures in this paragraph since this section addresses an alternative plan.
16. Pages 41 and 42, 5.3 Alternative Mitigation Plan for Alternative D, Last Paragraph, First Sentence – What agency will decide which mitigation measures will be funded with airport revenues? In the event airport revenues are not to be used to fund the recommended mitigation measures, will the proposed actions cease?

Attachment B, Geographic Distribution of Airport Trips - Alternative D – What is the basis for determining the distribution. See comment 4 above.

Peura Enterprises

5340 West 135th Street, Hawthorne, CA 90250-4945

November 4, 2003

Mr. David B. Kessler
U.S. Department of Transportation
Federal Aviation Administration
Post Office Box 92007
Los Angeles, CA 90009-2007

Dear Mr. Kessler:

In accordance with Section 102(2)(c) of the National Environmental Policy Act of 1969, the California Environmental Quality Act of 1970, Section 509(b)(5) of the Airport and Airway Improvement Act of 1982, as amended, I reviewed the Los Angeles International Airport (LAX) Draft Master Plan Addendum and the Supplement to the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR).

Based upon my review, I respectfully offer the following observations and enclosed comments for your consideration. My review focused on Ground Transportation into and out of LAX.

As a member of the business community, I understand how important international trade is to this region's and my community's economy and future economic growth. LAX and other regional airports provide a vital international trade link for the region.

A strong regional economy requires a regional air transportation system capable of continued accommodation of demands for such services. In this regard, projected shortfalls of 10 to 30 million annual passengers (MAP) are disconcerting. The discussion in the Planning Objectives Section of the Addendum raises considerable doubt regarding the region's ability to meet future demands for air transportation. The proposed Alternative D does little to satisfy these future needs.

To really take control of the situation and make truly regional decisions in this matter, decision-making regarding how and when airports are served cannot remain the sole purview of the airlines. I am not suggesting regulating airlines and reestablishing the Civil Aeronautics Board abolished by the federal Airline Deregulation Act. However, under the current unregulated environment, local or regional caps on numbers of flights and passengers are meaningless. Additionally, suggested allocations of air traffic growth are meaningless unless and until sponsors of other regional airports expand to handle their share.

One of the more serious issues with the EIS/EIR is the cost of traffic mitigation measures and funding sources have not been identified. Also, ground transportation projects of other jurisdictions are used to mitigate impacts without regard to their validity. Because identified mitigation measures are primarily north of the airport, problems created south of the airport remain unresolved.

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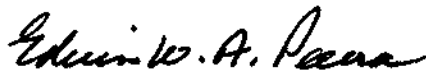
My observation of past events regarding LAX improvements strongly suggests justifiable concern about proposed caps on the number of flights, inadequacy of identified mitigation measures, and lack of funding for mitigation measures.

When the airport was expanded in the early 1980s, the EIS/EIR provided for expansion to 40 MAP. That level proved to be meaningless. Moreover, the mitigation measures identified at that time were inadequate (and similarly not funded) at the 40 MAP level, let alone at today's level of operation. No measures have been implemented to mitigate increases over the 1980 EIS/EIR-approved level. Consequently, ground transportation mitigation measures for the Master Plan Addendum must therefore use 40 MAP as the baseline.

In addition, conditions of approval must contain specific funding sources, schedules, legally binding commitments to implement signed by the responsible agencies, and remedies in the case of non-performance. Without such funding sources, implementation commitments, and remedies, any mitigation measures are illusory.

If you have any questions or require clarification of any comments, please contact me at (310) 643-5906.

Respectfully,



Edwin W. A. Peura
Vice President

LAX Master Plan Addendum
And
Supplement to Draft EIS/EIR
Comments

General

1. Considerable uncertainty regarding Los Angeles World Airports' (LAWA's) intention to complete proposed mitigation measures is raised by the following comment:
"Mitigation measures are applicable only to the extent that the use of airport revenues to fund such measures is permissible under federal law and policies." (Technical Report 2a, page 41 and elsewhere as indicated by specific comments below.)
2. As with the 2001 Draft Master Plan and Draft Environmental Impact Statement/Environmental Impact Report Draft EIS/EIR, the study area for Off-Airport Ground Access is primarily north of LAX. Little attention is paid to streets and freeways south of the airport. More significantly, mitigation measures appear to be limited to LADOT jurisdictions with little regard to traffic problems created in surrounding areas outside of the City of Los Angeles.
3. It is not clear how moving passenger access east outside of the Central Terminal Area improves security. Requiring passengers with luggage and visitors to use a 1.5-mile long Automated People Mover before entering security makes no sense. What is being protected? Obviously not passengers because they could be subject to numerous threats while in transit. Granted the Central Terminal Area will no longer be as insecure with removal of parking structures. That threat has been moved to the new Ground Transportation Center and the new Intermodal Transportation Center.

EIS/EIR Supplement, Chapter 4, Affected Environment, Consequences, and Mitigation Measures

1. Page 4-2 to 4-3, Mitigation Measures Bullet. – The comment – "It should be noted that mitigation measures, as well as Master Plan commitments, are applicable to the extent that the use of airport revenue to fund such measures and commitments is permissible under federal law and policies." creates considerable uncertainty regarding the validity of any proposed mitigation measures.
2. Page 4-3, The Environmental Baseline. – Using the 1998 Revision to CEQA Guidelines - "as they exist at the time the notice of preparation is published...." as a basis for establishing an environmental baseline ignores all environmental impacts since LAX was expanded in the 1980s and 1990s from 40 MAP to the

current baseline. Unmitigated impacts have resulted in uncontrolled traffic growth with significant impact on neighborhoods north, south, and east of LAX.

3. Pages 4-3 and 4-4, The Environmental Baseline, Third Paragraph - The discussion in this paragraph regarding “incremental” and “cumulative” impacts raises the issue of incremental changes to LAX since the last Draft EIS/EIR of 1978 from 40 MAP to the current baseline. Our view is these incremental changes and their impacts especially with regard to traffic should be addressed by this Supplement to allow mitigation to 40 MAP. This would necessitate an Environmental Baseline of 1984 vice 1996/97.
4. Page 4-6, Formulation of Master Plan Commitments and Mitigation Measures, Third Paragraph – What is the timetable for “formulation” of the referenced Mitigation Monitoring Plan? How will mitigation measures be enforced?

EIS/EIR Supplement, Chapter 4.3.2, Off-Airport Surface Transportation

1. Page 4-243, 4.3.2.2 General Approach and Methodology, Second Bullet, Third Sentence and Figure S4.3.2-1, Off-Airport Surface Transportation Study Areas – What is the rationale for limiting the area of study south of LAX to north of Rosecrans while including a more extensive area north and east of LAX? As indicated in our June 12, 2001 comments, the study area is biased toward those areas within the jurisdiction of LADOT to the exclusion of other neighboring jurisdictions.
2. Page 4-247, Sixth Paragraph, Last Sentence – What is the rationale for limiting coordination to LADOT?
3. Pages 4-248 to 4-250, 4.3.2.5 Master Plan Commitments – Will off-airport traffic control actions, necessitated by these commitments, be coordinated with jurisdictions other than LADOT?
4. Pages 4-254 to 4-261, Figure S4.3.2-4, Year 2015 Alternative D Levels of Service (Adjusted Environmental Baseline Comparison) – What are the Levels of Service and Impacts for the following intersections:
 - Sepulveda and Marine,
 - Sepulveda and Manhattan Beach,
 - Aviation and Marine,
 - Aviation and Manhattan Beach,
 - Nash and El Segundo,
 - Douglas and El Segundo,
 - La Cienega and El Segundo (east of the 405),
 - La Cienega and Rosecrans,
 - Inglewood and El Segundo,
 - Inglewood and Rosecrans,
 - Inglewood and Marine,
 - Inglewood and Manhattan Beach,
 - Hawthorne and El Segundo,
 - Hawthorne and Rosecrans,
 - Hawthorne and Marine, and

- Hawthorne and Manhattan Beach/Artesia?
5. Pages 4-254 to 4-261, Figure S4.3.2-4, Year 2015 Alternative D Levels of Service (Adjusted Environmental Baseline Comparison) – What are the Levels of Service and Impacts for the following links:
 - Sepulveda south of Rosecrans,
 - Sepulveda Tunnel,
 - Aviation south of Rosecrans,
 - Inglewood south of Imperial,
 - Hawthorne south of Imperial, and
 - Rosecrans west of Hawthorne?
 6. Pages 4-254 to 4-261, Figure S4.3.2-4, Year 2015 Alternative D Levels of Service (Adjusted Environmental Baseline Comparison) – What are the Levels of Service and Impacts for the following Freeway Ramps:
 - I-405 NB off-ramp and El Segundo,
 - I-405 SB off-ramp and LA Cienega S/O Century,
 - I-405 NB off-ramp and Rosecrans, and
 - I-405 NB off-ramp and Inglewood?
 7. Pages 4-265 to 4-269, Table S4.3.2-8, Year 2008 Alternative D Levels of Service (Adjusted Environmental Baseline Comparison) – Concerns regarding status of Intersections, Links, and Freeway Ramps expressed in comments 4 to 6 above also apply to this table and supporting analysis.
 8. Page 4-273, 4.3.2.7.2 Alternative D - Enhanced Safety and Security Plan, Third Paragraph – Another Project to be considered is the construction of up to 750 units comprising a mix of single-family detached homes, attached and detached town houses, and high quality condominiums on the southeast corner of El Segundo and Aviation Boulevards in Hawthorne. The City Councils of El Segundo and Hawthorne recently approved this project, Pacific Glen.
 9. Page 4-273, 4.3.2.8 Mitigation Measures – The statement in this paragraph: *The following mitigation measures are applicable only to the extent that the use of airport revenue to fund such measures is permissible under federal law and policies.* casts doubt regarding the validity of any proposed mitigation measures. What agency will make the determination regarding use of airport funds? When will this decision be made?
 10. Pages 4-275 to 4-278, Table S4.3.2-11, Year 2008 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison) – The assumed proposed improvement by County of Los Angeles of the Intersection of Aviation and El Segundo is not substantiated by the *Coastal Corridor Transportation Study, Phase II, Figure 9, Roadway Improvements Funded*, South Bay Cities Council of Governments, 2003. Widening of Aviation is funded, but intersection improvements are not funded.
 11. Pages 4-275 to 4-278, Table S4.3.2-11, Year 2008 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison) and Pages 4-279 to 4-284, Table S4.3.2-12, year 2015 Alternative D Mitigation Plan (Adjusted Environmental Baseline Comparison) – The unstudied Intersections, Links, and Freeway ramps identified in comments 4 to 6 above must be added to planned mitigation measures as appropriate.

12. Page 4-295, 4.3.2.10.2 Alternative D – Enhanced Safety and Security Plan, Second Paragraph – Leaving two critical intersections nearest the new Ground Transportation Center and Intermodal Transportation Center (Century at La Cienega and Imperial at La Cienega) unmitigated will lead to serious access problems for vehicles from the South Bay using arterial highways. What is the intended plan? To ignore the issue is not acceptable.

Technical Report S-2a. - Supplemental On-Airport Surface Transportation

1. Pages 24 and 25, Table 5, Key Assumptions/Inputs 2015 Alternative D, Planned – Regional Access/Egress Directional Distributions and Attachment A – What is the basis for allocation of percentages of passengers between entrances and ramps?
2. Page 62, Table 17, Key Assumptions/Inputs 2015 Alternative D, Refined System – Regional Access/Egress Directional Distributions – What is the basis for allocation of percentages of passengers between entrances and ramps?

Technical Report S-2b. - Supplemental Off- Airport Surface Transportation

1. Page 3 and Figure 1, Revised Study Area and Key Study Locations – Why have study areas been limited to areas north of Rosecrans?
2. Page 8, Planned Development Projects Added to Background Assumptions, - Hawthorne should be included in your list for projects.
3. Page 15, First Paragraph – Another Project to be considered is the construction of up to 750 units comprising a mix of single-family detached homes, attached and detached town houses, and high quality condominiums on the southeast corner of El Segundo and Aviation Boulevards in Hawthorne. The City Councils of El Segundo and Hawthorne recently approved this project, Pacific Glen.
4. Page 25, 3.2. Geographical Distribution of Trips – As indicate in above comments regarding Technical Report 2a, the basis for trip allocation is not obvious. Here the implication is “Passenger Surveys”. Have these surveys been documented? If so where? If the basis is *Technical Report 2b, Off-Airport Surface Transportation, LAX Master Plan Off-Airport Existing 1996 Transportation Conditions Report* of the Draft EIS/EIR, the validity of this allocation is questionable. The intersections surveyed in that study were biased toward the use of I-405 to access the CTA via Imperial and Century. None of the intersections surveyed were west of I-405 and south of Imperial. Consequently no data was collected regarding LAX traffic from Palos Verdes, Beach Cities, and bailouts from I-405 northbound onto surface streets.
5. Page 26, Table S9, Existing and Future Transportation Deficiencies (RTP Background Assumptions) – What is the justification for arbitrarily limiting the study area to north of Rosecrans? If the following intersections, links, and ramps had been included in the analysis, the number impacted would probably be higher:
 - Sepulveda and Marine,
 - Sepulveda and Manhattan Beach,
 - Aviation and Marine,

- Aviation and Manhattan Beach,
 - Nash and El Segundo,
 - Douglas and El Segundo,
 - La Cienega and El Segundo (east of I 405),
 - La Cienega and Rosecrans,
 - Inglewood and El Segundo,
 - Inglewood and Rosecrans,
 - Inglewood and Marine,
 - Inglewood and Manhattan Beach,
 - Hawthorne and El Segundo,
 - Hawthorne and Rosecrans,
 - Hawthorne and Marine,
 - Hawthorne and Manhattan Beach/Artesia,
 - Sepulveda south of Rosecrans,
 - Sepulveda Tunnel,
 - Aviation south of Rosecrans,
 - Inglewood south of Imperial,
 - Hawthorne south of Imperial,
 - Rosecrans west of Hawthorne,
 - I-405 NB off-ramp and El Segundo,
 - I-405 SB off-ramp and LA Cienega S/O Century,
 - I-405 NB off-ramp and Rosecrans, and
 - I-405 NB off-ramp and Inglewood.
6. Page 27, Third Paragraph and Figure S3, Differences in LAX Passenger Trips – 2015 PM Peak Hour - Alternative D – Adjusted Environmental Baseline – What is the basis for the conclusion that shifting passenger access to the eastern end of the airport will cause a measurable shift in traffic using I-405? Should Lincoln be included in the discussion in the third paragraph? Reduction of traffic on Lincoln is not reflected in Figure S3.
 7. Page 27, Fifth Paragraph and Figure S4, Differences in Total Vehicle Trips – 2015 PM Peak Hour – Alternative D – Adjusted Environmental Baseline – What is the basis for the conclusion regarding traffic shift?
 8. Page 28, Table S10, Master Plan Impacts on Surface Streets, Freeways, and Intersections vs. Adjusted Environmental Baseline: RTP Background Assumptions – See comment 5 above regarding Table S9.
 9. Pages 33 and 34, 4.2 Study Area Transportation Benefits, Table 11 Study Area Average Speed and Congested Lane Miles, and Table S12 Study Area VMT and VHT – The conclusions reflected in these tables probably result from the arbitrary conclusion that traffic will shift as a result of the proposed shift in passenger access to the east.
 10. Pages 35 and 36, Essential Neighborhood Traffic Management Elements – Does this philosophy extend to neighborhoods outside of the City of Los Angeles? If not, it should. Because of the reference to LADOT procedures in the third paragraph, the impression is created that the intent is to limit to the City of Los Angeles. The new interchange at Lennox and shift of passenger access to the east

will not increase the capacity of NB I-405 south of the new interchange. Consequently, the risk of driver bailout using El Segundo, Rosecrans, and Inglewood Off-Ramps remains. This may well result in cut through traffic into neighborhoods south of LAX. This should be examined.

11. Page 36, 5.2 Mitigation Measures for Alternative D, third paragraph and Figure S6 Changes in Total Traffic Volumes Due to Lennox/I-405 Interchange and I-105 Ramps – 2015 PM Peak Hour – What is the basis for these conclusions?
12. Page 36, 5.2 Mitigation Measures for Alternative D, third paragraph, last sentence – Does this conclusion include the potential for increased bailouts from I-405 as discussed in comment 10?
13. Page 41, First Complete Paragraph – Leaving two critical intersections nearest the new Ground Transportation Center and Intermodal Transportation Center (Century at La Cienega and Imperial at La Cienega) unmitigated will lead to serious access problems for vehicles from the South Bay using arterial highways. What is the intended plan? To ignore the issue is not acceptable.
13. Page 41, Fourth Paragraph – What agency will decide which mitigation measures will be funded with airport revenues? In the event airport revenues are not to be used to fund the recommended mitigation measures, will the proposed actions cease?
14. Page 41, 5.3 Alternative Mitigation Plan for Alternative D, First Paragraph – Which agency has the authority to approve the proposed Lennox Interchange and when will they decide?
15. Page 41, 5.3 Alternative Mitigation Plan for Alternative D, Fourth Paragraph – Lennox Interchange should be deleted from the mitigation measures in this paragraph since this section addresses an alternative plan.
16. Pages 41 and 42, 5.3 Alternative Mitigation Plan for Alternative D, Last Paragraph, First Sentence – What agency will decide which mitigation measures will be funded with airport revenues? In the event airport revenues are not to be used to fund the recommended mitigation measures, will the proposed actions cease?
17. Attachment B, Geographic Distribution of Airport Trips - Alternative D – What is the basis for determining the distribution. See comment 4 above.

GLANCY & BINKOW LLP

ATTORNEYS AT LAW

NEW YORK OFFICE
1501 BROADWAY, SUITE 1416
NEW YORK, NY 10036
TELEPHONE (917) 510-0009
FACSIMILE (646) 366-0895

1801 AVENUE OF THE STARS, SUITE 311
LOS ANGELES, CALIFORNIA 90067

TELEPHONE (310) 201-9150
FACSIMILE (310) 201-9160
info@glancylaw.com

November 6, 2003

Hon. James K. Hahn
Mayor of Los Angeles
200 North Spring Street, Room 303
Los Angeles, CA 90012

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Re Los Angeles Airport Master Plan

To Whom It Concerns:

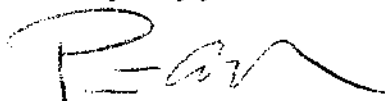
I write this letter in response to your request for public input on the various Los Angeles Airport alternatives. I am an attorney and travel frequently through LAX; last year I flew more than twenty round-trips from our airport. While I have encountered some inconveniences, I believe the airport works very well as currently constituted. If you have not done so, you should undertake a scientific survey of (frequent) travelers.

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I am also aware, peripherally, of certain studies which claim the expansion plans will not add capacity or economic value to the region. I have not studied the plans or reports in any detail, but if the main motivating factor behind these plans is to increase efficiency, I believe they are a wasteful use of appreciable public resources, especially during the ongoing budgetary crisis. From my point of view, LAX is not an airport in need of any fix.

Thank you for your consideration of my views.

Very truly yours,

A handwritten signature in black ink, appearing to read 'P. Binkow', with a long horizontal flourish extending to the right.

Peter A. Binkow

cc: Ed Reyes
Wendy Greuel
Dennis Zine
Tom LaBonge
Jack Weiss
Tony Cardenas
Alex Padilla
Bernard Parks
Jan Parry
Martin Ludlow
Cindy Mischikowski
Greig Smith
Eric Garcetti
Antonio Villaraigosa
Janice Hahn

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11-07-03
10:30am

November 7, 2003

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 9009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

**Re: Comments to Supplemental Draft EIS/EIR California Clearinghouse
No. 1997061047
Los Angeles International Airport Proposed Master Plan Improvements**

Dear Mr. Kessler and Mr. Ritchie:

The following are comments from the LAX Coalition for Environmental, Economic, and Educational Justice (LAX Coalition) regarding the Supplement to the Draft Environmental Impact Report/Statement (SDEIR/S) for the Los Angeles International Airport Proposed Master Plan Improvements.

The LAX Coalition brings together environmental organizations, labor unions, community- and faith-based organizations, and school districts who are concerned about the negative impact of Los Angeles International Airport (LAX) operations on the low-income, minority communities neighboring the airport to the east. The LAX Coalition is dedicated to finding a balance between the development of LAX and the rights of the neighboring communities to a decent quality of life. We seek to protect and improve the health, education, and welfare of our constituents who live and work in the vicinity of LAX. A list of our most recent organizational membership is attached in *Appendix A*.

The LAX Coalition affirms our intention and commitment to work with the City of Los Angeles, the Airport Commission and Los Angeles World Airports (LAWA) to develop a consensus proposal that addresses our concerns through a comprehensive community benefits program. We look forward to a constructive dialogue and negotiation process that will balance the needs of LAX development with the interests of neighboring communities in a healthier environment and better economic opportunities.

Of particular concern to our members are the environmental justice issues that are evident in the potential negative environmental impacts the project will impose disproportionately on

SDEIR/S Comments Submitted by the LAX Coalition for Environmental, Economic and Educational Justice

low income African-Americans and Latinos in Inglewood, Lennox, Manchester Square, Hawthorne, and South Los Angeles. We are also concerned that the mitigations and benefits promised in the SDEIR/S lack specificity and enforceability.

Our analysis of the SDEIR/S leads us to the conclusion that Los Angeles World Airports and the United States Federal Aviation Administration (FAA) have prepared an inadequate and inaccurate SDEIR/S that must be revised and recirculated to comply with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). We request, and NEPA and CEQA require, that LAWA and the FAA adopt the mitigation measures proposed herein and revise and recirculate the SDEIR/S or commit to implementing these mitigation measures in the Final EIR/S.¹ By complying with this request, LAWA and the FAA have the ability to develop a consensus proposal for the Los Angeles International Airport (LAX), one that includes substantive community participation in shaping LAX development to advance our common goals and interests and avoids litigation.

¹ We recognize that the Final EIR/S will provide written responses to comments made on both the 2001 Draft EIR/S and this SDEIR/S. However, several coalition members provided written comments in 2001 that are relevant to this document. As such, we hereby incorporate by reference all comments in their entirety submitted by coalition members in 2001 to the Draft EIR/S including but not limited to the comments submitted by Coalition for Clean Air, Communities for a Better Environment, Environmental Defense, and Natural Resource Defense Council.

List of Abbreviations

ARB	California Air Resources Board
AQMP	Air Quality Management Plan
BOAC	Board of Airport Commissioners
CCR	California Code of Regulations
CDHS	California Department of Health Services
CEQA	California Environmental Quality Act
CFR	United States Code of Federal Regulations
CNG	Compressed natural gas
CNEL	Community Noise Equivalent Level
EIR/S	Environmental Impact Report/Statement
DEIR/S	Draft Environmental Impact Report/Statement
FAA	United States Federal Aviation Administration
LAAFB	Los Angeles Air Force Base
LAWA	Los Angeles World Airports
LAX	Los Angeles International Airport
LAX Coalition	LAX Coalition for Environmental, Economic, and Educational Justice
LNG	Liquefied natural gas
NEPA	National Environmental Policy Act
PM	Particulate matter
PM10	Particulate matter with aerodynamic diameters < 10 microns (µm)
PM2.5	Particulate matter with aerodynamic diameters < 2.5 microns (µm)
SCAQMD	South Coast Air Quality Management District
SCEHSC	Southern California Environmental Health Sciences Center
SDEIR/S	Supplement to the Draft Environmental Impact Report/Statement
SEL	Sound Exposure Levels
SIP	State Implementation Plan
TAP	Toxic air pollutant

4. Affected Environment, Consequences, and Mitigation Measures

LAWA and the FAA Must Identify and Adopt Specific Mitigation Measures or Performance Standards Prior to Project Approval

Public agencies cannot approve a project that will have significant environmental impacts without first adopting feasible measures to mitigate or avoid those impacts or committing to meet some realistic performance standard. (Calif. Pub. Res. Code §21081; *Sacramento Old City Association v. City Council of Sacramento* (1991) 229 Cal.App.3d 1011, 1028-1029; *Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1395, 1395-1396.) LAWA and the FAA have yet to adopt mitigation measures or performance standards that will apply to the LAX project. Despite providing a long list of *possible* mitigation measures (see generally, SDEIR/S Section 5, Environmental Mitigation Plan), they have not committed to any of these mitigation measures. Specifically, in the SDEIR/S, LAWA and the FAA state, “It should be noted that mitigation measures, as well as Master Plan commitments, are applicable to the extent that the use of airport revenue to fund such measures and commitments is permissible under federal law and policies.” (SDEIR/S, p. 4-2 to 4-3.) LAWA and the FAA, however, not only fail to cite to the relevant federal law and policies, they do not identify those proposed mitigation measures impermissible under federal law and policies. LAWA and the FAA must identify and adopt specific feasible mitigation measures or performance standards to reduce or avoid significant environmental impacts prior to project approval. Under CEQA, they cannot continue to avoid making commitments by stating that some or all of the mitigation measures may not be implemented because of funding limitations in federal law and policies.

LAWA and the FAA’s Master Plan Commitments and Mitigation Measures Should Include Clear and Specific Criteria for Monitoring Implementation, Deadlines, and a Public Right of Enforcement

We support LAWA and the FAA statement, “Provisions will be made to ensure that those [Master Plan commitments and mitigation] measures are fully enforceable (i.e., zoning conditions, conditions of approval, etc.)” (SDEIR/S, p. 4-6.) This commitment complies with the CEQA requirement that “[m]itigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instruments.” (CEQA Guidelines §15126.4(a)(2).² To assure the fulfillment of this commitment, we request that LAWA and the FAA include clear and specific criteria for monitoring implementation, binding deadlines, and a public right of enforcement when adopting its Master Plan commitments and mitigation measures. We ask that the public right of enforcement provide that any board, officer, person, corporation or association or by any person acting for the interests of itself, its members, or the general public have the right to bring a legal complaint to enforce compliance with these commitments and mitigation measures in state or federal court. Providing for a public right of enforcement would be consistent with the promise made in the SDEIR/S and provide the best

² The State Resources Agency has developed specific regulations to implement CEQA, located at California Code of Regulations, Title 14, §15000 *et seq.*, referred to herein as “Guidelines.”

and most effective guarantee that the Master Plan commitments and mitigation measures will be fully implemented.

4.1 Noise

With respect to noise pollution currently caused by LAX operations and projected noise impacts from the proposed Alternative D, we are most concerned about the negative impact on children in the affected area. In that regard, we join in the separate comments to the SDEIR/S submitted by the Lennox School District and the Inglewood School District and hereby incorporate those comments in their entirety by reference. We believe those comments provide an appropriate critique of the SDEIR/S as to noise pollution and other environmental issues.

In addition to our concerns about the impact of noise pollution on children's education, we are also concerned about the projected impact of airport-related noise on residential neighborhoods and associated land uses. Several sources of noise pollution were identified in the SDEIR/S, including road traffic noise, aircraft noise, construction traffic noise, construction equipment noise, single-event awakenings, and automated people mover noise. However, the SDEIR/S noise analysis does not address the cumulative impacts of those diverse causes of noise pollution, all resulting from LAX operations, on residents and other sensitive receptors in the impacted area. We believe such an analysis is appropriate and reasonable in light of expressed community concerns, and request that such an analysis be included in the Final EIR/S or discussed in a further supplemental SDEIR/S circulated for public review.

As stated in the SDEIR/S, Alternative D would cause 5,100 people in an estimated 1,700 homes to be newly exposed to noise greater or equal to 65 decibels measured as the Community Noise Equivalent Level (expressed as 65 CNEL), and an additional 5,000 in another 1,700 homes would be newly exposed to an increase of at least 1.5 CNEL. (SDEIR/S, p. 4-62.) Perhaps even more alarming, "[A]pproximately 87 percent of the population newly exposed to high noise levels, or 4,430 residents is estimated to be minority and/or low-income." (SDEIR/S, p. 4-324.) Added burdens on this population are the Single Event Noise Effects caused by nighttime eastbound aircraft take-offs. As stated in the SDEIR/S, Alternative D would expose 53,000 people to Single Event Noise Effects, 18,000 of whom are newly exposed. (SDEIR/S, p. 4-66.)

Because the problem of residential noise pollution is of great importance to our coalition members, we request that LAWA directly address noise mitigation as a key component of its Master Plan Commitments. One of the obstacles to noise mitigation measures in some negatively impacted areas is the concern about residents' dwellings that have been deemed uninhabitable or not built to code. As such, these dwellings are not currently eligible for noise mitigation measures as provided by LAWA. As stated elsewhere in our comments, however, Los Angeles County is in the midst of a severe housing crisis, which is most strongly felt by low-income populations who are often forced to live in substandard housing. Because their conditions are already at-risk, it is even more important to provide them with the support and mitigation they need and deserve. As a result, we strongly urge LAWA to work with impacted

communities to provide appropriate noise mitigation to these affected residents and offer our assistance in this effort. We request that this issue be addressed in the final EIR/S.

We request that LAWA and the FAA incorporate the following mitigation measures, with appropriate clear and specific criteria for monitoring implementation, binding deadlines, and a public right of enforcement as referenced above, prior to finalizing the LAX EIR/S:

1. **Airport Noise Monitoring Program:** The LAX Airport Noise Monitoring Program would involve a systematic and independent analysis of noise levels in the project study area. The analysis would be funded by LAWA and the FAA. An independent committee of noise monitoring experts and community stakeholders would select independent contractors to carry out noise monitoring within the project study area. The study will rely not on modeling, but on actual and extensive noise measurements within the project study area. The Program would also include the analysis and study of single-event noise occurrences to establish a standard for single-event noise levels that is less arbitrary than the one adopted in the SDEIR/S. The Program would include specific commitments for mitigation of any residence or other incompatible use shown by this analysis to equal or exceed 65 CNEL and/or the newly established Sound Exposure Level (SEL) standard used to measure single event noise levels.
2. **Airport Noise Mitigation Program Revision:** Prior to or immediately concurrent with the Board of Airport Commissioners' (BOAC) review of the LAX Master Plan Alternatives, the BOAC shall adopt revisions to its Airport Noise Mitigation Program. These revisions shall include, at a minimum, the easing of burdensome requirements for residences related to building code compliance, and revision of the terms of the Avigation Easement.
3. **Expedition of the Implementation of Part 161 Study to Make Over-Ocean Procedures Mandatory:** LAWA and the FAA should move expeditiously to complete all necessary steps to implement a moratorium on nighttime eastbound take-offs. Other airports around the world, including Narita International in Tokyo, have imposed a moratorium on flights during normal sleep hours to reduce the noise burden on surrounding communities. LAWA must also immediately establish a monitoring system to track and limit current nighttime eastbound take-offs during the period in which the Part 161 process is underway.
4. **School Noise Mitigation Program:** Educational institutions from pre-schools to elementary, middle and high schools are all negatively impacted by noise pollution caused by various LAX noise sources. For purposes of mitigation, specific schools need sound mitigation and in some cases relocation would be the most appropriate mitigation for the noise pollution caused by the LAX modernization.

4.3.2 Off-Airport Surface Transportation

4.3.2.3 Affected Environment/Environmental Baseline

Unless Explained, the LAWA and FAA Decision to Treat the Nearly 11% Increase in Traffic Around LAX as “Non-Material” Must Be Considered Arbitrary and Capricious

Federal and state statutes governing administrative procedures prohibit agencies from making arbitrary or capricious decisions. In the Supplement to the Draft Environmental Impact Report/Statement (SDEIR/S), LAWA and the FAA conclude that there has been no material change in off-airport traffic conditions since 1996. LAWA and the FAA state that “the average annual growth for the combined intersections [in the vicinity of LAX] was approximately 1.5 percent and 1.0 percent per year for the a.m. and p.m. peak hours, respectively.” (SDEIR/S, p. 4-244.) LAWA and the FAA have not, however, identified the criteria they used to determine that this growth, equivalent to nearly an 11% increase for traffic during the morning rush hours from 1996 to 2003, is not materially different from the 1996 baseline. Unless LAWA and the FAA provide a clear basis for this determination founded upon reasonable criteria, their decision to consider a nearly 11% increase in traffic “non-material” must be considered arbitrary and capricious. This change in traffic density in the vicinity of LAX should be considered a material change in baseline peak traffic conditions. LAWA and the FAA should revise their off-airport traffic environmental baseline to reflect current conditions and re-analyze project impacts.

The Use of the No Project Alternative as the “Adjusted Environmental Baseline” to Assess Environmental Impacts Violates CEQA

CEQA the CEQA Guidelines, prohibit the use of a “no project alternative” that differs from the existing environmental setting as the baseline for determining the impacts of a proposed project. As established in the CEQA Guidelines, “The no project alternative analysis is not the baseline for determining whether the proposed project’s environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline.” (Guidelines §15126.6(e).) LAWA and the FAA use an “adjusted environmental baseline” to evaluate off-airport surface transportation impacts and to develop mitigation measures. LAWA and the FAA base this adjusted environmental baseline on “a comparison of future year traffic conditions with the project to future year traffic conditions without the project.” (SDEIR/S, p. 4-244.) Thus, contrary to CEQA, LAWA and the FAA use the “no project” alternative as a baseline for determining the significance of environmental impacts from future year traffic conditions. CEQA specifically prohibits this practice. LAWA and the FAA cannot legally use their “adjusted environmental baseline” to determine the significance of environmental impacts and develop mitigation measures. In order to comply with CEQA, the analyses of future year off-airport traffic impacts must be reassessed based on a comparison of existing environmental conditions and the SDEIR/S must be recirculated for comment.

4.3.2.7 Cumulative Impacts

LAWA and the FAA Must Update Their Off-Airport Surface Transportation Cumulative Impacts Analysis Based on Current Information About Other Past, Present, and Probable Future Projects

NEPA and CEQA require public agencies to consider potential cumulative impacts. (40 CFR §1508.7; Guidelines §§15216, 15130.) This cumulative impacts analysis must consider past, present, and probable future projects. In the SDEIR/S, LAWA and the FAA state, “The cumulative impacts to off-airport surface transportation associated with Alternatives A, B, and C, in combination with other past, present, and probable future projects have not changed from those described in Section 4.3.1, Off-Airport Surface Transportation (subsection 4.3.2.8), or the Draft EIS/EIR.” This is not true. The analysis in the DEIR/S, which was prepared as part of the Final Draft LAX Master Plan in 1996, is based on out-of-date information. (LAX Master Plan, Final Draft, May 1996.) Specifically, the DEIR/S did not anticipate several development projects in the vicinity of LAX, including the impending residential development of Los Angeles Air Force Base (LAAFB) Area A.³ The LAAFB project will have significant impacts on traffic in the vicinity of LAX. In addition, the LAAFB DEIR/S includes a list of related projects. (LAAFB DEIR/S, pp. 2-30 to 2-33.) Many of these projects do not appear to have been considered in the LAX Master Plan. (Compare LAAFB DEIR/S, pp. 2-30 to 2-33, with Final Draft LAX Master Plan, p. IV-8.5 to IV-8.7.) LAWA and the FAA must update their off-airport surface transportation cumulative impacts analysis based on current information about other past, present, and probable future projects. LAWA and the FAA should also revise their proposed mitigation measures to reduce or avoid significant cumulative impacts identified through this updated analysis.

4.4 Social Impacts

4.4.1 Employment/Socio-Economics

Alternative D Is Inconsistent with the Stated Purpose of the Project.

In explaining the need to develop LAX, the SDEIR/S asserts:

[I]f LAX does not increase capacity to accommodate some of the projected increase in demand for air travel services, the demand will be met by other airports in the region or elsewhere in the western United States. Failure to fully meet the demand at LAX would also result in lost economic opportunities, including jobs being lost to other regions. As stated in the Draft EIS/EIR, LAWA

³ See United States Air Force, *et al.*, Draft EIR/EIS – Los Angeles Air Force Base Land Conveyance, Construction and Development Project, April 2003, California State Clearinghouse No. 2002071106. Note that the City of El Segundo and the City of Hawthorne certified the LAAFB EIR in July 2003, and the U.S. Air Force issued a Notice of Decision for the EIR in August 2003. We incorporate all LAAFB EIR/EIS-related documents by reference into our comments and the Administrative Record for the LAX project.

had concluded that in order to avoid 'significant negative consequences' and sustain the economic growth of the region, at least some portion of the increased demand should be met at LAX. . . .

The purpose and need as stated in the Draft EIS/EIR (summarized above) remains valid today. (SDEIR/S p. 2-1.)

Section 4.4.1 of the DEIR, however, presents evidence that there will be job loss associated with Alternative D. Despite this significant loss, the SDEIR/S states that "the cumulative effects of Alternative D are considered beneficial." (SDEIR/S p. 4-301.) To conform to SCAG's Regional Transportation Plan, and to meet the generally desirable goal of a regionalization of air traffic, LAWA has proposed an alternative with a negative impact on regional and local employment. Other benefits of Alternative D potentially outweigh the negative impacts associated with it, but the SDEIR/S must adequately assess any negative economic impacts, and the Final EIR must specify mitigations to address these.

The SDEIS/R Analysis of Regional Job Loss Understates the Economic Impact of Alternative D and is thus Inadequate.

Undertaking a regional economic impact analysis, the SDEIR/S projects a loss of 57,113 jobs in the Los Angeles region associated with Alternative D, including a loss of 9,261 on-airport jobs. (SDEIR/S p. 4-298.)

Job losses are very significant in the region's high-wage manufacturing sector, while there is a modest increase in regional employment in the traditionally low-paying service sector. The three industries with the highest percentage of job loss have median wages of \$15.29-17.61 an hour. Employment in these industries is typically full-time and includes employer-paid health and pension benefits. By contrast, the service sectors that show sustained growth are ones in which median wages for non-managerial workers range from \$7.21-9.11 an hour. Entry-level employment is typically minimum wage, and these industries characteristically provide neither full-time employment, nor health or pension benefits.⁴

The SDEIR/S understates the economic impact of declining employment by failing to account for the disproportionately greater economic loss from the loss of manufacturing jobs. The Final EIS/EIR must analyze and compare job quality, wage levels, and full-time/part-time ratios in manufacturing and service sectors to reach an accurate assessment of the economic impact of Alternative D.

The SDEIR/S Does Not Address the Impact of Low-Wage Jobs on Public Services

⁴ Analysis of industries listed in SDEIR/S Table S.4.4.1-1 is based on Occupational Employment Statistics Survey for Los Angeles County, 2002, and U.S. Bureau of Labor Statistics (2002 and 2003), distributed by the Employment Development Department, Labor Market Information Division, State of California. (<http://www.calmis.ca.gov/>).

The SDEIR/S neglects to undertake an analysis of direct on-airport employment. From the Master Plan description of Alternative D, it is evident that direct on-airport employment growth will be in the sectors of concession restaurants and retail, security guards, passenger services, janitorial, and parking. While manufacturing jobs are being lost in the region, the employment gains at the project itself are in low-paying, often part-time jobs that typically lack health insurance, pensions, and job security.

Permanent employment gains at LAX will thus do little to address the acute problem of poverty and inadequate family incomes that exists in the Los Angeles region. Recently released Census data for 2002 shows median income falling and the official poverty rate rising in the state of California. The extent of the problem is far greater than the Census indicates, however, as the Federal Poverty Level is far below the cost of living in Los Angeles. According to the California Budget Project, to meet basic living expenses in Los Angeles County, one needs to work full-time and earn between \$10.49 and \$23.31 an hour.⁵

Low wage jobs create burdens on public services that the SDEIR/S does not address. The shortfall between wages and the cost of living is frequently made up through reliance on public programs such as food stamps, Medi-Cal, child care assistance, and Healthy Families.⁶ The Final EIR/S must explore ways to mitigate the impact of low-wage jobs on public services.

The SDEIR/S Economic Impact Analysis is Inconsistent with the SDEIR/S Analysis of Benefits Relating to Environmental Justice Issues

The SDEIR/S explains that “in assessing whether a project has disproportionately high and adverse human health or environmental effects on minority and low-income populations, certain benefits of the project may be taken into account.” (SDEIR/S, p. 4-339.) The SDEIR/S identifies job creation as one of the “economic benefits directly and indirectly attributable to LAX” and promises to take measures to ensure that LAX jobs are available to members of the minority and low-income communities surrounding the airport. (SDEIR/S, pp. 4-339-40.)

The SDEIR/S does not, however, analyze whether the decline in employment directly or indirectly related to Alternative D will have a disproportionate effect on low-income and minority communities. Furthermore, the SDEIR/S does not identify measures that ensure that these jobs, which are purportedly a “benefit” to impacted communities, will be quality jobs. In the absence of positive measures, low-paying service jobs are as likely to have a negative impact on these communities, by putting a greater strain on their public and civic services.

4.4.1.8 Mitigation Measures

⁵ The range reflects different family size and child-care arrangements. California Budget Project, “Making Ends Meet: How Much Does It Cost to Raise a Family in California?” October 2003.

⁶ *Ibid.*

LAWA Should Adopt Mitigation Measures to Minimize the Negative Economic Impact of the Project and to Render the Project Consistent with its Stated Purposes

The SDEIR/S inadequately and inconsistently addresses a number of issues related to the economic and social impact of Alternative D. Most importantly, the permanent jobs generated by the project will be predominantly low-wage service sector jobs.

We recommend the following mitigation measures be implemented. We also encourage further exploration of additional means to address the negative economic impacts of the project.

1. **LAX Master Plan Commitment to Quality Jobs:** LAWA should incorporate into the Master Plan existing policies (Living Wage, Responsible Contractor, and Worker Retention Ordinances) that improve the quality of on-airport jobs. LAWA should also explore whether it is appropriate to consider revisions of the Living Wage Ordinance to improve health coverage and increase wages, in order that airport jobs provide adequate family income and health insurance.
2. **Community Jobs Development Program:** The LAX Community Jobs Development Program would be a community-driven process funded by LAWA and the FAA, where residents living within the project study area would develop a First Source hiring program that promotes local employment. The goal of the program is to set local hiring targets and support the infrastructure of training, employment services, and the like, which will aid residents of the project study area to gain and keep airport-related jobs. LAWA, through Master Plan commitments and BOAC action, shall commit to the local hiring targets set by the program and to funding job-related services.
3. **Community Jobs Promotion Program:** As the SDEIR/S argued, the indirect economic impact of LAX is of larger significance than the actual on-airport economic activity. Therefore, LAWA and the FAA should do everything possible to promote access by the low-income, minority residents of the impacted areas to airport and aviation-related employment. To this end, LAWA and the FAA should invest in training to qualify local residents for airport and airport-related jobs, including skilled jobs associated with aviation and the air travel industry. LAWA should also provide incentives to companies engaged in airport-related business to encourage them to participate in apprenticeship, internship, training and other career-development programs for local residents. Providing the foundation for local residents to pursue careers that pay higher wages and offer opportunity for advancement is a benefit that can help to offset the many negative impacts of the project on the surrounding communities.
4. **Community Business Development Program:** LAWA and the FAA should include additional measures to support and promote the development and growth of local businesses. Providing opportunity to small businesses, particularly to *local* disadvantaged, minority, or women-owned businesses, could have a large ripple effect in the communities suffering the disproportionate negative impact of LAX. The economic

benefits accruing from such a program would help offset the negative environmental impacts of the project. The program would be developed by community stakeholders, aided by independent financial and business consultants and funded by LAWA and the FAA. Examples of programs that would stimulate local business development include: financial incentives for prime contractors to do business with local firms; micro-lending projects, bonding and contracting assistance.

4.4.2 Relocation of Residences or Businesses

LAWA and the FAA Provide an Incomplete, Inconsistent, and Misleading Description of the Project by Failing to Analyze the Impacts of Residential Acquisition at Manchester Square

LAWA and the FAA must assess the environmental impacts of all reasonably foreseeable phases of the LAX project. (*Laurel Heights Improvement Association of San Francisco, Inc. v. Regents of the University of California* (1988) 47 Cal.3d 376, 396-397.) Under CEQA, a project is “the whole of the action, which has a potential for resulting in a physical change in the environment, directly or ultimately.” (*McQueen v. Board of Directors of the Mid-Peninsula Regional Open Space District* (1988) 202 Cal.App.3d 1136, 1143; CEQA Guidelines §15378.) The SDEIR/S includes an incomplete, inconsistent, and misleading description of the project. LAWA and the FAA fail to comply with CEQA by not assessing the environmental impacts of the reasonably foreseeable phase of the project that requires the acquisition of approximately 2,000 residential units at Manchester Square. At the time of publication of the SDEIR/S, only 21% of the total of approximately 2,500 units had been acquired in the area of the Manchester Square and Belford “Voluntary Residential Acquisition/Relocation Program.” (SDEIR/S p. 4-304.) Yet, LAWA and the FAA make the inaccurate, inconsistent, and contrary claim that “no residential acquisition is proposed for Alternative D” (SDEIR/S p. 4-307), despite the fact that the Ground Transportation Center planned for Manchester Square represents an integral part of the Alternative D project.

The SDEIR/S artificially segregates the analysis of this residential acquisition with the pretense that this acquisition is unrelated to the project. There is no analysis of the impact of the acquisition and relocation of the approximately 2,000 remaining residential units in the area. Yet, the SDEIR/S admits that, if the acquisition is not completed in time for construction of the Ground Transportation Center, “the City of Los Angeles will use the most appropriate and practical measures available (e.g., voluntary acquisition, leasing, and/or public condemnation) to ensure that the designated areas are vacated consistent with the Construction Sequencing Plan.” (SDEIR/S p. 4-304.) Considering the numbers of households involved, the difficulty this population will find in securing comparable, decent, safe and sanitary replacement housing within their financial means, and the dearth of available affordable housing in the LAX area specifically and the Los Angeles region generally, the impacts of this action will be significant and must be analyzed in the SDEIR/S.

The SDEIR/S Fails to Analyze the Disproportionate Impact of Residential Relocation on Minority Communities.

The preferred project alternative requires the displacement of a predominantly minority community. According to the 2000 U.S. Census, 4,798 people lived in the Manchester Square area, of whom 58.5% were black and 23.2% were Latino. In addition, the area is predominantly low-income.⁷

The displacement of this minority community should be viewed in the context of the current affordable housing crisis in Los Angeles. "The City of Los Angeles is in the grip of a profound crisis of housing affordability. The majority of the City's households are renters who are paying higher percentages of their incomes for rent than anyone else in California," according to a report of the City of Los Angeles Housing Crisis Taskforce.⁸ Rental vacancy rates are 4.7%, far below the average for other U.S. metropolitan areas, and new housing construction lags far behind demand.⁹

In the area designated for acquisition, 88.8% of 1,912 households present in 2000 were renters. The large numbers of people that will require relocation, combined with the housing shortage in the immediate vicinity and the region, almost certainly guarantee that the minimal assistance provided in accordance with the Uniform Act will be insufficient.

The Final EIR/S must accurately analyze the impact of the preferred alternative on the relocation of residences. In addition, LAWA and the FAA should explore measures that go beyond the Uniform Act in order to mitigate the disproportionate impact of residential acquisition on low-income, minority renters. The Airport Noise Mitigation Program should be revised and expanded to provide assistance to tenants seeking relocation to comparable permanent housing.

The SDEIR/S Is Deficient Because it Fails to Include an Analysis of Urban-Blight Inducing Impacts.

Socio-economic analyses under CEQA have been interpreted by the courts to require an analysis of urban-blight inducing impacts (*Citizens for Sensible Development of Bishop Area v. County of Inyo* (1985), 172 Cal. App. 3d 151, 171; *Citizens for Quality Growth v. City of Mount Shasta* (1988), 198 Cal. App. 3d 433, 445-446.)

Community leaders are concerned that LAX and airport-serving hotels seem to draw prostitution to the vicinity. Residents in the surrounding residential communities report a high level of prostitution traffic in their neighborhoods, and that prostitutes and their customers

⁷ Data on Census Tract 2774, U.S. Census, 2000.

⁸ Los Angeles Housing Crisis Taskforce, *Report of the Housing Crisis Taskforce* (2000).

⁹ Statistics are for the year 2000. Institute for the Study of Homelessness and Poverty at the Weingart Center, "Housing and Poverty in Los Angeles, July 2001.

frequently discard condoms and other refuse on the streets, alleys, and sidewalks. This constitutes both a disruption to community life and an obvious threat to public health.

Furthermore, the high volume of vehicle traffic destined for the airport, especially trucks serving cargo operations, degrades the roads and sidewalks in the immediately adjacent communities. The consequently dilapidated condition of these roads contributes to urban blight. Although the airport is responsible for the poor condition of these roads, the community is left to bear the cost of fixing the roads and reversing blight.

The Final EIS/EIR must include an analysis of urban-blight inducing impacts. We request that LAWA and the FAA incorporate this additional mitigation measure prior to finalizing the LAX EIR/S:

1. **Airport Neighbors Safety and Security Program:** LAWA and the FAA should establish a task force including community residents and representatives, local area law enforcement agencies, and other interested parties to develop mitigation measures addressing the distinct needs of airport-adjacent communities. Measures would include a community policing plan, a traffic control plan, a road improvement plan, and a community security plan.

4.4.3 Environmental Justice

The SDEIR/S is Inadequate as a Result of the Deficiencies in the Environmental Justice Analysis

As a result of deficiencies in the SDEIR/S environmental justice analysis, we believe that the SDEIR/S is inadequate. We request that the deficiencies described be addressed in a supplemental SDEIR/S, and that the supplemental SDEIR/S be re-circulated to the public for review and comment. With respect to environmental justice issues, we believe that LAWA ignored environmental justice principles in preparing the SDEIR/S, and further failed to engage low-income and minority populations in the decision-making process. These defects violate both federal and state law. In addition, the SDEIR/S fails to provide reasonable mitigation proposals for articulated environmental justice impacts. The SDEIR/S bases much of its analysis on amorphous or the future development of environmental justice mitigation measures. We believe this violates the California Environmental Quality Act ("CEQA") and the National Environmental Protection Act ("NEPA").

Environmental Justice Principles Were Not Followed by LAWA's Public Participation Process

One of the challenges facing LAWA was ensuring that the public had adequate information about the SDEIR/S to provide meaningful comments on the proposed Alternative D of the Master Plan. We recognize that LAWA took certain steps to secure comments from some

local communities, but these steps, though perhaps well intentioned, were inadequate. Certain federal statutes and regulations require that LAWA ensure such participation:

- Title VI states that “No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”
- “The Environmental Justice (EJ) Orders amplify Title VI by providing that each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” (“Implementing Title VI Requirements in Metropolitan and Statewide Planning,” U.S. Department of Transportation, TOA-1/HEPH-1.)
- “Planning and programming activities that shall have the potential to have a disproportionately high and adverse effect on human health or the environment shall include explicit consideration of the effects on minority populations and low-income populations. Procedures shall be established or expanded, as necessary, to provide *meaningful opportunities for public involvement by members of minority populations and low-income populations* during the planning and development of programs, policies and activities.”¹⁰

In spite of specific statutory language and guidance provided by the U.S. Department of Transportation, LAWA has failed in its efforts to provide such meaningful opportunities to the public and specifically minority populations and low-income populations, as shown below:

Copies of the SDEIR/S Were Not Readily Available to Poor Communities: Although LAWA made the SDEIR/S, Master Plan and related documents available for free on its website, this implies that all members of the public have computer access at home or at work, as well as sufficient Internet access to review voluminous documents. This presumption is incorrect – many low-income families simply do not have these kinds of computer resources. For those without computers, the only other options were to review thousands of pages of material at certain local libraries, often open only during working hours, or purchase hard copies of the documents for review at home. LAWA asked for anywhere from \$169 to \$1,302 to provide hard copies of the SDEIR/S and the Master Plan, and most low-income residents simply could not afford hard copies of the documents.

LAWA should have made more free or low-cost hard copies of the documents available for local residents and/or low-income populations. The absence of such provisions erected barriers to the participation of many local residents.

¹⁰ “Environmental Justice in Minority Populations and Low-Income Populations,” U.S. Department of Transportation, Order DOT 5610.2 (emphasis added).

LAWA Did Not Allow Sufficient Time to Comment: We recognize that there is a sense of urgency among various governmental officials regarding the expansion/modernization of LAX. This should not mean, however, that public comment and hearings should be curtailed or eliminated to facilitate action. In light of the length and breadth of the SDEIR/S, and the need to compare and contrast much of the analysis in the SDEIR/S to the Master Plan analysis completed and circulated in 2000 and 2001, the public needed much more time to appropriately analyze and comment on the new Alternative D. Shortening the time to review and comment has a particularly negative impact on community groups and low-income residents who may have difficulty even getting access to copies of the SDEIR/S to read.

LAWA Failed to Timely Address the Environmental Justice Issues Inherent in the Expansion Plan: According to the Environmental Justice section of the SDEIR/S, LAWA has been implementing an "Environmental Justice Community Outreach Program" at least since May 2001. (SDEIR/S pp. 4-336, 4-337.) The SDEIR/S is unclear as to whether this program has continued during the review of Alternative D, and thus if LAWA has fulfilled its self-defined environmental justice commitments for Alternative D. The activities described in the SDEIR/S took place in 2001, and were only relevant to the Master Plan alternatives under discussion at that time. There is no description of outreach activities related to the Alternative D analysis, aside from a vague reference to "more recent community outreach." This is simply not sufficient. A fuller description of the activities of the "Environmental Justice Community Outreach Program"-including a list of community meetings held after November 2001, the agendas and attendance of those meetings, and a description of the outreach conducted related to the meetings--is necessary in order to evaluate whether LAWA's commitment to environmental justice was met for Alternative D.

LAWA Has Failed to Create and Maintain Importance of a Transparent Public Participation Process with Respect to Environmental Justice: As mentioned above, aside from the "more recent community outreach" it is unclear as to what, if any, community involvement LAWA has engaged in with respect to the SDEIR/S. Unlike the DEIS/DEIR environmental justice analysis, no mention is made here of the "Environmental Justice Task Force" that LAWA engaged in June 2000, what resulted from the work of that task force, who participated, and why it has presumably been disbanded. In addition, there is no mention of the "Environmental Justice Community Outreach Program" on LAWA's website (LAWA's preferred method of educating the public), no contact information for a responsible staff member or any other related material. This lack of access makes meaningful involvement of minority and low-income populations non-existent.

The National Environmental Justice Advisory Council (NEJAC), a federal advisory committee to the U.S. Environmental Protection Agency, has developed *The Model Plan for Public Participation*.¹¹ "The Core Values and Guiding Principles for the Practice of Public Participation" includes guidelines for ensuring early involvement of the public. We believe the

¹¹ See http://www.epa.gov/Compliance/resources/publications/ej/model_public_part_plan.pdf.

following core values and guidelines were not followed by LAWA in its public participation process and should be utilized in further engaging the public and preparing the final SDEIR/S.

- People should have a say in decisions about actions that affect their lives.
- Public participation includes the promise that the public's contribution will influence the decision.
- The public participation process communicates the interests and meets the process needs of all participants.
- The public participation process seeks out and facilitates the involvement of those potentially affected.
- The public participation process communicates to participants how their input was, or was not, utilized.
- The public participation process provides participants with the information they need to participate in a meaningful way.
- Encourage early and active community participation.
- Institutionalize meaningful public participation by acknowledging and formalizing the process.
- Create mechanisms and measurements to ensure the effectiveness of public participation. (NEJAC, *The Model Plan for Public Participation*, p. 13.)

As part of a federally mandated process, we believe LAWA's public participation process was sorely lacking. Specifically, LAWA failed to include early and meaningful participation of low-income and minority populations. For example, the SDEIR/S fails to list any specifics about the "recent community outreach" discussed in the Environmental Justice section of the SDEIR/S, including: what it consisted of; who was invited; who attended; what decision makers (including elected officials, LAWA Commissioners and high level staff) attended; what was the agenda; if input received at those meetings was incorporated into LAWA's Master Plan; how such input was assimilated and incorporated by LAWA staff; what languages were spoken at those meetings; what written materials were distributed; and what efforts were made to engage low-income populations. We request that this information be provided for any Environmental Justice Program outreach conducted since November 2001, and that the detailed information be circulated in a supplemental SDEIR/S to allow for appropriate analysis of LAWA's environmental justice public outreach program.

Although LAWA's SDEIR/S recognizes that environmental justice issues exist, it does not adequately address them. As a result, we believe that the public participation and environmental justice processes engaged by LAWA are deficient.

LAWA Failed to Articulate Sufficient Methods to Offset or Mitigate Well-Defined Negative Impacts on Low-Income and Minority Populations

As discussed elsewhere in these comments, CEQA requires public agencies to adopt feasible mitigation measures to reduce or eliminate otherwise significant adverse environmental

impacts. (Cal. Pub. Res. Code §§ 21002, 21081, subd. a.) For each identified significant adverse environmental impact the EIR must identify specific mitigation measures. (CEQA Guidelines § 15126.4.) However, we believe that the environmental justice mitigation measures suggested by LAWA has not been fully developed and, instead, relies on the deferral of mitigation measures until after some undefined further work is completed by LAWA.

LAWA's SDEIR/S specifically states that increased LAX operations will disproportionately impact minority and low-income populations with respect to noise and air pollution. A simple review of LAWA's SDEIR/S bears out this conclusion:

Noise

"[A]pproximately 87 percent of the population newly exposed to high noise levels, or 4,430 residents is estimated to be minority and/or low-income." (SDEIR/S, p. 4-324);

"[U]nder Alternative D, three public schools would be newly exposed to . . . greater aircraft noise levels or exposed to an increase of [noise]. . . These schools . . . are all within minority and/or low-income areas . . . and would be exposed to noise levels that could be disruptive to classroom activities." (SDEIR/S, p. 4-324)

"Despite the comprehensive mitigation proposed, the analysis concludes that, after mitigation, certain areas affected by noise would still be faced with adverse effects due to constraints that apply most directly to minority and/or low-income communities." (SDEIR/S, p. 4-429);

Air Quality

"While O3 [ozone] is a region wide problem, minority and low-income populations may be more severely affected because they may be more susceptible to asthma and other chronic respiratory illnesses triggered by high O3 levels. Children within minority communities may be particularly susceptible to health effects of PM10 [particulate matter], ozone and NO2 [nitrogen dioxide] and thus may be more severely affected than other communities exposed to equivalent levels of pollutants, while *children living in poverty who lack access to adequate health care may be especially at risk.*" (SDEIR/S, pp. 4-330 (emphasis added))

4.4.3.7 Environmental Justice Program Mitigation Measures

LAWA's Environmental Justice Program Requires Further Review and Modification

LAWA's plan for environmental justice mitigation measures falls short of solving these environmental problems and of legal expectations. In fact, LAWA's failure to commit to specific environmental mitigation plans, without measurable goals, deadlines and milestones, and an agency accountability program, is dangerously close to relying upon deferred mitigation measures not permitted under CEQA. (See, e.g., *King County Farm Bureau v. City of Hanford* (1990), 221 Cal. App. 3d 692, 728.) At minimum, LAWA may defer the development and implementation of mitigation measures only when LAWA commits to meet realistic performance standards. (*Gentry v. City of Murrieta* (1995), 36 Cal. App. 4th 1359, 1395-1396.)

Such performance standards to alleviate environmental justice, social and cultural impacts are nowhere in LAWA's analysis.

We also believe that LAWA's proposed future mitigation plans also runs afoul of the NEPA mitigation requirements. Because the mitigation measures have not yet been fully developed, it is impossible to gauge if the measure will decrease pollution, alter construction impacts, or provide compensation to affected populations. (See 40 C.F.R. 1508.20.)

1. **Environmental Justice Accountability:** As articulated above, we believe that LAWA's public participation process needs serious and immediate improvement, including at minimum a more transparent decision-making process regarding the most recently developed build alternative; a comprehensive plan showing how the Environmental Justice Program operates and will continue to work through the construction process; and more inclusion of low-income and minority populations in the decision-making process.
2. **Youth and Community Assets Program:** The LAX Youth and Community Assets Program would be designed by a community-driven process that would be funded by LAWA and the FAA. The goal of the Program is to offset the emotional and physical negative health impacts caused by LAX operations and modernization. Specifically, LAWA would work with community groups to determine how to best offset negative air and noise pollution impacts by developing targeted recreation, parks and other open space land use solutions. By working with low-income and minority populations on this issue, LAWA will mitigate significant environmental effects and ensure environmental justice in the impacted areas.

We further request that LAWA be more specific in its work plan for their proposed environmental justice mitigation proposals, and fully adopt the mitigation programs suggested in these comments with respect to economic impacts, air and noise pollution, and negative effects on children and schools. As we have discussed here and elsewhere, low-income and minority populations will bear the heaviest burdens from all aspects of the proposed LAX modernization. Environmental injustice is threaded throughout the SDEIR/S and must be addressed comprehensively and aggressively.

In developing those programs, we request that LAWA include community groups with knowledge of this issue who constitute the low-income and minority communities negatively impacted by the operations LAX. Finally, we request that any future mitigation proposals developed to combat environmental justice impacts to low-income and minority populations be re-circulated in the form of a supplemental SDEIR/S for both procedural and substantive review by the public.

4.6 Air Quality

4.6.1 Introduction

LAWA and the FAA Need to Specify Which Air Quality Mitigation Measures Will Be Required, Which Will Be Promoted, and How Implementation Will Be Monitored

LAWA and the FAA state that they will “[s]upport further conversion of mobile equipment to alternative-fueled engines.” (SDEIR/S, p. 4-355.) They also state that, “LAWA would require or promote the conversion of airport tenant and user equipment to alternative fuels.” (*Ibid.*) While we support these air pollution reduction measures, LAWA and the FAA should specify how they will determine whether an airport tenant or user will be required to convert to an alternative-fueled equipment and exactly what measures will be taken to promote the conversion to alternative-fueled equipment. In addition, it will be important for LAWA and the FAA to develop the means to measure the conversion of mobile and stationary equipment to alternative-fuels and the estimated air pollution benefits resulting from the implementation of these mitigation measures.

LAWA and the FAA also propose mitigation measures to reduce motor vehicle traffic coming into LAX and to reduce motor vehicle idling time in parking lots. (SDEIR/S, pp. 4-355 to 4-356.) We request that LAWA and the FAA include in their LAX Mitigation Plan commitments that include the development and implementation of a program for monitoring motor vehicle traffic coming into LAX and motor vehicle idling time in parking lots.

LAWA and the FAA Fail to Consider PM2.5 in Their Analysis of Air Quality Impacts

CEQA requires LAWA and the FAA to identify all possible significant adverse environmental impacts of the proposed LAX project. (Calif. Pub. Res. Code §21100(b)(1); Guidelines §15126.2.) LAWA and the FAA indicate that “. . . modeled air pollutant concentrations were compared to California Ambient Air Quality Standards (CAAQS) to determine the significance of each build alternative for CEQA purposes.” (SDEIR/S, p. 4-356.) LAWA and the FAA, however, do not consider PM2.5 in their analysis of future background concentrations of air pollutants. The California Air Resources Board has revised its CAAQS to include PM2.5. (17 CCR §70200.) LAWA and the FAA must consider PM2.5 in their analysis of air quality impacts in order to identify all possible significant adverse environmental impacts as required by CEQA. It would be arbitrary and capricious for LAWA and the FAA to leave PM2.5 out of an analysis that uses all other CAAQS as the basis for determining the significance of environmental impacts under CEQA. The lack of this PM2.5 impacts assessment prevents the public and decision-makers from being able to understand fully the environmental consequences of the proposed project.

4.6.2 General Approach and Methodology

LAWA and the FAA Rely Upon Outdated Air Quality Standards and Must Revise Their Air Quality Impacts Assessment and Mitigation Measures in Accordance With These New Standards

On July 5, 2003, the State of California formally adopted revised regulations establishing new standards for particulate matter (PM) and sulfates.¹² (17 CCR §70200; California Regulatory Notice Register No. 25, p. 960, June 20, 2003.) These new California Ambient Air Quality Standards are more restrictive than those adopted by the federal government and more restrictive than those used in the DEIR/S and SDEIR/S. (DEIR/S, Table 4.6-5 at p. 4-479; DEIR/S, Table 4.6-11 at p. 4-498; SDEIR/S, Table S4.6-3 at p. 4-363.) Specifically, the new standards include a 20 microgram per cubic meter ($\mu\text{g}/\text{m}^3$) average annual limit for suspended particulate matter (PM10), based on the arithmetic mean of 24-hour samples (formerly based on a geometric mean), and a 12 $\mu\text{g}/\text{m}^3$ average annual limit for fine particulate matter (PM2.5), based on the arithmetic mean of 24-hour samples.¹³ While LAWA and the FAA acknowledge that they expected these new standards to take effect “in summer 2003” (SDEIR/S, Table S4.6-3 at p. 4-363), they base their air quality impacts analysis and corresponding mitigation measures on the old standards. This failure to use the updated standards has resulted in erroneous conclusions about the significance of the interim year PM impacts under Alternative D (36 $\mu\text{g}/\text{m}^3$), and the 2015 PM impacts for project alternatives A, B, C, and D (33, 32, 32, 25, and 32 $\mu\text{g}/\text{m}^3$, respectively). (SDEIR/S, Table S4.6-12 at p. 4-374.) The revised air quality standards must be met under CEQA and the DEIR/S and SDEIR/S must be amended accordingly.

	California ARB Standard	Federal EPA Standard
	PM10	PM10
Annual Average	20 $\mu\text{g}/\text{m}^3$	50 $\mu\text{g}/\text{m}^3$
24-Hour Average	50 $\mu\text{g}/\text{m}^3$	150 $\mu\text{g}/\text{m}^3$
	California ARB Standard	Federal EPA Standard
	PM2.5	PM2.5
Annual Average	12 $\mu\text{g}/\text{m}^3$	15 $\mu\text{g}/\text{m}^3$
24-Hour Average	-----	65 $\mu\text{g}/\text{m}^3$

Source: California Air Resources Board, www.arb.ca.gov/research/aaqs/pm/pm.htm

LAWA and the FAA state, “Analyses presented in this Supplement to the Draft EIR/EIS address the following issues and provide additional information on the potential for air quality

¹² See www.arb.ca.gov/research/aaqs/pm/pm.htm for background information on PM and sulfates.

¹³ California Air Resources Board, June 4, 2003, Final Regulation Order for the Rulemaking to Consider Amendments to Regulations for the State Ambient Air Quality Standards for Suspended Particulate Matter and Sulfates, www.arb.ca.gov/regact/aaqspm/revfro.pdf, which we incorporate by reference into our comments and the administrative record for the LAX project.

impacts: . . . assessing air emissions and concentrations against the most current regulations and state and federal ambient air quality standards.” (SDEIR/S, p. 4-357.) For this to be true, LAWA and the FAA must revise their air quality impacts assessment based on the newly finalized PM standards. In addition, LAWA and the FAA must revise their proposed PM mitigation measures in accordance with these new regulations.

4.6.2.2 Emissions Estimates

LAWA and the FAA Do Not Adequately Identify Air Quality Impacts Resulting From the On-Site Rock Crushing Facility and Stockpiles

CEQA requires LAWA and the FAA to identify all possible significant adverse environmental impacts of the proposed LAX project. (Calif. Pub. Res. Code §21100(b)(1); Guidelines §15126.2.) In their discussion of air quality emissions estimates for construction impacts (SDEIR/S, p. 4-358), LAWA and the FAA do not explain how or whether they have accounted for PM_{2.5}. They also do not explain how or whether they have assessed potential air quality impacts from the proposed rock crushing facility and the construction stockpiles. The rock crushing facility and construction stockpiles may have significant adverse air quality and public health impacts upon residents, schoolchildren, and workers. LAWA and the FAA must clearly describe their efforts to assess PM_{2.5} emissions from construction activities and they must identify potential air quality impacts from rock crushing and construction stockpiles.

4.6.2.4 Future Background Concentrations

We request that LAWA and the FAA revise Table S4.6-2 to include PM_{2.5} and an acknowledgement that projected future background concentrations will exceed the California Ambient Air Quality Standards for the average annual mean of PM₁₀ (20 µg/m³) and the 24-hour average of PM₁₀ (50 µg/m³).

4.6.3.1 Federal and State Regulatory Framework

LAWA and the FAA Should Revise Their Discussion of State Air Quality Standards to Reflect Newly Adopted CAAQS

The finalization of California’s new PM and sulfates standards has made the information LAWA and the FAA includes in their discussion of the federal and state air quality regulatory framework inaccurate and outdated. (See SDEIR/S, pp. 4-362 to 4-365.) LAWA and the FAA must revise this section of the SDEIR/S accordingly. Specifically, LAWA and the FAA should revise Tables S4.6-3, S4.6-5, and S4.6-12 to include the new CAAQS for PM₁₀ and PM_{2.5}. (SDEIR/S, pp. 4-363, 4-366, and 4-374.)

Under the Newly Adopted CAAQS, LAWA and the FAA Cannot Continue to Use PM10 Compliance as a Surrogate for PM2.5 Compliance

With regard to PM_{2.5}, LAWA and the FAA state, “Until USEPA issues guidance on the implementation of the PM_{2.5} ambient air quality standards, that agency has recommended that compliance with the PM₁₀ standards be considered a surrogate for compliance with PM_{2.5} standards, and the analysis in this document follows that guidance.” (SDEIR/S, p. 4-363.) LAWA and the FAA can no longer use PM₁₀ compliance as a surrogate for PM_{2.5} compliance, since this decision rests only upon federal guidance and does not exempt LAWA and the FAA from recognizing and complying with the new PM_{2.5} standard adopted by the State of California. LAWA and the FAA must assess the potential impacts of PM_{2.5} emissions and adopt PM_{2.5} mitigation measures where necessary.¹⁴

4.6.3.2 Air Quality Plans and Policies

LAWA and the FAA Should Revise References to the Air Quality Management Plan

The South Coast Air Quality Management District (SCAQMD) finalized and approved its 2003 Air Quality Management Plan (AQMP) on August 1, 2003.¹⁵ LAWA and the FAA should revise their discussion of air quality plans and policies, including Table S4.6-4, to acknowledge that the draft AQMP has now been made final. These revisions should be made throughout the SDEIR/S where LAWA and the FAA reference the AQMP.

LAWA and the FAA Should Revise the EIR/S to Account for Changes in the State Implementation Plan

The California Air Resources Board (ARB) finalized the new State Implementation Plan (SIP) for the South Coast Air Basin on October 23, 2003.¹⁶ LAWA and the FAA should revise the DEIR/S and SDEIR/S to make these documents consistent with the new air pollution reduction commitments and requirements in the revised SIP.

LAWA and the FAA Should Include Documents Related to the 1994 SIP Consultative Process and Memorandum of Understanding in the Administrative Record

We incorporate by reference into our comments all records related to the 1994 SIP consultative process referenced on SDEIR/S, p. 4-365. We also incorporate by reference into our comments the December 2002 memorandum of understanding identified on SDEIR/S, p. 4-365. LAWA and the FAA should include these documents in the Administrative Record for this project.

¹⁴ Note that regional PM_{2.5} monitoring data for the South Coast Air Basin average over 20 µg/m³, suggesting that LAX project and cumulative impacts will exceed the newly adopted standard of 12 µg/m³ and represent significant impacts. See ARB, August 2001, *2001 California PM_{2.5} Monitoring Network Description*, Figure 1 at p. 3, at www.arb.ca.gov/aqd/pm25/Final2001PMMonitoringNetworkDescription.pdf.

¹⁵ Summary Minutes of the South Coast Air Quality Management District, Friday, August 1, 2003, Agenda Item No. 35, www.aqmd.gov/hb/0308min.html.

¹⁶ See ARB Public Meeting Agenda Item August 2, 2003 at www.arb.ca.gov/board/ma/ma102303.htm.

4.6.3.3 Environmental Baseline Ambient Air Quality

By Excluding PM2.5 Baseline Data, LAWA and the FAA Provide an Incomplete Description of the Environmental Setting

CEQA requires public agencies to publish Draft EIRs that include a description of the physical environmental conditions in the vicinity of the project. (Guidelines §15125, a DEIR “must include a description of the environment in the vicinity of the project, as it exists before the commencement of the project, from both a local and regional perspective.”) Without a complete description of the project’s environmental setting, the DEIR may never adequately investigate and discuss the environmental consequences of the proposed project. (See *San Joaquin Raptor/Wildlife Rescue Center* (1994) 27 Cal.App.4th 713, 724-729; see also *Environmental Planning and Information Council v. County of El Dorado* (1982) 131 Cal.App.3d 350, 354, 357-358.) Contrary to these requirements, LAWA and the FAA fail to identify baseline air pollutant concentration data for PM2.5. (SDEIR/S, Table S4.6-5 at p. 4-366) This incomplete description of the project’s environmental setting has caused LAWA and the FAA to fail to consider significant project-related and cumulative impacts. In particular, this incomplete environmental setting description results in the underestimation of air quality impacts. LAWA and the FAA should revise and recirculate the SDEIR/S with an accurately description of the project’s environmental setting.

4.6.3.4 Environmental Baseline LAX Emissions Inventory

LAWA and the FAA Must Provide Baseline LAX Emissions Data for PM2.5

As with their description of ambient air quality, LAWA and the FAA fail to include PM2.5 data in their description of the LAX emissions inventory. LAWA and the FAA must provide baseline LAX emissions data for PM2.5 to satisfy CEQA requirements for describing the environmental setting in the vicinity of the project.

4.6.8 Mitigation Measures

LAWA and the FAA Should Provide More Specific Information About Their Air Quality Mitigation Measures, Adopt a Set of Mitigation Measure Principles, and Incorporate Additional Mitigation Measures to Reduce or Avoid Significant Adverse Environmental Impacts

CEQA requires a public agency to adopt feasible mitigation measures in order to reduce or eliminate otherwise significant adverse environmental impacts. Cal. Pub. Res. Code §§ 21102, 21081(a.) LAWA and the FAA have identified a long list of significant adverse air quality impacts. (SDEIR/S, pp. 4-370 to 4-387.) Given these significant impacts, LAWA and the FAA must adopt all feasible mitigation measures in order to reduce or eliminate these impacts.

LAWA and the FAA have proposed several air quality mitigation measures. (SDEIR/S, Table S4.6-18 at p. 4-389.)¹⁷ We strongly support these measures and appreciate the efforts of LAWA and the FAA to incorporate proposed mitigation measures suggested by those who commented on the DEIR/S. Many of the proposed mitigation measures, however, could be strengthened. Most lack the specificity necessary to judge their viability and how they will be implemented. We ask that LAWA and the FAA diligently focus on the further specification and development of these mitigation measures so that their mitigation monitoring and reporting plan includes viable and enforceable means of reducing or avoiding the many adverse significant environmental impacts associated with the LAX project.

We request that LAWA and the FAA commit to following a set of mitigation measure principles that include: (1) Setting unambiguous and measurable goals; (2) identifying and meeting deadlines and milestones; (3) enacting mitigation *requirements* wherever possible and relying upon *incentives* only when mandates would be illegal or impossible; and (4) establishing an agency accountability program that includes reporting requirements, complaint resolution protocols, and mechanisms for public oversight and enforcement of mitigation commitments. For example, taking the first mitigation measure in Table S4.6-18, LAWA and the FAA should set goals of converting 50% of airport and tenant-owned ground service equipment (GSE) to electric power or extremely low emission technology by 2007 and 100% conversion by 2010. They should also develop reliable ways of measuring progress toward these goals, identify technology milestones, impose airport tenant lease conditions mandating date certain GSE conversion, and provide the public a right to enforce the GSE conversion commitment through a court order, if necessary.

There are many additional feasible mitigation measures available to reduce or eliminate significant air quality impacts. We request that LAWA and the FAA incorporate these additional mitigation measures prior to finalizing the LAX EIR/S:

1. **Community Health Needs Assessment Project:** The LAX Community Health Needs Assessment Project would be a community-driven process funded by LAWA and the FAA where residents living within the project study area develop, conduct, and participate in a survey of local health needs. A health needs survey would be developed and administered by community members in consultation with independent researchers. The project could be modeled upon the Hispanic Health Needs Assessment conducted by the National Alliance for Hispanic Health. (See www.hispanichealth.org/hhna.lasso.) It should include an environmental health tracking component compatible with the recommendations of the California Department of Health Services (CDHS) SB 702 Environmental Health Tracking Expert Working Group. (See www.catracking.com.)

¹⁷ In Table S4.6-18 and elsewhere in the SDEIR/S, LAWA and the FAA refer to SULEV/ZEV engines. ARB has adopted updated emissions categories, which now include partial zero emission vehicles (PZEV) and advanced technology PZEV (AT-PZEV). See www.arb.ca.gov/msprog/ccbg/2004pc.htm. LAWA and the FAA should revise the SDEIR/S to be consistent with these new vehicle emission categories.

2. **Community Health Services Program:** The LAX Community Health Services Program would use research findings from the LAX Community Health Needs Assessment Project to accommodate health care needs of those living and working within the LAX study area. The health services program would include funding from LAWA and the FAA for health clinics within the community and at elementary and secondary schools within the project study area, and the operation of a mobile clinic to diagnose and treat asthma and other diseases associated with exposure to air pollution (e.g., asthma vans).
3. **Environmental Indicators Project:** The LAX Environmental Indicators Project would be a community-driven process funded by LAWA and the FAA where residents living within the project study area identify environmental indicators they want to track; collect, analyze, and report on those indicators; and support the continuing use of indicator data to advocate for positive change in the vicinity of LAX. (See Hays, J., Landeiro, C., & Rongerude, J., 2002, *Neighborhood Knowledge for Change: The West Oakland Environmental Indicators Project*.¹⁸)
4. **Emissions Inventory Validation and Improvement Study:** The LAX Emissions Inventory Validation and Improvement Study would include a systematic and detailed analysis of current emissions inventory limitations and assumptions. The study would be funded by LAWA and the FAA and an independent committee of air quality experts and community stakeholders would select independent contractors to carry out inventory validation and improvement tests. Among other things, these contractors would test aircraft engine and auxiliary power unit emissions for toxic air contaminants, test and validate emissions factors relied upon in the LAX emissions inventory, provide independent verification of the accuracy of self-reported emissions data, and measure LAX-related diesel truck fleet emissions. These improvements in the LAX emissions inventory would be consistent with commitments made the South Coast AQMD in its Environmental Justice Workplan for 2003-04. (See www.aqmd.gov/hb/030930a.html and www.aqmd.gov/hb/0309min.html.)
5. **Community Exposure Assessment Program:** The LAX Community Exposure Assessment Program would include funding from LAWA and the FAA to measure toxic air pollutant and other environmental chemical exposures among residents, students, and workers in the LAX project study area. This program should be based on priorities and protocols developed by members of the CDHS Biomonitoring Planning Project.¹⁹ Program staff should coordinate their efforts with the Southern California Environmental Health Sciences Center (SCEHSC) based at the University of Southern California Keck School of Medicine and

¹⁸ Published in Oakland, CA by Pacific Institute for Studies in Development, Environment, and Security at www.pacinst.org/reports/environmental_indicators.htm.

¹⁹ California Biomonitoring Needs Assessment, Report to the Advisory Committee (Oct. 28, 2002), Section 5 (<http://dhs.ca.gov/ehlb/BPP/Needs%20Assessment%20Report.pdf>).

researchers with the National Children's Study (<http://nationalchildrensstudy.gov/>). Exposure assessment measurements should include biomonitoring and exposure pathway studies.

6. **Air Quality Monitoring Program:** The LAX Air Quality Monitoring Program would be a community-driven process funded by LAWA and the FAA where residents living within the project study area work with SCAQMD and ARB staff in designing and conducting air quality studies in the vicinity of the airport. These studies would involve air sampling education and training for community members similar to that conducted by West Harlem Environmental Action (www.weact.org/programs/cbhr/diesel.html), SCEHSC, and the Pacific Institute for Studies in Development, Environment, and Security (www.pacinst.org/online_update/oct_2003_online_update.htm). The program would also include funding by LAWA and the FAA for ARB to conduct a Neighborhood Assessment Project analysis of air pollution around LAX (www.arb.ca.gov/ch/programs/nap/nap.htm) and for SCAQMD to establish a Neighborhood Environmental Justice Council for the LAX project study area.
7. **Air Pollution Emissions Reduction Program:** The LAX Air Pollution Emissions Reduction Program would incorporate the measures proposed by LAWA and the FAA in the Master Plan and EIR/S. The program would also include other feasible air pollution emissions reduction measures developed and supported by local community members. These include (1) the replacement of all diesel school buses within the LAX study area with alternative fuel buses, (2) the replacement of heavy duty diesel truck fleets and engines within study area with alternative fuel trucks and engines, if feasible, and low-emission diesel trucks and engines where alternative fuel vehicles are shown to be infeasible, (3) the replacement of diesel garbage truck fleets within the LAX study area with alternative fuel trucks, (4) limits on diesel truck idling time in and around LAX, (5) the installation of enhanced vapor recovery technology at all gas stations in the vicinity of LAX, (6) the creation of a distributed generation hydrogen fuel cell infrastructure at LAX, (7) the expansion of the alternative fuel infrastructure in and around LAX, including compressed natural gas (CNG), liquefied natural gas (LNG) and hydrogen fueling stations, (8) the addition of 400-Hertz electrical ground power and preconditioned air systems to all remaining aircraft passenger gates, (9) the extension of electrical power to all hangars in order to eliminate the use of highly polluting aircraft auxiliary engines during maintenance; and (10) a commitment to investigate the feasibility of and develop a pilot for the use of cleaner jet fuel together with AQMD.
8. **Contaminated Site Identification and Remediation Project:** The LAX Contaminated Site Identification and Remediation Project would be designed to identify and remediate contaminated sites in the LAX project study area. This would include brownfield and other sites regulated by the U.S. Environmental

Protection Agency, California Department of Toxic Substances Control, and Los Angeles Regional Water Quality Control Board. Project staff would work with community members in advocating for the thorough and timely cleanup of contaminated sites in the vicinity of LAX.

9. **LAX Accountability Program:** The LAX Accountability Program would provide for a Community Oversight Committee charged with monitoring and enforcing Master Plan commitments and environmental mitigation measures. The Community Oversight Committee would be funded by LAWA and the FAA and include community and labor representatives selected by local residents and workers.
10. **Public Participation and Community Advocate Program:** The LAX Public Participation and Community Advocate Program would support and encourage public participation in LAX-related decisions. Existing community outreach and public participation efforts need to be improved considerably. LAWA should create an Office of Community Advocate and hire and retain a Director of Community Advocacy and supporting staff charged with protecting community interests and providing community-based perspectives within the agency. LAWA should create a Complaint Resolution Protocol and a Public Participation Guidebook for use by community members and following the examples established by ARB. (See www.arb.ca.gov/ch/ch.htm.) The program would also assure compliance with public records and public notice statutes and develop ways to expand public access to information and participation opportunities. LAWA and the FAA should work with community members to site and establish information clearinghouses. The program should comply with the recommendations of the California Environmental Protection Agency's Advisory Committee on Environmental Justice (www.calepa.ca.gov/EnvJustice/).
11. **Community Benefits Grant Program:** The LAX Community Benefits Grant Program would provide grants from LAWA and the FAA to organizations working to empower and educate those living and working within the LAX study area. An independent funding board consisting of community members and independent experts would be empowered to make funding decisions. These grants would include funds for capacity-building, public participation, community-based participatory research, special projects, the hiring of consultants to advise community members on LAX-related issues, supporting the development of mitigation measures by community members, and general organizational support.
12. **Link Clean Air to Clean Energy:** To help reduce LAX reliance on diesel and other less clean forms of energy, LAX should move aggressively toward implementing a "Green Energy" strategy for all its energy needs. Specifically, as part of the development of Alternative D, LAX should rely entirely on renewable sources of energy, such as solar and wind power, for all of its energy needs. In

addition, LAWA should use the Leadership in Energy and Environmental Design (LEED) system developed by the U.S. Green Building Council to guide its design and construction practices at LAX. The LEED guidelines encourage use of non-toxic materials, renewable energy and water efficiency. If a building or project meets certain specific criteria under the LEED guidelines, the building or project can seek certification under the program. We encourage LAWA to seek the platinum certification under the LEED guidelines, utilizing the cleanest and most energy efficient building standards. According to the U.S. Green Building Council, such LEED buildings can be built within a mere 2-3% cost increase, and often the energy savings pay back that extra cost in short order.²⁰

All LAX research projects should follow the “Responsible Research Criteria” developed by the CDHS and the National Association of County and City Health Officials’ (NACCHO) Protocol for Assessing Community Excellence in Environmental Health.²¹ The research projects should all be based upon a community-based participatory research framework. LAWA and the FAA should commit to following the key principles of community-based participatory research:

1. Recognizing community as an unit of identity;
2. Building on strengths and resources within the community;
3. Facilitating collaborative, equitable involvement of all partners in all phases of the research;
4. Integrating knowledge and intervention for mutual benefit of all partners;
5. Promoting a co-learning and empowering process that attends to social inequalities;
6. Involving a cyclical and iterative process;
7. Addressing health from both positive and ecological perspectives;
8. Disseminating findings and knowledge gained to all partners; and
9. Involving a long-term commitment by all partners.²²

²⁰ The U.S. Green Building Council developed and administers the LEED guidelines for commercial buildings. More information can be found at http://www.usgbc.org/LEED/LEED_main.asp.

²¹ For the CDHS criteria, contact Ms. Lori Copan, CDHS, 510-849-5044, and for the NACCHO protocol see www.naccho.org/GENERAL261.cfm.

²² See “Community-Based Participatory Research: Principles, Rationale and Policy Recommendations,” by Barbara A. Israel, Dr. P.H., in *Successful Models of Community-Based Participatory Research*, Final Report, L. R. O’Fallon, *et al.*, eds., published by the National Institute of Environmental Health Sciences, and available at www.niehs.nih.gov/translat/cbr-final.pdf.

Adverse Impacts Associated With the Rock Crushing Facility Must Be Identified, Analyzed, and Mitigated

If a specific mitigation measure will itself create new significant adverse impacts, these significant impacts must also be described in the Draft EIR. (Guidelines §15126.4(a)(1)(D).) “If a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed. (*Stevens v. City of Glendale* (1981) 125 Cal. App. 3d 986.) As part of their air quality mitigation measures, LAWA and the FAA indicate that construction activities will include the use of an “on-site rock crushing facility to reuse rock/concrete and minimize off-site haul truck trips.” (SDEIR/S, p. 4-388.) This on-site rock crushing facility will recycle an enormous amount of material from the demolition of existing airline terminals, parking structures, runways, and roadways. The fugitive dust and particulate matter (PM10 and PM2.5) emissions from this operation will undoubtedly cause significant adverse environmental impacts and must be identified, analyzed, and mitigated in the EIR/S. We are particularly concerned that the on-site rock crushing facility will be co-located with the construction stockpiles adjacent to low-income residents of color in the eastern vicinity of the airport. Stockpiles will be “confined to the eastern area of the airport vicinity” under Alternatives A, B, and C, and “confined to the eastern area of the airport vicinity, to the extent possible” under Alternative D. (“ST-11” and “ST-20” as identified at SDEIR/S, pp. 4-248, 4-249.) The environmental and environmental justice impacts of the rock crushing facility and stockpiles must be discussed in the EIR/S and measures must be taken to minimize their adverse effects upon local community members.

4.20 Construction Impacts

*The Construction Impacts of Alternative D Must Be Mitigated to Reduce Significant Health and Air Impacts*²³

As articulated in the SDEIR/S, significant air impacts will result from construction activities at LAX. The construction schedule for Alternative D is large and ambitious, requiring a total of 34 work crews of different types and sizes, utilizing dozens of pieces of heavy-duty diesel-burning construction equipment for years. (SDEIR/S 4,541-542; Table S4.20-2.) Such a massive undertaking will cause significant negative air pollution. Specifically, “emissions from construction equipment, haul vehicles, earth-moving activities, and employee vehicles . . . could exceed the South Coast Air Quality Management District's construction emissions threshold for carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), and particulate matter (PM10).” (SDEIR/S, ES-47). Even with mitigation measures in place, LAWA acknowledges that “mitigated construction emissions of CO, VOC, NO_x, and PM10 would

²³ Significant portions of this analysis are taken from the briefing paper “Rebuilding Lower Manhattan: A Clean Air Initiative,” Environmental Defense, January 11, 2002. Primary authors are Jacquelyn Cefola, Janea Scott and Andrew H. Darrell of Environmental Defense.

remain significant for Alternative D." (SDEIR/S, 4-569.) These construction impacts will have ongoing negative effects as construction is projected to last at least 10 years. (SDEIR/S, 4-539.)

We have several concerns already articulated in the air quality section of our comments, including the need to include air pollution analysis for PM2.5, which has thus far been missing from LAWA's calculations. The use of construction equipment using "cleaner burning diesel" fuel and exhaust emission controls is referenced in the Recommended Mitigation Measures Components. (SDEIR/S, 5-49.) However, in light of the construction need to use diesel vehicles and equipment over an extended period of time, we believed it essential to directly address our environmental health concerns with the diesel emissions spewing from these vehicles, and recommend several specific mitigation measures to reduce these harmful emissions from affecting our air.

Construction Vehicles Are Generators of Dangerous Particulate Matter

There is an urgent need for heavy-duty diesel vehicles, especially "nonroad" vehicles at the LAX, to take all practical steps to reduce emissions of fine particulates and other damaging airborne contaminants. Vehicles present during construction of the LAX expansion will include backhoes, bulldozers, excavation machines, dump trucks, cranes, diesel generators, and all-terrain vehicles. Nonroad vehicles pose a special threat to air quality, because they are major contributors of fine particulate matter (also known as PM2.5 because the particulates are smaller than 2.5 microns in size) and oxides of nitrogen (NOx), a key ingredient in the formation of ground-level ozone. Since nonroad engine standards have lagged considerably behind those for highway diesels, nonroad engines are more polluting than their highway counterparts.

Nationally, nonroad diesel engines emit more fine particles than all the nation's passenger cars and trucks, heavy-duty onroad diesels and electric utilities *combined*. Diesel particles pose the single greatest source of cancer risk from air pollution. Public health organizations, including the National Institute for Occupational Safety and Health, the World Health Organization, the U.S. Environmental Protection Agency (EPA), the California EPA and the Department of Health and Human Service's National Toxicology Program, have associated diesel exhaust or diesel particulates with increased risk of cancer. Epidemiological studies show increased lung cancer risks ranging from 20% to 89%.

In addition, the fine particles from diesel that are breathed deep into the lungs are responsible for thousands of premature deaths from other causes every year. There is a well-researched body of epidemiological studies from around the world that documents the serious effects associated with exposure to particulates. These studies report an association between particulate air pollution and reductions in lung function, respiratory symptoms, school absenteeism, increased use of asthma medications, doctor visits, emergency room visits, hospital admissions, and premature death. In 1997, U.S. EPA established health standards for PM2.5 for the first time. In reviewing the basis for EPA's standards the D.C. Circuit Court rejected industry attacks on the underlying science and specifically held that EPA had an ample basis for

its action. Since that decision, there have been significant new research findings that powerfully corroborate EPA's findings about the adverse health effects associated with fine particles.

The following discussion, summarizing some of the recent PM_{2.5} health effects studies, is drawn from analysis produced by the American Lung Association. Long-term epidemiological studies indicating that fine particles increase the risk of early death have recently been validated by an independent reanalysis.²⁴ New studies show that chronic exposure to particulate pollution shortens lives by one to three years.²⁵

A study of the 90 largest U.S. cities found strong evidence linking daily increases in particle pollution at contemporary levels to increases in daily death rates, and in hospital admissions of the elderly.²⁶ These results are consistent with a study of 12 European cities. Particulate pollution has been tied to low heart rate variability, a risk factor for heart attacks. A chamber study with human subjects found that concentrated air particles can induce pulmonary inflammation and increase concentrations of fibrinogen in the blood, a risk factor for clotting and heart attacks.²⁷

Particulate pollution worsens bronchitis in asthmatic children. Children experience declines in lung flow and increased symptoms such as cough, phlegm production, and sore throat after particle exposure, but children with asthma are more susceptible to these effects than other children. Children's emergency room visits for asthma increase on high particle pollution days. People most sensitive to fine particle pollution are infants and children, especially those with asthma, the elderly, and people with pre-existing heart and lung conditions.

Studies of particulate matter and mortality have not identified a threshold or "safe" level of exposure. It is therefore crucial to the health of workers and the surrounding communities that nonroad vehicles in the LAX area use state-of-the-art technology to lower emissions of PM_{2.5}.

Nonroad engines also generate a toxic cocktail of other pollutants, ranging from carbon dioxide to nitrogen oxides. For example, as a vehicle class, they emit more than 5 million tons of nitrogen oxides (NO_x) each year – this is more than 20% of the total national NO_x emissions from *all* sources. Nitrogen oxides are significant contributors to ground-level ozone or smog, acid deposition, eutrophication of coastal bodies of water, fine particulate emissions and haze.

²⁴ Krewski, D., Burnett, R.R., Goldberg, M.S., Hoover, K., Siemiatycki, J., Jerrett, M., Abrahamowicz, M., White, W.H., and Others. Reanalysis of the Harvard Six Cities Study and the American Cancer Society Study of Particulate Air Pollution and Mortality. Health Effects Institute, July, 2000.

²⁵ Pope, C.A. III, Epidemiology of Fine Particulate Air Pollution and Human Health: Biological Mechanisms and Who's at Risk? *Environ Health Perspect* 108 (suppl 4):713-723 (2000).

²⁶ Samet, J.M., Zeger, S.L., Dominici, F., Currier, F., Coursac, I., Dockery, D.W., Schwartz, J., and Zanobetti, A. The National Morbidity, Mortality, and Air Pollution Study. Part II: Morbidity, Mortality and Air Pollution in the United States. Health Effects Institute Research Report 94, Part II, June 2000.

²⁷ Ghio, A.J., Kim, C., and Devlin, R.B. Concentrated Ambient Air Particles Induce Mild Pulmonary Inflammation in Healthy Human Volunteers. *Am. J. Respir. Crit. Care Med.* 2000 162: 981-988.

4.20.8 Mitigation Measures Specific to Construction Equipment

There are a number of ways – some of them outlined below – to reduce air pollution at LAX during the years-long construction process. Used in combination, better equipment management, new contractual incentives and effective retrofit technologies can reduce harmful diesel emissions without slowing the pace of construction. Some of these techniques have already been proven effective at other large-scale urban construction sites, including, for example, Sydney in preparation for the Olympic Games and at Boston’s “Big Dig”. Also, there are opportunities for pilot projects using more advanced technologies – pilot projects that could make the LAX expansion contribute to better standards for construction around the country.

Improve equipment management and contractual incentives

Stop engine idling. Users of heavy-duty diesel equipment (both onroad and nonroad) often keep their engines idling when their equipment is not in use. It’s against the law for any motor vehicle registered in Massachusetts to idle for more than five minutes. Similarly in Los Angeles, contractors should prevent their employees from idling for more than five minutes when their equipment is not in use.

Ensure appropriate equipment maintenance and inspection. Fleet managers need to keep their equipment in good repair. This is essential not only for the engines to operate efficiently, but also to ensure that emission reduction technologies can be used effectively. As with onroad vehicles, nonroad equipment should have regular, periodic inspections, including smoke testing.

Encourage the use of better equipment through incentives. Construction permits and contract specifications should be structured to give contractors preference if they retire old equipment and purchase new equipment with engines that meet future regulatory requirements. Through contract specifications, equipment owners can also be encouraged to purchase alternative fuel (non-diesel) equipment such as electric or propane forklifts, solar signboards and fuel cell generators. Further, as used in Boston’s “Big Dig” project, contract specifications can create incentives for equipment owners to use retrofit technologies to reduce harmful diesel emissions.²⁸

Take advantage of technological solutions

Use low sulfur diesel fuel with after-treatment technologies. Whenever possible, low sulfur fuels should be used in place of regular onroad and nonroad diesel fuels. By itself, low sulfur fuel can lower particulates 10-20% when used to fuel onroad vehicles. But more importantly, low sulfur fuel enables aggressive after-treatment technologies that dramatically

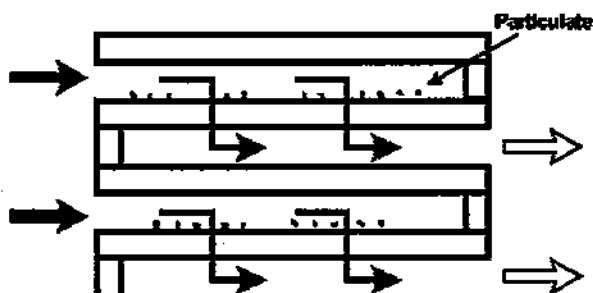
²⁸ For more information about the use of contract specifications see Drew Kodjak, Coralie Cooper, and Ingrid Ulbrich, “Final Report, Development of State Economic Incentives to Promote the Purchase and Use of Low Polluting Heavy-Duty Vehicles,” New England States for Coordinated Air Use Management (NESCAUM), November, 1999.

reduce particulates, NO_x, hydrocarbon (HC) and carbon monoxide (CO) in diesel exhaust. The same is true for construction equipment and other nonroad vehicles: when low sulfur diesel fuel is used with after-treatment technologies, there are immediate and striking reductions in air pollution.

Because of these benefits, low sulfur diesel fuels will be required nationally as part of new regulations promulgated by the federal Environmental Protection Agency for onroad heavy-duty vehicles, to take effect in 2006. This supply should be expanded for use by public and privately owned onroad and nonroad vehicles working on the LAX expansion. There are multiple suppliers who have the capacity to provide low sulfur diesel fuel to LAX. For vehicles fueling at the construction site, low sulfur fuel could be provided through multiple small storage tanks, a large centralized tank or dedicated fuel trucks. With the availability of low sulfur fuel, vehicles at LAX would also have the ability to use important after-treatment devices like particulate filters, oxidation catalysts, selective catalytic reduction and other emerging technologies that are available now (described below). These technologies would immediately and dramatically improve air quality.

Diesel Particulate Filters

Diesel Particulate Filter Schematic



Source: MECA, Clean Air Facts, Emission Controls for Diesel Engines

Diesel particulate filters can reduce particulates, HC, and CO emissions by 60%, as well as significantly reduce emissions of other toxics including aldehydes.²⁹ Particulate filters can be installed on new or existing equipment, sometimes as muffler replacements, to trap particulate matter in the exhaust.³⁰ Some filters also have a catalyst system, activated by heat from the exhaust, to further combust or oxidize the particulates and exhaust gases. Diesel particulate filters require the use of low sulfur fuels.

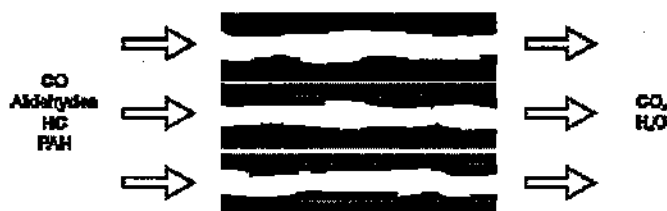
²⁹ EPA's verified level of reduction for Johnson Matthey Continuously Regenerating Technology (CRT), as listed at www.epa.gov/otaq/retrofit/retrofitverifiedlist.htm.

³⁰ Kodjak et al., Attachment D, "The Clean Air Construction Initiative, Diesel Particulate Filters Technology Description and Overview of Operational Issues."

Diesel particulate filters have been installed on thousands of onroad vehicles, primarily trucks and buses. They have also been installed and tested on nonroad equipment. The Manufacturers of Emission Controls Association (MECA) estimate the cost of particulate filters to be \$3,250 to \$5,500 per engine.³¹ Using diesel particulate filters on onroad vehicles and demonstrating the technology on nonroad vehicles used during reconstruction would yield tremendous improvements to air quality in the LAX construction area.

Oxidation catalysts

Diesel Oxidation Catalyst Functional Diagram



Source: MECA, Clean Air Facts, Emission Controls for Diesel Engines

Similar to catalytic converters on cars, oxidation catalysts for diesel vehicles reduce emissions of particulates by 20%, HC by 50%, and CO by 40%. They also cut down on aldehyde, smoke and odor.³² The catalysts can be added to a vehicle's exhaust system or installed as replacement mufflers. Low sulfur fuel improves the performance of oxidation catalysts. Oxidation catalysts can be installed by themselves on new or existing equipment or with other after-treatment technologies, including particulate filters. Oxidation catalysts have already been installed on millions of onroad and hundreds of thousands of nonroad vehicles. MECA estimates the costs of oxidation catalysts to be between \$975 and \$1,750 per engine.³³

Selective Catalytic Reduction (SCR)

SCR systems add a reductant (usually urea) to diesel exhaust. The exhaust and reductant are processed by a catalyst to then reduce particulates, HC and NOx (the reductant aids in converting nitrogen oxides to nitrogen and oxygen). Initial results from SCR being used in combination with other technologies show a possible 75% reduction of NOx and a 25%

³¹ Cost estimates dependent on volume of sales of technologies and engine horsepower and are for the mean cost to user for Muffler Replacement. Manufacturers of Emission Controls Association (MECA), Report of Agreed Upon Procedures, November 9, 2000.

³² EPA's verified level of reduction for numerous suppliers of catalyst muffler products, as listed at www.epa.gov/otaq/retrofit/retrofitverifiedlist.htm.

³³ Cost estimates dependent on volume of sales of technologies and engine horsepower and are for the mean cost to user for Muffler Replacement. Manufacturers of Emission Controls Association (MECA), Report of Agreed Upon Procedures, November 9, 2000.

reduction in particulates, as well as a significant HC reduction with the use of low sulfur fuel.³⁴ MECA estimates SCR's cost to be \$10,000 – \$50,000/engine.³⁵ Marine vessels, ferries and trains have successfully installed SCR. Given the great potential to reduce both nitrogen oxides and particulate matter, the demonstration of SCR on generators at LAX would yield important results.

Emerging technologies

Using low sulfur fuel would also enable equipment owners to participate in tests of new technologies like engine gas recirculation (EGR), lean NOx catalysts, and NOx absorbers that have potential to drastically reduce emissions. For example, NOx absorbers have the potential to reduce NOx emissions by 60-70%.³⁶

Also, it is important to note that these technologies, while highly effective in their own right, may also be used in combination to generate higher reductions in emissions. For example, SCR might be used with a particulate filter and/or EGR system for great reductions in NOx, particulates, HC and CO.

Also use technologies that can immediately reduce emissions without low sulfur fuel.

With or without low sulfur diesel fuels, several alternative technologies can be used to reduce air pollution at LAX. For example:

Oxidation catalysts and Selective Catalytic Reduction (SCR)

Both described in detail above, oxidation catalysts and SCR systems can be installed on new or existing equipment to generate real and immediate reductions in air pollution from diesel exhaust. While aided by the use of low sulfur fuel, both technologies continue to show significant emissions reductions even when they are used with regular onroad and nonroad diesel fuel.

Emulsified fuel

Fuel emulsion is widely available and has been tested for many onroad and nonroad diesel engines. Results show emulsified fuel can be used with any diesel engine including generators, marine vessels, and construction equipment. Emulsified fuel can lower NOx by 30% and particulates by 50%. Though it lowers fuel economy by 15%, the emissions reductions from emulsified fuel outweigh this increase in fuel consumption. Emulsified fuels can also be used in combination with other after-treatment technologies, such as oxidation catalysts, to further reduce diesel emissions.

³⁴ Emissions reduction with use of 30ppm low sulfur fuel. Khair, Magdi. "Integration of EGR, SCR, DPF, and fuel-borne catalyst for NOx/PM reduction," Oct. 1999.

³⁵ Cost estimates dependent on volume of sales of technologies and engine horsepower and are for the mean cost to user for Muffler Replacement. From Manufacturers of Emission Controls Association (MECA), Report of Agreed Upon Procedures, November 9, 2000.

³⁶ Hartmut Lueders, Peter Stommel and Sam Geckler. "Diesel Exhaust Treatment-New Approaches to Ultra Low Emission Diesel Vehicles." Society of Automotive Engineers Technical Paper, SAE1999-01-0108, 1999.

4.24 Human Health and Safety (CEQA)³⁷

4.24.1 Human Health Risk Assessment

LAWA and the FAA Violate the Fundamental Purpose of CEQA by Failing to Develop and Analyze Information About Toxic Air Pollutant Emissions From Aircraft

The basic purposes of CEQA include “[i]nform[ing] governmental decision-makers and the public about the potential, significant environmental effects of proposed activities” and “[i]dentify[ing] the ways that environmental damage can be avoided or significantly reduced.” (Guidelines §15002(a).) “An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences.” (Guidelines §15151.) “Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects.” (Guidelines §15126.2(a).) Thus, if information about the environmental consequences of agency decisions does not exist, CEQA requires the decision-making agency to develop and analyze that information.

Contrary to this requirement, LAWA and the FAA have failed to develop and analyze information about toxic air pollutant (TAP) emissions from aircraft engines. Instead, LAWA and the FAA offer the inadequate excuse that “there is very little current data, research information, and analysis on TAPs resulting from airport operations. This is particularly true relative to TAP emission factors for aircraft.” (SDIER/S, p. 4-614.) The absence of accurate TAP emissions data for aircraft results in an inadequate and fatally flawed analysis of human health risk impacts. Ignorance is no defense for failing to comply with CEQA. This lack of testing data does not excuse LAWA and the FAA’s failure to conduct an adequate environmental assessment based on an accurate analysis of aircraft engine TAP emissions data. LAWA and the FAA should conduct the necessary studies to identify and analyze aircraft engine TAP emissions and revise the EIR/S accordingly.³⁸

³⁷ Specific issues relating to Human Health and Safety were raised by several commentators on the 2001 Draft EIR/EIS for the LAX Master Plan. We hereby incorporate by reference those comments, including but not limited to the comments submitted by Natural Resources Defense Council on this topic, and request that they be included in the administrative record for this project.

³⁸ A February 2003 study completed by the General Accounting Office (GAO) confirms this assertion. Based on an analysis of aviation-related emissions of nitrogen oxides at 19 airports, the GAO recommends that the FAA “develop a strategic framework that addresses the need for information on the extent and impact of emissions, identifies reduction options, establishes goals and timeframes for achieving needed reductions, and defines the roles of government and industry in developing and implementing reduction programs.” (*Aviation and the Environment, Strategic Framework Needed to Address Challenges Posed by Aircraft Emissions - A Report to the Chairman, Subcommittee on Aviation, House Committee on Transportation and Infrastructure, GAO, February 2003, found at www.gao.gov/cgi-bin/getrpt?GAO-03-252*).

Request for Notification

Pursuant to California Public Resources Code Section 21092(b)(3), we request that LAWA please mail any and all public notices or information concerning the SDEIR/S to:

Nancy Cohen
Los Angeles Alliance for a New Economy
548 S. Spring Street, Suite 630
Los Angeles, CA 90013
Phone: 213-486-9880, ext. 134
Fax: 213-486-9886

And

Jerilyn López Mendoza
Environmental Justice Project Office
Environmental Defense
3250 Wilshire Boulevard, Suite 1400
Los Angeles, CA 90010
Phone: 213-386-5501
Fax: 213-386-5577

And

Joel Reynolds
Senior Attorney
Natural Resources Defense Council
1314 Second Street
Santa Monica, CA 90401
Phone: 310-434-2300
Fax: 310-434-2399

Conclusion

In conclusion, we request that LAWA and the FAA include in the administrative record for this project these comments and the exhibits attached hereto. We also request, and CEQA requires, that LAWA and the FAA consider these comments and prepare a written “good faith reasoned analysis” in response to our comments. (Guidelines §15088(b).) This analysis cannot include conclusory statements unsupported by facts. (*Ibid.*) Thank you for considering and responding to our comments.

Respectfully Submitted,

Jerilyn López Mendoza
Policy Director
**Environmental Defense
Environmental Justice Project**

Joseph K. Lyou, Ph.D.
Executive Director
**California Environmental
Rights Alliance**

Nancy Cohen, Ph.D.
Policy Analyst
**Los Angeles Alliance for a New
Economy**

*On behalf of Coalition
Members:*

Anthony Thigpenn
Executive Director
AGENDA

Rev. Alexia Salvatierra
Executive Director
**Clergy and Laity United
for Economic Justice**

Todd Campbell, M.E.M, M.P.P.
Policy Director
Coalition for Clean Air

Carlos Porras
Executive Director
**Communities for a Better
Environment**

Marqueece McKinney
Associate Director
Community Coalition

Tom Walsh
Secretary Treasurer
**Hotel Employees & Restaurant
Employees
Local 11**

Daniel Tabor
Chairman
**Inglewood Coalition for Drug
and Violence Prevention**

Rev. Austin Williams
President
**Inglewood Ministerial
Alliance**

Maria Verduzco
President Treasurer
Lennox Coordinating Council

Maria Loya
Director of Public Policy and
Advocacy
**Los Angeles Alliance for a New
Economy**

Joel Reynolds
Senior Attorney
**Natural Resources
Defense Council**

Martha Dina Arguello
Director of Health and
Environment Programs
**Physicians for Social
Responsibility Los Angeles**

Javier Gonzalez
Political Director
**Services Employees
International Union
Local 1877**

Melissa Ornellas
Political Director
Teamsters Local 911

APPENDIX A

**LAX Coalition for Environmental, Economic, and Educational Justice
(LAX Coalition)**

LIST OF MEMBERS

AGENDA

California Environmental Rights Alliance
Clergy and Laity United for Economic Justice
Coalition for Clean Air
Communities for a Better Environment
Community Coalition
Environmental Defense - Environmental Justice Project Office
Hotel Employees and Restaurant Employees Local 11
Inglewood Coalition for Drug and Violence Prevention
Inglewood Ministerial Alliance
Inglewood Unified School District
Lennox Coordinating Council
Lennox Unified School District
Los Angeles Alliance for a New Economy
Los Angeles Metropolitan Churches
Natural Resources Defense Council
Physicians for Social Responsibility Los Angeles
Service Employees International Union Local 1877
Teamsters Local 911

CODE T WDM

SDEIR/S Comments Submitted by the LAX Coalition for Environmental, Economic and Educational Justice

**ADDENDUM TO COMMENTS ON LAX EIR/EIS SUBMITTED BY THE
WESTCHESTER/LAX/MARINA DEL REY CHAMBER OF COMMERCE**

Westchester/LAX/Marina del Rey



Chamber of Commerce

INTRODUCTION

The Westchester/LAX/Marina del Rey Chamber of Commerce is an organization dedicated to the promotion of business opportunity in our service area which includes Westchester, Playa del Rey, and Marina del Rey. The Chamber has extensively reviewed the proposed plans for expansion of Los Angeles International Airport.

In contrast to our review and conclusions regarding Alternatives A, B and C, we are pleased to find that the adverse and negative impacts on our communities identified in our previously submitted comments are in fact mitigated by Alternative D. As a result, after reviewing the Supplemental EIR/EIS documentation, the Chamber Board of Directors voted overwhelmingly to support the Alternative D.

The Chamber specifically wishes to acknowledge and commend LAWA and in particular Deputy Executive Director Jim Ritchie for their willingness to work with the Chamber to maintain a dialogue regarding the future of LAX modernization and expansion and their willingness to discuss potential ways to accommodate the concerns raised by the Chamber in meetings with LAWA officials – even after the Chamber took its official position in opposition to Alternatives A, B and C. The free access to the design team provided to the Chamber is in contrast to the past experiences we had on this issue and was instrumental in assisting us to develop a thorough understanding of Alternative D.

In addition, we should note for the record that the Chamber not only reviewed every page of the Supplemental EIR/EIS, we interviewed a number of individuals and organizations with critical information necessary to evaluate the proposed plan. Of particular note, we met extensively with both the author of the RAND paper and SAIC officials to focus on security issues which were not the focus of almost anyone's analysis of the prior alternatives which were issued prior to 9/11.

These written comments¹ to the EIR are focused on the impacts of the proposals on the surrounding business and residential communities served by the Chamber.² As a result,

¹ For ease of reading, throughout these comments, references made to specific pages and figures in two documents submitted by Los Angeles World Airports ("LAWA"). The LAX Master Plan, Draft, dated November 7, 2000 (released 1/18/01), will be referred to as the "MP"; references made to the EIR/EIS and its Supplement will refer simply to the "EIR". Page numbers (e.g. p.271) refer to the page numbering in the relevant electronic documents of the EIR and MP as distributed in Adobe Acrobat for ease of reference by the reader.

² These comments are submitted pursuant to the California Environmental Quality Act ("CEQA") and the National Environmental Policy Act ("NEPA"). As an interested party as defined by CEQA §15086(a)(4), the geographic area defining the Chamber's membership is proximate to LAX and is an area which the EIR admits will be significantly impacted by the proposals.

our focus in submitting these comments is on those portions of the EIR which impact upon these issues. Our focus has not been on impact on air quality, hydrology and water quality, cultural resources, biotic communities, endangered and threatened species, wetlands, floodplains, coastal zone management, light emissions, solid waste, hazardous materials or any number of other areas required to be included in the EIR.

In our 2001 comments, we specifically identified negative impacts which were not properly mitigated. If the reader of these comments will compare the comments we previously submitted to Alternative D, it becomes plain to see that the issues we identified therein were fully addressed in the planning of Alternative D - almost to the point that one could make the point that the prior comments appear to have been used as a roadmap for designing the present alternative.

We previously wrote:

"From the perspective of legally relevant criticism of an EIR/EIS, the overriding flaw repeated throughout the document is the failure to either disclose known impacts on the community or to provide the legally required alternatives which yield a lesser impact to the preferred alternative. In the present case, there is no alternative for development presented that would mitigate the impacts of development more than preferred Alternative C. These are fatal flaws which should cause the EIR/EIS to be rejected outright.

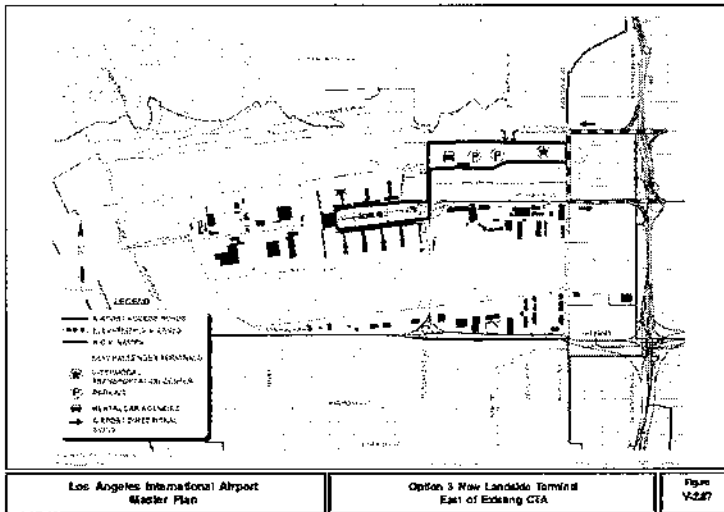
Compliance with law relating to the EIR mandates that less intrusive alternatives be reviewed – yet, as is often the case with the EIR, although less intrusive alternatives in fact exist, the EIR fails to disclose that there are alternatives that have dramatically reduced impact on surrounding business and residential communities."

By contrast to Alternatives A, B and C, we believe that the Supplemental EIR for Alternative D does adequately address and mitigate our prior concerns. In addition, it meets the requirements of NEPA/CEQA in providing a less intrusive proposal by constraining growth to 78.9 MAP and reduces impacts on surrounding communities in comparison to both the prior alternatives and No Action/No Project.

In the comments contained herein, we make reference to those impacts previously identified by our 2001 comments on Alternatives A, B and C and contrast those with the impacts associated with Alternative D to draw the conclusion that we should support the current alternative.

Prior Impact #1 – Destruction of the Westchester Business District

The primary reason for the dislocation of businesses in the South Westchester Business District we identified in Alternatives A, B and C was the intrusion of the underpass on Sepulveda where it passes below grade underneath the proposed Ring Road. A number of factors contributed to the problem, but most importantly was the proposal for the relocation of the Northernmost runway further to the North to allow for a taxiway between the North runways. Moving Runway 24R North by 350 feet moves the commencement point for the transition to the underpass ramp that much further North as well. Our prior comments suggested that Option 3 in the MP³ presented a preferable alternative. As we noted:



“Option 3 demonstrated the feasibility of an alternative plan which had in its features neither a ring road, nor a West Terminal.⁴ Option 3 therefore also has the advantage of having the least impact on surrounding communities and has an Intermodal Transfer Center.”

Comparison to Alternative D – Note the striking resemblance between Option 3 which we advocated in 2001 and Alternative D! Relocation of the GTC to the East side of the existing CTA obviates the need for the Ring Road and the objectionable undercrossing. Additionally, Alternative does not move Runway 25R 350' to the North, but rather it moves Runway 25L 350' further South. The difference between the plans is clear and unmistakable – Alternative D is the difference between wiping out a vast swath of a revitalized community business district and leaving it intact!

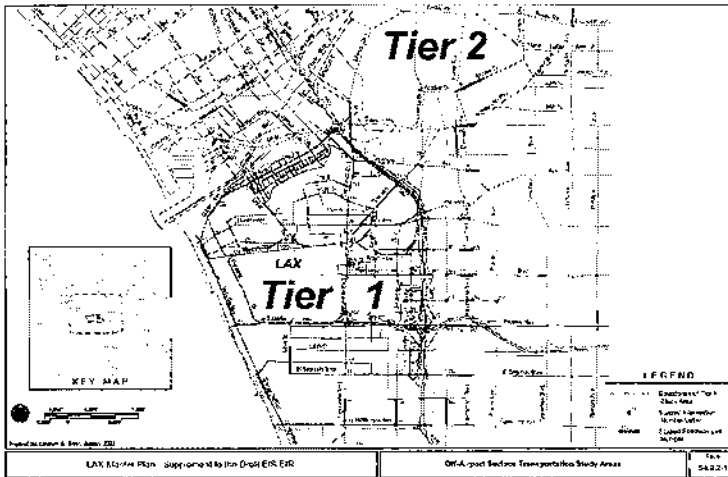
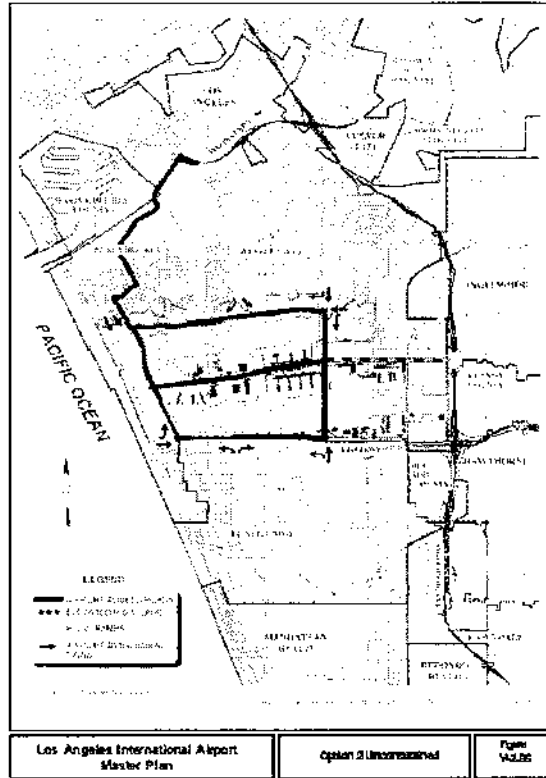
³ Analysis of 2d Iteration Option 2, Unconstrained, Description Summary, MP, Chapter 5, Part 1, p.251, Figure V-2.86.

⁴ 2d Iteration Ground Access Options, MP, Chapter 5, Part 1, p.177, Figure V-2.51

Prior Impact #2 – Traffic impact on communities represented by the Chamber.

The plans identified previously were designed specifically to draw traffic through a “backdoor” down Culver Blvd. to Pershing Blvd. in order to create a second gateway for access through the heart of Westchester and Playa del Rey communities

Comparison to Alternative D – Unlike Alternatives A, B and C, Alternative D does away with the ring road and the proposal to draw traffic through to the airport on Culver, Jefferson, Pershing and Lincoln. Instead it more logically moves the GTC and ITC to locations proximate to the freeway rather than bringing traffic through our communities. This is extremely similar to Option 3 which the Chamber previously advocated as a preferred alternative, except that Alternative D also states a preference for a “closed loop” which was expressly requested by our prior comments. In fact Alternative D is a closed loop system in which “Internal vehicle circulation in the GTC would be fully separated from the existing public road system.”



The traffic studies contained in the Supplemental EIR are uncontradicted by any information available to the Chamber. They specifically demonstrate that traffic will not come through our neighborhoods as would have been the case with A, B and C. By contrast, community proposals for a “conference center” on the site of the GTC would likely be far more disruptive to the adjacent communities as they would not have a closed loop system as proposed for Alt. D.

Furthermore, unlike Alternatives A, B and C, Alternative D does not disrupt any of the major North/South commuter roads and in fact moves the entry point of the airport away from Century and Sepulveda potentially actually improving the traffic on these congested commuter arteries.

Additionally, our prior comments criticized LAWA for failing to include an Intermodal Transportation Center in Alternatives A, B or C. As the EIR notes:

“LAX is one of the few major airports in the U.S. that does not have a direct link between its regional roadway system and the airport terminal. The I-105 freeway ends at Sepulveda Boulevard on which vehicles transition to the airport roadways. A large proportion of airport traffic travels on Aviation, Century, Lincoln, and Sepulveda boulevards and other local streets, contributing to congestion, noise, and air pollution in neighboring communities.

The benefits of direct freeway access to LAX would include a segregated flow of traffic from the region to the passenger and cargo terminals. This would reduce the impact of traffic on the airport's local communities by keeping cars bound for the airport out of business districts, which depend on unimpeded access, and out of residential neighborhoods. Direct rapid transit access is one of the best ways to ensure that employment opportunities associated with the airport are available to all of the region's residents. While transit systems can attract a modest amount of airport passenger traffic, other cities have found that the greatest benefits of rapid transit result from increased accessibility by employees and fewer employee vehicle trips to and from the airport area. A transit link would reduce the need for remote employee parking lots and corresponding shuttle bus traffic. The overall need for roadway improvements would be proportionally reduced”⁵

Our fact finding regarding Alternative D has also revealed that as much as 30% of the expected passengers coming to LAX will make use of the ITC. It is well known throughout the community that the prior failure to link the Green Line with LAX is roundly criticized as a blunder of planning. With the ITC as proposed in Alternative D, we will remove vehicle trips to the airport by making mass transit convenient to use and integrated into airport design.

Alternative D follows the logic of this thinking whereas none of the prior Alternatives A, B and C placed LAX access adjacent to the 405, nor did they include an ITC. These design features of Alternative D will reduce traffic impact on our communities.

⁵ EIR p.2-10.

Prior Impact #3 – Noise impact on communities represented by the Chamber

Alternatives A, B and C were criticized because they moved Runway 25R 350 feet *towards* our communities thereby moving the noise envelope represented by the sound contours revealed in the EIR that much further intrusively into our communities. Furthermore, it must be remembered that the Manchester Square area would have been utilized for an expansion of cargo operations. As such, cargo jets would have taxied all the way to Manchester Square, and adjoining residents would literally have had 747's operating directly proximate to their neighborhoods.

Comparison to Alternative D – Instead of moving runways closer to residents, Alternative D moves them further away. Specifically, we believe that the current design proposal to move Runway 25L 350 feet South is a dramatic improvement. Since the inboard runway is used for takeoff procedures, especially at night, this move strikingly moves the noise contours much further away from the community.

Furthermore, although not quantified in the documentation, there can be no question that the absence of cargo jets from the Manchester Square area is by comparison a significant reduction in projected noise for the communities surrounding that area.

It also bears repeating that the Chamber previously requested high-speed runway exits which are facilitated by adding a centerline taxiways as in Alternative D. We noted that the MP stated the following:

"Construction of high-speed exits from arrival runways. This measure is incorporated into the Master Plan configuration to enhance the efficiency of traffic flow, but would also reduce the time an aircraft remains on the runway and require less application of reverse thrust to slow the aircraft. As the aircraft exits the runway toward the interior of the airfield, it would move away from the adjacent residential areas north and south of the complex, thus reducing the noise levels from the arrivals."

In that portion of our prior analysis we also raised our concern over runway incursions and demanded that:

"This safety issue is not only inadequately addressed by the EIR which is outdated on this topic, it must by necessity cause a complete reconsideration of the proposed runway design and the installation of a taxiway in between runways which is designed to facilitate planes crossing the inner runway to the outer runway both prior to takeoff and following landings. It would be highly imprudent to leave this issue inadequately updated with the latest data and thinking while simultaneously advocating a major runway redesign which appears to run contrary to current thinking on this safety issue."

Subsequently available information from NASA reviewing the South runway complex concluded that centerline taxiways will increase flight safety. NASA concluded that "...the

concept of a center taxiway would be effective in reducing runway incursions at LAX." This study⁶ was "an extension of the Phase I and II studies conducted at FFC in February and April, 2001." LAWA has therefore met our prior criticism regarding updating thinking on runway design.

⁶ Study Objective: Los Angeles International Airport has the fourth busiest airfield in the nation. Air traffic has grown rapidly over the past ten years. However, the airfield and airspace have the same capacity and configuration they did ten years ago. Runway incursions have also increased over the past five years. **Despite numerous changes to pavement markings, operating procedures, taxiway lighting and air traffic control procedures, the number of incursions continues to be of grave concern.** The FAA and the City of Los Angeles Department of Airports (the operator of Los Angeles International Airport) has determined that resolving the runway incursion problem requires a more robust analysis of operations at Los Angeles International Airport.

Security as a New Issue:

Touted as a "Safety and Security Plan", we believe that the findings of SAIC are credible. Most importantly, it is impossible to secure a facility and the passengers traveling through it without stopping the flow of unscreened vehicles into the Central Terminal Area.

The SAIC report finds that existing facilities are inadequate to handle screening necessary at heightened threat levels such as orange or red – the times when we would most need to have capacity to handle airport security. By contrast, the RAND paper was based solely on Green level threat condition. At Yellow, Orange or Red congestion creates the additional threat that gridlock will prevent access by emergency response vehicles to the CTA to respond to a crisis.

It should be noted for the record that at one of our meetings, RAND author Dr. Schell publicly stated that he does not disagree with any of the findings in the SAIC analysis.

RAND considered a car or truck bomb not to be a credible threat because history of attacks at airports did not include this type of attack. The RAND author acknowledged that this analysis would not have predicted 9/11 attacks, nor did it include car/truck bomb attacks on other terrorist target including WTC, Beirut, Oklahoma City, etc. as it was confined only to airports. RAND's use of history as a predictor completely ignored that LAX was in fact a terrorist target for a car bombing in December, 1999 and we agree with the concern expressed by SAIC over this threat.

Furthermore, the opportunity to design new passenger handling facilities from scratch will allow items such as reverse airflow HVAC and other technologies to enhance passenger safety where they cannot be retrofitted into existing facilities.

The LA Times even reported that: "LAX Ranks No. 1 on State List of Terrorist Targets: Attorney general names 624 sites thought to be most attractive to terrorists, including ports, the Golden Gate Bridge, bottling plants." As such, it is folly to believe that we will not be attacked again. We must take every precaution to protect this economic asset and the people that pass through it.

Conclusion

Alternative D is in fact responsive to the concerns previously raised by the Chamber in commenting on Alternatives A, B and C. It is less intrusive and in many respects far superior to No Action/No Project which would not constrain growth, move runway 25L South or provide the closed loop traffic system included in Alternative D.

Ultimately we must again repeat that we do note one inescapable truth inherent in every one of the proposed Alternatives – they are obsolete as soon as they are built. None of the proposals can meet the needs of the Southern California area for future air travel. We therefore support a dual track approach of support for Alternative D while simultaneously pushing forward to develop a regional solution.

As required by law, LAWA must respond to these comments in writing providing the necessary information, analysis, and as applicable, additional technical reports.⁷ Said written responses to the comments contained herein shall be directed to:⁸

Westchester/LAX/Marina del Rey Chamber of Commerce
6151 W. Century Blvd., Suite 514
Westchester, CA 90045
Attn: Executive Director

Respectfully submitted:



David C. Voss, Jr.,
President, Westchester/LAX/Marina del Rey Chamber of Commerce

⁷ CEQA, Public Resources Code Section 21000, et. seq.

⁸ CEQA, Public Resources Code Section 21092.5.

Los Angeles Airlines Airport Affairs Committee

Recd
11-07-03
4:35pm

8939 S. Sepulveda Blvd., Ste. 102
Los Angeles, CA 90045

310-642-0980
FAX 310-642-0512



Air Transport Association

November 7, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
Master Plan Office
Post Office Box 92216
Los Angeles, CA 90009-2216

Dear Mr. Ritchie:

The Los Angeles Airlines Airport Affairs Committee (AAAC) and the Air Transport Association of America, Inc. (ATA), jointly submit the attached comments regarding the LAX Master Plan Addendum and the Supplemental Draft EIR/EIS, which analyze the new project design termed Alternative D.

The Los Angeles AAAC represents the more than 80 airlines serving Los Angeles International Airport (Airport) in matters affecting their common interest at the Airport. The ATA is the primary trade association of the U.S. scheduled airline industry, representing 23 airlines, including all major domestic passenger and cargo air carriers.

On behalf of our respective airlines, we appreciate the opportunity to provide these comments, and look forward to working with the LAWA staff, the Mayor's office, the City Council and other stakeholders regarding this important matter.

Thank you, and please don't hesitate to contact us if we can be of assistance.

Sincerely,

David A. Berg
Vice President & General Counsel
Air Transport Association

Kelley A. Brown
Executive Director
Los Angeles Airlines Airport Affairs Committee

November 6, 2003

COMMENTS TO LAX MASTER PLAN ADDENDUM AND
SUPPLEMENTAL EIR/EIS

Submitted by

LOS ANGELES AIRLINES AIRPORT AFFAIRS COMMITTEE
AND
AIR TRANSPORT ASSOCIATION OF AMERICA, INC.

The Los Angeles Airlines Airport Affairs Committee (AAAC) represents the more than 80 airlines serving Los Angeles International Airport (LAX) and the Air Transport Association of America, Inc. (ATA) is the primary trade association of the U.S. scheduled airline industry, representing 23 airlines, including all major domestic passenger and cargo air carriers. The Los Angeles AAAC and ATA are jointly submitting these comments regarding the LAX Master Plan Addendum and the Supplemental Draft EIR/EIS, which analyze the new project design termed Alternative D.

The airlines strongly believe that LAX needs to be modernized in order to continue to effectively serve the traveling public and to remain the key economic engine for the region. The airlines also share the vision for a safer, more secure and user-friendly LAX, which are the stated objectives of Alternative D. However, Alternative D falls far short of these objectives because it does not appear to enhance security, and it makes it harder for Southern Californians to use LAX by restricting private vehicles from the terminals and funneling passengers through a remote facility. Moreover, it fails to achieve these objectives at the staggering estimated cost of over \$9 billion.

A. The Airlines Support the Components of Alternative D that Provide for Immediate Safety, Security and Improved Customer Service at LAX.

Several components of Alternative D are needed immediately for improved safety, security and customer convenience. The airlines support the following components of Alternative D, with some recommendations on their phasing.

1. The Airlines Support the South Airfield Improvements Proposed in Alternative D that Address a Critical Airfield Safety Need.

The relocation of Runway 7R/25L to the south by 50 feet and the addition of a new centerline taxiway would improve the safety margins and efficiency of LAX, and help prevent runway incursions, which have become a serious safety issue on the south

airfield. The airlines support this component of Alternative D and will continue to work with LAWA in the design of these projects. Any adverse impact to aircraft parking gates in the cargo areas on the south side of the runway would need to be mitigated.

2. The Airlines Support Measures that will Provide Effective Security Improvements.

The security improvements mandated by the federal government, primarily the \$300 million installation of in-line checked baggage screening systems in the passenger terminals, should begin immediately. In addition, the security checkpoints in the terminals should be expanded to expedite passengers into the secure areas, and the terminals should be hardened as appropriate to minimize damage and make the terminals less attractive terrorist targets.

3. The Airlines Support Construction of a Consolidated Rental Car Facility and the Expansion of the Flyaway Bus System to Reduce Traffic Congestion and Provide Improved Customer Service.

The development of a consolidated rental car facility (RAC) would improve traffic flow in the Central Terminal Area (CTA) by greatly reducing the number of buses. The expansion of the flyaway bus system throughout the Los Angeles area reduces single-occupancy traffic in both the CTA and in the adjacent roadways. In addition, fewer vehicles in the CTA should allow better response times by emergency vehicles, thereby improving security and public safety.

4. The Airlines Support the Renovation of Tom Bradley International Terminal, but it Should Begin Immediately, not Delayed until 2012, as Proposed in Alternative D.

Alternative D includes the addition of gates on the west side of the Tom Bradley International Terminal (TBIT) and the development of related support facilities. Those improvements are scheduled to begin in 2012 and be completed in 2015, at which point TBIT would be capable of accommodating the A380 aircraft.

TBIT is the gateway to Los Angeles for millions of international travelers each year. In order to improve the current passenger service levels, which are substandard, the terminal is in immediate need of the refurbishment currently under design. Further, the airlines support the reconfiguration of TBIT to add gates on the west side of the facility along with related support space. These gates would replace remote gates at the west end of LAX and would provide a significant improvement in customer service by eliminating the current busing operation.

This reconfiguration of TBIT would include A380-compatible gates on the west side of the terminal. To date, seven airlines serving LAX, most of which operate from TBIT, have ordered the A380, with the probability that LAX will be among the first airports served with the new equipment, which is scheduled to be in service by the end of 2006.

If the TBIT refurbishment does not begin immediately, the region risks losing service by the A380, particularly if TBIT is not capable of accommodating the A380 until the time frame proposed in Alternative D, almost 10 years after the A380 is expected to arrive.

To the extent that these TBIT improvements require the relocation of the centerfield taxiways west of TBIT, any resulting impact to the facilities at the central maintenance area would need to be mitigated. This could be accomplished by relocating displaced facilities to another area at the west end of the airfield, without impacting any ongoing environmental remediation activities.

B. The Airlines Do Not Support the Components of Alternative D that Do Not Enhance, and May Substantially Reduce, Security and Customer Service at LAX.

1. Security Is of the Utmost Importance, and Certain Components of Alternative D Present Greater Security Risks than Currently Exist at LAX and Should Not Be Pursued.

The airlines strongly support improving airport security. However, Alternative D does not provide any measurable improvement in security, and may, in fact, present greater security risks than that of the existing terminal configuration. Eliminating vehicular traffic in the CTA, as proposed in Alternative D, is being touted as the primary increased security measure; however, eliminating curbside service in the CTA appears to only relocate security issues from the existing terminals to the Ground Transportation Center (GTC) and the Intermodal Transportation Center (ITC). Further, forcing nearly all passenger access to the CTA through two facilities rather than eight terminals may actually increase passenger exposure to terrorist threats.

With the addition of the GTC, ITC and Automated People Mover (APM), Alternative D could actually make LAX less secure by substantially increasing the area that would need to be secured against possible attack. Additionally, consolidating access to the CTA on the APM could turn the APM into a target and potentially bring airport operations to a standstill.

A recent Rand Corporation issue paper analyzed the security implications of Alternative D. It suggested that hardening the existing terminals would be an effective deterrent to damage caused by vehicle bombs, but the report pointed out that Alternative D would not enhance LAX relative to other security threats, some of which have a higher likelihood of occurrence and would cause far greater damage than vehicle bombs. For example, Alternative D has little impact on securing aircraft, which should have the highest priority for security considerations in airport planning because it is the most likely, and most lethal, form of attack. Nor does Alternative D affect the impact of small bombs, the most commonly used weapon against airports. (See Rand study entitled *Designing Airports for Security: An Analysis of Proposed Changes at LAX*, Terry L. Schell, Brian G. Chow, Clifford Grammich; Attached as Exhibit A.) Even the study conducted by Science Applications International Corporations (SAIC) to support the conclusion that Alternative

D would improve security from vehicle bombs acknowledges that “terrorist shootings, suicide bombings, and armed criminal action could become an increasingly serious concern as more and more U.S. targets harden against vehicle bombs.” (*Comparative Security Analysis of Alternative D and the No Action/No Project Alternative of the Proposed Master Plan*, SAIC (2003).)

Rather than the proposed Alternative D improvements, security could be enhanced in other ways. For example, security for aircraft could be improved by continuing to emphasize the process of properly securing all passengers and baggage. The airlines believe the terminal buildings could be sufficiently hardened to minimize damage in the event of an attack and could be modified to allow the expediting of passengers into the secure areas, thereby limiting their exposure in the non-secure areas and making the terminals less attractive terrorist targets.

Furthermore, the California Environmental Quality Act (CEQA) requires that an EIR describe a range of reasonable alternatives “which would feasibly attain most of the project objectives.” (14 Cal. Code Reg. 15126.6.) The objectives of the original project are three: (1) respond to local and regional demand for air transportation, (2) ensure new investments in air capacity are efficient and cost-effective, and (3) sustain and advance the international trade component of the regional economy and the international gateway role of the City of Los Angeles. (Supp. Draft EIS/EIR, p. ES-1.) Alternative D does not meet any of these project objectives. Rather, Alternative D appears to be a new project designed solely to meet a new objective – that of improved security.

LAWA, as a lead agency decision maker, can decide that it no longer wants to pursue one project – an expansion project to meet capacity demand – and to pursue a different project – a modernization project to enhance security. That, however, is a new project, and CEQA requires that feasible alternatives that would meet the new project’s objectives be analyzed to ensure that when a new project is proposed, alternatives that would both meet that project’s objectives and minimize the environmental consequences of that new project be studied. As such, an analysis of the alternatives to meet this new project objective has been given short shrift. In this regard, if a proper public scoping of the proposed new project, Alternative D, and the range of alternatives to accomplish Alternative D’s objectives had been completed as required by section 21083.9 of the Public Resources Code, the decision makers in Los Angeles and the public would now have better and more complete information as to the various options to achieve better security at LAX.

To that end, with the assistance of Rivers & Christian, a local architectural firm with significant experience at LAX, the airlines have analyzed the feasibility of alternative security improvements in the existing terminals. In particular, both increasing the blast resistance of the CTA and the security checkpoint capacity were studied.

Prior to undertaking any major security improvements, the desired level of protection for structures, doors and glazing, and personal injury should be assessed. While the airlines are not aware of any such levels being established for LAX, concepts for terminal

renovations to increase blast resistance can be developed based on reasonable standards. Specifically, the terminals could be improved, if necessary, to protect from car or small vehicle bombs that would result in some minor injuries and no irreparable structural damage.

This level of protection can be achieved through a combination of structural reinforcement to both the terminals and the upper level roadway and roadway and curbside management procedures. The cost of these improvements would be largely dependent on the level of refinishing desired in conjunction with the structural changes, as well as the timing of the improvements. For example, they would be significantly reduced if these improvements were accomplished at the same time as other terminal building projects, such as the planned renovation of Terminal 3. As stand-alone improvements, the estimated cost of the structural changes is in the one-half billion dollar range, with up to several hundred million more for terminal finishes. While this should be seen as a high-end cost, it is still significantly more economical than the Alternative D improvements, and it retains the current CTA operation.

Besides the structural improvements, blast protection would be enhanced through changes in operational procedures. The curbside lane on both the upper and lower levels would be restricted to pre-cleared or emergency vehicles, precluding non-cleared vehicles from approaching close to the terminal buildings. Access by large vehicles, such as trucks, vans, and the like, would be prevented by placing vehicle height restrictions at the perimeter.

In addition to increased protection from blasts, the expansion of the security checkpoints to expedite passengers into the secure areas of the terminals would significantly limit security risks. The required scope of these checkpoint expansion projects throughout the terminals would vary by terminal, as some terminals may require extensive work while others may require little or no work, and is dependent on several factors, including the passenger screening and carry-on baggage screening processing times, the passenger activity levels, and any terminal functions which must be relocated to provide additional screening areas. LAWA is currently in the process of determining the space requirements for screening in each of the terminals; however, based on a preliminary analysis, it appears that space sufficient to allow expedited processing under virtually any criteria could be accomplished for between \$30 and \$40 million.

The airlines continue to be fully supportive of complying with all security requirements, and work on a daily basis with the Transportation Security Administration and LAWA to address airport security at LAX. For example, the airlines are intimately involved with the \$300 million project currently under design to relocate the checked baggage screening equipment from the terminal lobbies to the bag makeup areas to be integrated into the baggage systems, improving security and reducing passenger congestion in the lobbies. This project is already underway and is separate from the LAX master planning process.

Terrorism is dynamic, as terrorists continually search for more effective methods to carry out their attacks. On the other hand, airport facilities are capital intensive with long

useful lives. It is extremely difficult to design facilities around potential terrorism threats 20 years into the future. Thus, the airlines urge LAWA to proceed cautiously, make sure that all parties fully understand the security pros and cons and operational obstacles associated with this plan and ensure that no other solutions exist that could provide the same level of security without permanently degrading customer service and convenience. The threat of terrorism should not dominate a plan; rather, security should complement the improvements planned for more efficient operations and benefits to the region.

Finally, flexibility should be built into any master plan to allow LAWA to take advantage of future advances in technology and airport security, so that LAX is not locked into such a drastic approach as keeping private vehicles out of the CTA if other solutions emerge. For example, it is possible that new technology will be in place within the next few years that would allow vehicles to be screened for explosives while they are in motion. In that scenario, vehicles could be allowed access to the CTA after passing through a checkpoint without any adverse impact on traffic flow or customer convenience, and at the same time greatly reducing the risk of car bombs in the CTA.

2. The Airlines Believe that Certain Components of Alternative D Will Result in a Significant Reduction in Customer Service and Should Not Be Pursued.

Fundamental to Alternative D are certain projects, including the GTC, the ITC, the RAC, and an APM, which are being planned in part because of a unique airport planning concept that eliminates private vehicle access to the CTA. Instead, all public, commercial and private vehicles (excepting flyaway buses) would go to the GTC and ITC for parking or for curbside drop-off and pick-up of passengers. The APM would then connect these three remotely-located facilities (GTC, ITC and RAC) with the CTA.

While this may be an innovative concept, it unfortunately creates a significant reduction in the level of customer service. Eliminating close-in parking, prohibiting curbside check-in and forcing almost all traffic to the remote GTC or ITC will make it harder for passengers and their families, who, in addition to navigating surface streets to LAX, will have to ride a people mover some two miles to and from their flight. Further, it is likely that departing passengers will have to check their bags in the CTA, as well as claim them in the CTA upon arrival, making their passenger experience even more uncomfortable, as they will have to carry their bags when transiting between the CTA and GTC or ITC. While a few airports consolidate passengers arriving by rental car, shuttles or hotel vans, no airport in the United States prohibits citizens from dropping off passengers in front of the airline terminal. This is a drastic measure that seriously degrades customer service and would discourage travelers from using LAX, resulting in lost economic benefits to the region.

According to the Master Plan Addendum, baggage may be checked either at the GTC or in the CTA. Baggage must be claimed in the CTA, but may be rechecked and then claimed at the GTC. If these functions are to be accommodated at the GTC, a baggage tunnel and baggage system will likely be required to connect the GTC with the CTA.

The airlines understand that such a baggage tunnel may not be feasible and may ultimately not be included as part of Alternative D.

Whether or not there is a baggage tunnel, this would not be an effective use of the GTC. Instead, all passenger processing functions should continue to take place in the CTA. The logistics involved in removing these functions from the CTA would be extremely complicated, as remote processing presents very difficult technical, operational, and passenger service challenges that have not been fully examined by LAWA's master plan consultants, nor have they ever been successful at any airports to date. Additionally, the capital costs of a baggage tunnel and baggage system would be prohibitive, as would the operating costs of such a system; and the airlines would be forced to duplicate personnel and other resources, which would greatly increase the airlines' staffing and facility costs.

Without a baggage tunnel and passenger check-in at the GTC, passengers would be required to carry all their baggage with them on the APM from the GTC or ITC to the CTA on departure, and from the CTA to the GTC or ITC on arrival. This is not satisfactory customer service. Even if a baggage tunnel were feasible and passenger check-in at the GTC were possible, baggage handling would still not be practical. Passengers using the ITC would not have the option of checking their baggage, and they would be forced to carry it on the APM. Passengers using the GTC could check their baggage for departures, but they would have to claim their baggage in the CTA upon arrival, and either carry it with them back to the GTC on the APM, or recheck their baggage in order to claim it at the GTC. Again, this is not satisfactory customer service.

Alternative D creates a dramatic shift in passenger processing at LAX that is not operationally feasible. Once this major investment is made, it cannot be reversed. The master plan needs to have the flexibility to adapt to improvements in customer service, but not create expensive facilities that will result in severely degraded customer service.

3. The Airlines Are Concerned that Alternative D Is Too Extreme because it Completely Eliminates Private Vehicles from the CTA; and Certain Components of Alternative D Will Not Reduce (and May Increase) Traffic Congestion at LAX and Should Not Be Pursued.

Alternative D also responds to the need to reduce traffic congestion in the CTA. The carriers support this objective, but Alternative D has gone too far by completely eliminating private vehicles and forcing all passenger access through the GTC or ITC. The carriers believe that implementing some, but not all, of these projects could greatly improve the congestion situation without degrading passenger convenience. For example, the concept of a consolidated rental car facility, proposed as part of Alternative D, has proven to be a viable concept at several airports and could ease the congestion by removing the individual rental car company buses from the terminal roadways even before the people-mover is in place. Also, a proposed people-mover system, if and when proven to be economically and technically feasible, could transport passengers and baggage from various collection points (parking lots and the rental car facility) to the

terminals and between terminals instead of buses, alleviating some of the current congestion in the CTA.

The airlines are further concerned about the volume of traffic that must be carried on the people-mover if all private vehicles are eliminated from the CTA. Given that LAX is the world's largest origin and destination airport, the people-mover operation would necessarily be larger than any current system at any airport in the world. To the extent passengers will have their bags with them, the required size of the system would be that much greater. In the event of a breakdown, the airport would be virtually shut down; so a backup system, which almost certainly would include the use of the existing upper and lower roadway system, would need to be available. However, if, for example, the people-mover system into the CTA were limited to users of rental cars and off-airport parking, the size of the people-mover operation would be on a somewhat smaller scale, and the impact of a breakdown would be mitigated.

While traffic congestion in the CTA should be a critical consideration for any Master Plan alternative, the proposed elimination of traffic altogether in Alternative D is too drastic a step that will result in a degradation of customer service. Instead, other options should be considered that could reduce traffic congestion in the CTA to a manageable level, even if private vehicles were to remain.

A proper assessment of any proposed option to mitigate roadway congestion would include the development of baseline traffic data and projected traffic data based on the forecasts of future airport activity. Unfortunately, the baseline data contained in the LAX Master Plan are for 1996, and are only marginally useful, given the time and profound changes in the industry that have occurred since then. It is for this reason that CEQA requires a current baseline be used for the purpose of measuring the potential environmental impacts. (14 Cal. Code Reg §15125.) For example, traffic patterns may have shifted significantly with a smaller proportion of business travelers. Parking lots appear less crowded, indicating travelers are finding other ways to reach the airport. Before making any capital investment in facilities to relieve roadway congestion in the CTA, new traffic counts should be obtained and analyzed to determine the post-9/11 traffic levels. An analysis of these new traffic counts could produce projections of future traffic that will not require the immediate major investment being proposed in Alternative D.

Nevertheless, with the assistance of the Corradino Group, a national firm specializing in traffic studies, the airlines were able to make some general observations and develop some preliminary options. According to the Master Plan, the peak hour of airport traffic activity was shown to be "11:00 a.m. to Noon during the airport's peak month/average weekday, which is a Friday in August." The Corradino Group team visited the airport and toured the upper and lower curbside areas several times during midday on Thursday July 31, 2003 and Friday, August 1, 2003. The primary observation was that during both of those days, the congestion levels were not severe, with an estimation of Level of Service of C or better for the terminal loop, with the exception of the Terminal 1 & Terminal 7 bottlenecks, where the level of service was a High D or Low C.

Assuming these service levels are representative of the current levels of service at LAX, it would be unlikely that future year traffic projections would justify the need for undertaking a program as extensive as the GTC. Instead, other options should be considered that would allow the current levels of service to continue, or even be improved, much more economically and without the total disruption of airport operations inherent in the Manchester Square concept. Some of these options that might be considered include:

1. Consolidated Rental Car Facility Construction of a consolidated RAC coupled with a common bus system will reduce congestion considerably. The conversion to common busing will substantially reduce the number of rental car buses, perhaps by as much as two-thirds, and free up valuable substantial roadway capacity in the CTA. This development is consistent with Alternative D, although the RAC would not necessarily need to be in the location identified in Alternative D, and should be pursued as soon as possible.
2. Flyaway Facilities The addition of flyaway facilities throughout the Los Angeles area could significantly reduce the number of single-occupancy vehicles in the CTA. This concept is also consistent with Alternative D.
3. Moving Skyway Drive The congestion observed at Terminal 1 appears to be due primarily to a major access road (Skyway Drive) entering the Terminal loop at a signalized intersection in close proximity to the auto queuing lanes at Terminal 1. Most of the problem results from traffic entering the roadway and weaving in and out of the Terminal 1 lanes in less than 300 feet. This bottleneck could potentially be reduced by relocating the intersection farther to the east to provide a weaving area prior to the traffic reaching Terminal 1.
4. Additional Traffic Lanes There is space between the current upper level roadway and the parking structures in the center of the World Way horseshoe for at least another two lanes. The addition of these lanes would greatly enhance capacity and would provide additional weaving lanes as well as a through lane to by-pass terminals. The addition of these lanes would require modifications to the two north-south crossover roads and result in the possible reduction of one lane on the lower level, which would need to be evaluated in more detail.
5. Parking Garage Queues Delays due to vehicle queues backing up onto the World Way loop while waiting for cars to get tickets to enter parking structures not only effectively eliminates one lane of traffic on the lower level, but also poses a potential safety problem. Either constructing longer approach lanes to queue up vehicles entering the structures or moving the entrances to the less-traveled crossover roads (with adequate way-finding) would help keep the outer lanes flowing more freely and help vehicles by-pass bottlenecks.

Other options to be considered to reduce traffic congestion are: (1) the use of the lower level in the parking garages for passenger pick-up/drop-off (which LAWA implemented for a short time after 9/11); (2) the redirection of traffic so that all access to the parking garages is off Center Way; and (3) establishing a holding area for vehicles that are waiting to pick up passengers, in order to reduce the number of cars re-circulating through the CTA.

4. The Airlines Believe that the Elimination of Parking Garages in the CTA and Conversion to Other Facilities Is Neither Necessary Nor Desirable.

Under the assumption that private vehicles would no longer have access to the CTA and, therefore, there would no longer need to be parking facilities in the CTA, Alternative D includes the demolition of the CTA parking garages and construction of replacement facilities for ground transportation, passenger processing, and security screening facilities.

The scope of these additional terminal facilities contemplated under Alternative D goes well beyond what is needed to provide additional space for the new processes and requirements by duplicating existing space that is currently used for passenger processing. Reconfiguring all the parking garage space into terminal facilities is not prudent for several reasons. First, with no increase in airport capacity, the proposed amount of support space would be excessive, and unnecessarily increase capital and operating costs. Second, this reconfigured space would not be necessary if, as suggested below by the airlines, the north airfield improvements are eliminated. Third, demolition of the parking garages would eliminate valuable assets that provide a high level of customer service and generate significant revenues for LAWA. Fourth, by maintaining traffic flow throughout the airport to the CTA, the air quality and environmental justice effects caused by Alternative D and its concentration of traffic and air quality impacts on the eastern side of LAX would be ameliorated. Finally, developing the additional terminal facilities to accommodate new security measures would not be timely, as the new security mandates will have to be accommodated into the existing facilities long before any new space could be developed.

This is not to suggest, however, that all of the terminals currently have sufficient space to meet all future operational needs over the term of the master plan. For example, an airline could install self-service kiosks in a garage as a customer service enhancement which would have the added benefit of freeing up terminal space. Depending upon the terminal, utilizing some portion of the parking garages may be a good solution for accommodating additional space needs, such as self-service kiosks.

5. The Airlines Do Not Support the Proposed North Airfield Improvements and the Related Demolition of Terminals 1, 2 and 3 since the Proposed Benefits Do Not Offset the Excessive Costs.

Alternative C to the LAX Master Plan proposed increasing the separation between the two runways on the north airfield by relocating the northern runway (Runway 6L/24R)

some 350 feet to the north and constructing a centerline taxiway between the runways. These proposed improvements would have provided the expected separation requirements for A380 aircraft, as well as improved operational flexibility to help reduce aircraft delays. The estimated cost of these proposed improvements was approximately \$350 million.

As a matter of more recent City policy, LAWA no longer supports relocating Runway 6L/24R to the north toward the community of Westchester. Instead, to achieve the separation requirements for the A380 and provide a centerline taxiway for improved operational flexibility, Alternative D proposes relocating Runway 6R/24L 340 feet to the south at a cost of \$2.7 billion. This proposal requires the demolition and reconfiguration of Terminals 1, 2 and 3 and a portion of the TBIT. To make up for a portion of the gates lost by the demolition, it also requires the development of a new west-side satellite for replacement gates. Some of the additional and reconfigured gates would be capable of handling the A380.

The airlines support the dual objectives of accommodating the A380 and improving airfield operational flexibility, but not at the staggering cost contemplated in Alternative D. While the improved operational flexibility gained by adding a centerline taxiway should result in a modest reduction in aircraft delays, the benefits gained would not justify the cost associated with relocating a runway. Potential runway incursions, which occur predominantly on the south airfield, are not a major consideration for the north runways. Furthermore, these projects could actually result in a less efficient airfield, since the proposed reconstructed terminal complex will result in an even higher proportion of gates on the south side.

The airlines believe that relocating Runway 6L/24R to the north is a far superior operational, technical, and economical option to the currently proposed Alternative D improvements. However, the airlines respect the community's concerns about such a runway relocation. Therefore, if the runway is not going to be moved north, then the airlines recommend eliminating all of the north airfield improvements from the Master Plan. By leaving the north airfield intact, there would be no need for the costly demolition and reconfiguration of Terminals 1, 2 and 3 and the northern portion of TBIT.

6. The Airlines Question the Value and Timing of a \$9 Billion Alternative D Plan.

Alternative D is estimated to cost at least \$9 billion. Airlines and other airport users pay 100% of the costs to operate LAX through landing fees, rent charges, parking and concession revenue and federal ticket taxes. No "local" Los Angeles taxes subsidize LAX. As the primary users of LAX, the airlines would be expected to pay the majority of the costs related to Alternative D.

U.S. airlines lost \$20 billion over the last two years, and continue to suffer substantial losses. Over 100,000 airline workers have lost their jobs, and a large proportion of remaining employees have taken severe reductions in pay. With commercial aviation

reeling from war, SARS, and a stagnant economy, it is the wrong time to radically redesign LAX. No one can predict the future of the airline industry or how many passengers will be flying over the next few years. With this uncertainty, it is inappropriate for LAWA to embark on a massive, risky and expensive project with questionable benefits.

The airlines also have very serious concerns about whether or not Alternative D can even be financed. A \$9 billion plan that reduces airport capacity will raise issues with the financial markets. The negative customer service implications of the plan, which threatens to either drive passengers away from LAX and to more user-friendly airports or to not fly at all, only exacerbate the problem. Even if the plan could be financed, it would be unwise for the City to embark on a \$9 billion plan in light of the current dire financial condition of the airline industry. While all of the airlines acknowledge that the industry is cyclical, they also agree that this current downturn is unprecedented and should not be treated as a mere bump in the road that will be corrected in a few years. Until some measure of stability has been achieved, one can only guess how the industry might change, and what implications such changes might have on the financial feasibility of such an extensive and expensive plan.

At \$9 billion, the estimated cost of Alternative D is significantly higher than any other major airport capital program. For example, San Francisco recently completed a \$3 billion program, Dallas and Houston are in the final stages of programs just under \$3 billion, Atlanta is in the initial stages of a \$5 program, and Chicago is preparing to start a \$6 billion program. Significantly, these other capital programs all add airport capacity, whereas LAX does not. Thus, not only is Alternative D proposed to be by far the largest airport capital program, it is the only one that does not add capacity, which would result in a disproportionate level of investment for the return.

Additionally, it is not unusual for cost estimates to increase over time as airport capital programs become better defined. Alternative D is a very complicated program still early in the planning process that will almost certainly result in unforeseen costs. As an example, the question of mitigation costs not being included in the current cost estimates has already been raised. Therefore, the airlines expect that the ultimate cost of Alternative D would be far in excess of the \$9 billion estimate.

As a case in point, Alternative D contemplates extensive demolition, excavation and construction activities throughout LAX. These demolition, excavation, and construction activities are likely to exacerbate, disturb or otherwise impact known soil and groundwater contamination at the airport, including interference with significant planned or anticipated environmental remediation projects at the airport. Alternative D calls for the construction of two new aircraft maintenance facilities totaling approximately 300,000 square feet on the west side of the airport, south of World Way West, and just west of the existing Continental aircraft maintenance facility. This area overlays known and suspected jet fuel and halogenated volatile organic compound (“HVOC”) plumes in soil and groundwater. The ongoing and planned remediation of such soil and groundwater contamination would be greatly hindered, and such contamination might be

greatly exacerbated, by the construction activities related to Alternative D. The Supplemental Draft EIR/EIS does not adequately analyze these significant adverse environmental impacts, nor the feasible mitigation measures or project alternatives which are available to avoid or significantly lessen these environmental impacts. Not only does this mean that the Supplemental Draft EIR/EIS does not meet the requirements of the National Environmental Policy Act (NEPA) and CEQA, it calls into question the proposed construction schedule, and suggests that the costs for this project are understated.

Drawing on the experience of other capital programs, and taking into account potential funding sources such as federal grants, passenger facility charges, and increased parking, rental car and concession revenues, the airlines estimate that they would pay well over 50% of the Alternative D costs. The resultant impact on unit costs would be dramatic. Currently, although varying somewhat among airlines, the cost per enplaned passenger at LAX is about \$8, at or above the average cost among U.S. airports. After completion of Alternative D, the cost per enplaned passenger at LAX would increase by an estimated \$25 to \$30, likely making LAX one of the most expensive airports in the country.

As the second-largest metropolitan area in the country, Los Angeles is too important a market for most carriers to abandon. However, with this increased level of costs, airlines will have little choice but to try and pass these costs on to their customers, but they are finding that more and more difficult as all travelers, including business travelers, are becoming increasingly price sensitive. It is entirely possible that carriers would be forced to discontinue marginal routes, and some carriers, particularly low-cost carriers, could leave LAX altogether.

C. Alternative D Does Not Satisfy NEPA and CEQA Requirements.

Specific comments are provided in the attached Appendix A.

D. The Airlines Propose a Modified Alternative D to Improve the Security, Safety and Customer Service Level at LAX Faster, Better and Less Expensively.

The airlines understand that Alternative D is being driven by several LAWA policy directives, including a mandate to increase security measures, improve airfield safety, and reduce traffic congestion, and to do so with minimal impact on the neighboring communities, in particular the environmental justice impacts of Alternative D's concentration of traffic on the eastern side of LAX. All these objectives – safety, security, passenger convenience and airport efficiency -- can be achieved sooner and at less cost through a plan that essentially modifies Alternative D. While the concept of a Modified Alternative D is still being developed, it is currently envisioned that such a plan would include several key components, which are summarized below:

- **Airfield Safety** – South airfield improvements contained in Alternative D, including relocation of Runway 7R/25L and addition of a centerline taxiway to prevent runway incursions, would remain in Modified Alternative D.
- **Security Improvements** – Security improvements mandated by the federal government, primarily the \$300 million installation of in-line checked baggage screening systems in the passenger terminals which is already being addressed by LAWA, would be part of Modified Alternative D. In addition, the security checkpoints in the terminals would be expanded to expedite passengers into the secure areas, and the terminals would be hardened as appropriate to minimize damage and make the terminals far less attractive terrorist targets.
- **Traffic Congestion** – The development of a consolidated rental car facility would improve traffic flow in the CTA by greatly reducing the number of buses. The expansion of the flyaway bus system throughout the Los Angeles area will reduce single-occupancy traffic in both the CTA and in the adjacent roadways. Security may also be improved as fewer vehicles in the CTA should allow better responses by emergency vehicles.
- **Customer Service** – Aircraft gates would be added on the west side of the Tom Bradley International Terminal, and the building would be renovated to both replace existing remote gates and accommodate the new A380 aircraft expected in 2007. The CTA and existing parking garages would remain open to private vehicles.
- **Timing** – With Modified Alternative D, the critical safety, security and passenger service improvements needed at LAX can be constructed much more quickly.
- **Cost** – The airlines believe that the overall cost would be in the \$2 to \$3 billion range, significantly less than the estimated cost for Alternative D.

Conclusion

While the airlines support the objectives of enhanced security, improved airfield safety and efficiency, and less congestion at the CTA, they do not believe that Alternative D is the best way to meet these objectives. The financial costs of the plan, in addition to its detrimental impact on customer service, far outweigh the benefits it offers. The airlines urge LAWA to reconsider Alternative D in an effort to maintain customer convenience, reduce the overall cost of the plan, and more effectively address security concerns. As indicated, the airlines feel that the objectives of Alternative D could be better achieved, and accomplished much more economically in a shorter period of time, through a modification of Alternative D.

Appendix A

Additional Technical Comments to the Supplemental Draft EIR/EIS

In addition to the above comments, the airlines are providing these technical comments on the Supplemental Draft EIR/EIS (SEIS), some of which have already been mentioned.

1. Alternative D is not responsive to the local demand for air transportation services, given the projected growth in that demand through 2015.

While the SEIS reflects that demand will grow to 98 million annual passengers by 2015, SEIS at 3-14, Alternative D does not provide anywhere near the infrastructure improvements required to meet that demand. Quite to the contrary, it explicitly incorporates infrastructure bottlenecks intended to constrain capacity to levels commensurate with the “no-build” alternative. Those constraints will cause capacity to fall short of local demand at LAX by 20 million annual passengers by 2015. As explained further below, not only will other regional airports lack the capacity to make up for this shortfall, but the SEIS proposes to exacerbate the severity of that shortfall at LAX by taking actions that are inconsistent with the practicalities of responding to the public demand for air transportation and incompatible with Congressional policy related thereto.

2. The assumption in the SEIS that regional airports can be relied upon to meet capacity demands is speculative, beyond the scope of the SEIS analysis, and, as indicated in the SEIS itself, virtually foreclosed by the elimination of El Toro as a regional air transportation alternative.

The SEIS tacitly acknowledges that it does not and cannot explain how regional aviation demands will be met by Alternative D during the subject period 2000 - 2015. SEIS at 1-12. In particular the SEIS fails to explain how, notwithstanding the significant constraints on LAX capacity, the 30 million annual passengers shortfall caused by the loss of the Orange County International Airport can or will be distributed within the region. *See* SEIS at 1-12. Accordingly, the SEIS and Alternative D cannot be considered to even remotely satisfy the Master Plan project Purpose and Need of responding to the *regional* demand for air transportation through during the 2000-2015 period.

3. Alternative D cannot be reconciled with the second enumerated project purpose of ensuring that “new investments in airport capacity are cost effective, maximizing the return on existing infrastructure capital.” *See* SEIS at 2-1.

The cost of Alternative D is in excess of \$9 billion, *yet will provide for no increases in passenger capacity* beyond the no-build alternative. The project focus is not maximizing the return on existing infrastructure capital, but rather eliminating and then replacing that infrastructure at enormous expense. The investment of such an incredible sum by definition cannot be considered a cost-effective investment in capacity, given the significant projected capacity shortfall under the Alternative D relative to anticipated demand and as compared to the other alternatives.

4. The “alternatives analysis” in the SEIS effectively presents and considers only one alternative. There is no longer a “range of reasonable alternatives” presented by the Draft EIR/EIS (DEIS) and SEIS as required by NEPA.

The SEIS has *de facto* eliminated any meaningful consideration of Alternatives A-C by recasting the project focus as constraining local capacity. To this end, the SEIS affirmatively incorporates limits on airport infrastructure commensurate with the no-build alternative as a surrogate objective. As noted, this is facially at odds with the Purpose and Need that was set forth in the DEIS and expressly reaffirmed in the SEIS. Moreover, this effectively eliminates any other alternatives from consideration in violation of NEPA,¹ as the other alternatives all provide for increases in LAX capacity responsive to projected local and regional demand.

5. The SEIS is also inconsistent with NEPA in that it forecloses any Alternative that would meet capacity demand in contravention of FAA policy.

NEPA contemplates that the SEIS must propose within its range of reasonable alternatives an alternative that are consistent with the FAA’s basic policy objectives. *See Muckelshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 813 (9th Cir. 1999). However, as more fully explained below, by effectively foreclosing further consideration of Alternatives A through C (which respond effectively to demand) the SEIS cannot be reconciled with FAA’s fundamental policy of ensuring safe and efficient operations within the National Airspace System.

6. The proposed project is contrary to express Congressional and FAA Policy in the area of air transportation and at odds with the objectives of the Airline Deregulation Act.

In the area of air transportation, Congress has explained that it is the policy of the United States “that airport construction and improvement projects that increase the capacity of facilities to accommodate passenger and cargo traffic be undertaken to the maximum feasible extent so that safety and efficiency increase and delays decrease.”²

Congress has determined as a matter of law and national policy that the most effective way to respond to the demand for air transportation services is through market forces. This policy determination was reached as part of the fundamental decision to deregulate air travel and restructure the statutory scheme governing aviation to have public demand set the limits on the scope of air transportation services.³

¹ 42 U.S.C. § 4332(2)(c)(iii); 40 C.F.R. § 1502.14; *see generally City of Carmel-by-the-Sea v. United States Department of Transportation*, 123 F.3d 1142 (9th Cir. 1995).

² 49 U.S.C. § 47101(a)(7) (2000).

³ *See Airline Deregulation Act of 1978*, Pub. L. No. 95-504, 92 Stat. 1705 (1978) (codified at 49 U.S.C. § 1305(b)(1) (1988)).

Consistent with that Congressional policy, the FAA's mission is not to artificially constrain air travel as proposed in the SEIS, but instead to provide the tools for modernization, infrastructure improvements, and enhancements of efficiency that will facilitate the competition and investment necessary to accommodate the public demand without compromising the quality of service.⁴ The essence of the statutory scheme for aviation thus contemplates that the traveling public and cargo customers will decide which airports shall be used and that the airlines that choose to serve those markets will respond accordingly.

Despite this, Alternative D has been fashioned to incorporate infrastructure limitations on aircraft gate frontage and cargo capacity developments that seek to artificially discourage additional passengers by providing for a degraded level of service as demand approaches capacity. *See* SEIS at 3-27.⁵

7. The SEIS cannot be reconciled with the Congressional policy of promoting safe and efficient operations with the National Airspace System.

Congress and the courts, in interpreting Congressional intent, have made clear that the safe operation of the airport and airway system must be the highest aviation priority. As the Supreme Court has explained, "planes do not wander about the sky like vagrant clouds." *City of Burbank*, 411 U.S. at 633-34 (*Quoting Northwest Airlines, Inc. v. Minnesota*, 322 U.S. 292, 303 (1944)) (Jackson, J., concurring). Instead, they necessarily move within a highly regulated, closely monitored and intricately complex air transportation system. *Id.*

The logical corollary of this situation is that the adequacy and sufficiency of the airport infrastructure necessary to facilitate aircraft operations plays a critical role in the efficiency of the National Airspace System. Constraints on aircraft operations can be expected to result in increased "congestion and a concomitant decrease in safety," *see id.* 639, and local restrictions related to operation can "create critically serious problems to all transportation patterns." *Id.*

This is particularly significant because, with the advent of deregulation, it is the public demand for air transportation that sets the scope and pace of operations necessary to meet that demand. Consistent with that principle, and as reflected in well-established methodology and experience, the FAA has determined that the demand generally will continue to grow as forecast until full utilization of an airport's capacity is reached. *See, e.g.,* FAA Advisory Circular No. 150/5060-5, *Airport Capacity and Delay*.

⁴ 49 U.S.C. § 47101(a)(7). *See, also, Seattle Cmty. Council Fed'n v. F.A.A.*, 961 F.2d 829, 835 (9th Cir. 1992) (FAA's mission is not to control market demand).

⁵ The SEIS indirectly acknowledges that the efforts it has proposed in the Preferred Alternative arbitrarily to limit infrastructure will not keep market forces from fueling demand for additional operations and that "the result [will be] a degraded level of services." SEIS at 3-27.

However, as demand approaches ultimate capacity, delay and congestion are increased and the efficiency of the aviation system is decreased. *Id.*⁶ By incorporating infrastructure bottlenecks designed to limit capacity infrastructure at LAX at a level of 20 million annual passengers below anticipated demand in 2015, the SEIS and Alternative D all but ensure that there will be problematic local and regional issues of delay and congestion and that the efficiency of the National Airspace System will decrease.

8. Alternative D cannot be said to provide security more consistent with future requirements.

Alternative D is styled as the “Enhanced Safety and Security Plan.” SEIS at 3-14. However, the SEIS acknowledges that existing airport security requirements will undergo a variety of changes over the next few years and “[t]he nature, timing and characteristics of such changes cannot be forecasted with any certainty at this time.” SEIS at 1-12. As such, the suggestion in the SEIS that the major components of Alternative D will best satisfy future security requirements is speculative and lacking in a reasonable basis. Indeed, as the SEIS acknowledges, the other alternatives (including the “no build” alternative) provide the necessary space requirements for TSA to respond to its mission at immensely less cost. SEIS at 3-13.

9. Alternative D is inconsistent with the third enumerated project purpose of enhancing the regional economy and Los Angeles’ role as an international gateway. SEIS at 2-1.

As noted, the SEIS acknowledges that Alternative D cannot be said to ensure that local and regional demand for air transportation services will be met. Indeed, local and regional shortfalls in capacity measured in tens of millions of passengers annually should be expected. A likely outcome of that shortfall is the potential for unmet demand to shift to airports outside Los Angeles and Southern California with an associated loss of jobs and economic benefits. *See* SEIS at 1-12. As a result, the objective of enhancing the regional economy and promoting Los Angeles as an international gateway will not be met.

10. Alternative D presents less significant environmental impacts largely by failing to achieve to project purposes and not responding to capacity needs.

The SEIS portrays Alternative D as presenting less significant environmental impacts. However, it does so simply by negating the project’s purpose and need. Foreclosing consideration of any infrastructure improvements necessary to meet the significant future increases in passenger demand is not an appropriate strategy for limiting environmental impacts.

⁶ *See also* note 5 above.

Issue Paper

RAND

Public Safety and Justice

Designing Airports for Security

An Analysis of Proposed Changes at LAX

Terry L. Schell, Brian G. Chow, and Clifford Grammich

INTRODUCTION

The Los Angeles International Airport (LAX) Master Plan explores a variety of ways to meet the changing aviation needs of Southern California in coming decades. The needs include increasing the safety of passengers and airport workers. A recent proposed alternative, Alternative D—Safety and Security, includes more features for the security of airport workers and passengers.¹ Among the features of this plan are

- maintaining current gate capacity to accommodate growth to 78 million annual passengers by 2015 (from roughly 67 million in 2000), with some reconfiguration to better accommodate very large aircraft
- reconfiguring the Central Terminal Area, including removal of the U-road currently used for passenger loading and unloading, and the removal of all parking structures
- limiting Central Terminal Area vehicle traffic to emergency vehicles, mass transportation vehicles (including “FlyAway” buses to long-term parking lots), and vehicles making deliveries to tenants and concessionaires
- constructing a large Ground Transportation Center in the Manchester Square Area, approximately two miles from the Central Terminal Area; all short-term park-

ing and passenger dropoff and pickup would occur at this facility

- constructing a mass transit system or “people mover” linking the Ground Transportation Center, the Metro Green Line, the Central Terminal Area, and a consolidated car rental facility within the Central Terminal Area.

During a series of exchanges between RAND and U.S. Congresswoman Jane Harman (D-Calif.) and her staff on topics related to national security, counterterrorism, and homeland security, involving numerous visits and joint appearances both in California and Washington, D.C., Rep. Harman asked RAND to examine the relative security merits of Alternative D. Specifically, this analysis examines how the security features of Alternative D compare with current airport configuration (also referred to as the “no action/no project alternative”) in improving the security of airport workers and passengers against terrorist attacks. It follows two strands of work: (1) published and confidential RAND analyses on securing a wide range of facilities in the United States, from Los Angeles skyscrapers to the U.S. Capitol grounds; and (2) a growing body of research on improving airport and airline screening, including baggage screening, passenger profiling, use of Transportation Security Administration (TSA) employees for security screening, and enhanced aircraft safety measures (e.g., reinforced cockpit doors). This work is unique in offering one of the first explicit analyses of airport security as a function of airport design since the September 2001 terrorist attacks against the United States.

¹ See “Safety and Security Alternative Fact Sheet,” available at http://www.lawa.org/news/pdf/laxmp_factsheet_7202.pdf (as of May 8, 2003).

AN ANALYTICAL FRAMEWORK FOR AIRPORT SECURITY

Alternative D raises two general issues for consideration in improving LAX security. The first is the net effect on security of any physical change to the airport. This can be assessed by comparing the new physical features in Alternative D with existing or possible modifications of features in the current configuration and illustrates what benefits may be realized from reconfiguring the airport to include the greatest number of security features possible. The second issue is the effect of limiting airport capacity to 78 million annual passengers, which is close to the maximum capacity of the current configuration (set at 79 million). This illustrates what benefits may be realized merely by limiting air passenger traffic at LAX and ultimately redistributing it throughout Southern California. Alternatives A–C allow substantially more passengers than both Alternative D and the no action/no project alternative; Alternatives A–D call for some reconfiguration to include safety features for reducing taxiway congestion and increasing runway separation.

We begin by examining possible means of terrorist attack. The RAND–MIPT Terrorism Incident Database (known before 1998 as the RAND Chronology of Terrorism) is a database tracking terrorist activity worldwide and offers a comprehensive list of terrorist attacks against airports or aircraft since 1980. These historical data indicate both the means that have been used to attack airports as well as means of attack on other facilities that might be used against airports.

Any airport redesign for improved security can be evaluated for its effect on three security outcomes variables: (1) deterrence or detection of an attack before it occurs, (2) the number of casualties an attack would cause, and (3) the extent to which airport operations would be interrupted by an attack. For each means of likely attack, we examine how airport configuration might help in deterring or detecting such an attack as well as how it might limit the casualties and effects on operations.

We make several assumptions that are important for evaluating our conclusions. First, we assume that ongoing security expenditures are equal for each alternative, or that any security personnel and equipment that would be added under Alternative D could be added to the existing configuration. Second, we assume that additional security resulting from hardening structures in the reconfigured facility could also be achieved by hardening structures in the existing structure. We evaluate only the configuration of the airport, not the actual structures, because the engineering details of the structures specified in the plan are not yet available. Third, we assume that attackers will exploit the security weaknesses of each design, and that

attacks would be conducted to maximize their damage. This means terrorists will adapt to changes in security, so that improving one weakness in security will provide only minimal benefit if a more substantial weakness remains.

HISTORY OF THREATS TO AIRPORT SECURITY

The RAND–MIPT Terrorism Incident Database lists 225 attacks on civilian aircraft or airports worldwide since 1980.² Of these, two-thirds, or 150, were attacks on civilian aircraft and one-third, or 75, were attacks on or at airports. It is possible that the proportion of attacks on airports is slightly overstated given that a bomb detonated or detected at an airport was counted as an airport attack even if intended for an aircraft.

Attacks on aircraft have been much deadlier than those on airports. The 150 attacks on aircraft have resulted in 4,280 fatalities, compared with just 76 fatalities resulting from attacks on airports. Even if one excludes the casualties of the September 2001 attacks on and using civilian aircraft, there have still been about 1,400 fatalities resulting from attacks on civilian aircraft since 1980, or about 20 times those that have resulted from attacks on airports.

To be sure, attacks on airports have produced significant damage. Of the 75 attacks on airports

- 49 used portable explosives (mostly in luggage but also including 3 mail bombs), resulting in 58 fatalities
- 9 used vehicle bombs, resulting in 4 fatalities
- 8 used missiles, rocket-propelled grenades, or mortars, resulting in 1 fatality
- 7 used firearms, resulting in 13 fatalities.

In sum, portable explosives are the most frequent and deadly mode of terrorist attack nationwide, while attacks by firearms, though only the fourth most frequent means of attack, are the second most deadly. There have also been an unknown number of criminal, non-terrorist attacks that used firearms or other small weapons.

Attacks against airports in the United States, including LAX, have been similar to those elsewhere in the world. The RAND–MIPT Terrorism Incident Database includes data on three attacks at LAX, including a bomb attack at an Air China luggage processing facility in 1980; a 1999 plot to detonate a bomb at a security screening point which

² Numbers of attacks against airports and aircraft should be viewed as approximate for two reasons. First, the database is incomplete because funding was interrupted for a time, and researchers are now making the database complete for the late 1990s and early 2000s. Second, these numbers include deterred or detected attacks for which detailed preparations had been made. They include, for example, an attempted bomb attack against LAX that was foiled in late 1999 as described below.

was foiled when the perpetrator was arrested at the Canadian border upon attempting to enter the United States to execute the attack; and a firearms attack at an El Al ticket counter in July 2002 that resulted in three fatalities, the only fatalities to result from a terrorist attack at LAX.

There are two known means of terrorist attack that could plausibly be used against airports but have not been used to date. One is a very large truck bomb, such as that used against the Murrah Federal Building in Oklahoma City and the Khobar Towers in Saudi Arabia. Another is a nonconventional weapon such as anthrax, sarin, or a radiological "dirty" bomb. (An additional possibility we do not explicitly consider is simultaneous attacks using conventional means, such as those executed by al Qaeda, on multiple targets, including airports.) Such attacks may have far more severe consequences than past means of attack, so we also consider them in our analyses of the impact on security of LAX reconfiguration.

Before reviewing the effects of airport configuration on limiting possible means of terrorist attack, we remind the reader that while past data are helpful for designing means to prevent or limit the effects of future attacks, there are limits to their uses. Terrorists may change their methods, adapt to changes in security or perceived value or significance of the target, or adapt techniques that have been used successfully against other targets to attack airports.

THE IMPACT OF RECONFIGURING AIRPORT FACILITIES

In all, we consider how possible airport reconfiguration could help prior detection or deterrence and ultimate limitation of casualties and operational disruption for seven types of attacks (overall assessments are provided in Table 1), including those

- (1) on aircraft
- (2) with a portable bomb
- (3) by gunmen
- (4) with a small vehicle bomb
- (5) with a large vehicle bomb
- (6) with a rocket-propelled grenade or mortar, or
- (7) with chemical, biological, or nuclear weapons.

Airport reconfiguration is unlikely to have any substantial effect on the more common and lethal attacks: those against aircraft. Complete screening of baggage and passengers to prevent such an attack is already occurring. Airport reconfiguration can provide no additional protection against such attacks; it cannot affect terrorists' ability to fire weapons from the ground against aircraft; and it cannot boost the effectiveness of security measures, such

Table 1
Attack Outcomes as a Function of Threat Type and Airport Configuration

	Outcome		
	Deterrence	Casualties	Operations
Attack on aircraft	∅	∅	∅
Portable bomb	?	∅	-
Gunman	?	∅	-
Vehicle bomb (small)	?	+	+
Vehicle bomb (large)	?	?	?
RPG/Mortar	∅	∅	-
CBN	∅	∅	∅

NOTES: +, likely security advantage for new configuration; -, likely security disadvantage for new configuration; ∅, no discernible effect; ?, unknown effect; RPG, rocket-propelled grenade; CBN, chemical, biological, or nuclear attack.

as air marshals and cockpit barriers, that have been implemented on aircraft.

Airport reconfiguration may have some effect on the most common and lethal attacks against airport facilities (rather than aircraft)—those by small (e.g., luggage) bombs and by firearms—but the full extent of this effect is unknown. Not enough is known to evaluate the effect of Alternative D on deterring or detecting such attacks. The distance between parking facilities and the new Central Terminal Area may allow some extra time to use profiling or other methods to identify potential bombers or gunmen, but would have no effect on detecting those seeking to attack the new Ground Transportation Center. There is also little evidence on the effectiveness of profiling techniques or on the ability of terrorists to "game" or otherwise elude a profiling system. Assuming any engineering or building features of Alternative D can be used in the current configuration, airport reconfiguration by itself is not likely to affect the number of casualties that result from small bombs or firearm attacks. Casualties from such attacks are determined by the density of persons waiting in unsecured areas of the airport, such as ticketing, baggage claim, security checkpoint, and transportation waiting areas. These densities are not likely to change as a result of the reconfiguration so similar casualties should be expected from such attacks in both configurations. The effect of such attacks on airport operations may be slightly more severe under reconfiguration. Reconfiguration would centralize several airport functions, such as transportation and terminal entrances that are currently distributed throughout several terminals. An attack at one centralized location may have a great effect on all airport operations during cleanup, investigation, and repair, while an attack on one terminal would affect only operations at that terminal.

Reconfiguration can improve security against small vehicle bombs, but it is difficult to determine the size of this benefit. In particular, how well reconfiguration would affect the deterrence or detection of small vehicle bomb attacks is unknown. If the proposed Ground Transportation

Center were eventually seen as “the airport,” it would become the likely spot for such an attack. Cars would still be able to drive near lines of persons waiting to board the “people mover,” but the greater distances that reconfiguration could incorporate between the “people mover” and passenger dropoff and pickup areas would help limit casualties from small vehicle bombs. Reconfiguration may help maintain airport operations in the event of attack by a small vehicle bomb; the new Central Terminal Area, for example, would likely continue to function, being far removed from the Ground Transportation Center.

We can draw no conclusions about the impact of reconfiguration on large vehicle bomb attacks, because the plan does not specify how large vehicles would be handled. LAX currently has about 200 restaurants, bookstores, and other businesses that require deliveries nearly every day. Reconfiguration would boost the number of these tenants. Although the Central Terminal Area will be closed to passenger dropoff and pickup, it will need to be accessible to trucks. It is possible to search these trucks before they enter the Central Terminal Area, but this would require considerable manpower. Diverting all trucks to a separate entrance may facilitate such searches and security, but such diversion does not require reconfiguration. More generally, it is not clear how airport reconfiguration should be used address the potential problem of large vehicle attacks. Airports typically make poor targets for large vehicle bombs. For example, fatalities caused by bomb attacks at tall buildings, such as those caused by bombing of the nine-story Murrah Building and the eight-story Khobar Towers, generally occur as a result of structural collapse of the upper floors onto the lower floors.³ By contrast, airports typically have only two stories, meaning their structural collapse would have far fewer catastrophic consequences. Airports do have multistory parking structures that terrorists may seek to attack with large truck bombs, but such targets are not desirable targets for several reasons, including their minimal symbolic value, their more solid construction than residential or business buildings of comparable size, their sparse population, and their open walls that reduce energy absorbed from a blast.

There is little to distinguish Alternative D from the current configuration for boosting security against attack by rocket-propelled grenades or mortars. Reconfiguration may do little to deter, aid the detection, or limit the casualties of such attacks. It is possible that reconfiguration, by centralizing airport facilities, would aggravate the effects on airport operations of such attacks, particularly an attack that disabled the “people mover” system.

There is also little to distinguish Alternative D from the current configuration for boosting security against attack by chemical, biological, or nuclear weapons. It is worth noting that such weapons have not been used against airports. There are several reasons for this. These weapons are relatively difficult to obtain and use effectively. If a terrorist group did obtain these weapons, it could use them against nearly any target in the United States as easily as against LAX. We do not mean to imply that such attacks would never occur at LAX, only that such attacks would be less likely, and less catastrophic, than at other locations in the region and nation.

There are two additional security considerations that affect all modes of attack we analyze and that should be considered in evaluating the security effects of reconfiguration. First, the proposed reconfiguration will increase the area to be patrolled by security personnel. This may have a negative effect on deterrence and detection if security forces are not increased for the reconfigured facility. Personnel will need to be diverted to new facilities, such as the Ground Transportation Center, at which large crowds will gather, leaving fewer to patrol the Central Terminal Area than now patrol the decentralized terminals. Second, reconfiguration may make it difficult to evacuate the terminal area in the event of an attack, particularly given reliance on the “people mover” system for moving persons to and from the terminal. Such reliance might entice terrorists to issue a bomb threat and then attack large and dense crowds waiting to board the system. Evacuation plans and equipment can help mitigate this danger, but would rely on persons leaving the terminal in a way other than which they entered. Alternatively, terrorists may seek to disable the “people mover” at any point along its two-mile route and attack trapped passengers with weapons ranging from “Molotov cocktails” to biological weapons.

THE IMPACT OF RESTRICTING GROWTH

One common characteristic of both the current configuration and Alternative D that may have a great effect on airport security is the limit on capacity (both would limit capacity to less than 80 million passengers annually). Relative to Alternatives A–C, such a limit would mean that more growth in air travel would need to be absorbed by other airports in the region. Over time, this would result in a far more evenly distributed system of air travel in which LAX would handle a smaller proportion of a growing number of Southern California air passengers.

Even without changes to airport facilities or procedures, such a limit may help deter terrorist attacks on LAX by helping reduce the value terrorists may perceive in such an attack. A capacity limit, by shifting a proportion of

³ National Research Council, *Protecting Buildings from Bomb Damage*, Washington, D.C.: National Academy Press, 1985.

regional air traffic from LAX to other airports, may also help mitigate the effect of a terrorist attack on regional airport operations, because a future attack on LAX would affect a smaller proportion of regional airport operations than a present attack would. Such benefits should be viewed as highly speculative, for it is impossible to calculate their magnitude or the length of time needed to realize them. Furthermore, there may be substantial economic costs to the region resulting from restricting LAX capacity; such costs may outweigh the economic benefits of a regional air transport system better able to recover from possible terrorist attacks.

More precise calculations can be made regarding the effects of limiting capacity on potential casualties from a terrorist attack. Reconfiguration, as noted, may help improve LAX security against small vehicle bombs, but it likely would not improve security against small or portable bombs concealed in luggage, which, historically, have been about twice as lethal at airports than larger bombs. While perhaps surprising, this finding follows as a direct consequence from the physics of explosives. The force of a bomb, as well as its ability to cause casualties, is greatly reduced over distance from the bomb; more precisely, the force of a bomb decays with the cube of the distance from the bomb. Thus even small changes in distance from a bomb can result in dramatic reductions of its power (with some minor exceptions for bombs detonated in extremely rigid structures such as tunnels).⁴ This also means that the density of a population being attacked can matter far more than the sheer size of the bomb. Because the density of persons can be greater in buildings or mass transit vehicles, small bombs there can be more lethal than larger bombs in more open spaces (Table 2).

For example, the amount of explosives needed per casualty in a city bus arriving at the airport or a large aircraft filled to 80 percent capacity is about one-half, or less, that needed to kill an equal number of persons in a terminal line, while the amount of explosives needed to kill a given number of persons in an airport terminal line is about one-fifth, or less, than that needed to kill an equal number of persons in an open area, such as a sidewalk, outside the terminal. Put another way, a terrorist seeking to kill the greatest number of persons can kill more with a small bomb (e.g., luggage bomb) in a relatively dense area such as inside a terminal than with a large bomb (e.g., vehicle bomb) in a relatively open area such as a sidewalk outside a terminal (Figure 1).

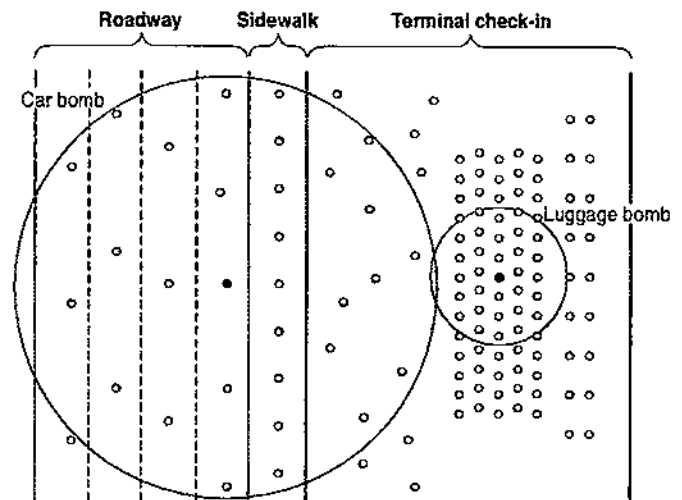
⁴ C. L. Elliot, "The Defense of Buildings Against Terrorism and Disorder: A Design Philosophy for the Construction of Ordinary Buildings and Installations to Resist Terrorism and Public Disorder," University of Southampton, unpublished M.Phil. thesis, 1986.

Table 2
Explosives Required as a Function of Population Density in Several Airport Locations

Region of Airport	Area per Person ¹ (sq ft)	Distance Between People ² (ft)	Explosives Needed per Casualty ^{3,4}
Inside plane (767, econ, 80% capacity)	7	2.7	0.2
Inside city bus (80% capacity)	12	3.5	0.3
Inside airport bus w/baggage	30	5.5	1.3
Line of passenger in terminal			
High-density	16	4	0.5
Mid-density	25	5	1.0
Low-density	36	6	1.7
Open area in terminal or sidewalk			
High-density	81	9	5.8
Mid-density	144	12	14
Low-density	196	14	22
On roadway (lane next to airport bus) ⁵	144	12	14
On roadway (curbside) ^{5,225}	15	27	
On roadway (third lane from curb) ⁵	625	25	125
Parking lot (1 person for every 5 cars) ⁵	1,225	35	343
Parking lot (1 person for every 10 cars) ⁵	2,500	50	1,000
Parking lot (1 person for every 17 cars) ⁵	4,225	65	2,197

NOTES: ¹Population densities calculated within a circular area large enough to enclose 30 people. ²Square root of density. This would be the distance between individuals if they were evenly dispersed. ³Bomb sizes are expressed in relative units. 1 represents the power required when population density is 1 person per 25 square feet. The absolute amount of explosives will depend on the type and construction of the bomb. ⁴Does not include secondary casualties from structural failures. ⁵Calculations assume vehicles and building offer no protection from explosion; this will slightly overestimate the casualties from bombings in these locations.

Our calculations may overstate the casualties that would result from large vehicle bombs because of several simplifying assumptions. We assume, for example, that there is no protection whatsoever for persons within range of a given bomb, but a large number of persons within a given range of a vehicle bomb would probably be in their own vehicles, which should offer considerable protection from a blast and resulting debris. Similarly, a large number



NOTE: Dots represent people or pairs of people. 29:1 ratio in explosives will result in the same number of casualties.

Figure 1—Different Bomb Sizes Can Yield Similar Casualty Rates, Depending on Population Densities (Higher-Density Scenario)

of persons would be inside the terminal building, which should also offer protection from the blast. While flying glass or falling debris inside a terminal building resulting from a vehicle bomb can cause fatalities, such problems may be mitigated by thorough modification to windows or reinforcement of building structures.

In comparing potential fatalities from small and large bombs detonated at airports, we consider casualties from the bomb itself, rather than secondary effects of structural failure, because the detailed structural engineering required for predicting structural failure is beyond the scope of this project. Nevertheless, we note that the structural peculiarities of an airport may mean a small luggage bomb inside a terminal can cause greater structural damage than a large vehicle bomb outside it. The roadway overpass outside a terminal is designed to handle far greater loads, and has a much greater mass, than the interior floors of the terminal building. As noted earlier, structural collapse resulting from a bomb in an airport terminal of just two stories is less likely to have the catastrophic consequences that can result from large bombs used against taller buildings.

Small bombs detonated inside a terminal, in addition to being a more likely threat and more deadly for a given weight of explosives, are easier to build without detection and to deploy in an airport without suspicion and leave less forensic evidence about perpetrators. Any individual or organization that has the capability to launch an effective vehicle bomb attack outside a terminal has the material, skills, and motivation needed to launch several smaller and more lethal bombs inside a terminal. This is not to say that terrorists will never attack LAX with a car bomb, but instead that efforts to mitigate the damage from bomb attacks might be better focused on preventing or limiting the damage of small bombs detonated in crowded areas. Reconfiguration can offer some greater protection from some vehicle bombs, but by itself can do little to affect threats posed by small bombs. Such threats are best addressed by reducing crowded areas in the existing or reconfigured airport.

INCREASING SECURITY IN EITHER CONFIGURATION

The fact that small, portable explosives have been the most likely and most lethal means of attacks at airports suggests a number of changes can help improve security greatly either in the current configuration or in the Alternative D reconfiguration. We outline three broad areas to consider.

Expedite the Movement of Passengers into the Secure Terminal Areas

The greatest risks for casualties for most types of

attacks are in the high-density areas passengers encounter before reaching the security checkpoint, particularly lines for ticketing and for passing the security checkpoint. Airport procedures and numbers of personnel, rather than configuration, determine the number of persons that must wait in these unsecured areas. Even small increases in ticketing and screening personnel may help reduce these crowded areas.

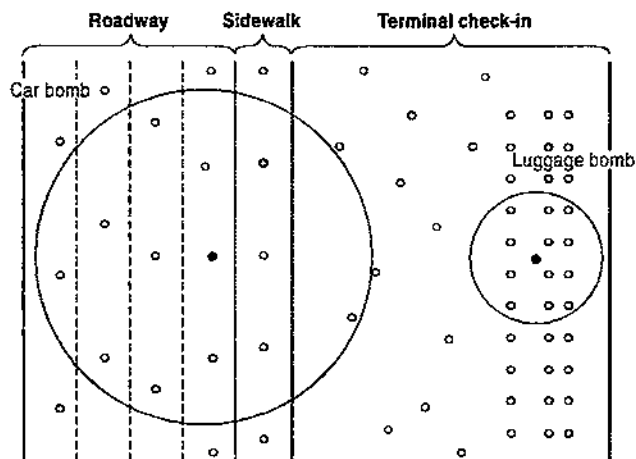
Consider, for example, that if current personnel can screen 10 passengers per minute, and 12 passengers per minute are arriving at the terminal, then a line of 60 persons will form within 30 minutes, with new arrivals facing a wait time of at least 6 minutes. Just a 20 percent increase in screening capacity would completely eliminate the line and wait time. Increased capacity at ticket counters would have similar effects. Passenger flow is extremely predictable, and airlines already make some adjustments to handle peak flight times. In fact, completely eliminating ticket counter lines may require no additional personnel, particularly as electronic kiosks are used to handle more passenger traffic.

Similarly, reducing the wait for baggage check-in from 15 minutes to 1 minute would cut the number of persons who could be killed in a bomb attack in that area by more than 50 percent (compare dot density of Figure 2 with that in Figure 1). It would also reduce the number of persons who could be killed by a curbside bomb both by reducing the number of persons waiting there for baggage or security checks and by allowing persons inside the terminal to move further from the exterior wall.

Unfortunately, the TSA is setting funding and personnel at each airport to levels that could result in security checkpoint wait times of up to 10 minutes.⁵ This will have more detrimental effects at larger airports, such as LAX, because a 10-minute wait for a terminal that must handle 15 passengers per minute will result in a crowd of 150 persons at each security checkpoint, while such a wait at a terminal that must handle 5 passengers per minute would result in a crowd of only 50 persons.

The economic costs of such delays should be considered in efforts to improve security. These occur because the value of air travel is in the savings of time it offers relative to other modes of transportation. Anything that adds time to a trip by air reduces its value and hence its demand relative to other modes. A recent RAND analysis concluded that the costs of increased equipment and personnel needed to eliminate security delays would be more than offset by the resulting increased value passengers

⁵ The TSA recently announced it was reducing its number of screeners by about 6,000, including more than 150 at LAX. See <http://www.tsa.gov/interweb/assetlibrary/ScreeningReductionFactSheet.doc> (as of May 8, 2003).



NOTE: Dots represent people or pairs of people. Scenario assumes reduced density in check-in and sidewalk areas, but the same density in the roadway area; thus 18:1 ratio in explosives will result in the same number of casualties.

Figure 2—Different Bomb Sizes Can Yield Similar Casualty Rates, Depending on Population Densities (Lower-Density Scenario)

would perceive, and pay, for air travel.⁶ In other words, most passengers would pay the minimal increase in cost required to eliminate waiting in lines in unsecured areas of the terminal.

Eliminating lines in unsecured areas for passengers departing LAX would shift the most vulnerable location in the airport to the baggage claim area. Crowd density in this area is lower than that for ticketing counters or security checkpoints, but it is still significant. Unfortunately, eliminating these crowds is not simply a matter of increasing personnel or capacity. Nevertheless, some changes are possible to increase the security of this area. Restricting baggage claim access to those persons disembarking planes would increase the security of this area, but would possibly be seen as an inconvenience to persons meeting passengers. Alternatively, security personnel could prohibit non-passengers entering the baggage claim area from bringing any bags or backpacks into it.

Harden High-Value Structures

Potential casualties from a bomb attack could be greatly reduced through structural modifications. A high priority should be preventing damage from flying glass through use of shatterproof glazing, decreasing the size of window panels, or using stronger window frames. Other structural changes that may also be cost-effective include reinforcing walls in high-risk areas or adding support columns.⁷ Such changes may help reduce the damage and

casualties from earthquakes in the region; these secondary benefits should be considered in any cost-benefit analysis.

Use Physical Barriers

Physical barriers can help increase the separation between vehicles and buildings or crowds. These barriers would reduce the population density of an area a vehicle bomb could affect, and they could reduce the secondary damage from structural failures. Truck use on the upper (departures) deck could be limited by placing height restrictions on vehicles there and through other means to prevent the passage of heavy vehicles.⁸ Because buses currently use the lower (arrivals) deck for passenger dropoff and pickup, this would not restrict current traffic flow. Barriers such as planters or bollards could also increase the distance between cars and the terminal building and between cars and pedestrians. It may be less expensive, however, to move passengers inside the terminal further from exterior walls.

CONCLUSIONS

While there have been past terrorist attacks on LAX and future attacks cannot be ruled out, airports have been very safe places in recent decades, and the threat of terrorism at an airport should be viewed in the context of other safety and security threats facing air travelers. An airplane collision at LAX, for example, could result in more casualties than any terrorist attack not using a nuclear weapon. An earthquake could also result in more damage and a significantly longer shutdown of the airport. Any terrorist attack can result in tragedy, but the threat of terrorism should not dominate discussions of airport planning at the expense of solutions to more common problems. Any reconfiguration of LAX should be judged primarily on how efficiently the airport will function and on the effects reconfiguration will have on the transportation and economy of Southern California. There is enormous economic value to be realized in getting passengers from their homes to their destinations quickly and safely. The economic costs incurred by an inefficient airport operation could therefore outweigh the economic benefits of some of the more expensive security aspects in reconfiguration.

Terrorism is dynamic and terrorists adapt their methods to suit changes in weaponry and defense tactics. Terrorism prevention and security therefore also needs to be dynamic. Buildings are essentially static. This makes it extremely difficult, and expensive, to design airport facilities that will be as secure against attack 20 years from now as

⁶ Russell Shaver, *How Much Is Enough? Sizing the Deployment of Baggage Screening Equipment by Considering the Economic Cost of Passenger Delays*, Santa Monica, Calif.: RAND DB-412-RC, forthcoming.

⁷ National Research Council, *Protecting Buildings from Bomb Damage*, Washington, D.C.: National Academy Press, 1985.

⁸ Bruce Hoffman and Peter Chalk, with Timothy E. Liston and David W. Brannan, *Security in the Nation's Capital and the Closure of Pennsylvania Avenue: An Assessment*, Santa Monica, Calif.: RAND MR-1293-1-FCCDC, 2002.

they may be today. While in the past ten years there have been a number of notorious terrorist attacks using vehicle bombs, which airport reconfiguration might help mitigate, future terrorists may use rocket-propelled grenades for their attacks.⁹ This could diminish some of the short-term improvements in safety and security that Alternative D could effect.

Our analysis helps indicate the priorities for considering security in airport planning. Top priority should be given to securing aircraft, the most likely—and lethal—target of terrorist attacks on air transportation. This should include screening of all baggage and passengers, adequate security procedures and equipment on aircraft, and restricted access to aircraft on the ground.

The next priority should be given to securing airport facilities against portable bombs, the most commonly used weapons in terrorist attacks against airports. Such weapons are easy to build and the perpetrators of such attacks are hard to catch. Detonation of these bombs in crowded areas of the airport makes them more lethal, per pound of explosive, than any other means of attack.

Restricting passenger capacity as proposed in Alternative D, or as would result from the no action/no project option, could reduce the overall vulnerability of LAX in particular and Southern California aviation more generally. Restricting LAX capacity would make it a less prominent target for terrorist attack, while distributing air traffic more evenly throughout the region would help its air traffic system continue functioning in the event of an attack on one of its parts. Such restrictions may have detrimental economic effects beyond the scope of this work.

Other features of Alternative D appear less likely to improve security. The proposed reconfiguration could help limit damage caused by a vehicle bomb, but would not help limit damage caused by small bombs, and it

⁹ There are recent reports of rocket-propelled grenades selling for as little as \$150 in the European black market. See Nicholas Rufford, "Prime Suspect: Who Masterminded the Rocket Attack on MO6 Headquarters?" *Sunday Times* (London), September 24, 2000.

could increase the time the airport is shut down by such attacks. Reconfiguration could also result in two security problems that will need to be addressed in future versions of the plan. First, the present plan would substantially increase the area that would need to be secured against possible terrorist attack. This will be difficult to do with the present number of security personnel. Second, the present plan would consolidate transportation to the Central Terminal Area on a "people mover" that could become a tempting target for terrorists and that may impede evacuation of the terminal in the event of an attack, a fire, or a natural disaster.

Regardless of configuration, several improvements in airport processes could be made to improve security against terrorist attacks at LAX. The most important of these is expediting the movement of passengers into secure terminal areas. This is the best defense against small bombs and firearms—the most common, and deadly, types of terrorist attacks. Building structural improvements, including the replacement of conventional glass with shatterproof materials and changes to the terminal facade and structural supports, can also mitigate the effects of terrorist attacks. Physical barriers, including the prohibition of tall or heavy vehicles on the upper (departures) deck, to increase separation between vehicles and persons can also limit potential casualties from larger bombs.

If it is assumed that some reconfiguration of LAX (in the form of Alternative A–D) is likely, Alternative D would likely have a slightly positive effect on improving LAX security. This positive effect would be due to only one portion of the plan—restricting passenger capacity—and not those parts that are more expensive, such as reconfiguring the terminal, parking, and ground transportation at the airport. The current configuration would allow airport managers to realize the most likely security benefits of Alternative D and to add others as well. Airport planners need to consider the security benefits of restricting passenger capacity with the economic effects of doing so, as well as economic or safety reasons, such as runway separation or taxiway improvements, favoring Alternative D that were beyond the scope of this analysis.

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CONGRESSWOMAN JANE HARMAN
36TH DISTRICT, CALIFORNIA

August 20, 2003

Mr. Jim Ritchie
Deputy Director of Long Range Planning
Los Angeles World Airports
1 World Way
Los Angeles, CA 90045

Dear Mr. Ritchie:

In the wake of the horrific events of September 11, 2001, Mayor Hahn called for an overhaul of the proposals for the master plan for Los Angeles International Airport. He claimed that Alternative D would focus primarily on safety, and would effectively address the security needs at LAX.

I remain concerned, however, that the Mayor's proposal ignores important security improvements outlined in a report published by RAND, issued in May. The RAND report found that features of Alternative D create "hard targets" ripe for attacks by terrorists. The report called instead for simpler, cheaper methods of securing the airport, and acknowledged that an important security improvement is to disperse air travelers and cargo into a genuine network of regional airports throughout Southern California.

Specifically, the RAND report found that:

- The greatest security risks are in high-density areas such as lines for ticketing, baggage claim and security check points. These risks are not likely to be reduced by Alternative D, which simply moves these targets of opportunity to the Ground Transportation Center and the "people mover". Significant reductions in risk could be achieved by increasing the number of screening personnel and machines, and by changing airport procedures to reduce the number of people waiting in line in unsecured areas.
- The effect of attacks on airport operations may be more severe under Alternative D. Reconfiguration would centralize several airport functions, such as transportation and terminal entrances that are currently distributed throughout several terminals. An attack at one centralized location may have a great effect

RESPOND TO:

EL SEGUNDO:
 2321 EAST ROSECRANS BOULEVARD
SUITE 3270
EL SEGUNDO, CA 90245
PHONE: (310) 643-3636
FAX: (310) 643-6445

WASHINGTON, DC:
 2400 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
PHONE: (202) 225-8220
FAX: (202) 226-7290

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FAX: (310) 549-8250

Website: www.house.gov/harman
Email: jane.harman@mail.house.gov

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on all operations during cleanup, investigation and repair, while an attack on an existing terminal would affect only operations at that terminal.

- The proposed “people mover” could impede evacuation of terminals in the event of an attack, fire or a natural disaster.
- Alternative D will not bolster security against aircraft - still far more vulnerable than airports - and will not reduce the threat of attack by rocket-propelled grenades or mortars.
- Airport reconfiguration by itself is not likely to affect the number of casualties that result from small bombs, such as those concealed in luggage, or firearm attacks.
- Alternative D would not significantly increase security against attack by chemical, biological or nuclear weapons.
- Alternative D does not address vulnerability from large bombs that could be carried by delivery trucks serving over 200 restaurants and stores requiring daily deliveries.

Ultimately, the RAND report argues that developing a regional aviation plan is the most economical and expeditious way to strengthen security. A firm cap on annual passengers at LAX would shift air travel to other airports, thereby mitigating the effects of a terrorist attack on regional airport operations by dispersing the concentration of travelers and resources.

Those concerns are echoed by the recent findings of the A.C. Lazzaretto and Associates, the consultant hired by the County of Los Angeles. The Lazzaretto study is even more pointed, saying that Alternative D’s security proposals are short on detail and often contradictory. This study also raises disturbing issues about environmental justice, noise, and unmitigated traffic impacts.

As ranking member of the House Permanent Select Committee on Intelligence, I know far too well the myriad threats to our national security, both at home and abroad. We must do everything within our power to defend against those threats. I strongly urge additional consideration of and steps to implement the concerns raised by RAND and Lazzaretto and Associates, and pledge to help shape a cost-effective plan that will truly make LAX safe and secure.

Regards,

A handwritten signature in black ink that reads "Jane Harman". The signature is fluid and cursive, with a long horizontal stroke at the end.

JANE HARMAN

Date: November 5, 2003

From: John M. McCarty, Ph.D. and Shirley C. McCarty

To: Distribution

Subject: LAX Expansion

We believe that Mayor James Hahn's master plan for the Los Angeles International Airport is seriously flawed. We also believe that squandering nine billion dollars of tax payers' and air travelers' money on a thinly veiled jobs plan for the building trades is an abomination.

The LAX EIS/EIR is a document which, if followed, would:

- damage the already vulnerable U.S. airlines by increasing their operating costs
- harm the citizens of the South Bay by moving runways closer to the adjacent cities
- inconvenience the flying public and increase their susceptibility to terrorism.

While individual researchers and organizations have critiqued the Master Plan in terms of security (the Rand Corporation) or curtailing growth (a report prepared by A. C. Lazzaretto & Associates for the Los Angeles County), they have missed the most salient point: The economic foundation of the LAX Master Plan is predicated on three fallacious assumptions.

- (1) The basic shape of the airline traffic routes will remain relatively constant throughout the planning period (2004 - 2020).
- (2) The passenger mix (first class, business class, economy class) will remain relatively constant.
- (3) The technology of terrestrial transportation will remain relatively constant.

It is our contention that airline traffic routes, passenger mix, and the technology of terrestrial transportation will all change significantly.

AIRLINE TRAFFIC ROUTES

Back in 1996, Jack Driscoll, who was then the executive director of the Los Angeles Department of Airports and who functioned as the guiding light for the initial version of the draft EIS/EIR, was quoted by the *Los Angeles Times* as saying:

LAX has consistently seen an 8% to 9% increase in aviation activity in recent years, and forecasts show this demand will continue for the next twenty years.

While Mr. Driscoll has long been gone from the management of the LAX, the linear thinking embodied in his statement is very much alive and well and living in the LAX Master Planning Organization. To understand the ramifications of linear thinking, a little history on the development of airline traffic routes is required.

In the early chapters of the U.S. airline industry's history, planners in the Civil Aeronautics Board in Washington assigned the major domestic routes. Over two decades ago, the U.S. market was deregulated, and a vicious shakeout ensued. The airlines that remained after the implosion shifted most of their biggest iron birds out to the two coasts where the industry was still tightly controlled by a web of international regulations and agreements. These lumbering airliners would fly *from* hubs (such as New York) to hubs (such as London). So if a woman wanted to go from Philadelphia to Amsterdam, she would first fly to New York aboard a small plane operated by a regional carrier, then change planes, take a four-engine widebodied Boeing 747 to London, change planes again, and finally fly in a smaller aircraft to Amsterdam. It is important to understand that this multi-connective arrangement was loved by the airlines because it allowed them to fill up their big birds and make a lot of money. And it was an arrangement despised by the traveling public because only the intellectually challenged would *like* changing planes at a huge hub that is congested with wall-to-wall people.

Subsequently, the Atlantic was deregulated, and the airline executives suddenly developed an input channel and started listening to their customers. As a consequence, they initiated direct routes and began adding nimble airliners with just two engines to their Atlantic runs. Noted the English newsmagazine, *The Economist*:

This taste for smaller international jets reflects the fact that travelers now like to shun big international hubs such as New York or London and fly directly to their destinations. This is changing the international market into a web of direct intercontinental flights rather than one big aerial bridge between London and New York.

In the parlance of the airline industry, this change in airline traffic patterns represents a switch from hub-to-hub routes to point-to-point routes. This change in the basic shape of routes over the Atlantic is reflected in the types of aircraft making the point-to-point hauls. The most common jet found on the Atlantic run is no longer the Boeing 747; instead 8 out of ten birds flying between North America and Europe are two engine planes, such as the Boeing 767 or its younger and bigger sister, the Boeing 777—the first commercial airliner to be designed on a computer.

Between 1993 and 1995, Boeing and Airbus Industrie (a European airframe consortium) began working together on a large project with an awkward name: The Very Large Commercial Transport. However, as a result of mutual distrust, this joint venture started to unravel. After the breakup, Airbus commenced work on its own superjumbo jet, a monster machine that would fly hub-to-hub, particularly to the Orient. It was originally called the A3XX, and it is now called the A380.

The top management of Boeing then faced one of those you-bet-your-company kind of questions, the answer to which would affect not only its long-term viability, but also the fortunes of airline companies and airports throughout the world. And that question was: *Would air routes throughout the Pacific fragment in the same manner as they did over the Atlantic?* After much analyses and hand wringing, the executives at Boeing answered that question with a resounding YES!

Based on this answer, the company cancelled design work on two extended versions of the 747-400. Because they believed that the future of airline traffic over the Pacific would be point-to-point routes, the company then concentrated on producing and selling variations of the 777, a bird designed with point-to-point flights in mind. And they began the preliminary design of other engine and airframe configurations for traffic patterns over the Pacific because the Orient is where the action will be during the next two decades.

It should come as no great surprise to anyone that there is a direct correlation between increases in Gross Domestic Product and growth in air travel: As a nation becomes more prosperous, its people fly more often and farther for business and for pleasure. It has been estimated that during this first decade of the new century the annual growth in GDP will be about 5% in Southeast Asia and above 7% in China—significantly greater than the 2-3% rate expected during the same period for the mature economies of the world, such as the U.S. and the countries in Western Europe.

Kenneth Leung, managing director of Investment Banking Strategy in the Tokyo office of Deutsche Bank, said: “Asia will be one of the fastest growing areas of the world, if not the fastest growing over the next two decades, and commercial air travel and air cargo will be both a by-product and a staple of that process.” Goaded forward by super-strong growth, air traffic in the Middle Kingdom is expected to increase by almost fivefold in the next two decades. Because increases in air travel and air cargo produce surging demand for aircraft, it logically follows that China’s fleet of jet liners should grow the fastest of any country on the globe—increasing from 490 birds at the close of 1999 to 1,600 at the end of 2019.

Many of the new aircraft to be purchased by the nations on the Pacific Rim will be long-range airliners destined to fly on point-to-point routes, for Asia is ripe for nonstop travel. It has been estimated that in excess of 85% of the passengers that land at Tokyo’s Narita airport (one of Asia’s great hubs) are not ultimately bound for Japan, but are heading instead for Singapore, Hong Kong or other far away places in the Orient.

The main long-range aircraft that is used on point-to-point flights is the Boeing 777. The Triple-7 originally came in two versions. The 777-200 had its first delivery in May of 1995, and the initial models had a range that varied between 4,350 and 5,330 nautical miles. The second version, the 777-300, was first delivered in May of 1998, with a range of 6,550 nautical miles. These are the birds that paved the way for point-to-point routes.

From Day One, the Dash 200 and the Dash 300 had instant sales success, particularly in Asia, where there is usually a long distance between airfields. Japan Airlines, All Nippon Airlines, Thai Airways International, Cathay Pacific, China Southern, Japan Air System, Korean Air Lines, Singapore Airlines—all purchased the first two versions of the Triple 7.

In addition to developing extended range versions of the 777, Boeing's aeronautical engineers set about to design a totally new type of airliner—one that was specifically designed for the point-to-point traffic patterns. Called the Sonic Cruiser, this bird would have constituted a major break with Boeing's tradition: Whereas Boeing's 747—the ultimate hub-to-hub airliner—was big and slow, the Sonic Cruiser—the ultimate point-to-point bird—was being designed to be small and fast. Indeed, in an artist's rendering, it resembles a hot fighter rather than a transcontinental transport.

As its name would suggest, speed would have been the Sonic Cruiser's stock in trade, for it was being designed to fly just below the speed of sound—between Mach .95 and Mach .98—which means that it would have flown about 20 percent faster than today's fastest jetliners. (Mach number is the ratio of the air speed of an object to the speed of sound in the same region of the atmosphere; Mach 1 is around 740 miles per hour at sea level.) The Sonic Cruiser was specifically fashioned to cater to the carriage trade—those well-heeled tourists and business travelers who would be willing to pay a fair premium to avoid congested hubs and to get where they're going in a hurry. And it was this idea of charging a premium price for tickets that turned out to be the Sonic Cruiser's Achilles' heel. After al-Qaeda's attack on the Twin Towers on 9/11 and the baneful effects of the economic downturn, it became abundantly clear to Boeing's executives that the international traveler would be interested in lower—not higher—airfares in the foreseeable future. So with great reluctance, they shot down the Sonic Cruiser project.

It was not very long thereafter that Boeing's aero-engineers went back to the drawing board and started to design a new airliner—a bird with low operating costs that was specifically structured for the point-to-point flights over the blue waters of the Pacific Ocean. Initially known as the Boeing 7E7—and called the Dreamliner in the press—the aircraft is being designed to be a mid-range transport that will be driven forward by the robust engines that were to be used on the Sonic Cruiser. Boeing is banking on production economies—which include both sophisticated production techniques and competitive pressures on suppliers—to drive the per-unit price down. But the main selling point is a 20% fuel-burn improvement vis-à-vis birds such as the Airbus A310, the Boeing 757, and the Boeing 767. In the neighborhood of 9% of that improvement will come from the efficiency of the engines, and some will be as a result of the bird not having to carry so much fuel. Savings

from both the use of composite materials and airflow improvements should account for most of the rest.

Boeing has forecast that a market will eventually develop for 2,000 to 3,000 such airliners. Boeing's CEO Philip M. Condit has said: "We believe more passengers are going to want to fly on direct routes on midsize airplanes instead of to hubs on giant-sized airplanes." Boeing expects that the airlines will put the 7E7 in service by 2008.

The airlines of the world are slowly starting to embrace the point-to-point routes that advances in airframe and engine technology are making possible.

- In March of 2001, Continental Airlines launched a new nonstop air service between New York and Hong Kong. Prior to the advent of Boeing's 777, this flight would have required a connection at LAX. This flight is airborne for 16 hours.

- Also in March of 2001, British Airways began a nonstop service between San Diego and London-Gatwick. The inauguration of this daily flight made history since it was the first nonstop transcontinental service in the history of San Diego. The aircraft of choice: The Boeing 777. This service not only chops a connecting flight from the LAX hub, but it also tears into the regional service (the "spoke" in the hub-and-spoke system) that would have flown from San Diego to LAX.

- In October of 2003, Singapore Airlines announced that it would inaugurate the longest continuous commercial passenger service in the world in the early part of 2004. Using an Airbus A340-500, it will carry passengers nonstop from LAX to Singapore—a distance of 9,412 miles—in 18 hours and 20 minutes. A senior vice president at Singapore Airlines has observed: "When we start our service, it will be history making."

It must be understood that not everyone in either the airframe or the airline business believes that midsize airliners flying on point-to-point routes will be the wave of the future. Indeed, the executives at Airbus believe that the future belongs to great behemoths of the sky flying on hub-to-hub routes.

If Airbus's airframe builders stay on schedule, the Europeans will be able to show off the biggest passenger plane ever constructed at the Paris Air Show in 2005. With one wing as long as a nine-story building is high and with a horizontal stabilizer that is as large as the wing of a midrange airliner, the Airbus A380 is supposed to be ready to enter commercial service in 2006. This double-decker is designed to carry 555 passengers when its cavernous capacity is divided into three classes; however, the probability seems high to some analysts that the A380 will be mainly used to carry tourists from the developing countries of Asia who will be attracted by low ticket prices. As a consequence, the airlines using the A380 could configure it in what is irreverently called the "cattle class," to attain economies of scale. In this configuration, the brute-of-the-sky could seat as many as 800 passengers.

The executives at Airbus, who used \$3.5 billion in low-interest loans from European governments to help build the plane, believe that hub-to-hub airline traffic routes will continue to dominate both the passenger and the freight segments of the airline industry. Predicated on this roseate view of the future, they believe that during the next two decades the passenger and freight carriers of the world will require not less than 1,500 airplanes at least as large as the 747. So far, nine companies—all of which are foreign-based except FedEx—have ordered a total of 121 A380's which have a sticker price of \$250 million. (According to people in the industry, the super-jumbos are sold at deep discounts.)

Quite understandably, the executives at Boeing have an entirely different view of the big-bird market. They believe that no more than 320 giant-sized birds will be sold during the next twenty years due to market fragmentation, as the industry makes the transition from hub-to-hub networks to direct flights between smaller airports. And many savants in the industry agree with the Boeing position. Bruce A. Smith wrote in *Aviation Week & Space Technology*: "Many analysts agree Boeing is on the right track in predicting that point-to-point—rather than larger aircraft serving major hubs—is where the bulk of air traffic growth will be in the Asia-Pacific region." Dick Wyatt, head of fleet planning for British Airways, in a speech to aircraft finance bankers in Geneva, said that the Airbus A380, a 555-passenger jetliner, did not make economic sense for the British Airway fleet. According to Wyatt: "There are very few routes that suit large aircraft and we believe markets will continue to fragment." And Gordon Bethune, the CEO of Continental Airlines recently queried the members of the National Business

Travel Association: “What’s in it for me to sit on an airplane with 500 other people, wait for my bags with 500 other people, check in with 500 other people?”

The writers of this paper, one of whom spent a quarter of a century applying mathematical statistics to production operations problems at airframe manufacturers, believe that Boeing’s vision of the future of the market is the one that is on course.

When using passenger data for the year 2000—so the data are not skewed by al-Qaeda’s attack on 9-11, by the downturn in economic activity that has plagued so many of the developed nations, and by the SARS epidemic in Asia—it is obvious that growth rates are being lowered in the hubs of the major cities around the globe. In 2000, worldwide growth rate in passenger travel was 8%. If the hubs had received their fair share of this activity, then their increase would closely approximate the worldwide rate. Amsterdam and Frankfurt had a little less than 8%; LAX had about 5%; London (Heathrow) and Tokyo had a bit less than 4%; Atlanta had a tad less than 3%; San Francisco had about 2%; Dallas/Fort Worth had 1%; and Chicago had about minus 1%—“negative growth” as it is known in the popular press. (“Negative growth” is one of the great oxymorons—right up there with “organized anarchy” and “jumbo shrimp.”) The only major hub to beat the rate of worldwide growth was Paris - Charles de Gaulle; it had an almost 12% increase. While all roads lead to Rome, many of the air routes over the Atlantic lead to the City of Light. We believe that the inability of the hubs to match the worldwide growth rate in passenger traffic is a harbinger of a change in airline traffic patterns—from hub-to-hub to point-to-point.

THE PASSENGER MIX

It should come as a surprise to no one that the mix of passengers on airliners is, over the long run, determined by a nation’s level of economic activity. When the globalization of business is on a tear, business travelers take to the skies to go abroad and mind their markets; when per capita income is rising and the employment picture looks bright, the middle class embarks on international vacations. The world is presently on the fringe of a major change in economic activity—brought on by a technological transformation—which will significantly change the passenger mix throughout the globe.

The manufacturing sector in the United States has been the first to feel the force of what that great Austrian economist, Joseph A. Schumpeter, called “the gales of creative destruction.” In the years following 1979—when manufacturing employment peaked at 19.6 million—the sector has declined by 25%. Half of that decline took a full twenty years; the second 12.5% (2.5 million jobs) has evaporated since 2001, when President George W. Bush took office. Because California has such an immense economy, its factories bore the brunt of the gale. Since 2001, its factories have had to slough off 298,000 jobs—16% of the total manufacturing jobs. The smart money is betting that many of these jobs will never return. According to Donald Straszheim, the president of Straszheim Global Advisors, a research firm: “The job loss to China, in particular, is just in its infancy. In the manufacturing sector, there is going to be enormous further erosion of jobs to China.”

Some industries have been hit harder than others. For instance, in the automotive industry the United Auto Workers Union (UAW) had 1.5 million members in 1979; that number had plummeted to 638,722 at the end of 2002. Between 1999 and 2003, the UAW lost 50,000 jobs in the auto plants. After a four-year contract was hammered out in the fall of 2003 between the UAW and the Big Three and its two major parts suppliers (Delphi and Visteon) Gary Lapidus, an auto industry analyst at Goldman Sachs, estimated that the UAW’s headcount would drop by another 50,000 over the life of the contract. Obviously, not many UAW members will be in the market for international vacation packages in the near future. In 1998, GM, Ford, and Chrysler (which has been peddled to the big German auto company, Daimler-Benz, the maker of the Mercedes) had 58.5% of the auto market in California (the nation’s biggest), and the imports had 41.5%. By the fall of 2003, the imports had 53.1% of that market and the Big Three had 46.9%. Jeffery E. Garten, the dean of the Yale School of Management, has come to the conclusion that “Detroit’s Big Three are heading for a pileup” by 2010 that will result in either the bankruptcy of Ford and GM or a very costly government bailout. We agree that his gloomy prediction could become a reality.

Those few American politicians who have taken the time to think about the erosion of the nation’s manufacturing sector have reassured their constituents that production workers will gravitate to the service sector in much the same manner as agricultural workers once shifted to the

manufacturing sector. However, the times are changing in the service sector. Blips of light dancing down skeins of glass are bringing about this change. As a result of fiber optic cable, the cost of making a telephone call between continents will start to approach zero; consequently, any activity that can be converted to a digital format will probably end up being sent to either India or China. It is a phenomenon known as “The Death of Distance.” Near the end of the 1990’s Frances Cairncross wrote in *The Economist* as follows:

The death of distance as a determinate of the cost of communications will probably be the single most important economic force shaping society in the first half of the next century. It will alter, in ways that are only dimly imaginable, decisions about where people live and work; concepts of national borders; patterns of international trade. Their effects will be as pervasive as those of the discovery of electricity.

The speed with which America became enmeshed in a web of fiber optic cables boggles the mind. In one very short period (1998-to-2001) the amount of fiber placed in trenches throughout the U.S. increased fivefold. During the same period, a technique known as Ultradense Wavelength Division Multiplexing heightened the carrying capacity of each strand of glass 100-fold; consequently the supply of transmission capacity throughout America increased 500-fold.

As fathom after endless fathom of fiber optic cable was rolled off and laid down on the oceans’ floors and as blips of light (photons) replaced surges of electricity (electrons) in international telecommunications, high-paying jobs in America’s service sector began to migrate to developing nations on the Pacific rim. According to Forrester Research—the high-tech forecaster—27,121 positions in computer programming and mathematics left the U.S. in 2000; it estimates that 108,992 jobs will migrate from the U.S. to India and China by 2005—jobs valued at \$6,549,539,142—via fiber optic skeins. (We are intimately familiar with these trends. One of the writers spent three decades managing software-engineering organizations in the aerospace industry.) In addition, call-answering and data processing are heading to Bangalor, India, thanks to the efforts of firms such as Electronic Data Systems, which was originally started by a jug-eared little guy with a raucous East-Texas twang named Ross Parot, the lone star from the Lone Star State. Also many of the big eastern banks are now sending financial analyses and accounting work to the Middle Kingdom and the Subcontinent. In a move that is emblematic of the death of distance, radiologists in Beverly

Hills will find some of their work going to India, where physicians—many trained in American universities—will decipher x-rays for one-quarter of the U.S. fee. According to a recent study by researchers at the University of California-Berkeley, 14 million U.S. service sector jobs are in danger of being sent overseas.

As America's manufacturing and services flow to the East, American managers will fly in the same direction in droves—to check designs and to monitor quality. And American workers will stay at home in droves and try to stay employed. This switch from tourist class to business class will be a source of unalloyed joy for airline operators, for there is an old adage in the industry that goes: Economy class fills the seats, but business class fills the coffers.

This switch in passenger mix further supports the view that the trend is from big airliners with many seats flying hub-to-hub to smaller airliners with fewer seats flying point-to-point. Thus the Boeing 747, with about 420 seats, is being replaced by the 777, with about 300 seats and by the Airbus 340-500 with about 310 seats. (This substitution is obvious on the Atlantic run: Between 1990 and 2000, the departures of 747s dipped, while flights by the downsized widebodies, such as the Boeing 777 and the Airbus A340, almost tripled.) And, after 2008, many of the smaller widebodied aircraft will be replaced by the Boeing 7E7, with about 200 seats, most of which will be filled by the bottoms of business people, rather than tourists, who will be flying point-to-point to "paired cities." In the world of commerce time is money.

Symbolic of this transformation in passenger mix is the nonstop flight from LAX to Singapore that was previously discussed. Using a new Airbus A340-500—which normally carries 350 seats divided into first, business, and economy classes—Singapore Airlines is configuring this aircraft with only 181 seats divided into two classes: business and "executive" economy. In executive economy, the seats will be 2 inches wider and have 5 inches more legroom than seats normally found in the economy section. The seating arrangement will be two on each side and three down the middle. (In the economy section of the typical Boeing 777 jet, there are as many as five seats in the middle.) Because this service is structured for the business traveler heading to and from the Orient, Michael Tan, a senior vice president of Singapore Airlines, does not believe that people will have trouble flying nonstop for 18 hours straight. Says he: "People are already flying 20 to 24

hours with stopovers. The majority of the people we fly want to fly nonstop. I think the psychological issue will be easily overcome.”

The logical result of the changes in airline traffic patterns and passenger mix is that in the future LAX will experience many more air operations (i.e., takeoffs and landings) for any given number of passengers than it has in the past. And this fact is of pivotal importance in making a long-range plan for LAX because it is air operations—not people—that pound the cities of the South Bay with noise and pollution.

Mayor Hahn has promised to hold passenger traffic at LAX to 78 million a year through the year 2020 by restricting the number of passenger gates. Even *if* this approach succeeds—and it is our opinion that success is impossible—the runways will still be clogged with smaller jets filled with business travelers waiting impatiently to take off for the “long, thin routes” to the Orient. And this will mean that the \$9 billion used to reconfigure and refurbish the airport will have been frittered away.

THE TECHNOLOGY OF TERRESTRIAL TRANSPORTATION

Alternative D of the LAX Master Plan advocates a “regional approach” to the growth anticipated at LAX between 2004 and 2020; however, such a plan will not get off the ground unless the airport at Palmdale is connected to LAX with something other than that tortuous and congested trail known as Highway 14. The answer to this problem is a brilliant advance in the technology of terrestrial transportation called magnetic levitation or simply “MagLev.”

By the year 2020, the large metropolises of the world will have linked their city centers to their airports via maglev trains. It should be understood that maglev trains—which ride on air rather than rails and which are suspended by one magnetic force and pulled forward by another—represent an entirely new way of moving passengers from Point A to Point B. This wave of the future in terrestrial transportation—the maglev tsunami—is just beginning to gather force.

In October, Shanghai, China opened its maglev link between the city’s financial district and its new Pudong International Airport, located nineteen

miles away. But before this inauguration, it had already carried 83,000 passengers.

Munich, Germany, is in the advanced planning stage of a maglev line running from its city center to its airport, a distance of 22 miles. The line is expected to be operational in 2008.

Pittsburgh and Baltimore are the final contestants for a grant under the 1998 Transportation Equity Act for the 21st Century. If Pittsburgh wins the \$950 million prize, it will build a 47-mile maglev line linking its international airport and two other cities. If Baltimore wins the award, it will build a 40-mile line from the city to the Baltimore-Washington International Airport and then on to Washington, D.C. where it will tie up with Amtrak and the Metro. Both lines plan to be operational in 2012.

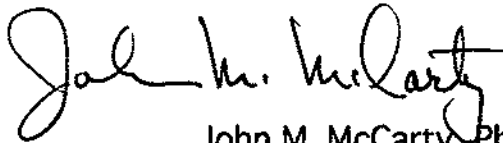
Atlanta, Georgia, is planning to link its airport with its northern suburbs by 2010.

Also under study is a maglev line that would link Anaheim to Las Vegas that would have several station-stops along the way. The first phase—from the Las Vegas airport to Primm, Nevada, a distance of 35 miles—would be operational by 2010.

Finally, a maglev line is under study that would link LAX with the Palmdale airport. According to initial estimates, the line would be about 71 miles long and have 5-to-7 stations. It would have an estimated annual ridership of about 30 million, and it could be operational by 2010.

What will make maglev systems so ubiquitous by 2020? One word says it all: speed. For instance, the train built by Shanghai zips along at 268 miles per hour—a full 81 miles per hour faster than Japan's famous bullet train. On trips of less than 621 miles, a maglev train can match air travel time. A maglev line between LAX and Palmdale would cut the travel time to about 30 minutes—or about half the time it takes to go by taxi from the heart of Washington, D.C. to the Dulles Airport.

The answer to the LAX expansion is not Alternative D. The answer is Alternative ML: a maglev line to Palmdale—the terrestrial transportation system for this century.


John M. McCarty, Ph.D.


Shirley C. McCarty

357 Valley Street
El Segundo, CA 90245
FAX: (310) 322-5058
E-mail: mccartys@earthlink.net

Note: Data sources and references supplied on request.



November 7, 2003

Sent via U.S. Mail and fax to (310) 645-4026

Mr. David Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
AWP-611.2
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Dear Messrs. Kessler and Ritchie:

On behalf of the Hollywood Chamber of Commerce, I'd like to express our support for the LAX Master Plan Enhanced Safety and Security Alternative, known as "Alternative D."

We find merit in the Plan's envisioned New Center Taxiway, Central Terminal Area (CTA), Consolidated Rental Car Facility (RAC), Ground Transportation Center (GTC), nearly 40 miles of infrastructure and road improvements, and the People Mover. Our support is contingent upon the People Mover system being completed and operational before vehicle traffic is prohibited within the central airport area and that luggage can be checked in via skycap or underground tunnel.

We stress that access to the airport via public transportation should be a focused priority in the years to come, as our region grapples with increased population and traffic. Though "Alternative D" provides a link to the Green Line at the Intermodal Transportation Center, we feel this link is less than optimal because a transfer to the People Mover is still required. Shortsightedness during the rail line's construction, which stopped short of the airport, and incompatible technologies with airport navigation systems have debilitated what could have been a more widely-utilized and efficient system. We urge the future planning for LAX to concentrate on providing convenient public transportation access to the airport.

LAX Master Plan
Page 2

The Flyaway Bus System is an effective and reliable method of arriving at the airport from the Valley. We understand that an expansion of the Flyaway system to other communities is being considered, but we are dismayed that Hollywood is not included, since we are the tourist hub for the City of Los Angeles. We would be happy to work with you to find a suitable location for a Flyaway program in Hollywood, which receives 10 million visitors a year. For the past couple of years we have been working to create a "parkade," or transit center for tour buses, which, located behind the El Capitan and across the street from the subway station at Hollywood & Highland, would serve as an intermodal transportation nucleus.

Lastly, we feel that by designating the Master Plan Alternative as the Enhanced Safety and Security Alternative, one gets the impression that it will be much less convenient for business travelers and tourists to utilize LAX, due to excessive screenings and delays. We suggest that, as planning moves forward, an effort be made to portray Alternative D as a tourist-friendly enhancement to the existing airport.

Sincerely,



Leron Gubler
President & CEO

Recd
11-07-03
3:30pm

Robert Acherman
6055 W 75th Place
Westchester, CA 90045-1631
(310) 645-8528

November 6, 2003

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Dear Mssgrs Kessler and Ritchie:

I am writing you in regards to the Draft LAX Master Plan Environmental Impact Statement/Environmental Impact Report (DEIR/DEIS).

As I have stated in previous comments, I am opposed to all of the master plan alternatives presented thus far. I agree and accept that some effort must be made to assure that LAX is a safe and secure airport. Alternative D is a step in the right direction, but it too has its fatal flaws of excessive expense, passenger inconvenience, uncertain traffic mitigation and additional pollution. I have enclosed one of my previous letters.

I agree with the questions and conclusions presented by the Neighborhood Council of Westchester/Playa del Rey (NCWPDR) and the County of Los Angeles. I do not agree with the county's report suggesting that runway 24R be moved further north closer to the residents of Westchester/Playa del Rey. I have enclosed a copy of the NCWPDR LAX Master Plan Position Paper and Questions on the LAX Master Plan in case you did not receive it.

I have included some of my questions below:

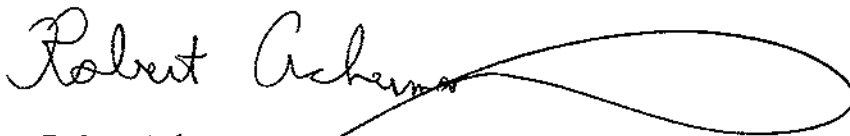
1. How will the questions to the Draft EIS/EIR be responded to? Will writers receive an individual response? Will all responses be published in the Final EIS/EIR?
2. On what date do you anticipate to complete answering all of the inquires?
3. To what depth of analysis and commentary will you provide on the Westchester community designed "Alternative E" and the revised, "Alternative E-1"?

Letter to Mssgrs Kessler and Ritchie
November 6, 2003
Page 2

4. Should the EIS/EIR be approved, to what extent will there be public input and participation in further defining the project? Will participation be encouraged from areas outside of the surrounding LAX community including outside L.A. City and County limits? Will an advisory committee be established? How will the members of the committee be selected? Will this committee include critics as well as supporters of the selected Alternative?
5. Will the airlines have any role in shaping the building process should the EIS/EIR be approved?
6. Will revenue from Airbus A380 pay back the investment being proposed in airfield and terminal improvements to handle this aircraft? Over what time period will the A380 improvements be paid for out of landing and other fees?
7. If the A380 requires 12,000 foot runways, then how will LAX handle a fully loaded long-range A380 on a proposed reconfigured runway 24L that will be less than 12,000 feet?
8. Can Ontario and Palmdale airports handle the A380? Runways? Taxiways? Ramp area? Gate areas? Parking? Catering? Cleaning? Customs and Immigration (FIS facilities)?
9. How are runway lengths measured? What is the FAA standard for runway length measurements? Are areas for landing lights at the ends of runways calculated into runway length?
10. The County of Los Angeles report made reference that a "Supplement" is not the correct format for CEQA purposes. Is the county's assertion correct? If so, would this require a new EIS/EIR to be drawn up using more current data?
11. If the EIS/EIR is deemed inadequate or rejected, will a new EIS/EIR be drafted? Will other concepts be considered? Will new data be gathered? Will the airlines and the public have the ability to submit ideas before a master plan concept has been crystallized and studied? Who will make these decisions?
12. To what extent does the FAA control, influence or direct planning efforts at LAX and other airports? Can the FAA legally force LAWA to implement certain changes?
13. When will the ground radar be installed at LAX that was recommended as a result of the 1991 ground collision between a USAir 737 jet and a SkyWest commuter plane?

I look forward to reading your replies to the comments and questions.

Sincerely,

A handwritten signature in cursive script that reads "Robert Acherman". The signature is written in black ink and features a large, sweeping loop at the end.

Robert Acherman

Enclosures: 2

SPC00302

Robert Acherman
6055 W. 75th Place
Los Angeles, CA 90045-1631

COPY

November 9, 2001

Mr. Jim Ritchie
Deputy Executive Director
Los Angeles Department of Airports
LAX Master Plan Room 218
PO Box 92216
Los Angeles, CA 90009-2216

Dear Mr. Ritchie:

I am writing again to express my disapproval with all of the LAX Master Plan concepts presented, including the No Project Alternative, which is misnamed as several projects are incorporated into what is supposed to be a no change baseline study.

The LAX Master Plan will not be able to meet the traffic mitigation contemplated in the Environmental Impact Report and Environment Impact Statement and the Proposed Airport Layout Plans as several traffic mitigation projects have changed. The Arbor Vitae Interchange project has been put on hold. Plans to use Sepulveda Boulevard have been dashed by the Los Angeles City Council this Wednesday when the proposal to expand Sepulveda Boulevard between Centinela and Lincoln was removed from the Coastal Transportation Corridor Specific Plan. Another traffic mitigation project in limbo is Playa Vista's improvement of the Culver Boulevard interchange at Lincoln Boulevard. The California Coastal Commission is set to make a decision on Playa Vista's plan.

The world has changed since September 11th, including the world of air transport. So too must the thinking in airport planning. Traffic at LAX is down by about 30%. It's time to go regional-expand Ontario and build-up Palmdale into the truly modern airport that was promised more than 30 years ago. This is the time to make the infrastructure improvements at these two airports for the next 20 years while there is a lull in travel.

I am also opposed to Mayor James Hahn's fifth Alternative Plan which has not been properly prepared and noticed. While I support improving security at LAX, the world's third busiest airport, I will not support any plan that will move runways closer to the residents and businesses surrounding the airport. The surrounding airport communities always pay a heavy toll when LAX expands. Westchester and Playa del Rey have lost and will lose more homes and businesses under all of the expansion plans. Communities such as Inglewood, Lennox and El Segundo will be move heavily impacted by aircraft noise and pollution under all of the expansion plans. All communities in and around the airport will also suffer with increased traffic congestion and safety hazards.

Please join with thousands of residents, businesses and hundreds of local governments in opposing the LAX Master Plan and in supporting the regional solution to meeting our air traffic needs.

Sincerely,

SPC00302

**THE NEIGHBORHOOD COUNCIL OF WESTCHESTER-PLAYA DEL REY
SPECIAL BOARD MEETING AGENDA**

Tuesday, October 21, 2003 – 6:30 p.m.
Loyola Marymount University
University Hall, First Floor, Room 1762
One LMU Drive, Westchester, CA 90045

The public is requested to fill out a "Speaker Card" to address the Board on any item of the agenda prior to the Board taking action on an item. Comments from the public on Agenda items will be heard only when the respective item is being considered. Comments from the public on other matters not appearing on the Agenda that is within the Board's subject matter jurisdiction will be heard during the Public Comment period. Public comment is limited to 2 minutes per speaker, unless waived by the presiding officer of the Board. As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities. Sign language interpreters, assistive listening devices, or other auxiliary aids and/or services may be provided upon request. To ensure availability of services, please make your request at least 3 business days (72 hours) prior to the meeting you wish to attend by contacting the Neighborhood Council Project Coordinator (323) 224-2314.

1. Call to Order/Roll Call
2. Pledge of Allegiance

ACTION ITEM

3. Summary of LAX Master Plan Alternative D
4. Committee Report – Airport Relations
5. Public Comments – agenda items or non-agenda items within the Board's subject matter jurisdiction. Public comments are limited to 2 minutes per speaker.
6. Discussion

MEETING PACKAGE CONTENTS

1. Agenda (this page)
2. LAX Master Plan Position Paper
3. Community Questions on the LAX Master Plan EIS/EIR
4. Proposed amendments to reports
5. Letter from Los Angeles Airlines Airport Affairs Committee (written comments)

LAX Master Plan Position Paper

Airport Relations Committee recommends adoption of this report by the
Neighborhood Council of Westchester/Playa del Rey Board of Directors

Approved by the Airport Relations Committee on Saturday, October 18, 2003

Ayes:	7
Noes:	1
Abstain:	2

Approved by the NCWPDR Board of Directors, Tuesday, October 21, 2003

Ayes:	<u>13</u>
Noes:	<u>3</u>
Abstain:	<u>3</u>

Notes:

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 **INTRODUCTION**

2

3 The Neighborhood Council of Westchester/Playa del Rey (NCWPDR) is the
4 recognized Neighborhood Council for Westchester/Playa del Rey. The Los
5 Angeles International Airport (LAX) is included in the Council's boundaries. Los
6 Angeles World Airports (LAWA), the City of Los Angeles agency that operates
7 LAX has released a Supplement to the Draft Environmental Impact
8 Statement/Environmental Report (EIS/EIR) for the LAX Master Plan (hereafter
9 referred to as "Alternative D" [July 2003]). Many of the stakeholders that
10 comprise our community (residents, businesses and real property owners)
11 expect NCWPDR to take a position on the LAX Master Plan and to ask
12 questions about the EIS/EIR document. This position paper and accompanying
13 questions respond to those expectations.

14

15 NCWPDR represents a community of over 55,000 residents and a variety of
16 businesses, institutions and government facilities. LAX has been a stakeholder
17 in NCWPDR since its inception in 2002. It has been and continues to be the
18 intention of NCWPDR to maintain a positive working relationship with LAX.

19

20 The NCWPDR Board of Directors understands the need for a safe and secure
21 airport. The NCWPDR Board also understands the needs of the residents and
22 local businesses to not be negatively impacted by airport operations. NCWPDR
23 stakeholders are also shareholders in City assets such as LAX. There is a

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 reasonable expectation on the part of citizens that government will take good
2 care of publicly owned facilities. Airports are unique government owned
3 facilities as they provide both transportation options and economic
4 development. Airports are also unique in the types of problems that they
5 present for neighbors- noise, traffic, pollution and a potential terrorist target.

6

7 There is a long history between LAX and Westchester/Playa del Rey residents
8 where some very important promises on development issues have been made
9 and not been kept -- issues such as ground radar and a new passenger
10 airport in Palmdale.

11

12

13 **POSITION PAPER**

14

15 NCWPDR has examined the Supplement to the LAX Master Plan Draft EIS/EIR.
16 The question used to come to a decision was, "Is the LAX Master Plan
17 beneficial to the community?" The answer is "no." NCWPDR requests that the
18 Board of Airport Commissioners (BOAC), Federal Aviation Administration (FAA),
19 the Los Angeles City Council and Mayor Hahn reject all LAX Master Plan
20 alternatives produced thus far and start over with active input from the
21 surrounding communities and the airlines to design a new LAX Master Plan
22 which all parties can support.

23

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 **REGIONAL SOLUTION**

2

3 There are other viable alternatives to expanding or modernizing LAX such as a
4 truly regional plan. It is well known and understood that LAX alone cannot meet
5 the future passenger and cargo capacity needs of Southern California. There
6 are several commercial airports in the area that can provide the necessary
7 capacity to meet the projected doubling of worldwide commercial air traffic in
8 2020. Some airports, notably Burbank and Long Beach, are constrained by
9 noise regulations and field size from handling additional significant growth.

10

11 LAWA is in the driver's seat in meeting future airport capacity needs with its
12 ownership and operation of Ontario International Airport and Palmdale
13 Regional Airport. While new master plans are under development for both of
14 these airports, there needs to be the leadership within City Hall to make certain
15 that construction plans are made and literally poured into concrete.

16

17 Ultimately, outlying airports such as Ontario and Palmdale will need to be built
18 into modern air terminals with high speed rail and freeway connections
19 integrated into their facilities. The longer we wait, the more expensive and
20 more difficult it will become to complete these projects. As opposed to
21 spending \$9.6 billion at LAX, LAWA can build new over 100 million annual
22 passengers (MAP) capacity at both Ontario and Palmdale for about half of what
23 is proposed for Alternative D. Furthermore, for homeland security purposes,

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 improved airports at Ontario and Palmdale can provide relief capacity in case of
2 a terrorist attack at LAX. Therefore, Southern California will not be completely
3 cut-off by air from the rest of the nation and the world. Building for the future
4 means that Ontario and Palmdale must be built now.

5

6 The LAX Master Plan EIS/EIR must include definitive programs, proposals and
7 plans for LAWA and the City of Los Angeles to put into effect to achieve a
8 regional solution. The City must make a formal commitment to undertake
9 these actions.

10

11

12 **PRIOR PROPOSALS**

13

14 At the outset, it should be absolutely clear that NCWPDR rejects the previous
15 Master Plan Alternatives A, B and C. All three of these plans are designed for
16 the express purpose of increasing the capacity of LAX to handle more
17 passengers and do not even attempt to improve the existing facilities for safety.
18 These plans were too invasive to the surrounding community with the
19 introduction of such elements as a ring road, western terminal and runway
20 reconfigurations that would have placed runways closer to the community and
21 dislocated hundreds of residents and local businesses. The literal purpose of
22 placing a new terminal at the west end of LAX was to create a new second path
23 to the airport directly through our communities. The location of a west end

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 terminal also necessitated the ill-advised "ring road" which in addition to
2 destroying a massive portion of the Westchester Business district, would also
3 disrupt existing traffic flow on North/South surface routes without any mitigation
4 proposed, or for that matter even possible.

5

6

7 **ALTERNATIVE D - Mayor James K. Hahn's "Safety and Security Plan"**

8

9 While Alternative D does in fact remove the most abhorrent parts of Alternatives
10 A, B and C, and is preferable to those alternatives, unfortunately it creates a
11 new and different set of problems that ultimately cause the committee to reject
12 it as well. Primary among our concerns is that Alternative D is not a safety and
13 security plan. Second, the proposed cost far outweighs any perceived benefits.
14 Third, Alternative D does not adequately mitigate traffic impacts.

15

16

SUMMARY ON CONCLUSIONS

17

1. The Neighborhood Council of Westchester/Playa del Rey does not
18 support Alternative D.

19

20

2. The objective of enhanced security is not met.

21

22

3. The stated cost of Alternative D is excessive relative to all benefits that
23 are described in the plan.

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1

2 4. Unlike the history of LAWA, this Alternative D does not treat the airlines
3 as partners.

4

5 5. Alternative D requires the dislocation of over 7,000 residents, of which
6 3,500 have already been relocated, at a time all affordable housing is in
7 the shortest supply ever experienced in our region.

8

9 6. Alternative D requires removal and relocation of elementary schools
10 when there is a need for school facilities.

11

12 7. Alternative D does not utilize LAX's physical facilities, Terminals 1, 2 and
13 3, that already represent a substantial investment, both public and
14 private.

15

16 8. The physical construction of Alternative D will create a long-lasting and
17 disruptive impact on the residents and businesses within the sub-
18 region. The negative impact of this disruption has not been netted out
19 from the projected economic benefits.

20

21 9. While the plan calls for a 78.9 MAP there is no feasible method of
22 controlling the number of passengers. Alternative D does not
23 adequately address the traffic impacts, mitigation, and transportation

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 operation required for 78.9 MAP on the incremental passengers which
2 could be 10 to 20 million more. The 405, 105, and 110 freeways and
3 major thoroughfares and intersections are at a point where physical
4 traffic mitigation of the impacts generated by 78, 88, or 98 MAP is not
5 feasible. Overriding considerations are not an acceptable strategy for
6 any plan.

7
8 10. The environmental impacts of Alternative D, particularly air pollution and
9 noise, will be substantial during the physical construction as well as the
10 operation of Alternative D.

11
12 For any sizeable project in our sub region, at least 2 to 3 years has been
13 required to achieve a reasonably acceptable plan. The EIS/EIR as presented
14 does not adequately satisfy the objectives outlined above. Therefore, we
15 recommend additional study to prepare a revised plan which meets the stated
16 objectives for LAX's modernization.

17
18 *Alternative D does not adequately address safety and security needs.*

19
20 The chief safety issue that the LAX Master Plan seeks to address is runway
21 incursions. LAWA has proposed center line taxiways between the runways to
22 accomplish this goal. According to FAA records, LAX has not had a runway
23 incursion with an aircraft in the past five years. We also congratulate LAWA on

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 not having any incursions in the past 12 months. In 1996, LAX opened a new
2 control tower that gives controllers an unobstructed view of the whole airfield.
3 The new tower was constructed in response to a 1991 ground collision
4 involving a Skywest turboprop that taxied onto a runway where a USAir 737 jet
5 was coming in for a landing. LAX also eliminated mid-field take-offs for
6 turboprops as a result of the accident. To our knowledge, another
7 recommendation never implemented in the aftermath of the crash was the
8 installation of ground radar. It is essential that the ground radar be installed as
9 soon as possible. As has been proven with signage along the runways and
10 departure procedures for preventing early turns over El Segundo and Playa del
11 Rey, so too can electronic traffic signals along runway exits and arrival
12 procedures be implemented to prevent aircraft incursions.

13

14 Another stated goal of the center line taxiway is to accommodate New Large
15 Airplanes (NLA's). The 555 seat A380 super jumbo jet, presently being built by
16 the European consortium Airbus in Toulouse, France, is an NLA. We are
17 aware from reading magazines such as *Aviation Week and Space Technology*
18 that Airbus officials have met with LAWA officials concerning runway, taxiway
19 and ground handling requirements for the A380 which is scheduled to enter
20 service with such foreign flag carriers as Air France, Lufthansa, Qantas and
21 Singapore in January 2007. LAWA apparently has incorporated some of those
22 requirements into the reconfiguration of the north runway complex, 24L and
23 24R.

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1

2 We also understand that several Asian airlines that ordered over 60 A380
3 aircraft told LAX officials that unless the LAX airfield and gates are ready for the
4 A380 in 2007, they will land elsewhere.

5

6 We see from the Airport Layout Plan that LAWA intends to use the FAA's
7 proposed Group VI airfield arrangement. We want to point out that the Group VI
8 airfield specifications have not been adopted by the FAA and that LAWA has
9 "modified" (i.e. diminished) some proposed Group VI airfield specifications
10 towards the east end of the newly relocated 24L, 340 feet south of its current
11 location. We are not satisfied that this new runway arrangement will meet the
12 need of the A380's and other future NLA's by compromising the runway and
13 taxiway arrangements at the outset.

14

15 There is also the issue of runway length. The longest runway at LAX is the
16 south inboard runway 25R with 12,000 in length. Although there may be
17 assurances that the A380 can take off on runways less than that length, the
18 aircraft has not been produced and tested to verify projected operational
19 capacities. LAWA should not be reckless with the public's money and begin
20 construction by pouring concrete only to find out not too much later that
21 additional changes are needed. As shown in the experience of building Denver
22 International Airport (*Denver International Airport: Lessons Learned*), making

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 changes after construction begins will greatly increase costs; this is partially
2 how a proposed \$1.5 billion project became a \$4.5 billion project.

3

4 While the stated intention of Alternative D is to cap LAX at 78.9 MAP, we do not
5 see how adding center taxiways, and therefore increasing the throughput on
6 the runways, will meet that goal. Airlines will increase flights to meet
7 passenger demand which is expected to rise to 165 MAP regionally during the
8 next 20 years. Even with 11 contact gates removed and the proposed 747-
9 compliant replacement gates along the length of the Terminal 1, 2 and 3
10 ticketing areas, we still see that the increased runway and taxiway efficiency
11 could more than compensate for the reduced number of gates.

12

13 Alternative D does not make LAX more secure. By increasing the airport
14 perimeter to Manchester Square and Continental City with the proposed
15 Ground Transportation Center (GTC) and Intermodal Transportation Center
16 (ITC) at these respective locations, LAWA is actually making LAX a larger,
17 1-1/8+ miles of additional target opportunities for terrorists. The EIS/EIS
18 document reads as though protecting buildings are more important than
19 protecting the people inside them. LAWA has already proven that it can make
20 LAX secure. We applaud LAWA for having LAX be the only top 20 airport
21 (Category X) in the United States that met the December 31, 2002 deadline for
22 baggage screening.

23

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 Alternative D relies on security technology that does not exist or is unproven.
2 Again, as in the case with Denver International Airport, LAWA should use only
3 proven off of the shelf technology. The automated baggage system was
4 replaced at DIA with a traditional belt system because the automated system
5 had never been used elsewhere. This baggage system replacement was
6 done at great expense was the cause of several delays in the grand opening of
7 Denver International.

8

9 *Alternative D does not adequately address traffic issues.*

10

11 Traffic issues will not be significantly mitigated in Westchester/Playa del Rey
12 with Alternative D. As written in the EIS/EIR, LAWA relies on other government
13 agencies to make street and highway improvements, if they are even feasible.
14 Due to the current state budget crisis, those improvements are unlikely as the
15 Legislature had depleted the state highway building fund in order to balance
16 the 2002-2003 budget. Although the Ground Transportation Center (GTC)
17 relies on freeway connections, there is not enough freeway capacity to handle
18 the load. As such, travelers will find other alternatives to access the airport
19 such as the consolidated rental car facility (RAC). The RAC's proposed
20 location on 98th Street between Sepulveda and Airport is already a problem
21 because it does not stop the existing problem of motorists cutting through
22 Westchester/Playa del Rey neighborhoods such as Osage Park, Westport
23 Heights, Kentwood and Loyola Village to access the airport. Construction of

LAX Master Plan Position Paper

1 Alternative D will also bring many traffic detours as a parade of trucks moves
2 dirt and brings in concrete and other building supplies.

3

4

5 *The proposed cost far outweighs any perceived benefits.*

6

7 LAWA officials have continually touted the positive economic benefits that LAX
8 provides to the Southern California economy. However, by making the journey
9 from the curb to the gate more cumbersome, LAWA will succeed in driving
10 away passenger traffic- the exact opposite of preserving LAX's touted role as
11 one of the region's economic engines. Planning must be done for queing of
12 automobiles and people.

13

14 With costs for just the EIS/EIR work already having spiraled out of control, we
15 are extremely worried that the projected \$9.6 billion to implement Alternative D
16 will balloon to an even higher amount and cause extreme financial difficulties
17 for LAX and its tenant airlines. It is generally considered that contingency costs
18 (i.e. construction overruns) are 3% of Alternative D when most projects have a
19 10% contingency. As stated previously, more capacity can be built for less
20 money at Ontario and Palmdale.

21

22

Neighborhood Council of Westchester/Playa del Rey

LAX Master Plan Position Paper

1 **CONCLUSION**

2

3 The Neighborhood Council of Westchester/Playa del Rey rejects LAX Master
4 Plan Alternatives A, B, C and D due to their excessive costs and negative
5 impacts on the community. We further note that Alternatives A, B and C overtly
6 increase capacity. The NCWPDR Board of Directors supports a truly regional
7 solution for meeting Southern California's airport capacity needs by building
8 out airports in Ontario and Palmdale. While the NCWPDR Board has rejected
9 the LAX Master Plan alternatives presented thus far, the Board does support a
10 safe and secure LAX and would be willing to work with LAWA, the airlines and
11 other communities in developing a LAX Master Plan which is directly tied to a
12 truly regional solution with implementation budgets and schedules.

Community Questions on the LAX Master Plan EIS/EIR

Airport Relations Committee recommends adoption of this report by the
Neighborhood Council of Westchester/Playa del Rey Board of Directors

Approved by the Airport Relations Committee on Saturday, October 18, 2003

Ayes:	10
Noes:	0
Abstain:	0

Approved by the NCWPDR Board of Directors, Tuesday, October 21, 2003

Ayes:	<u>19</u>
Noes:	<u>0</u>
Abstain:	<u>0</u>

Notes:

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

QUESTIONS ON THE LAX MASTER PLAN EIS/EIR

- 1
2
3 1. What programs or activities are the FAA and LAWA participating in or working
4 towards creating a regional airport plan other than Ontario International
5 Airport (ONT) as recommended by SCAG?
- 6 2. Is there any cost analysis showing the impact of increased costs at LAX if
7 Alternative D were to be constructed? What is the breakdown of costs to the
8 passengers, airlines, bondholders, concessionaires? For what period of time
9 will those increased costs be in effect? Will Passenger Facility Charges
10 (PFC's) increase? How much for each carrier?
- 11 3. Where is the cost analysis showing the impact on neighboring communities in
12 terms of businesses during construction? Health issues such as loss of
13 hearing, increased respiratory diseases, cancers, and stress? Loss to
14 employers and employees for sick time due to these health issues?
- 15 4. How will LAWA retain low cost airlines (e.g. Southwest, Frontier, etc.) at LAX
16 who will be displaced from their existing passenger terminal facilities by
17 Alternative D?
- 18 5. What other costs that are not a part of the projected \$9.6 billion will need to
19 be borne by the City of Los Angeles, County of Los Angeles, State of
20 California and the United States of America for impacts related to LAX? What
21 costs will incurred by these levels of government for health issues created by
22 LAX?

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 6. If 78.9 million annual passengers (MAP) is the proposed maximum number of
2 passengers to be handled at LAX in a calendar year, then what do you
3 anticipate will be the number of passengers per gate when you reach that
4 level?
- 5 7. Does the budget for the LAX Master Plan include potential litigation costs?
6 What is the budget amount? Are litigation expenses included in costs
7 analyses? Are settlement costs budgeted and for what amount?
- 8 8. Is the financing to acquire the properties in Manchester Square and Belford
9 Square considered to be a part of the financing for the LAX Master Plan?
- 10 9. What amount of property is to be acquired via eminent domain?
- 11 10. How many Airbus A380 aircraft are expected to fly into LAX? How many
12 flights per day? To what extent must passenger terminals be redesigned to
13 accommodate these aircraft? How many gates will be established for these
14 aircraft and at which terminal buildings?
- 15 11. Why are some numbers explained as percentages in the draft EIS/EIR
16 document? Can you explain the numbers instead of a percentage?
- 17 12. In the LAX Master Plan press kit, a section covering noise mitigation notes
18 some of LAWA's initiatives- residential acquisition, soundproofing and
19 enforcement of over-ocean operations during the night. How effective has
20 sending letters to the Chief Pilots of airlines been in affecting compliance with
21 LAX noise regulations? What other enforcement measures has LAWA used
22 and is legally available to LAWA to use to mitigate noise?

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 13. Why are there no studies being conducted to study the health effects of LAX
2 on surrounding residents?
- 3 14. Is LAWA recording and tracking low frequency noise generated at LAX?
4 What mitigation measures are being employed to reduce low frequency
5 noise? Low frequency noise must be studied, mitigated and abated.
- 6 15. At what location do you anticipate placing the run-up enclosure? Will the
7 enclosure prevent high and low frequency noise from going out into the
8 surrounding community? What will the hours of operation be for the run-up
9 enclosure? How will aircraft be moved to and from the enclosure- aircraft
10 under power, electric tugs, etc.?
- 11 16. How will biological incursions by non-native plants, animals and insects be
12 handled?
- 13 17. What is the amount of time each runway will be out of service when a runway
14 is moved and/or extended?
- 15 18. What is the construction route? Will existing streets be blocked and/or
16 detours put into place? For how long will these happen? What will the
17 operating hours of the construction route?
- 18 19. Why didn't you use World Health Organization (WHO) documentation to
19 support your Federal Interrogatory Committee on Aircraft Noise (FICAN)
20 information? Also, why was FICAN not used for Sound Exposure Level
21 (SEL)?
- 22 20. What mitigation measure did you include for SEL? If there were none, then
23 why were they not included? What abatement measures have been done

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 elsewhere for any kind of single event noise, not limited to airports? How
2 successful were those abatement measures?
- 3 21. Where else in the world, and in the United States in particular, has habitat
4 relocation been attempted? Has this effort been successfully implemented?
5 If it is not successful, then what penalty will LAWA suffer for non-compliance
6 with the EIS/EIR?
- 7 22. In cases of Single Event Noise/Sound Noise Level, what would be the AdBA
8 for serious annoyance and speech intelligibility and moderate annoyance?
- 9 23. How does LAWA propose to evaluate and mitigate noise impact on the
10 learning process of students in schools?
- 11 24. Why is there no specific noise study in the community on schools impacted
12 by LAX?
- 13 25. Why is there not a report of the origin and destination of passengers at LAX?
- 14 26. Why does the EIS show an improvement in air quality in the area north and
15 east of Manchester Square under Alternative D vs. No Action No Plan even
16 though Alternative D relocates an enormous amount of vehicular traffic to the
17 immediate area?
- 18 27. How were the projected 2015 levels of air pollution arrived at for the area
19 north and east of Manchester Square for the No Action No Plan Alternative in
20 the EIS? Were mitigation measures implemented by LAWA between the
21 1996 baseline and the present accounted for in the projections?
- 22 28. It would seem that the reconfiguration of the north runway complex
23 proposed under Alternative D leaves room for a fifth runway on the

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 north side of LAX. What measures are included in Alternative D that
2 would prevent the construction of such a runway at a later date?
- 3 29. What fleet mix was anticipated in Alternative D for 2015? Airlines
4 continue to purchase turbo prop aircraft. Were these aircraft included in
5 the noise projections?
- 6 30. Why was there an assumption that the current Part 161 study would
7 develop mitigation actions. Nothing can be assumed until the study is
8 complete.
- 9 31. Where is a firm commitment by LAWA and the city of Los Angeles to
10 the CNEL and over-ocean procedures included in the EIS/EIR?
- 11 32. Where are the studies of increased traffic on 6L and 6R during easterly
12 operations.
- 13 33. Where is the study on single-event noise generated by easterly take-
14 offs?
- 15 34. Over 20,000 would be newly exposed to 94dBA SEL noise under the
16 EIS/EIR. What time of day would these impacts occur? What
17 mitigation measures were included for SEL impacts?
- 18 35. To reach the proposed Ground Transportation Center (GTC) at
19 Manchester Square, people will continue to exit the 405 Freeway at the
20 Howard Hughes Center and then cut through Westport Heights and
21 Osage seeking airport access. Why were the following intersections
22 and/or roadway links not studied: Airport Blvd and 74th, 76th, and 78th;

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 La Tijera and 74th, 78th-79th, and 83rd; Hindry and Aviation; Osage
2 and Manchester?
- 3 36. The GTC could not have all the protection for hazardous materials,
4 decontamination, bomb detection and disposal that the airfield would
5 have. How would all the necessary emergency vehicles, materials, and
6 staff gain access to the GTC? To come from the airfield, they would
7 have to travel on city streets which would be clogged in the event of an
8 attack or accident.
- 9 37. How could the GTC be evacuated in the case of an emergency or
10 attack? What roads could/would be used? Where would pedestrians
11 and vehicles be directed? How could security get people and vehicles
12 out of the danger zone and still maintain security? And be sure that the
13 parties responsible were not escaping?
- 14 38. What amount of traffic is being assumed for the LAX Northside area? It
15 seems that the NA/NP figures are higher than the Alternative D figures.
16 Were the impacts (in terms of traffic and air pollution) for the full
17 entitlement under the 1983 EIR charged to the NA/NP, but not to
18 Alternative D?
- 19 39. What is the cost difference for Alternative D if non-union labor is used
20 instead of union labor? Will a Project Labor Agreement (PLA) be used
21 for Alternative D? What is the cost difference between the PLA, union
22 and non-union labor?

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 40. In 2002, American Airlines published a volume regarding human health
2 risk assessment for their operations at LAX. Why did not LAWA publish
3 a similar comprehensive human health risk study for the LAX Master
4 Plan?
- 5 41. Why were the comments submitted by November 2001 not answered
6 before (or with) the release of the Alternative D Plan in July 2003?
7 (Executive Summary, page 24)
- 8 42. Numerous data issues were identified in 2001. How is the integration of
9 more data into questionable data expected to be satisfactory?
10 (Executive Summary, page 24)
- 11 43. If the purpose and need for the LAX Master Plan has not changed since
12 the publication of the Draft EIS/EIR and there have been significant
13 political event changes in addition to the Mayor's no expansion pledge,
14 why is one of the three major project objectives to "Ensure that new
15 investments in airport capacity are..." Also, we are told that the major
16 emphasis is for "Security and Safety." Why is this not even mentioned in
17 the list of project purpose and need? (Executive Summary, page 24)
- 18 44. Based on 2.8% growth from present we will be at 78 MAP in 2015. Is
19 this a realistic growth rate? (Executive Summary, page 25, table ES-1)
- 20 45. Compare this runway spacing with other statements in the document
21 which appear to differ. This one is 340 ft south of existing centerline.
22 (Executive Summary, page 26, table ES-2)

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

- 1 46. 2.8M sq ft of terminal space added by Alternative D without any
2 capacity enhancement? If the capacity is not expanding why are there
3 about 4600 more employee parking spaces? (Executive Summary,
4 page 27, table ES-2)
- 5 47. How are the schools impacted/removed related between Alternative D
6 and NA/NP? Alternative D shows a private elementary and a Hollywood
7 CPR(?) not in the NA/NP. (Executive Summary, page 28, table ES-2)
- 8 48. What are the values of NA/NP for Office Use, Retail Use Acquired and
9 Hotel Use that are not shown in the table? How does this compare to
10 Alternative D? More or less? Why? (Executive Summary, page 28, table
11 ES-2)
- 12 49. This table assumes the higher value of development of LAX Northside
13 in NA/NP and Alternative D but Westchester South (the reduced) for
14 A,B,C. Why? Isn't this assumption different in other areas of the
15 documentation? (Executive Summary, page 29, table ES-2)
- 16 50. If LAWA doesn't own Manchester Square, why does it assume airport
17 use in all but Alternative A? How is it going to be procured? Eminent
18 Domain? Why is it in conflict with the Westchester-Playa del Rey
19 Community Plan? (Executive Summary, page 29, table ES-2)
- 20 51. Greater outside impacts under Alternative D. Why? What specific
21 areas? (Page 4-215, last paragraph)
- 22 52. What is the threshold of significance for outdoor noise levels? How were
23 they determined and applied? (Page 4-216, "Although increases in

Neighborhood Council of Westchester/Playa del Rey

Community Questions on the LAX Master Plan EIS/EIR

1 outdoor noise levels within the 65 to 75 CNEL contours would occur
2 under the build alternatives, these increases would not exceed
3 thresholds of significance.”)

4 53. Alternative D more extensive changes than other alternatives. Is it so
5 extensive that a new EIS/EIR required? (Page 4-217)

6 54. Since 2008 is the peak construction period for Alternative D and
7 2004/2013 for the others, how does this impact noise distribution due to
8 flight track differences. (Page 4-217)

9 55. What are the construction model assumptions and where are they
10 delineated? (Page 4-217)

11 56. Does inbound and outbound counts refer to the upper and lower levels
12 (aircraft arrivals/departures)? Otherwise they should be equal. Is there
13 an explanation for inbound consistently higher increases? (Page 4-221)

14 57. Why are the peak hours that different? What are the correct ones?
15 (Page 4-221)

16 58. Why isn't there pollution and health studies for aircraft engines while
17 idling and taking off?

18 59. Why do some of the charts have dates of 2001 and 2002 while the data
19 represented on those charts has dates of 1996 and 1997?
20

Proposed amendments to reports

LAX Master Plan Position Paper

Several suggestions to be submitted separately by Barry Weiss.

Community Questions on the LAX Master Plan EIS/EIR

I would like to add a few questions to those already posed. In my review of the LAX Master Plan there has been almost no attention to cargo handling facilities and their role in public safety.

Why have cargo handling facilities also not received the same scrutiny over security as passenger facilities?

Why are cargo facilities, after implementation of any of the alternatives of the LAX Master plan, still located all over the place without regard to a security plan?

What security measures does the LAX Master Plan have in place for the handling of cargo that will insure the safety of the public? Both in the air and on the ground.

Why aren't cargo facilities centralized in order to insure the safety of the public?

Why does the LAX Master Plan spend so much money on facilitating the A-380, a yet to be built, unproven European aircraft based in Toulouse, France, while American aircraft manufacturers struggle to stay alive?

Submitted by: David Coffin, NCWPDR District 10 Seat

Los Angeles Airlines Airport Affairs Committee

8939 S. Sepulveda Blvd., Ste. 102
Los Angeles, CA 90045

310-642-0980
FAX 310-642-0512

October 20, 2003

Mr. Robert Acherman
6055 West 75th Place
Westchester, CA 90009-2216

Dear Mr. Acherman:

The airlines serving LAX feel strongly that the airport needs to be modernized in order to effectively serve the traveling public and remain the key economic engine to the region. They further support the planning objectives of a safer, more secure and user-friendly LAX; however, Alternative D to the LAX Master Plan falls short of reaching these objectives, which the carriers think could be better achieved through a modification of Alternative D.

To that extent the airlines appreciate the opportunity to work with the Westchester/Playa del Rey community, and discuss alternatives that address the LAX master plan objectives. The airlines, having recently been provided with a copy of the Alternative E-1 concept, are very encouraged with our progress to date and believe that we are close to identifying a concept that is acceptable to the City of Los Angeles and the key stakeholders, including the local community and the airlines.

Thanks you. We look forward to continuing our working relationship.

Sincerely,

Kelley A. Brown
Executive Director

cc. Ms. Gwen Vuchsas

UNSOLICITED RO

SPC00302



Public Comments

Please print.

Name (First MI Last, or Organization): 50TH ST Block club Date: 11-4-03

Address: 1627 W. 50TH ST

City: L-A. State: C-A. Zip Code: 90062

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (If applicable):

Number: Title:

Comments:

Office Use Only

We would like to have master Plan D. we think this is the best plan we can have.

Dypsi G. Serrallon

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216



Public Comments

Please print.

Name (First MI Last, or Organization): Donie Brown Date: 11/04/03

Address:

City: LA State: CA Zip Code: 90062

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
Number: Title: LAX Master plan

Comments: Office Use Only

I am a member of the 50th 50th block club. I feel that Master plan D will be the best plan.

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

or

Mr. Jim Fitchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Rec'd
11-07-03
10:00am

DANNA COPE
8219 Reading Avenue
Westchester, CA 90045
(310) 641-2503
Dcope@stjosephctr.org

November 1, 2003

Mr. David Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 920007
Los Angeles, CA 90009-2009

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P. O. Box 92216
Los Angeles, CA 90009-2216

Dear Sirs:

While Alternative D of the Draft EIS/EIR for LAX Proposed Master Plan Improvements is better than Alternatives A, B, and C, the No Action/No Project is still my preference. Alt. D would delete the ring road, western terminal, and relocation of Runway 24R closer to the Westchester/Playa del Rey community, and it would limit the number of gates; however, it would create new problems that were not adequately studied, nor were there mitigations included for the new impacts. Therefore, Alt. D is not acceptable and is fatally flawed, as are Alternatives A, B, and C.

Alt. D would cost over \$9 billion to transfer security problems from the CTA out to the community; thereby leaving the residents and traveling public still at risk. Concrete, metal and plastic would be safer; people would not. Safety seems to have been designed for equipment and facilities. People would still be in large, vulnerable groups prior to security screening (at the drop-off point in Manchester Square and at the security processing center), but aircraft/runways/terminals would be protected.

Prior to the 2002 mayoralty election, then candidate James Hahn signed the ARSAC pledge that included, in Section 2, a commitment to not increase LAX beyond its existing boundaries. Manchester Square was (and is) not within LAX boundaries.

Placing a new Ground Transportation Center in Manchester Square would shift ground traffic to totally new areas (Inglewood and the Osage neighborhood of Westchester) that are not equipped to handle it. It does not appear that adequate security could be provided at this GTC in terms of security from vehicle/luggage/personal bombs or airborne contaminations. The main body of hazardous materials and decontamination staff and equipment would be on the airfield; in the event of a disaster or emergency the staff and

SPC00305

equipment would have to travel on city streets (which would, obviously, be heavily impacted) to reach the GTC. There does not seem to be a GTC evacuation plan or place for vehicles or pedestrians to go to.

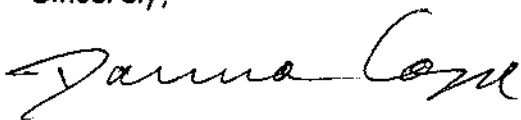
Low-frequency noise impacts were not included in Alt. D, single-event noise impacts were included, but there were no mitigation measures included.

Alt. D sends the message to other, outlying areas, such as Orange, Kern, Santa Barbara, and Riverside Counties that LAWA intends to just keep expanding LAX to handle all the Southern CA traffic - no firm commitment to a plan of action to achieve a regional approach is included.

Mitigation measures, for the most part, in Alt. D rely on other agencies or departments. There should be pro-active, firm actions included for LAWA and/or the City of Los Angeles to take (e.g., the City will formally request and actively lobby for...)

I support the positions, questions, and comments submitted by the LAX Area Advisory Committee, LAX/Community Noise Roundtable, and the Westchester/Playa del Rey Neighborhood Council. For the sake of brevity (and sanity) I will not iterate those positions in this letter. I do look forward to reviewing the responses to the issues raised by these organizations.

Sincerely,

A handwritten signature in black ink that reads "Danna Cope". The signature is written in a cursive, flowing style.

Danna Cope

October 28, 2003



Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Mr. David B. Kessler
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 92007-2007

The LAX Community Noise Roundtable Draft EIR / EIS Comments

The LAX Community Noise Roundtable was created in September 2000. It is composed of elected officials or their designees from Rancho Palos Verdes, Palos Verdes Estates, Redondo Beach, Hermosa Beach, Manhattan Beach, El Segundo, Culver City, Monterey Park, Los Angeles (Districts 11 and 8), Inglewood, Hawthorne, Los Angeles County, the FAA, the ATA, Los Angeles International Airport Area Advisory Committee and representatives from area groups.

1. The dates used do not satisfy the baseline for comparison to be as of the time that the Supplemental to the Draft EIS/EIR was submitted. The baselines were outdated at the time they completed the Supplemental to the Draft EIS/EIR.

2. 4.1.6.1.5 states, " the increase of the size of aircraft would result in louder individual noise events and consequently greater total noise energy levels and slightly increased contour size". This is against our stated policy of shifting noise from one community to another.

3. 4.1.6.1.5.3 - Page 4-65. This is against our stated policy of shifting noise from one community to another. S4.1-27 indicates a 2000 increase in population newly exposed to 65 CNEL or greater; an increase of 150 dwellings added within the 65CNEL; and 4 schools, 2 churches and 3 hospitals are newly added. Where are the precise mitigation measures for these increases?

4. The LAX Noise Roundtable does not support any flight track alteration or airfield alteration that shifts noise from one community to another. The FAA has also stated that to be their policy.

The moving and/or extending of runways 24L, 24R, and 25L results in the shifting of the noise contours and/or the shifting of noise from one community to another. Moving a runway changing the take off and landing of an aircraft flight path causes a significant shifting of noise. Why does the document indicate that there is not a significant change? What metric is used to determine 'significant'?

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5. The development of the A-380 and other potential jumbo jets noise characteristics have not been analyzed or incorporated. Will this increase or decrease the single event noise and the CNEL Contours? The actual noise characteristics of these advanced aircraft should be used in your study. Why does the document not mention these characteristics? How do the larger jumbo's perform with tail winds below 2, 4,6, 8, and 10 knots?

6. The World Health Organization (WHO) has upgraded noise pollution from a nuisance to a serious hazard. According to the WHO, "prolonged or excessive noise exposure has been linked to high blood pressure, heart disease, concentration problems and, of course, hearing loss. People who live in neighborhoods near highways and airports experience noise risks". Why were the affects of noise from health studies not presented in the document?

7. The threshold of significance for SEL single event noise used was 94 dba for exterior noise and 81 dba for interior noise for awakenings and is inadequate. The 94dBA and 81dBA is too high a threshold. We feel the SEL single event dba should more closely be associated with 'annoyance' and not just 'awakenings'. Why didn't the EIS/EIR deal with annoyance? Why were the reputable WHO statistics not evaluated in the guidelines?

8. Why in the NA/NP alternative is there an increase in nighttime noise?

9. We recommend that SEL single event noise be used to expand the areas for noise insulation. No one complains about a CNEL infraction. They call about single event noise. The Supplemental to the Draft EIS/EIR does not use as a mitigation measure a program to incorporate the single event criteria as a useful tool to a soundproofing program. Seeing as this is something that should have been included years ago it is only appropriate that LAX use this new legal tool to expand the area of dwellings in the soundproofing program. Why wasn't this issue addressed in the Supplemental to the Draft EIS/EIR? How many times a day are single event noise thresholds exceeded?

10. The outcome of a WHO expert task force meeting in London in March 1999, includes guideline values for community noise:

<u>Environment</u>	<u>Critical Health Effect</u>	<u>Sound Level dB(A)</u>	<u>Time hours</u>
Outdoor Living Areas	Annoyance	50 - 55	16
Indoor Dwellings	Speech intelligibility	35	16
Bedrooms	Sleep disturbance	30	8
School Classrooms	Disturbance of communication	35	During class

11. Percentages are very misleading when used in noise disturbance statistics. The actual numbers including percentages are needed for analysis. Facts, figures, noise levels, estimated values, decibels, and comparisons should have been provided. Why were the actual metrics not presented?

12. Will simultaneous landings of aircraft, on 24L, 24R, 25L, 25R runways, take place during the construction of the aforementioned runways? If so, what impact will that have on the CNEL and singles event noise?

13. What impact will simultaneous landings and/or takeoffs have on noise contours and single event noise?

14. Will simultaneous landings take place when all runways are completed?
15. What will be the noise impact of air traffic rerouting during runway reconstruction?
16. Easterly direction take offs are very disturbing to airport neighbors for awakenings and annoyance. It is apparent to the Roundtable that the awakenings of easterly takeoffs at night is far more disturbing than one out of ten instances that your report indicates. How were your figures determined?
17. Low frequency noise measurements are neglected in the Supplemental to the Draft EIS/EIR. Low frequency noise is a serious disturbance. Why aren't there any measurements and mitigation measures for low frequency noise included in this Supplemental to the Draft EIS/EIR? Please provide any information you have pertaining to this problem.
18. We recommend the suspension of all avigation easement requirements on all noise insulation programs. Why weren't the state requirements for avigational easements included in the noise insulation programs? Why hasn't LAWA included air conditioning units in all past and future noise insulation programs even though not funded by the Federal government?
19. Why is there no noise information about the Beach communities and Palos Verdes Peninsula, even though they have had noise annoyance problems for some time? Why have they been omitted? Explain the failure to look at noise impacts at CNEL levels below 65 that might include Palos Verdes Peninsula and the beach communities? (For example 50, 55, 60 CNEL)
20. Single event noise levels should expand to include a 20 mile radius. How can you determine an annoyance factor area if you don't expand your area of investigation? Why were areas negatively impacted by single event noise not included in the EIR/EIS? (See comment 10)
21. What fleet mix in 2015 was used to arrive at the conclusions in the document? How many are turbo-props?
22. The EIR/EIS states the Alternative D capacity of 78.9 MAP is a theoretical number, which may be exceeded. The use of 78.9 MAP as a limiting factor in the future growth of LAX is not enforceable. Why weren't noise impacts above 78.9 MAP investigated and documented? What is your plan? Will the relocation of the "curb front" allow more passengers to use the airport and thus more operations and thus more noise? Why were there no new theoretical MAP numbers applied to Alternative D when it increases the capacity of LAX beyond 78.9 MAP?

If the theoretical capacity as stated in the EIR/EIS can exceed 78.9 MAP if demand increases where is the regional plan which would reduce the demand on LAX? If there is no regional plan then where are the numbers showing impacts above 78.9 MAP?
23. Why hasn't the City of Los Angeles continued to support the Southern California Regional Airport Authority if they believe in a regional approach in airport capacities and a cap of 78.9 MAP at LAX?
24. As demand increases when will the capacity of normal operations start to impact over ocean operations? At what point does demand cause LAX to remain in normal operations past the 12 a.m. to 6:30 a.m. window?

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25. The EIR/EIS relies on mitigation measures based on the successful Part 161 approval by the FAA. Is this a guaranteed approval process? Why was it assumed that this would happen? Why are there no studies that show the impact without the Part 161?

26. The EIS/EIR states 6.2.3: "Prior to the determination of sound treatment eligibility, however, a new study of the relationship between specific aircraft noise levels and childhood learning abilities will be undertaken by LAWA as part of the continuing environmental monitoring process obligated under CEQA. This study will seek a predictive statistical relationship between the level of aircraft noise present at a school and the ability of children to learn, as expressed by standardized test results. When that study is complete and acceptable results are achieved, the potential for additions to the sound insulation program for schools will be revisited as part of LAWA's continuing environmental management responsibilities."

How do you plan to test the impact of noise on the ability of children to learn in affected schools like the Lennox Elementary School District when the only learning environment has been one with aircraft noise? What would be their learning abilities without noise when they haven't had the opportunity to learn without noise.

27. Speech interference was the level of significance used in the analysis. Why was this not used to measure impacts that would result in the need to identify mitigation actions?

28. The word 'significant' is used throughout the SUPPLEMENT TO THE DRAFT EIS/EIR MASTER PLAN for LAX. We have come to the conclusion. After making several inquiries about the definition of the word 'significant' to high level Deputy Executive Directors of LAWA and others, there is no one definition capable of applying to all instances of its use. The Executive Summary of Volume One of this Supplemental Draft to the EIS/EIR does not address the definition of "significant." Therefore it is necessary to ask the same question about similar but different statements included in the Supplemental Draft to the EIS/EIR. Please refer to the Executive Summary, Volume One of the Supplemental Draft to the EIS/EIR for titles and page numbers of the Executive Summary Tables. Please do not use words that are synonymous with 'significant' to explain. Define, and interpret the word 'significant'. Some of the words to avoid in explaining the definition are: important, meaningful, weighty, notable, profound. Pivotal, serious, momentous. Substantial. and other synonyms of this type. Facts, figures, noise levels. Estimated values, decibels, and comparisons should have been provided what metric values were used to determine these levels of significance?

Executive Summary pages 51-76 4.1 Noise

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
2. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
3. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
4. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
5. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
6. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
7. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.2 Land Use

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
10. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.
11. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section.

4.24.2 Health Effects of Noise

1. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section

4.27 Schools

3. Please define, explain, quantify, and interpret the word 'significant' as it is used in this section

29. How can noise impacts that are 'unavoidable' be acceptable?

30. Will the elimination of "avigation" easements for all impacted areas help reduce the number of legally impacted dwellings and people? How many households refused the sound insulation offers because of avigation easements requirements?

31. The California Airport Land Use Handbook concludes that no definitive, widely recognized, single event noise level guidelines currently exist relative to land use compatibility planning. This Supplemental to the Draft EIS/EIR would have been an ideal tool to establish single event noise level guidelines. Why didn't the document include the necessary research to accomplish that goal?

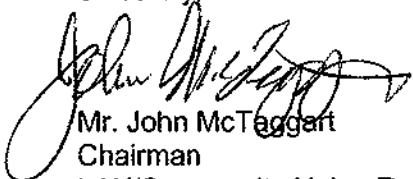
32. The Automated People Mover (APM) operation will impose undesirable noise on all 10 existing hotels in the Century Boulevard/98th Street area. The noise level; is rated by the EIS/EIR as a severe impact on 2 hotels and a significant impact on 4 others. High activity levels include 1755 day-trips (about 2 per minute) and 615 night-trips (about 1 per minute). What are the mitigation measures for noise of the APM?

33. Some requests for easterly takeoffs during over ocean operation are based the slant of runway 25R/7L from west to east. Why was the leveling of the runways on the south side of LAX not included in the EIS/EIR?

34. Do the characteristics and performance of the A380's and other jumbos interfere with its ability to comply with over ocean operations?

Thank you.

Sincerely,



Mr. John McTeggart
Chairman
LAX/Community Noise Roundtable

Recd
11-07-03
10:00 am



P.O. Box 91014 • Los Angeles, California • 90009-1014

Mr. Jim Ritchie
City of Los Angeles
Los Angeles, World Airports
LAX Master Plan Office
P O Box 92216
Los Angeles, CA 90009-2216

Dear Mr. Ritchie:

I am writing to you on behalf of the Members of the Board of Directors of the Westchester Association. The Westchester Association is comprised of 43 property owners in the Westchester Business District and their properties are located on the east side of Sepulveda Boulevard, between Manchester Avenue on the North, and Westchester Parkway on the South.

At a recent meeting of the Board of Directors, a very lengthy discussion was held regarding Mayor James Hahn's Airport Plan, "Alternative D". The Board members have all previously had the opportunity to read and hear about the Alternative D plan, and they wish to go on record as being strongly opposed to this particular plan.

The Board of Directors are very much concerned that this plan will cause approximately 6200 citizens of Westchester to be relocated from both the Manchester Square and Belford areas of the community and that this plan would have a very negative impact on their tenants and businesses. Some of the Board members have been in this area for many years and they remember years ago when the airport expanded and approximately 10,000 residents had to move out of the area. That airport expansion caused many of the businesses to close their doors permanently, and the Board is afraid that will happen again.

Therefore, the Board wishes to go on record as being strongly opposed to "Alternative D".

Yours very truly,

Robert E. Smith
Business Manager

L.A.X.E.N!
LAX Expansion No!
P.O. Box 881564, Los Angeles, CA 90009

November 6, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan/Room 218
P.O. Box 92216
Los Angeles, CA 90009-2216

Mr. David B. Dessler, AICP, AWP 611.2
Federal Aviation Administration
P.O. Box 92007
World Way Postal Center
Los Angeles, CA 90009-2007

Re: Draft and Supplemental Draft Environmental Impact report/Environmental Impact Statement; Los Angeles International Airport Proposed Master Plan and Master Plan Addendum – Comments of the City of Inglewood

Dear Mr. Ritchie and Mr. Kessler:

The following constitute the comments of LAX Expansion No ("L.A.X.E.N.") a community organization comprised of residents living in Inglewood, Lennox, Westchester and El Segundo concerning the Draft ("DEIR") and Supplemental Draft Environmental Impact Report/Environmental Impact Statement ("SEIR") for the Los Angeles International Airport ("LAX") Master Plan ("Master Plan") and Master Plan Addendum ("Addendum") (together "Project"), submitted pursuant to the requirements of the California Environmental Quality Act, Public Resources Code 21000, et seq., ("CEQA"), its implementing Guidelines, 14 Cal. Code Regs. 15000, et seq. ("CEQA Guidelines") and the National Environmental Policy Act, 42 U.S.C. 4321, et seq., ("NEPA"). All of the above listed documents shall be referred to as "The Master Plan" herein.

Our primary focus of our comments concerning the evaluation of the Draft and Supplemental Draft Environmental Impact Report/Environmental Impact Statement, Los Angeles International Airport Proposed Master Plan and Master Plan Addendum will be **Alternative D** "Mayor Hahn's Plan". Alternatives A, B, and C although presented with **Alternative D** have already been publicly addressed in our comments, and the community's comments, during the preceding EIR /EIS hearings. We will refine our comments to address specifically **Alternative D** and the movement and lengthening of the inboard northern and southern complex runways, center taxiways, and environmental justice issues related to **Alternative D**, baseline analysis, transportation funds, elimination of the existing downwind, base leg, final approach landing pattern, elimination of parking structures inside LAX, loop departures and mitigation remedies.

LAX Expansion NO! (L.A.X.E.N!) believes that an off-site check in facility will never be built in Manchester Square, allowing for the area to be utilized for Cargo facilities development. The main purpose of the Master Plan (**Alternative D**) is for the movement of the runways creating a center taxi-way forcing the removal of the parking structures located inside LAX. The elimination of Parking Lot C and D allowing for rent-a-car facilities further eliminates public parking facilities. This will become a FINANCIAL BONNANZA for Hotel / Parking Structure Owners located nearby just outside of LAX's current check in facility with their number one competitor eliminated and relegated to a relatively obscured location at Aviation and Imperial. The redesign of LAX is to eliminate its parking facilities.

FACT: Hotel Owners on Century blvd. generate more revenue from their Parking Lots than on room rentals. **Source:** Marriott / Renaissance Hotel and Hyatt Hotel located on Century blvd, accounting divisions.

Alternative D is flawed because it does not address the negative impacts caused by removing LAX's own parking structures from inside LAX and relocating them miles away at Imperial and Aviation blvd. To eliminate parking garages that are currently accessible and convenient to the everyday general flying public at a reasonable cost.

Alternative D fails to address the scenario of not having public parking garages conveniently located near terminal check in facilities forces the flying public to utilize Hotels and Parking Garages closer to LAX especially if the off site check in facility is not developed in Manchester Square or any guarantee that a Behemoths parking garage will be built to replace the parking structures that would be torn down as a result of **Alternative D**, and if policy decisions are reached allowing hotel buses, limousines and taxi cabs to make drop offs and pick ups inside LAX, the economically disadvantaged flying public will be forced to either use nearby hotels and parking garages, or be forced to travel unnecessarily by either walkway or bus to arrive at the check in terminal.

Alternative D fails to mention the removal of the ring road inside the check in area. Does it remain or is it destroyed? If it remains are five lanes really needed for emergency vehicles?

CENTER TAXI-WAYS

Alternative D is flawed and creates an artificial need for Center Taxi-ways on both the Northern and Southern Complex's. It is unnecessary to have Center Taxi-ways at LAX to prevent the chance of runway incursions when all that is needed is to return LAX to its original design specifications. Take offs on outboard runways and landings on inboard runways. What is needed is a policy revision restricting landings to only the inboard runways and restricting take-offs exclusively for the out board runways on both the Northern and Southern Complexes.

Alternative D is flawed because it does not identify the construction of the center taxi-way as the driving force for the removal of the parking garages.

Parking Structures and Parking Lot C and D Removal

Alternative D is flawed and creates an artificial need for the removal of parking structures inside LAX's terminal area and Parking Lot C and D. The main purpose of the Parking Structure Removal according to **Alternative D** is to provide safety for travelers. The Master Plan does not address the alternative of ceiling the walls of the interior parking garages containing any bomb blast from a car bomb inside the structure.

Alternative D is flawed because it does not address the possibility of the proposed parking garage becoming a white elephant if the Security Check In facility is not built in Manchester Square forcing passengers to use privately owned parking lots or be inconvenienced to use public transportation to get to and from the airport check in facility located inside LAX.

Alternative D is flawed and does not address the act of removing Parking Garages and its Environmental Justice Component. Such as the removal of the Parking Garages inside LAX check in ring road and Parking Lot C and D will force economically disadvantaged communities to park miles away at the Imperial and Aviation boulevard facility and allow communities that are more affluent willing to pay a premium to park closer to the airport at nearby privately owned hotel parking structures and lots.

TRANSPORTATION FUNDS

Alternative D does not address the issue of Transportation Funds being absorbed by the proposed LAX Expansion Project from other areas of Los Angeles and the Southern California region for the building of roads and infrastructure necessary to mitigate traffic concerns in and around Los Angeles International Airport regardless of either Alternative A, B, C, and D.

BASELINE ANALYSIS

Alternative D does not address the issue of El Toro International Airport being eliminated as an aviation alternative to help absorb 28 million annual passengers that were designated to be absorbed by the operation of El Toro International Airport.

Alternative D does not address the issue of why the baseline is computed in terms of million annual passengers and not specified in flights.

Alternative D does not emphasize that 78 million annual passengers is not a preemptive cause of action designed to prevent LAX from exceeding 78 million annual passengers. As stated by Mark Pissano Executive Director of the Southern California Association of Governments, SCAG, on Thursday, November 6, 2003, "There is no guarantee that LAX will not exceed 78 million annual passengers" said Mark Pissano.

MITIGATION

Neither the Draft nor Supplemental Draft Environmental Impact report, Environmental Impact Statement, Los Angeles International Airport Proposed Master Plan and Master Plan Addendum does not address the option of a voluntary buyout or purchasing of Inglewood residents single family homes and multiple family housing units at a dollar rate comparable to the voluntary home buy out option exercised by the residents of Westchester's subdivision Manchester Square bordered by La Cienega, Century, Airport, and Arbor Vitae Boulevards located in the City of Los Angeles. Los Angeles World Airports used the more affluent Westchester subdivision Osage as a comparable pricing guide for the purchase of single family homes and multi-family housing units in the Manchester Square by Los Angeles World Airports, even though the single family housing units in Manchester Square were inferior to the Westchester subdivision Osage.

This mitigating solution would be to purchase Inglewood residents homes at a rate comparable to the subdivision of Westchester known as Osage and for areas in Inglewood where the housing stock is equal to the area of Westchester's subdivision known as Kentwood, a comparable pricing guide would be used for the purchase of those homes. The purchase of these homes would be a voluntary option exercised by each individual homeowner as an alternative to sound insulation as preceded by residents living in the Westchester subdivision known as Manchester Square.

Specifically **Alternative D** does not address the above or the issue of LAX reimbursing residents for the dollar depreciation value of their property caused by existing and future LAX operations. It only suggests that placing residents in a comparable bunker (sound proof windows) can mitigation occur.

Mitigating Solution for movement of runways: There is a better way to solve the problems of Runway Incursions involving arriving and departing flights at LAX. Runway incursions can be easily remedied by simply having all landings take place on inboard runways only. The airport was originally designed with this philosophy being the cornerstone of its design. The original design called for aircraft to turn immediately into the terminal area from the inboard runways only on either the northern or southern complex sides eliminating the possibility of collision with intersecting / departing flights on the outboard runways.

ENVIRONMENTAL JUSTICE

The EIR lacks a technical understanding for the reader that LAX's original design and existing runway configuration was for aircraft landings to take place on inboard runways on both the northern and southern complexes. The purpose of the design was to prevent a landing plane from turning into the terminal area and before reaching the area intersecting or colliding with departing aircraft which is what can happen today if a pilot fails to stop for departing aircraft taking off on the inboard runways on both the northern and southern complex's to provide noise relief for the residents of Playa Del Rey, Westchester and El Segundo.

ENVIRONMENTAL JUSTICE CONTIUED

Alternative D and the Environmental Impact Report lack an explanation for the unofficial noise mitigation measures taken to have planes take off exclusively on the inboard runways today and under the proposed **Alternative D**. The official explanation for this unofficial noise mitigation measure today is to provide noise relief for El Segundo, Playa Del Rey and Westchester area residents.

The Master Plan fails to address ramifications of providing unofficial noise mitigation measures for Playa Del Rey, Westchester and El Segundo and causing the gated communities of Briarwood, Carlton Square Morningside Park, and Century Heights in Inglewood to have arriving planes fly over their homes on final approach, as oppose to over the parking lot of Hollywood Park, which is clearly designated as an arrival approach path to the inboard runway on the northern complex side by the Gunther Strobe located at 90th and Crenshaw.

The Master Plan fails to address purpose of providing noise relief action for the residents of Playa Del Rey, El Segundo and Westchester when they are eligible for noise mitigation (sound proof windows) by moving take-offs to the inboard runways under Alternative D away from Playa Del Rey, Westchester and El Segundo to the detriment the Communities of Inglewood, and Lennox. This is clearly an issue of Environmental Justice considering the ramifications of this UN official policy over the past decade. Further the ethnic make up of Westchester and its affluent economic base of its residents in comparison to the City of Inglewood self described low income economic base of its residents makes this in our opinion a clear violation of Environmental Justice Laws.

The Master Plan under **Alternative D** is flawed because for every plane that departs from LAX on the inboard runway will prevent an arriving plane from landing on the inboard runway forcing arriving aircraft to align their arrival glide slope with the outboard runway and negatively impacting homes that would not be affected by LAX and its ill effects of flight paths above upon housing prices and residents' health on the ground below in Inglewood, Lennox, and Los Angeles California.

The Master Plan under **Alternative D** is flawed and allows the inboard runway on the northern complex side to be moved to the south 300 feet and on the southern complex side the runway is to be moved to the south 50 feet. This will permit visual simultaneous landings on the northern complex side but will require a variance issued by the FAA allowing for the separation of aircraft to be less 4,300 feet that is the normal approved separation of runways for "dual simultaneous instrument approaches" per FAA advisory 150/5300-13, change 5, 2-4-97, "Airport Design", chapter 2, page 11, paragraph 208.a. (1) than what is currently required minimum under FAA rules and regulations.

The Master Plan under **Alternative D** intention of providing noise relief to residents of El Segundo, Playa Del Rey and Westchester at the expense of the quality of life of Inglewood Residents' is a violation of Environmental Justice.

ENVIRONMENTAL JUSTICE CONTINUED

The Master Plan is flawed and fails to address under **Alternative D** the movement of the northern complex inboard runway 300 feet south and the movement of the southern complex runways 50 feet south and how the movement of these runways will negatively impact Inglewood Residents who live in the Morningside Park Area between Century Blvd. and 90th street forcing planes to fly in airspace that had not been used by jet aircraft and flying directly over residential homes with the possibility of simultaneous landings (two planes abreast) on the northern complex side and one perhaps two planes landing on the southern complex side simultaneously.

The Master Plan is flawed and fails to address adequately variances for public participation and the method and procedure that a resident would need to take to participate in any hearing concerning a variance for simultaneous landings or procedure to be placed on the panel discussing what will or may be needed to land jet aircraft / planes two abreast simultaneously on the northern complex side and also two abreast on the southern complex side of LAX.

The Master Plan is flawed and fails to address adequately under **Alternative D** the possibility for disproportionate share of landings to take place on the northern complex side. Inglewood residents would suffer with more noise while Westchester, Playa Del Rey and El Segundo are provided noise relief with runways being moved further away from Westchester, Playa Del Rey and El Segundo. The movement of the inboard runways on both the northern and southern complex sides of LAX for the purpose to provide noise relief to Playa Del Rey, Westchester, and El Segundo to the detriment of Inglewood is a violation of Environmental Justice.

The Master Plan fails to address Environmental Justice concerning the Lengthening of runways. **Alternative D** is designed to provide noise relief for Playa Del Rey, Westchester and El Segundo to insure that early turns and fly-overs do not impact their homes but to the detriment of Inglewood and Lennox residents. Inglewood and Lennox residents will be impacted by much larger aircraft and a higher volume of aircraft. Residents who live to the east of the Airport (Inglewood, Lennox, and Los Angeles) will find larger aircraft flying over their homes as a result of longer runways at LAX under **Alternative D**.

AIR QUALITY

The Master Plan and Environmental Impact Report concerning air quality studies lack measurements less than Particulate Matter 10 (PM10). The Master Plan fails to address the over 685 signed health declarations presented to the Air Quality Management District (AQMD) consisting of residents who suffer from cancer, asthma, bronchitis and other respiratory conditions they believe is caused by the aircraft flying over their homes.

AIR QUALITY CONTINUED

The Master Plan and Environmental Impact Report lacks clear and definite language specifically identifying what the negative impacts upon the residents who live in Briarwood, Carlton Square and Morningside Park as it relates to air quality. The EIR does not clearly define what air quality impacts will be inflicted upon these neighborhoods if all arriving flights are designated to land on the out board runway or northern most runway on the northern complex side of LAX under *Alternative D*.

LOOP DEPARTURE

The proposed new loop departure procedure will place all Eastern bound aircraft over the communities of Osage, Inglewood and Baldwin Hills. This will remove the aircraft from flying over Manhattan, Hermosa, Redondo Beach and Rancho Palos Verdes Peninsula. This will endanger the lives of residents in Inglewood and Baldwin Hills. More aircraft will fly over minority communities to provide noise relief to Manhattan, Hermosa, Redondo Beach and Rancho Palos Verdes.

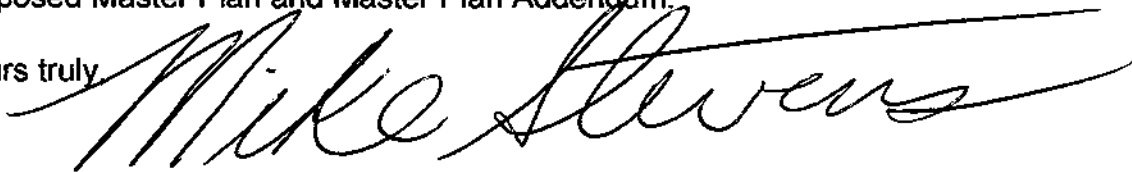
CONCLUSION

A New International Airport should be built in the Los Angeles Harbor utilizing soil sediment and other ecologically safe materials to build an island for runways and the terminal check in facility could be built on land. An airport in this location would not harm or negatively impact any residents utilizing the Alameda Corridor and could serve both Los Angeles and Orange Counties efficiently.

It is necessary to provide a quality of life and environment equal to other communities for the purpose of equality that would benefit residents living to the east of Los Angeles International Airport who are unfairly burdened with the negative environmental impacts of an airport that is too small to carry the aircraft burden for the entire southern region.

LAX Expansion NO! also adopts the comments forthcoming from the City of Inglewood, Los Angeles Board of Supervisors and asks that LAX Expansion NO (L.A.X.E.N.) be recognized as having standing to utilize those agencies comments concerning the Draft and Supplemental Draft Environmental Impact Report, Environmental Impact Statement, Los Angeles International Airport Proposed Master Plan and Master Plan Addendum.

Yours truly,



Mike Stevens
President LAX Expansion NO! (L.A.X.E.N.!)

COMMITTEES:

Chair
Budget & Finance
Ad Hoc Stadium

Vice Chair
Information Technology & General Services
Business Tax Advisory Committee

Vice President
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November 7, 2003

Los Angeles City Council



BERNARD C. PARKS
Councilmember, Eighth District

CONTACT INFORMATION:

City Hall Office
200 North Spring Street
Room 460
Los Angeles, CA 90012-4873
(213) 473-7008
(213) 485-7683 fax
TDD: (213) 473-6991

Constituent Service Center
8475 S. Vermont Ave.
Los Angeles, CA 90044-3424
(213) 485-7616
(213) 485-8156 fax
TDD: (323) 789-2758

Crenshaw Office
3847 S. Crenshaw Blvd.
Los Angeles, CA 90008
(323) 293-9467
(323) 293-3696 fax

Mr. David B. Kessler, AICP
P.O. Box 92007
Los Angeles, CA 90009-2007

Dear Mr. Kessler,

While considering the pros and cons of latest proposed modernization plan for Los Angeles International Airport, the Eighth District Council Office decided to base its position on the opinions of its constituents and the rest of the public. After all, it's the people of the City of Los Angeles and its surrounding areas who will be most affected by any changes at the airport.

To gauge the feelings of the residents, the Eighth District Council Office held a variety of meetings, where experts on the modernization plan were called in to provide details to the public. The public was also allowed to take part in the discussions, so they could voice their concerns.

As one meeting followed the next, time and time again the Eighth District staff heard how residents felt they were being neglected, left out of the process and not taken seriously. Furthermore, they expressed concern at how the plan would negatively affect them. There were concerns about how expanding the airport would leave more schools, churches and hospitals under the noisy glide path and unhealthy exhaust fumes of airplanes. There was dissatisfaction over the traffic problems that would haunt drivers before, during and after the reconstruction with traffic and the extreme exhaust that would come from traffic congestion around the airport. And, there was frustration at how the southern and eastern ends of the area would bare the brunt of the modernization plan, while the people at the wealthier northern end would apparently experience few or none of the consequences.

And, it didn't stop there. The Eighth District Council Office watched that frustration turn into anger, as they learned that with all this disruption; that with all this danger, there would be no guaranteed benefits. Does the Alternative D Modernization Plan make people safer? No one is sure. Does it constrain growth at LAX? No one is sure. Area residents are sure about one thing; the price. At \$9.6 billion, the very least the public deserves is a couple of straight answers.

The attached report is based on information obtained by the Eighth District Council Office.

Respectfully,

BERNARD C. PARKS
Councilmember

e-mail: parks@council.lacity.org
website: www.lacity.org/council/cd8



cc: Jim Ritchie, Los Angeles World Airports



SPC00308

Community Reaction Report on LAX Modernization Plan
Councilmember Bernard C. Parks

Community Concerns- Most of the reported concerns come from the southern and eastern ends of the area surrounding LAX. People at the eastern end have been experiencing the effects of living under the flight path for several years. They are troubled by the noise; not just for auditory reasons, they are understandably frightened by the structural damage the vibrations can do to their homes. While double-paned windows are a relief to some, countless others remain without that benefit because they are unfortunate enough to live inches outside of the designated areas, where double-paned windows are provided for free. Children hoping to leave the loud rumbles of landing planes behind, simply can't. The overwhelming sound follows them into their classrooms, as many schools are under the flight path as well. Some experts suggest "windowless schools". This may upset parents in the community who feel their children deserve a view from the classroom; just like children who attend school away from the flight path.

After the planes land, residents are faced with what they leave behind. A number of people under the flight path have complained about airplane fuel being dumped on their homes. The effects of this are unknown. And, the mystery leads people to make their own conclusions. In one case in the Eighth District, a handful of neighbors claimed that they all acquired cancer because of the exhaust and fuel on their homes.

Minority communities near the airport feel abused and neglected. Under Alternative D, their neighborhoods are invaded the most; causing them to make more adjustments than any other communities. Minority and low-income communities would constitute 74% of the area subjected to high noise by 2015. According to "*A Preliminary Review of Issues Associated with the LAX Master Plan Supplemental Draft EIS/EIR*", the perspectives of minorities who live in the affected areas were not properly taken into account. The review, prepared by A.C. Lazzaretto and Associates states that all federal agencies are required to analyze environmental justice impacts when proposing public projects. The analysis is intended to determine whether minority and low-income communities are unfairly burdened by project impacts. The review goes on to say that the original draft EIS/EIR was found to lack even the most elementary requirements for environmental justice. Even with some later corrections, the deficiencies still remain.

Sloppy and Outdated Reports- The oversight on environmental justice issues is just one of many irresponsible errors made in the EIS/EIR. "*A Preliminary Review...*", discussion #5 states: "*The Original EIS/EIR provided an incomplete discussion of the No Project Alternative by incorporating improvements that were then only in the 'planning stages' and overstating the service levels and capacity of the existing facilities. This approach made it difficult to draw meaningful comparisons with project alternatives. Preliminary review indicates that the Supplemental EIS/EIR may also provide an incomplete picture of impacts associated with the No Project Alternative. Additionally, the No Project Alternative has not represented passenger capacity in a consistent manner. In the original 1997 Notice of Preparation, the No Project Alternative was linked to a range of 68-72 MAP whereas the 2001 and 2003 EIS/EIR documents increased this estimate to 71.2-78.7 MAP.*" The review follows this revelation by calling the public review process involved in the original EIS/EIR "confusing and cumbersome".

What Does the Modernization Plan Really Set Out to Do?

Supporters of the LAX Modernization Plan have a list of reasons why the \$9.6 billion should move ahead. Though their reasons may be well intentioned and may even sound good, there is little to no proof that their any of their predictions are accurate.

Security- When examining the issue of security, "*A Preliminary Review...*" suggests that the Supplemental EIS/EIR may fall short of an adequate review of airport security issues; calling the information "*heavily conceptual*", "*theoretical*" and "*significantly short on detail*".

The Rand Report shows that Alternative D's modifications could make it difficult to evacuate the central terminal complex quickly, if an emergency took place. Also, the newly-proposed shuttle system may be a target that terrorists can't pass up. Having the ability to disable the shuttle anywhere along the two-mile route give terrorists a dream combination: passengers, a vehicle and fear.

Another security uncertainty stems from the fact that many of the high-tech items requested in Alternative D either do not exist or are unproven. Facial recognition technology and futuristic devices that check for weapons and explosives may be in a few movie theaters, but they won't be available in airports for sometime to come.

Alternative D's security measures are designed, primarily, to protect against car bombs. However, Rand Report studied the historic risks that terrorists present to airports and found that small bombs hidden in luggage, shoulder-fired missiles and chemical, biological and nuclear weapons are more likely. Alternative D does not prepare for that fact.

Common Sense and the community tell us that the plan to move passengers out of the terminals and into one single facility, simply, makes it easier for terrorists to get to them. With all the talk of building a "terrorist-proof" airport, the Rand Report raises the question of whether airports can ever be designed to deter terrorist attacks or to minimize casualties if one occurs. The ability of passengers to successfully adjust to the new seemingly difficult systems would also be a concern.

By dispersing airport operations among numerous new facilities, the plan also would increase the area that needs to be patrolled. This would be difficult to do with the current number of personnel.

The Rand Report offers some less-expensive alternative security solutions, including:

***Reducing the Wait for Baggage Check-In:** By cutting the average check-in time from 15 minutes to one minute, the number of potential victims in a bomb attack could be cut by more than 50%.

***Erecting Barriers:** Planters and concrete pillars can act as a safeguard between vehicles and pedestrians.

Another thing that could improve security, according to the Rand Report, would be if Alternative D successfully capped the airport at 78 million passengers a year, as promised. But, even the theory of "less people, less worries" is a stretch because there is no way to limit passengers and the airlines maintain the sole responsibility of scheduling flights.

Conflicting Goals

Limiting Passengers- One of the keys of Alternative D involves the aforementioned passenger cap. While claiming to set a firm limit for passengers, many aspects of Alternative D do the exact opposite. For instance, the design of the proposed gates is more flexible and has more capacity, which may be more accommodating for the larger 600-passenger airplanes of the future. Also, space in the western portion of the airport will remain available for future consideration of a new west terminal. Meanwhile, some still question the benefits of limiting the number of passengers at the airport. Many believe that setting constraints on Southern California economy boosters, like: tourism, apparel and furniture would cause them to suffer. LAX aviation activity contributes \$61 billion to the regional economy each year, or \$167 million dollars a day. That revenue is too precious to threaten, especially for a plan with so few certainties.

Jobs- While the plan is praised for creating 350,000 possible jobs in the region, only about 50,000 construction jobs would noticeably benefit the local economy. And, those benefits would be short term. "A Preliminary Review..." finds that around the same number of jobs would be created if nothing was done at all. The review adds that even fewer jobs could result from Alternative D. In fact, the people pushing this plan acknowledge that there is no expectation for long-term economic growth.

What Does the Airline Industry Think?

After meeting with airline executives recently, they expressed concerns about the plan because: (1) they were not consulted on the plan, (2) they cannot cover the required costs and find Alternative D financially unfeasible at this time, (3) they have never participated in an airport renovation project that didn't have expansion as its primary purpose, (4) they stated several airlines have come out of bankruptcy recently and are in no position to pay the costs (5) their portion of the costs would have to be paid for by raising passenger prices.

Listed below are some of the biggest questions, issues and needs raised by Eighth District residents:

Environmental Issues

- *Sound-proofing study update**
- *Street repair and widening projects**
- *Traffic mitigation & diversion plan for the region**
- *Rapid bus and rail system connections**
- *Synchronized signal light system**
- *Various community health issues**
- *Consideration of park and ride facilities to the east and south of the City of Inglewood**
- *Interest in moving the airport as far west as possible**
- *Why are planes permitted to take-off and land between the hours of 11:00 PM and 6:00 AM?**
- *Why hasn't new criteria been established to account for flight patterns over areas such as Vermont Knolls?**
- *Why can't jet engines noise be muffled 10 miles before landing?**
- *Pollution - both noise and aerosol components will increase dramatically, because airline traffic will expand to the level required by the planned MAP goal.**
- *Included in the plan, should be a proposal to provide funds to complete the existing soundproofing contracts and identify the remaining homes that are affected, based on 55 DNL noise levels and above.**

***The infrastructure- Century Blvd. from the 110 freeway to La Cienega and other heavily-traveled streets to and from the airport should be resurfaced regularly with funding support from LAWA to eliminate pot holes and other irregularities.**

***Airplane noises are linked to: stress, hypertension, sleep deprivation and interruptions, work-related performance and learning and academic performance**

New Terminal

***Impact of banning all parking and private vehicles inside the central terminal**

***Impact of the prohibition of passenger drop off at the terminal curb**

Cost, Expense and Benefits

***Caps on passengers and cargo load**

***12-year hiring plan to redevelop flight schedules, noise and employment**

***What methodology has been devised to mass transit passengers to terminals if no curbside drop off is permitted?**

***Local residents were told from the start that the general aspects of the plans were not negotiable, if so, then why holding public hearings?**

***Of the 49,000 jobs that the airport expansion is projected to create, how many jobs for the residents in those communities that have and will be impacted be made available?**

***Though there has been outreach to unions, are there plans to reach out to non-union workers, so they will have an opportunity for employment?**

***How will the public be notified of available employment?**

Comments to the LAX Master Plan and EIS/EIR dated July 2003

Hand Delivered at the last LAX MP hearing held on October 24, 2003

From: Dennis J. Schneider
7929 Breen Av., Los Angeles, CA 90045

Attached to this cover sheet are approximated 300 pages of detailed annotated comments provided in both hard copy and on CD.

Summary:

Alternatives A, B, and C were demonstrated to be deficient in 2001. Earlier comments to the approximate 12,000 page review materials provided showed that these alternatives have unacceptable impacts on local communities and for Southern California. Although numerous comments were provided in 2001, **no responses have been provided to the public.** Although the newest alternative, Alternative D, addresses several of the prior fatal flaws and is preferable to the earlier proposed alternatives many issues remain.

LAWA and the City of LA is to be commended for their outreach efforts to verbally present their plans to the many public organizations. Plans such as the “flyaways” should be commended.

LAWA outreach for idea exchange, however, has fallen very short. The Osage Neighbors Association, which represents the eastern half of Westchester, is one of the areas most heavily impacted and has many concerns. Yet the Board of Airport Commissioner leadership, LAWA management, and the Mayor’s Office have been unable to find an available evening to meet with the ONA Board of directors during the past 14 months despite numerous requests by ONA.

Development of the alternatives has been in a restrictive environment. Documents were released in security controlled areas and anyone potentially critical of the plans was prohibited from attending. The same restricted access policy was true of the Mayor’s Blue Ribbon Committee on Manchester Square. It was held in a restricted area of LAX with specifically selected individuals. Neither handouts nor recordings were made available to the committee members; the public and press were excluded from these meetings. When an alternative plan was presented by several committee members concerned about the use of Manchester Square it was rebuffed and not seriously considered.

The approximately 6,500 pages of the Supplemental documents released in July 2003 is very tricky to read and evaluate due to persistent cross referencing between documents released in 2003 and those from 2001. Further, it is very difficult to determine the origin and dates of materials used in exhibits. Numerous times charts dated 2002 or 2003 contained only 1994-96 data without saying so. Many exhibits are sorely deficient in detail on some issues and contain conflicting information for others. The basis assumptions for specific conclusions are difficult to determine from the way in which data is presented. Broadly subjective words like “substantial,” or “minimal” are used in place of specifics.

The various alternatives (with several options inside each) are compared to a “No Action/No Project” which is unrealistic and results in a comparison of “apples to vegetables.”

Numerous critical issues in Alternative D remain unanswered or unaddressed. On that basis, alone, it should be rejected. Spending more good money just because enormous amounts of money have already been expended is a POOR justification to continue with this EIS/EIR. It should be redone due to the irrecoverable number of errors and omissions.

The Supplemental (and original) document reviews are further complicated by the page numbering differences in the electronic versions posted and the hard copy.

This Plan still concentrates over 75% of commerce at LAX resulting in an unwarranted economic risk for Southern California.

Below is a representative sample of major impact issues for Alternative D EIS/EIR

Noise

- Incomplete review of CNEL impact; changes in patterns depend on which runway configuration is implemented, mix of aircraft that actually occurs, no topology impacts are considered, frequency ranges measured (higher and lower) are not comprehensive.
- Single event (SNL) impacting level criteria are overly generous; impacts understated
- Health impacts-such as respiratory issues, learning issues, autonomic issues such as blood pressure, sleep deprivation and sleep interruptions, and gastrointestinal issues are understated.

Air analysis

- Air circulation patterns not adequately considered.
- Particles less than PM10 (ie PM2.5 studies) not done
- NOx gases not considered.

Traffic issues

- Mitigations recommended, not fixed – many to be paid by agencies other than LAWA or the city not guaranteed or funded.
- Cargo not fully controlled yet; needs separate entrance off 105 freeway.
- Traffic into the community.

Construction Impacts

- Traffic, noise, pollution
- Business impacts

Safety

Manchester Square separation from the rest of the contiguous airport.

- Ability to evacuate; how to get emergency crews there?
- Community closer to potential attacks.
- LNG facility closer to the community (northern MS area).
- Security is only as good as weakest link which may be other airports.

Substantial difference between Alt D and others that came first makes the CEQA compatibility questionable. Much of the old data from 1996 was incomplete and evaluations and comparisons with 2000 conditions does not fix the old data flaws.

Passenger Inconvenience

- Baggage handling; One stop check in needed
- Lugging baggage on APM? Handicapped, Elderly, Children, bulky items not addressed.
- Delays and transferring is inconvenient.

Consolidated Rental Car facility (RAC) would be better serving near the 105 freeway.

Impreciseness of plans; multiple options listed so impact projections can't be traced to the cost impacts on future commerce (increased fees)

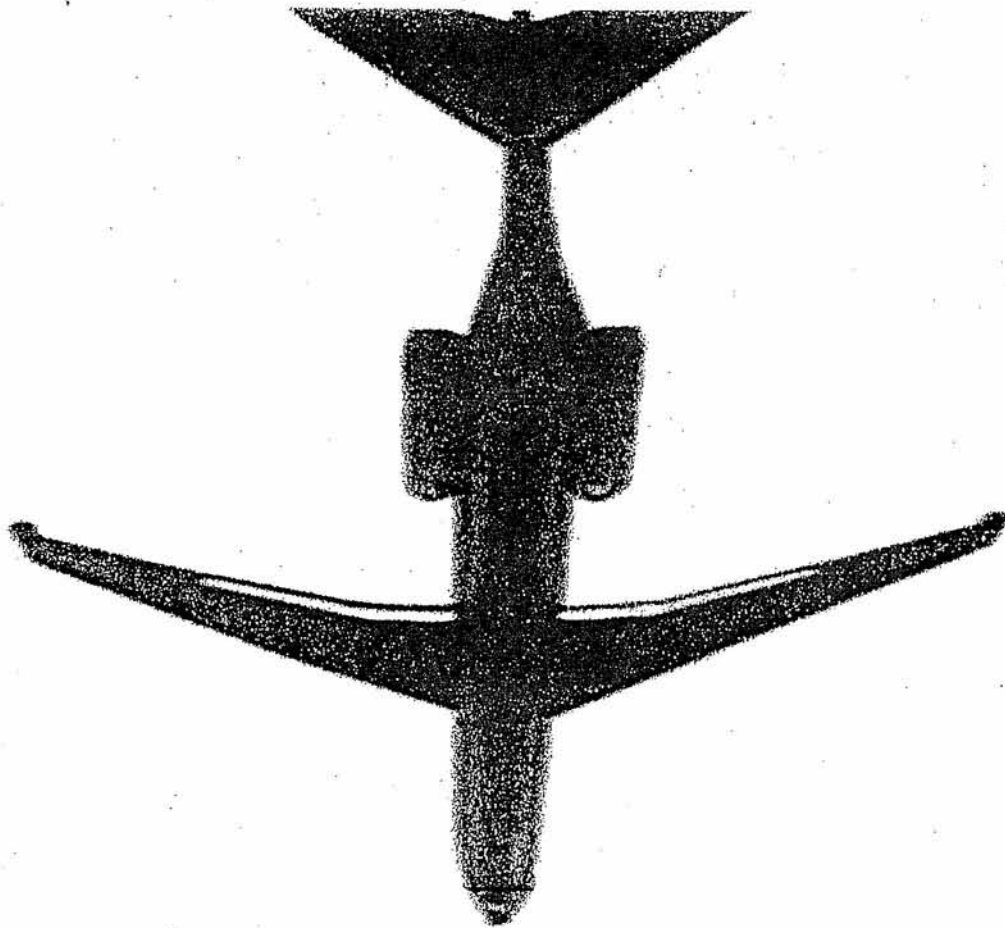
Modes other than cars need consolidation and convenience; i.e. Green Line on MTA route to downtown; major bus center, cabs, level three bus routes.

Massive expenditures at LAX detracts from the possibility of the development of a practical regional solution.

Thank you for your consideration,

Dennis J. Schneider

SPC00309



NOISE ISSUES
TO BE
CONSIDERED

Noise Pollution Clearinghouse

P.O. Box 1137

Montpelier, Vermont 05601-1137

1-888-200-8332

www.nonoise.org

THE FAILURE OF AMERICA'S AVIATION NOISE ABATEMENT POLICY

*Citizens
Top Priority
Concerns
About
Aviation
Noise*



EXECUTIVE SUMMARY

This study exposes the aviation industry and the Federal Aviation Administration (FAA), its federal regulatory body, as oblivious to the true impact aviation noise has on the public who live near airports as well as ignorant of the science of noise impact assessment. Based on the technique of content analysis applied to the 1,261 public comments received by the FAA concerning its draft Noise Abatement Policy 2000, this study finds that the overwhelming majority of commenters believe the FAA's noise abatement policy is a failure. 96% of the more than one thousand people who submitted comments to the FAA believe the draft Noise Abatement Policy will not adequately protect citizens from aviation noise.

KEY FINDINGS OF THE STUDY INCLUDE:

Aviation noise is getting worse

The people who actually live near airports report that the noise problem has grown, while the FAA in their draft noise abatement policy and the industry in their comments think aviation noise problem has decreased substantially. 759 commenters specifically mentioned aviation noise as a worsening problem, and 739 included this in their top three concerns.

Nighttime flights and sleep interference are citizens' greatest concerns

The top concern of citizens was sleep interference and nighttime flights. 998 commenters raised this issue, and for 968 people, it was one of their top three concerns. This is in sharp contrast to the

FAA's Noise Abatement Policy that mentioned sleep interference only four times in a 25,000 word plan, and then only tangentially. Nighttime effects are almost totally ignored by the industry and regulators.

Aviation noise is imposed on neighbors unjustly

Airport neighbors feel strongly that the FAA, airports, and aviation industry would not subject themselves to the same noise levels that they impose on neighbors. 686 people noted this incompatibility with Christian and Kantian conceptions of justice that require treating your neighbor as you would like to be treated. The solution: require that FAA and airport officials live within the FAA's significant impact zone, the 65 DNL contour around airports. If FAA officials had to live with aviation noise, the noise would be reduced drastically.

What They Said:

"With regard to the protection of public health and welfare, the FAA has previously concluded that the state of scientific knowledge 'does not support any inference of a direct, quantitative relationship between airplane noise exposure and health consequences.'"

Patricia Higginbotham for the Air Transport Association

"The 1976 Policy has been highly successful. It has guided actions over a period of almost 25 years that have substantially reduced aviation noise and its impacts. By the year 2000, the FAA estimates that there will be about 500,000 Americans exposed to significant levels of aircraft noise—down substantially from the six to seven million people exposed in 1976."

"Even as noise has been so dramatically reduced, the national aviation system, including the airport component of that system where aircraft noise is the most severe, has grown significantly in this last quarter of the century."

FAA, Noise Abatement Policy 2000

"Northwest Airlines fundamentally disagrees with the FAA's suggestion that the number of Americans impacted by aviation noise remains significant and that aggressive new measures must be taken to address aviation noise without regard to the high costs of such measures relative to the modest incremental benefits of such expensive measures."

Tom Tinkham for Northwest Airlines

"You may want to believe current policy has worked but your head is buried in the tainted soil of the aviation industry and the beltway."

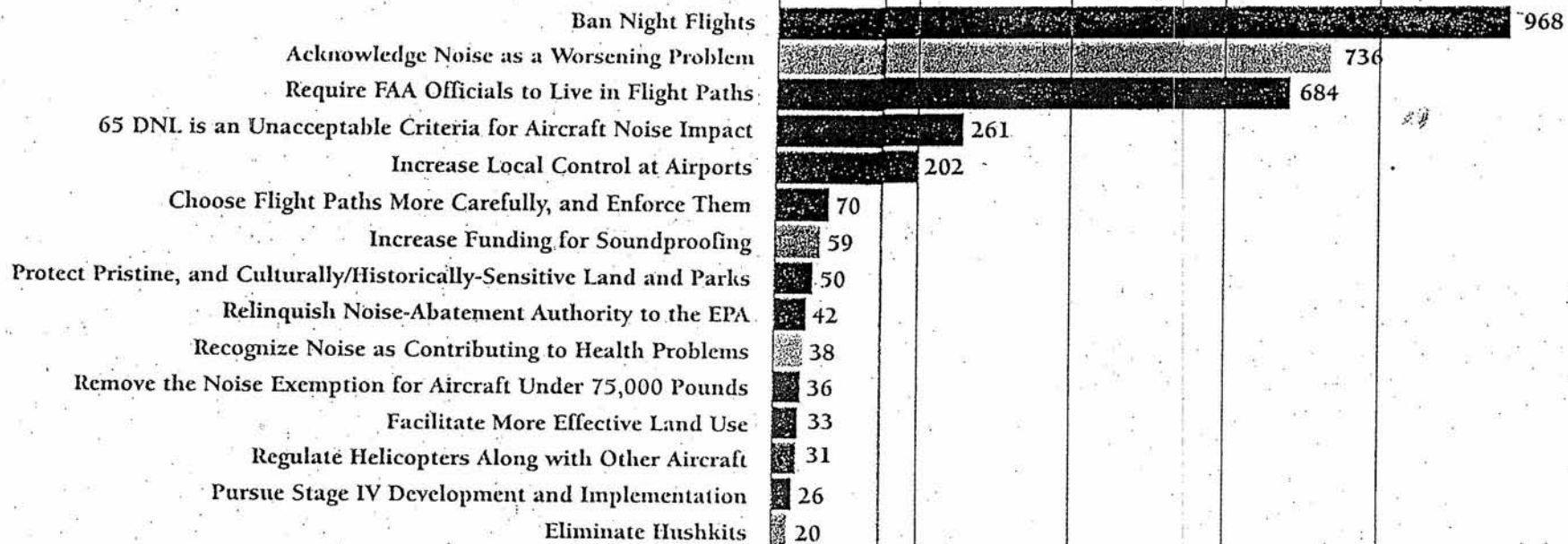
Chas Feltus from the DeKalb Peachtree Airport Advisory Committee in Chamblee, GA

"Jet noise is not 'white' noise, like the hum of a fan or refrigerator. It is an intrusive, drawn-out, congested scraping noise which sounds as large as the entire sky. Worse, it is heard approaching, then peaking, then resonating repeatedly as it fades. Each jet passage is a distinct nerve-grating event, which cannot be 'tuned out.'"

Gregory Muldowney from Glen Mills, PA

Major Concerns of Commenters

Ranking of Major Issues within the Top Three Concerns of Each Commenter



More than 1,200 citizens living near airports and heliports mailed and emailed comments to the FAA in response to the draft. Overwhelmingly, they found these goals and the related policies to be insufficient. In addition, they feel the previous Policy and the subsequent laws and regulation have failed to protect their health and quality of life. The neighbors of airports report the aviation noise is a growing problem with increasing instances of interference from increased flights, and that less noisy technology has not kept up with the increase in number of flights.

The FAA will soon be releasing its revised Noise Abatement Policy. This study is designed to aid the FAA, the airline industry, and local airports' understanding of exactly what airport neighbors need. Employing the method of content analysis, this study provides an accurate image of the problems with the current and proposed noise abatement policy as seen by the people who have to live with the problems.

II. METHODOLOGY

The Noise Pollution Clearinghouse (NPC) obtained a copy of all comments submitted to the FAA. A total of 1,261 people and organizations submitted comments. An initial sample of 130 comments (approximately 10%) was read to determine the most often repeated themes and ideas within the comments. A category for each unique idea was created in a database. Categories of ideas that were mentioned by only one or two of the initial 130 commenters were eliminated to focus on the major concerns of the commenters. Since there were only 45 industry comments, their idea categories were not similarly filtered, because doing so would have virtually eliminated their concerns from this study. This process, and a few slight modifications to the categories as more comments were read, left 36 categories. (See Appendix A2 for a list and description of the categories.)

The 1,261 comments were read and checked for the presence of the 36 categories. In addition, the top three concerns of each commenter were noted. The top three concerns were taken to more accurately reflect the most important issues to neighbors (although in this paper both the top three concerns as well as all mention of the 36 categories by each commenter are presented). An idea was considered to be one of a commenter's top three concerns based on the space devoted to that idea. If three ideas were not clearly most important after this test, proximity to the beginning of the comment was used to determine importance.

III. RESULTS

1. Nighttime Flights Disturb and Interfere with Sleep

The top concern of citizens was sleep interference and nighttime flights. 998 commenters raised this issue, and for 968 people, it was one of their top three concerns. This is in sharp contrast to the FAA's Noise Abatement Policy that mentioned sleep interference only 4 times in a 25,000 word plan, and then only tangentially. From the comments, it is clear that sleep disturbance is a major concern and that less noisy Stage III aircraft have not addressed this problem. Nighttime flights prevent people from falling asleep, wake them after they manage to fall asleep, and prevent them from falling back to sleep again. Given the current aviation technology, location of airports, and scientific knowledge concerning sleep disturbance, nighttime curfews at most airports are needed to protect sleep, and thereby secure improved health and a better quality of life of people living near these airports.

That aviation noise disturbs and interferes with sleep is of little surprise to anyone who has had a flight path routed over their home. It is not uncommon for noise levels outside a home to be 90 decibels, and for interior levels to be louder than typical alarm clocks. The World Health Organization recommends that exterior levels not exceed an instantaneous value of 60 dBA and an average value of 45 dBA at night (WHO, 1999, Guidelines for Community Noise). Many communities and states also recognize the need to control nighttime noise to protect their citizens. Typical nighttime maximum levels, such as the state of New Jersey limit for residential areas, are 50 dBA.

What is truly remarkable is that the FAA has not yet taken sleep disturbance and interference seriously. An entire chapter of the Noise Abatement Policy should have been devoted to sleep disturbance and interference, yet it was mentioned only four times. Here is all the 25,000-word plan to protect citizens from aviation noise has to say about sleep:

1. "Since its inception in 1993, [Federal Interagency Committee on Aircraft Noise] FICAN has reached the following conclusions:
 - ◆ The Acoustical Society of America should form a working group tasked with development [sic] a revised standard for predicting noise-induced sleep disturbance."
2. "Current and future FICAN activities include:
 - ◆ Publishing technical positions on aviation noise topics based on definitive research by member agencies. Such topics include noise-

"For a good night's sleep, the equivalent sound level should not exceed 30 dB(A) for continuous background noise, and individual noise events exceeding 45 dB(A) should be avoided...."

Physiological Functions. *In workers exposed to noise, and in people living near airports, industries and noisy streets, noise exposure may have a large temporary, as well as permanent, impact on physiological functions. After prolonged exposure, susceptible individuals in the general population may develop permanent effects, such as hypertension and ischaemic heart disease associated with exposure to high sound levels....*

Performance. *It has been shown, mainly in workers and children, that noise can adversely affect performance of cognitive tasks. Although noise-induced arousal may produce better performance in simple tasks in the short term, cognitive performance substantially deteriorates for more complex tasks. Reading, attention, problem solving and memorization are among the cognitive effects most strongly affected by noise. Noise can also act as a distracting stimulus and impulsive noise events may produce disruptive effects as a result of startle responses.*

"Noise exposure may also produce after-effects that negatively affect performance. In schools around airports, children chronically exposed to aircraft noise under-perform in proof reading, in persistence on challenging puzzles, in tests of reading acquisition and in motivational capabilities. It is crucial to recognize that some of the adaptation strategies to aircraft noise, and the effort necessary to maintain task performance, come at a price. Children from noisier areas have heightened sympathetic arousal, as indicated by increased stress hormone levels, and elevated resting blood pressure. Noise may also produce impairments and increase in errors at work, and some accidents may be an indicator of performance deficits."

WHO, 1999, Community Noise Guidelines

While the industry is quick to deny any noise problem, they are equally quick to insist the problem has gotten better. And it is true, some aircraft have gotten less noisy. The introduction of a Stage III aircraft (among those that weigh more than 75,000 pounds) has enabled the FAA to advance the myth that aviation noise problem has decreased. People living around airports, however, report the problem is worsening. The reasons for this disconnect are many. The reduction in noise per aircraft has been more than offset by the increase in instances of interference. Moreover, less than 5% of the total number of non-military US airplanes meet Stage III requirements. Many aircraft (those weighing less than 75,000 pounds) do not have

to meet quieter restrictions, and many aircraft only marginally meet Stage III requirements. In addition, night flights, which occur at more sensitive times, have grown substantially, resulting in more instances of sleep interference. Finally, many formerly small airports have more than doubled or tripled in size, creating major problems where once only occasional overflights had once occurred.

Reliance on a Yearly Day-Night Average Sound Pressure Level as a metric and 65 dBA criterion for significant impact allows the FAA to maintain that noise impacts are decreasing while they are actually increasing. See "65 dBA is Unacceptable" below for more information concerning the inappropriate 65 DNL metric and criterion.

3. The Aviation Noise Problem is Unjust: FAA, Airport, and Airline Officials Would Not Live with this Situation Themselves

Airport neighbors feel strongly that the FAA, airport, and aviation industry officers would not subject their families to the same noise levels that they impose on airport neighbors. 686 people noted this incompatibility with Christian and Western conceptions of justice and the unfairness of the situation they endure. The "Golden Rule," the command that you treat your neighbor as you would like to be treated, is not one airports, airlines, or the FAA heeds.

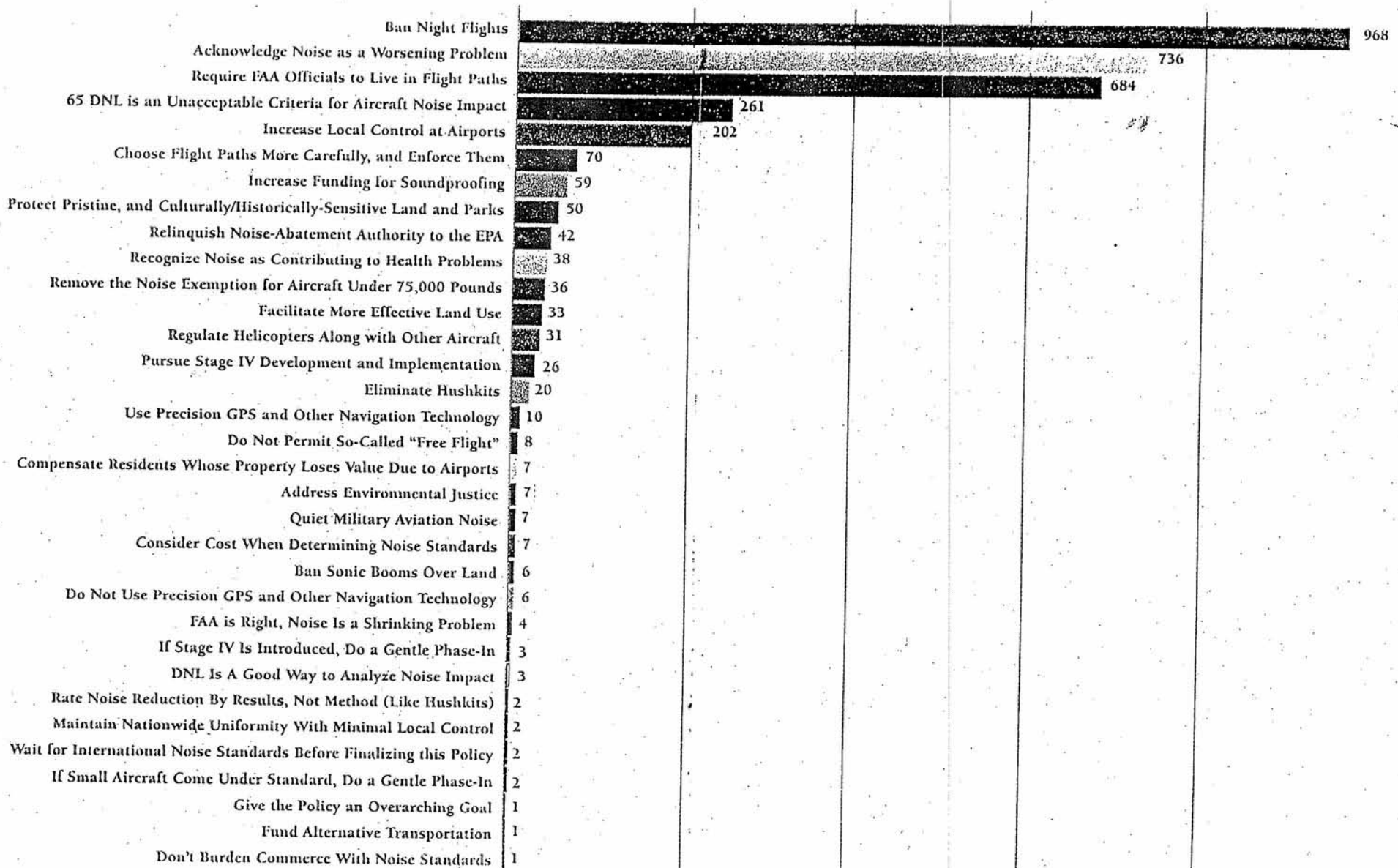
The FAA steers well clear of Christian or similar secular western ethical principles. What applies to citizens on the ground, for example, that it is wrong to drive through a residential neighborhood at night, honking your horn and waking the residents, does not apply to the FAA and airlines, whose night flights wake hundreds of neighbors repeatedly.

There is an easy way to correct the inherent unfairness airport neighbors suffer at the hands of people who would not themselves live with the noise problem: require FAA and airport public employees to live within the 65 DNL significant impact contour around airports. Residency requirements exist for many municipalities across the country, such as Boston, and should be applied to the FAA and airport officials.

A residency requirement would embody the Golden Rule by employing a simple procedure that would require that public employees experience and live with the noise they permit. This procedure is akin to procedures used by five-year-olds across the country: that the one who divides the pie chooses last. Whether the issue is apple pie or aviation noise policy, this

Concerns of Commenters

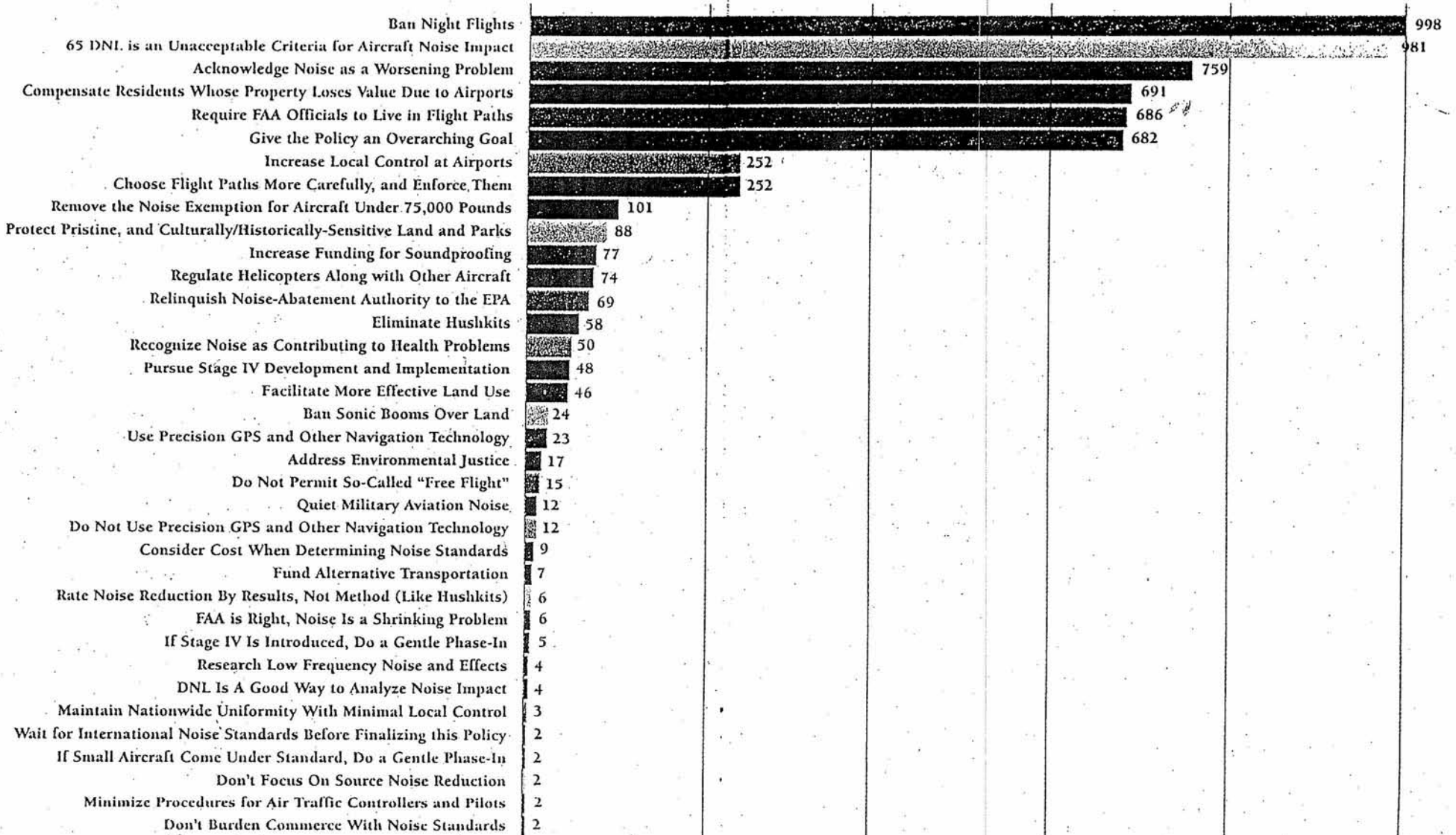
Ranking of Issues Within the Top Three Concerns of Each Commenter



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Number of Commenters Supporting Each of the 36 Categories

Ranking of All Issues Mentioned by Each Commenter



SPC00309

paths – once set – must be enforceable using fines or other disincentives. Community input should be considered when choosing flight paths.

Regulate Helicopters Along with Other Aircraft

Helicopters must be subject to engine noise standards, minimum height requirements, and limitations on hovering duration. Heliports should be sited 5,000 feet away from residential areas.

Quiet Military Aviation Noise

Increase Funding for Soundproofing

Homes and public buildings must be soundproofed by the FAA so that there are no single noise events that reach higher than 45 dBA inside the building. Easements must not be required as a prerequisite for obtaining soundproofing. Multi-year funding should be considered to allow for better local planning.

Prohibit Sonic Booms Over Land

Do Not Permit "Free Flight"

Free flight would allow consistent use of the cheapest routes, even if they impose social costs on whoever is under that route. A noise abatement policy must ensure that routes are chosen to minimize the noise impact to communities.

Use Precision GPS and Other Navigation Technology to Better Track and Regulate Aircraft

GPS and other navigation technology should be used because it can keep flights on carefully designed, less disruptive flight paths, and allow violators to be identified and fined.

Do Not Use Precision GPS and Other Navigation Technology as Envisioned by the Policy

GPS and other navigation technology should not be used because it will assure that noise burdens unfairly fall on only a narrow band of residences over and over again. If it is used, paths should be spread somewhat so as to avoid overburdening a tiny section of the population.

Fund Alternative Transportation

Alternative transportation, such as high-speed rail, should be funded. If high-speed rail replaced air trips of under 500 miles, the noise situation could be greatly improved without significant sacrifices in travel time.

Address Environmental Injustice Issues

No racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences (including noise, air, and water pollution) resulting from the operation of airports, airlines, and airplanes. The new policy must actively seek ways to abate noise for minorities and low income families.

Compensate Residents Whose Property Loses Value Due to Airports

Each year compensation should be given to homeowners and to compensate for lost value and lost quality of life.

Categories for Which a Small Number of Comments from Industry were Received:

- Wait for International Noise Standards Before Finalizing this Policy
- FAA Is Right, Noise Is a Shrinking Problem.
- Research Low Frequency Noise and Effects
- Maintain Nationwide Uniformity With Minimal Local Control
- Don't Focus On Source Noise Reduction
- Rate Noise Reduction By Results, Not Method (Like Hushkits)
- If Small Aircraft Come Under a Standard, Do a Gentle Phase-In
- If Stage IV Is Introduced, Do a Gentle Phase-In
- Don't Burden Commerce With Noise Standards
- Minimize Procedures for Air Traffic Controllers and Pilots
- DNL Is A Good Way to Analyze Noise Impact

"The information I received said that letters must be sent by Monday August 28. I am mailing this on Sunday, August 27. I am 70 years old, disabled and have been very busy this week so this is the best I can do. But I do want to protest Fed Ex. I have personally investigated the residential areas threatened by Fed Ex Noise. Two are retirement homes run by the Friends - Friends Home West on Friendly Avenue and New Garden Friends Home where I plan to move. The New Garden Friends cemetery where I plan to be buried is also in the noise cone but I don't think it will bother me there."

Jean Gordon from Greensboro, NC

"Please carefully consider - many who chose to purchase homes in airport areas when jet travel was still in the imagination of engineers are the blue collar factory workers who built the early airplanes and defense equipment insuring this country's safety. It is their spouses and their children who inhabit the homes near many of the nation's airports today. Many of those workers sacrificed their lives by exposure to various elements. Must their families continue to sacrifice quiet and air quality?"

Diane Sambrano from Inglewood, CA

"A pox on you for trying to do a 'comprehensive update...to build upon A.N.C.A....' It is bad enough that you fooled Congress into thinking the Airport Noise and Capacity Act (ANCA) would control airport capacity and limit noise. It did nothing of the kind! It was a clever way to pass control over all future regulation into your hands. It denies states' rights and the ability for voters to exercise 'the will of the people.'"

Donald Elsmore from Burbank, CA

Industry:

"Section 2 (Goals and Policies) contains the 'heart of the Aviation Noise Abatement Policy.' Unfortunately, portions of this proposed policy present serious heartburn."

Stephen Alterman for the Cargo Airline Association

"Contrary to the opinions of some parties to this debate, airlines do not fly aircraft solely to annoy local communities and politicians. Rather, the aircraft used, and the timing of the flights, are specifically designed to meet market demands."

Stephen Alterman for the Cargo Airline Association

"Moreover, with regard to the protection of public health and welfare, the FAA has previously concluded that the state of scientific knowledge 'does not support any interference of a direct, quantitative relationship between airplane noise exposure and health consequences.'"

Patricia Higginbotham for the Air Transport Association

"ATA supports FAA's confirmation that it will...maintain the priority of safety and efficient use of air space over noise mitigation."

Patricia Higginbotham for the Air Transport Association

"In particular, Northwest Airlines fundamentally disagrees with the FAA's suggestion that the number of Americans impacted by aviation noise remains significant and that aggressive new measures must be taken to address aviation noise without regard to the high costs of such measures relative to the modest incremental benefits of such expensive measures."

Tom Tinkham for Northwest Airlines

"Although each citizen benefits, whether or not they actually fly in this system, the value of this national resource to the nation is both under appreciated and threatened."

Andrew Cebula for the National Air Transportation Association

"Local opposition based on noise was identified as a major barrier to improving the Nation's airports. Aircraft noise has become the rallying point for many of these anti-airport organizations."

Andrew Cebula for the National Air Transportation Association

EXECUTIVE SUMMARY

Introduction

This document is the Supplement to the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the proposed Los Angeles International Airport (LAX) Master Plan. It has been prepared to describe a new alternative for the LAX Master Plan and provide data and analyses related to the reasonably foreseeable environmental impacts of the new alternative. In response to the public comments received on the Draft EIS/EIR and the changing conditions after the September 11, 2001 terrorist attacks, a new alternative, "Alternative D - Enhanced Safety and Security Plan," has been added to the range of alternatives being considered by the Federal Aviation Administration (FAA) and the City of Los Angeles - Los Angeles World Airports (LAWA) for the proposed Master Plan.

In January 2001, the FAA and City of Los Angeles published a Draft EIS/EIR addressing three build alternatives for the Master Plan, identified as Alternatives A, B, and C, as well as the No Action/No Project Alternative. That Draft EIS/EIR was made available for public review and comment from January 18, 2001, to November 9, 2001. During that time, substantial public input was received regarding alternatives to be considered for the LAX Master Plan. Additionally, the terrorist attacks of September 11, 2001 have had a substantial influence on how airports now operate, including increased attention to, and provisions for, airport safety and security. Alternative D was subsequently formulated and refined in 2002 to provide an additional option for the LAX Master Plan.

This Supplement to the Draft EIS/EIR serves to integrate Alternative D into the existing environmental review process for the LAX Master Plan, providing a level and extent of analysis comparable to that which was previously prepared for the other alternatives addressed in the January 2001 Draft EIS/EIR. It also serves to present certain supplemental information and analysis that apply to all of the alternatives. Such information and analysis are based upon the availability of new or updated information since publication of the Draft EIS/EIR in January 2001.

This draft environmental analysis is being widely distributed to the public and to various local, state and federal government agencies so that they may comment on Alternative D and the new impact analysis during public hearings and in writing. LAWA and FAA will prepare written responses to the comments. In preparing the Final EIS/EIR, LAWA and FAA will assess and consider comments both individually and collectively, and will respond by modifying alternatives, developing and evaluating new alternatives, supplementing the analysis, making factual corrections, or explaining why the comments do not warrant further response, citing appropriate authority and reasons. LAWA and FAA will also respond by one or more of these means to the comments made on the Draft EIS/EIR and will provide their responses to comments on the Draft EIS/EIR and Supplement in the Final EIS/EIR.

Purpose and Need Statement for the Project

The purpose and need for the LAX Master Plan has not changed since the publication of the Draft EIS/EIR. An overarching consideration during the planning process has been to achieve the project objectives in an environmentally sound manner. In particular, the Master Plan project objectives are to:

- ◆ Respond to **local and regional demand** for air transportation during the period 2000-2015, taking into consideration the amount, type, location, and timing of such demand.
- ◆ Ensure that new investments in airport capacity are efficient and cost-effective, maximizing the return on **existing infrastructure capital**.
- ◆ Sustain and advance the international trade component of the regional economy and the **international commercial gateway** role of the City of Los Angeles.

Description of Alternatives Studied in Detail

The alternatives evaluated in the Draft EIS/EIR and this Supplement to the Draft EIS/EIR are the end result of eight years of the Master Plan process, ongoing scientific study, several hundred informal community meetings and an extensive formal public comment period for identification of project issues for the environmental analysis (scoping). In addition to the No Action/No Project Alternative, the Supplement to the Draft EIS/EIR and the Draft EIS/EIR analyze a total of four "build" alternatives.

Summary of Comments on SEIS 00 Main Document v05 final 06 17 2003.PDF

Page: 24

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 11:34:13 AM

Why were the comments submitted by November 2001 not answered before (or with) the release of the Alt. D Plan in July 2003?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 11:35:45 AM

Numerous data issues were identified in 2001. How is the integration of more data into questionable data expected to be satisfactory?

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:09:51 PM

If "the purpose and need for the LAX Master Plan has not changed since the publication of the Draft EIS/EIR" and there have been significant political event changes in addition to the Mayor's no expansion pledge, why is one of the three major project objectives to "Ensure that new investments in airport capacity are..." Also, we are told that the major emphasis is for "Security and Safety." Why is this not even mentioned in the list of project purpose and need?

Executive Summary

Table ES-1, Summary of Activity - Comparison of Alternatives, and **Table ES-2**, Summary of Features - Comparison of Alternatives, present key physical characteristics and projected activity levels of each build alternative as an aid to comparison to the No Action/No Project Alternative, the CEQA Environmental Baseline, and the "unconstrained" airport (e.g., number of runways, number of passengers accommodated, tons of air freight accommodated, daily flights, land acquisition, relocation of homes and businesses).

Table ES-1

Summary of Activity - Comparison of Alternatives

Activity/Facility	Environmental Baseline (1996)	Unconstrained Forecast	Planning Year 2015				
			Alternative				
			NA/NP	A	B	C	D
Passenger Activity¹							
Million Annual Passengers (MAP)	58.0	97.9	78.7	97.9	97.9	89.6	78.9
Domestic MAP (w/ Commuters)	43.9	60.9	49.9	60.9	60.9	54.9	48.6
International MAP	14.0	37.1	28.9	37.0	37.0	34.6	30.3
Design Day Passengers	186,512	326,380	262,329	326,329	326,329	298,588	262,758
Peak Hour Passengers	16,682	30,218	20,884	28,142	28,142	24,519	20,404
Passengers per Departure	90.76	122.98	127.47	133.09	133.09	145.09	127.68
Cargo Activity (Tons per year)	1,896,764	4,172,000	3,120,000	4,172,000	4,172,000	4,172,000	3,120,000
Aircraft Activity							
Total Annual Aircraft Operations	763,866	1,004,591	783,430	935,140	935,140	797,249	784,126
Total Domestic (incl. Hawaii)	386,733	421,138	383,245	431,390	431,390	401,669	350,791
International	91,641	217,818	168,773	217,818	217,818	203,393	179,592
Commuter	233,832	280,335	160,437	200,632	200,632	108,905	182,767
All Cargo	23,682	48,300	35,994	48,300	48,300	48,300	35,994
General Aviation	27,978	37,000	34,982	37,000	37,000	34,982	34,982
Design Day Operations	2,235	2,921	2,279	2,719	2,719	2,319	2,279
All Weather Peak Hour Operations	150	N/A	144	176	181 ²	145	146
Three Hour Average Operations	145	N/A	140	172	172	138	141
Annual Cancellations	2,050	N/A	10,126 ²	15,586 ²	9,108 ²	15,910 ²	9,719
All Weather Average Delay (minutes per operation)	8.69	N/A	13.33 ²	9.86 ²	10.88 ²	13.81 ²	11.56



¹ Totals may not add due to rounding.

² This number has been revised since publication of the Draft EIS/EIR. The numbers presented in this table are consistent with those published in the Draft Master Plan document and are modified here to provide a correction to the numbers presented in Table 3-2 of the Draft EIS/EIR. This change is not material to the conclusions of the Draft EIS/EIR.

Source: Landrum & Brown, 1999, 2003.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:10:44 PM


 Based on 2.8% growth from present we will be at 78 MAP in 2015. Is this a realistic growth rate?

Table ES-2
Summary of Features - Comparison of Alternatives

Facility	1996 Baseline	Planning Year 2015 Alternative					
		Unconstrained	NA/NP ¹	A	B	C	D
Runway Development							
North Airfield							
(6L/24R)	8,925 ft	6 runways 3 independent approaches 2,500-3,400 foot lateral runway separation.	8,925 ft	6,700 ft (new runway)	10,000 ft (relocate 135 ft north, extend 600 ft to the east and 475 ft to the west)	9,400 ft (relocate 350 ft north, extend 500 ft to west)	10,420 ft (extend 1,495 ft to west)
(6C/24C)	None	Takeoff runway length of 10,000-12,000 feet. Landing runway length of 9,000-10,000 feet.	none	12,000 ft (reconstruct 6L/24R, move 400 ft south, extend 3,075 ft to the east)	none	none	none
(6R/24L)	10,285 ft	Commuter runway length of 6,000 feet.	10,285 ft	12,000 ft (relocate 500 ft south, extend 1,715 ft to the east)	12,000 ft (relocate 35 ft north, extend 1,715 ft to the east)	12,000 ft (extend 2,900 ft to east shorten west end by 1,185 ft)	11,700 ft (extend 135 ft to west extend 1,280 ft east, move 340 ft south of existing centerline)
South Airfield							
(7L/25R)	12,091 ft		12,091 ft	12,000 ft	12,000 ft (relocate 555 ft north, shorten east end 91 ft)	12,091 ft	12,091 ft
(7C/25C)	None		none	None	12,000 ft (relocate 7R/25L, 500 ft north and 950 ft east)	none	none
(7R/25L)	11,096 ft		11,096 ft	12,000 ft (relocate 156 ft south)	6,700 ft (new runway)	11,096 ft (relocate 50 ft south of existing centerline)	11,096 ft (relocate 50 ft south of existing centerline)




Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:19:41 PM

 Compare this runway spacing with other statements in the document which appear to differ. This one is 340 ft south of existing centerline.

Executive Summary

**Table ES-2
Summary of Features - Comparison of Alternatives**

Facility	1996 Baseline	Planning Year 2015 Alternative					
		Unconstrained	NA/NP ¹	A	B	C	D
Terminals							
Central Terminal Area							
Nominal Aircraft Gates	115		115	78	77	97	153
Narrow Body Equivalent Gates (NBEG)	148.3		148.3	93.9	92.5	121.6	178.9
Square Feet of Building Space	3,997,000		3,997,000	4,149,000	3,542,000	4,224,000	6,550,000
Remote Gates (nominal/NBEG)	48/55.1		48/55.1	N/A	N/A	N/A	N/A
New West Terminal Area							
Nominal Aircraft Gates	N/A	N/A	N/A	121	122	71	N/A
Narrow Body Equivalent Gates	N/A	N/A	N/A	162.5	164	100.6	N/A
Square Feet of Building Space	N/A	N/A	N/A	6,270,000	6,170,000	3,095,000 ⁸	N/A
Total All Terminals							
Nominal Aircraft Gates	163	214	163	199	199	168	153
Narrow Body Equivalent Gates	194.2 ⁵	276	194.2 ⁵	256.5	256.5	222.2	178.9
GTC Building Area	N/A	N/A	N/A	N/A	N/A	N/A	200,000 ²
ITC Building Area	N/A	N/A	N/A	N/A	N/A	N/A	50,000 ²
Total Square Feet of Terminal Building Space	3,997,000	7,786,800	3,997,000	10,419,000	9,712,000	7,319,000	6,800,000 ²
Transit							
Green Line Transit	to El Segundo	N/A	to El Segundo	to West Terminal	to West Terminal	to West Terminal	to ITC
Parking Stalls							
On-Airport Short-Term	8,441	16,000	9,127	15,500	15,500	15,500	13,380
On-Airport Long-Term	12,985	12,500	12,985	12,514	12,514	12,514	8,732
Off-Airport Long-Term	12,500	15,750	13,500	8,607	6,387	11,477	12,890
Total Public Stalls	33,926	44,250	35,612	36,621	34,401	39,491	35,002
Employee Parking Stalls	8,990	12,400 ⁸	8,990 ⁸	12,000 ⁸	13,748	14,265	13,600



Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:27:25 PM


 2.8M sq ft of terminal space added by Alt D without any capacity enhancement? If the capacity is not expanding why are there about 4600 more employee parking spaces?

Table ES-2
Summary of Features - Comparison of Alternatives

Facility	1996 Baseline	Planning Year 2015					
		Unconstrained	NA/NP ¹	A	B	C	D
On-Airport Rent-A-Car Acres⁹	52	101	82 ³	78	78	78	180
Cargo							
Annual Tons	1,896,764	4,172,000	3,120,000	4,172,000	4,172,000	4,172,000	3,120,000
Square Feet of Building Space	1,900,000	4,735,305	2,342,052	4,518,000	4,871,000	4,903,000	2,342,000
Acres of Apron/Ramp Space	77	159	77	128	104	164	77
Total Cargo Acres	197	473	197	436	450	473	197
Ancillary (acres)							
General Aviation	14	14	14	5	4	6	6
Ground Services	9	13	9	4	6	9	4
Airline Admin & Maintenance	295	415	295	72	92	87	31
LAWA & FAA	30	43	30	8	7	6	5
Flight Kitchens	10	18	10	13	16	11	2
Fuel Farm	20	36	20	13	off-site	32	14
Aircraft Rescue and Firefighting	1	1	1	2	1	2	1
Miscellaneous ¹⁰	5	10	5	9	8	11	9
Total Ancillary Acres	384	550	384	126	134	164	72
Land Acquisition							
Total Net Acres		N/A	148	273	345	216	77 ³
Single Family Dwelling Units		N/A	279	57	57	57	0
Multiple Family Dwelling Units		N/A	2,285	27	27	27	0
Library		N/A	98 th St. School	Westchester Branch	Westchester Branch	Westchester Branch	N/A
Schools		N/A		Private elementary (2) and vacant comm. college	Private elementary (2) and vacant comm. college	Private elementary (2) and vacant comm. college	Private elementary (1) and Hollywood CPR
Remote Airport Parking Stalls		N/A		4,893	7,113	2,023	3,676
Rent-A-Car Space		N/A		47 acres	35 acres	52 acres	9 acres
Number of Businesses		N/A		330	323	239	38
Office Use Acquired (SF)		N/A		997,936	1,140,000	603,020	240,607
Retail Use Acquired (SF)		N/A		151,806	126,586	199,707	57,943
Hotel Use (SF)/Rooms		N/A		1,330,622/1,929	1,404,933/2,083	374,653/729	63,595/154

1

2

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:32:04 PM

How are the schools impacted/removed related between Alt D and NA/NP? Alt D shows ab private elementary and a Hollywood CPR(?) not in the NA/NP.

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:34:21 PM

What are the values of NA/NP for Office Use, Retail Use Acquired and Hotel Use that are not shown in the table? How does this compare to Alt D? More or less? Why?

Executive Summary

Table ES-2
Summary of Features - Comparison of Alternatives

Facility	1996 Baseline	Planning Year 2015 Alternative					
		Unconstrained	NA/NP ¹	A	B	C	D
Acquired Bus. Park/Light Industrial (SF) Acquired		N/A		868,262	1,921,164	895,217	96,901
Freight Light Industrial (SF)		N/A		1,724,486	1,784,799	686,138	146,867
Total SF of Commercial Building Space		N/A		5,164,540	6,468,930	2,758,735	605,913
Estimated Market Value		N/A		\$1.06 billion	\$1.36 billion	\$743.5 million	\$155.9 million
Collateral Development							
LAX Northside	N/A	N/A	4.5 MSF ⁴	N/A	N/A	N/A	4.5 MSF ^{4, 6}
Westchester Southside	N/A	N/A	N/A	2.62 MSF ⁴	2.62 MSF ⁴	2.62 MSF ⁴	N/A
Continental City	N/A	N/A	3.1 MSF ⁴	airport	airport	airport	airport
Manchester Square	N/A	N/A	vacant	Independent LAWA development ⁷	airport	airport	airport
Belford	N/A	N/A	vacant	airport	airport	airport	vacant

Note: Discrepancies occur between Summary of Features - Comparison of Alternatives, of The Executive Summary of the Draft EIS/EIR, and Table 3-4, Los Angeles International Airport Master Plan Summary of Facilities by Alternatives - 2015, within Chapter 3 of the Draft EIS/EIR. The information presented within **Table ES-2** of the Supplement to the Draft EIS/EIR, is consistent with that of Table 3-4 of the Draft EIS/EIR, unless otherwise noted to reflect further updates and corrections. To the extent that discrepancies exist between the table in the Executive Summary of the Draft EIS/EIR, Table ES-2 in the Supplement to the Draft EIS/EIR, and Table 3-4 in the Draft EIS/EIR, Table 3-4 and Table ES-2 are controlling.

¹ NA/NP = No Action/No Project

² Estimated future building space requirement. Actual building size will be refined as part of project-level design activities.

³ Excludes LAWA-owned on-airport properties.

⁴ MSF = Million Square Feet

⁵ This information has been revised since publication of the Draft EIS/EIR. This table uses consistent methodology for calculating NBEG based on a wingspan size factor for each nominal gate position based on the largest aircraft that can be accommodated on a particular gate. NBEG calculations in the Draft EIS/EIR converted terminal frontage to NBEG regardless of existing gate positions and their associated fixed infrastructure. Both methodologies are acceptable practice and the methodology presented herein better reflects the limitations of the existing remaining gates.

⁶ Under Alternative D, the existing vehicle trip cap for LAX Northside would be reduced to limit vehicle trips to a level comparable to that of the Westchester Southside project. As such, full development of the 4.5 million square feet of uses currently entitled for LAX Northside would not occur under Alternative D. As the exact nature and amount of land uses have not been specified to correspond with this cap, it is assumed, for purposes of impacts analysis that LAX Northside would be fully built out relative to all environmental topics except traffic and traffic-related issues such as air pollutant emission and noise.

⁷ This information has been revised since the publication of the Draft EIS/EIR. **Under Alternative A, Manchester Square is assumed to be redeveloped with commercial/light industrial uses independent of the Master Plan.**

⁸ Modified since publication of the Draft EIS/EIR to correct an error in the Draft EIS/EIR. This modification does not alter the conclusions of the Draft EIS/EIR.

⁹ Only ready-return (does not include storage support).

¹⁰ Includes airport police, central utility plant, LNG/CNG station, ground run-up enclosures, and Coast Guard building.


Source: Landrum & Brown, 2000, 2003.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:38:40 PM

 This table assumes the higher value of development of LAX Northside in NA/NP and Alt D but Westchester South (the reduced) for A,B,C. Why? Isn't this assumption different in other areas of the documentation?

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 9/15/2003 12:38:41 PM




Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:41:04 PM

 If LAWA doesn't own Manchester Square, why does it assume airport use in all but Alternative A? How is it going to be procured? Eminent Domain? Why is it in conflict with the W-PdR Community Plan?

The following mitigation measure from Section 4.21, *Design, Art and Architecture Application* of this Supplement to the Draft EIS/EIR, shall be implemented to reduce visual effects from construction:

◆ **MM-DA-1. Construction Fencing (Alternatives A, B, C, and D).**

The following mitigation measure from Section 4.21, *Design, Art and Architecture Application/Aesthetics*, of this Supplement to the Draft EIS/EIR, shall be implemented to reduce potential impacts resulting from the alignment of the LAX Expressway on residents on Thornburn Street:

◆ **MM-DA-2. LAX Expressway View Analysis (Alternatives A, B, and C).**

The following mitigation measures from Section 4.21, *Design, Art and Architecture Application/Aesthetics*, of this Supplement to the Draft EIS/EIR, shall be implemented to reduce potential impacts resulting from development of the Scattergood Fuel Farm on residents on Loma Vista Avenue:

◆ **MM-DA-3(a). Scattergood Visual Effects (Alternative B).**

◆ **MM-DA-3(b). Scattergood Visual Effects (Alternative B).**

The following mitigation measures from Section 4.10, *Biotic Communities*, of this Supplement to the Draft EIS/EIR, shall be implemented to reduce potential impacts resulting from installation of navigational aids in the Los Angeles/El Segundo Dunes:

◆ **MM-BC-10. Replacement of State-Designated Sensitive Habitat (Alternative A).**

◆ **MM-BC-11. Replacement of State-Designated Sensitive Habitat (Alternative B).**

◆ **MM-BC-12. Replacement of State-Designated Sensitive Habitat (Alternative C).**

◆ **MM-BC-13. Replacement of State-Designated Sensitive Habitat (Alternative D).**

The following mitigation measure from Section 4.11, *Endangered and Threatened Species of Flora and Fauna*, of this Supplement to the Draft EIS/EIR, shall be implemented to reduce potential impacts resulting from the installation of navigational aids on the El Segundo Blue Butterfly Habitat Restoration Area:

◆ **MM-ET-2. El Segundo Blue Butterfly Conservation: Habitat Restoration (Alternatives A and B).**

◆ **MM-ET-4. El Segundo Blue Butterfly Conservation: Habitat Restoration (Alternative D).**

The following mitigation measure from Section 4.18, *Light Emissions*, of this Supplement to the Draft EIS/EIR, shall be implemented to reduce potential light and visual impacts on nearby residents resulting from development of the LAX Expressway:

◆ **MM-LI-1. LAX Expressway Lighting Assessment (Alternatives A, B, and C).**

4.2.9 Level of Significance After Mitigation

4.2.9.1 Alternatives A, B, C, and D

The level of significance after mitigation as described for Alternatives A, B, and C in Section 4.2, *Land Use* (subsection 4.2.9), of the Draft EIS/EIR has been modified to include revised and new mitigation measures as presented in Section 4.1, *Noise* (subsection 4.1.8), and *Land Use* (subsection 4.2.8), of this Supplement to the Draft EIS/EIR. The new and revised measures add specificity, clarify language, and address exposure to significant single event noise levels that could result in nighttime awakenings and classroom disruption. After accounting for these new or revised mitigation measures, which also apply to Alternative D, certain areas affected by aircraft noise associated with the proposed action would still be faced with impacts that would, under CEQA, remain significant after mitigation. Impacts that would remain significant after mitigation include:

- ◆¹ Impacts where aircraft noise levels of 75 CNEL or greater affect residential properties with exterior cognizable private habitable areas such as backyards, patios, or balconies as well as other outdoor community areas where noise would interfere with speech and other activities (this would not occur under Alternative C).



Sequence number: 1
Author: Owner
Subject: Highlight
Date: 8/20/2003 11:49:29 AM



Sequence number: 2
Author: Owner
Subject: Note
Date: 8/20/2003 11:50:52 AM



Greater outside impacts under Alt D. Why? What specific areas?

4.2 Land Use

- ◆ Interim impacts that would occur prior to completion of noise insulation or recycling of incompatible land use associated with exposure to 65 CNEL or greater noise levels, 94 dBA SEL or greater noise levels, and single event overflight noise resulting in classroom disruption as defined by MM-LU-4.
- ◆ ¹ Some school uses would still be exposed to significant single event noise impacts even after incorporation of MM-LU-4 due to high single event noise levels that would result in classroom disruption when classroom activities take place outdoors.
- ◆ Impacts on incompatible uses ineligible for insulation due to inconsistent zoning or land use designations (i.e., residential uses on land designated for industrial use);
- ◆ ² Noise impacts on substandard housing units that are not feasible to insulate due to structural ³ constraints or other factors associated with bringing properties into compliance with building codes.
- ◆ High construction noise levels would occur at residential and noise-sensitive land uses within 600 feet of construction sites.

⁵ Although increases in outdoor noise levels within the 65 to 75 CNEL contours would occur under the build alternatives, these increases would not exceed thresholds of significance. However, it is acknowledged that such increases may be perceptible and could affect outdoor speech and the quality of certain outdoor activities.



Sequence number: 1
Author: Owner
Subject: Highlight
Date: 8/20/2003 11:50:52 AM



Sequence number: 2
Author: Owner
Subject: Highlight
Date: 8/20/2003 11:51:26 AM



Sequence number: 3
Author: Owner
Subject: Highlight
Date: 8/20/2003 11:51:20 AM



Sequence number: 4
Author: Owner
Subject: Note
Date: 8/20/2003 11:52:52 AM
 What is the threshold of significance for outdoor noise levels? How were they determined and applied?

Sequence number: 5
Author: Owner
Subject: Highlight
Date: 8/20/2003 11:52:08 AM



4.3 Surface Transportation

4.3.1 On-Airport Surface Transportation

4.3.1.1 Introduction

The on-airport surface transportation section addresses traffic-related issues inside the airport boundaries as more fully described in Section 4.3, *Surface Transportation* (subsection 4.3.1), of the Draft EIS/EIR. Additionally, Technical Reports 2.a, *On-Airport Surface Transportation Data* and 3.2, *On-Airport Surface Transportation Technical Report*, of the Draft EIS/EIR provide detailed supporting data regarding existing transportation operations, traffic modeling efforts and analysis of future on-airport conditions for the No Action/No Project Alternative and Alternatives A, B, and C. Technical Report S-2a, *Supplemental On-Airport Surface Transportation Technical Report*, of this Supplement to the Draft EIS/EIR, contains detailed information regarding existing transportation operations, traffic modeling efforts, and analysis of future on-airport conditions for Alternative D.

4.3.1.2 General Approach and Methodology

The analysis of On-Airport Surface Transportation presented below is based on the general approach and methodology described in Section 4.3.1, On-Airport Surface Transportation (subsection 4.3.2), of the Draft EIS/EIR. In addition, the analysis completed for this Supplement to the Draft EIS/EIR includes consideration of updates to the baseline conditions (see Section 4.3.1.3 below), and the scope of analysis for construction traffic affects of Alternative D. Changes in the general approach and methodology incorporated into this Supplement to the Draft EIS/EIR include the following:

- ◆ Existing airport conditions were defined by a traffic data survey conducted in 1995, plus additional traffic data collected in 1996 and 1997. To ensure that this data remains valid, traffic volumes entering and exiting the CTA were tabulated for the Year 2000 and compared to the original data. The findings of that comparison are described below in Section 4.3.1.3, *Affected Environment/Environmental Baseline*.
- ◆ The construction analysis for Alternative D follows the same general approach and methodology as used in the Draft EIS/EIR evaluation of the other alternatives; however, ²given that Alternative D involves substantially more modifications to the CTA and the related on-airport surface transportation system than the other alternatives, the analysis of Alternative D includes a more extensive evaluation of impacts to this system during the peak construction period. Based on the anticipated construction phasing of the components of Alternative D, the peak construction period would occur in the year 2008, whereas the assumptions for Alternatives A, B, and C addressed in the Draft EIS/EIR provided a basis to evaluate construction impacts for those alternatives in the years 2004 and 2013.

In addition to construction traffic, the number of origin and destination (O&D) passengers affects ground transportation forecasts. The airport traffic volumes used in this analysis represent peak summer airport operations. For Alternative D, the peak construction period traffic demands were determined to occur in the second quarter of 2008 and, similar to the approach used in evaluating the other alternatives, were added to the airport peak period traffic demands on an average summer weekday. The resulting traffic volumes and impacts depict the highest construction traffic scenario.

Evaluating construction impacts required two primary tasks: adding the construction traffic to the airport-related ground access demands, and reviewing the routes of the construction traffic model to determine where construction projects would adversely impact the on-airport ground access operations (e.g., detours, road closures, etc.). The construction scenario was analyzed in particular for capacity deficiencies that are expected to occur during this period.

To conduct the capacity analyses for the construction phases of Alternative D, traffic conditions were modeled with the Advanced Landside Performance Simulation (ALPS)TM computer modeling program used for the analysis of 2015 on-airport traffic conditions. ⁴Assumptions were made for the construction model with respect to the transportation network, ⁵trip generation, and trip distribution.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/17/2003 7:12:36 PM

Alt D more extensive changes than other alternatives. Is it so extensive that a new EIS/EIR required?

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 8/17/2003 7:10:42 PM



Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 8/17/2003 7:15:47 PM

Since 2008 is the peak construction period for Alt D and 2004/2013 for the others, how does this impact noise distribution due to flight track differences.

Sequence number: 4

Author: Denny Schneider

Subject: Highlight

Date: 8/17/2003 7:17:42 PM



Sequence number: 5

Author: Denny Schneider

Subject: Highlight

Date: 8/17/2003 7:17:37 PM



Sequence number: 6

Author: Denny Schneider

Subject: Note

Date: 8/17/2003 7:18:53 PM

What are the construction model assumptions and where are they delineated?

Table S4.3.1-1

CTA Traffic Comparison, Baseline to Year 2000

Time Period	CTA Traffic		
	Inbound	Outbound	Total
A.M. Commuter Peak Hour			
March 1997 ¹	4,100	3,280	7,380
March 2000 ²	3,760	3,170	6,930
Percent Increase/(Decrease) between 1997 and 2000	(8.3%)	(3.4%)	(6.1%)
Airport Peak Hour			
August 1996 ³	5,910	5,380	11,290
August 2000 ⁴	6,500	5,600	12,100
Percent Increase/(Decrease) between 1996 and 2000	10.0%	4.1%	7.2%
P.M. Commuter Peak Hour			
March 1997 ⁵	4,160	4,480	8,640
March 2000 ⁶	4,390	4,410	8,800
Percent Increase/(Decrease) between 1997 and 2000	5.5%	(1.6%)	1.9%
Combined Peak Hours			
1996 / 97	14,170	13,140	27,310
2000	14,650	13,180	27,830
Percent Increase/(Decrease) between 1996/97 and 2000	3.4%	0.3%	1.9%

¹ Peak hour defined as 8:00 a.m. to 9:00 a.m.; Source: Update Existing Conditions to 1996, On-Airport Transportation; June 9, 1998; Leigh Fisher Associates.
² Average of peak hour traffic on March 17 and 24, 2000
³ Peak hour defined as 11:00 a.m. to 12:00 noon.; Source: Update Existing Conditions to 1996, On-Airport Transportation; June 9, 1998; Leigh Fisher Associates.
⁴ Average of peak hour traffic on August 4, 11, and 18, 2000
⁵ Peak hour defined as 5:00 p.m. to 6:00 p.m.; Source: Update Existing Conditions to 1996, On-Airport Transportation; June 9, 1998; Leigh Fisher Associates.
⁶ Average of peak hour traffic on March 17 and 24, 2000

Source: Los Angeles World Airports, LAX AVI Traffic Count Data; Landrum & Brown, 2003.

The results of the surveys completed for Year 2000 conditions showed no material or consistent change in traffic growth or reduction in on-airport traffic since August 1996/March 1997. Although some traffic did shift between peak hours, the overall change in traffic was minimal. The slight increase in the combined peak hour traffic volumes (1.9 percent for total traffic) indicates that the continued use of the 1996/97 traffic volumes as the baseline for analysis is a conservative approach, since the lower existing volumes would result in a larger change in traffic resulting from the projects. This would lead to an indication of more impacts resulting from the build alternatives. Further, there were no material infrastructure changes that were not already anticipated between 1996/97 and 2000 (i.e., improvements that were already planned and approved, as accounted for in the No Action/No Project Alternative).

- ◆ The airport provides both close-in and remote parking for short-term and long-term parking patrons, as illustrated in **Figure S4.3.1-2**, Existing (1996) Parking Levels of Service. **Table S4.3.1-2**, Public Parking Comparison, Baseline to Year 2000, provides a comparison of the public parking demands at LAX from the August 1996/March 1997 baseline to Year 2000. Similar to the CTA traffic comparison, there is no material or consistent change in the parking demand between the baseline years and Year 2000. The March comparison shows that parking slightly decreased between the baseline year and 2000, while the August analysis shows that parking slightly increased during that month.

Sequence number: 1

Author: Owner

Subject: Note

Date: 8/20/2003 5:58:22 PM

Does inbound and outbound counts refer to the upper and lower levels (aircraft arrivals/departures)? Otherwise they should be equal. Is there an explanation for inbound consistently higher increases?

Sequence number: 2

Author: Owner

Subject: Note

Date: 8/21/2003 4:48:42 PM

Why are the peak hours that different? What are the correct ones?

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Annie Sabroux,
2001 Main Street,
Santa Monica, Ca. 90405

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

A recent Rand Corp. study has indicated that congregating all commercial passengers in one location increases the risk and harm to a greater number of people by a terrorist attack.

The added inconvenience of additional time required to be screened and transported to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. These general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation airport in the area.

I urge Los Angeles World Airports (LAWA) to thoughtfully consider the risks of this proposal and to address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

Sincerely,

Annie Sabroux.

SPFA00001

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM:
John Reynolds
3217 17th Street
Santa Monica, CA 90405

RE: Mayor Hahn's LAX Master Plan Proposal

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Thank you for your consideration of these recommendations.

Respectfully,

John Reynolds



SPFA00002

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM:
Nina Menkes
1350 Palms Blvd
Los Angeles CA 90291

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

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Sincerely,


Nina Menkes

SPFA00003

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Will Pirkey,
928 Amoroso Place,
Venice, Ca. 90291

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

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Sincerely,

Will Pirkey.

SPFA00004

August 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Scott Kramarich
233 Bernard Avenue
Venice, CA 90291

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

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Scott Kramarich

SPFA00005

August 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Celeste Chada
233 Bernard Avenue
Venice, CA 90291

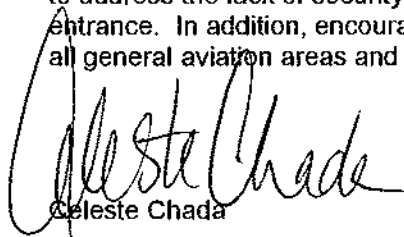
RE: Mayor Hahn's LAX Master Plan Proposal

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Celeste Chada

SPFA00006

12046 Marine Street
Los Angeles, CA 90066
TO: Mr. Jim Ritchie
Aug. 12, 2003

City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

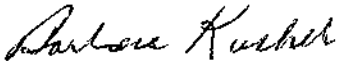
RE: Mayor Hahn's LAX Master Plan Proposal

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Barbara Kushel

SPFA00007

Aug. 12, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM:
Rosemary McMillan
10430 Almayo Ave.
Los Angeles, CA 90064

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

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I urge Los Angeles World Airports (LAWA) to thoughtfully consider the risks of this proposal and to address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

Sincerely,

A handwritten signature in cursive script that reads "Rosemary McMillan". The signature is written in black ink and is positioned below the typed name.

SPFA00008

Allan B. Fawcett
1708 Robson Avenue
Santa Monica, CA 90405

August 13, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P O. Box 92216
Los Angeles, CA 90009-2116

Dear Mr. Ritchie,

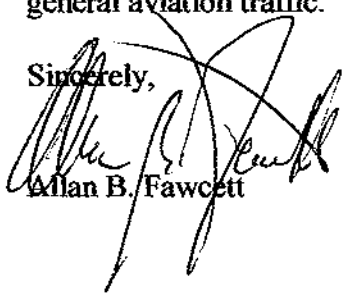
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Sincerely,


Allan B. Fawcett

SPFA00009

Evelyn A. Fawcett
1708 Robson Avenue
Santa Monica, CA 90405

August 13, 2003

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P O. Box 92216
Los Angeles, CA 90009-2116

Dear Mr. Ritchie,

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

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Sincerely,


Evelyn A. Fawcett

SPFA00010

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Jeanine Oppawal
PO, 5057
Sanja Honda CA 90109

RE: Mayor Hahn's LAX Master Plan Proposal

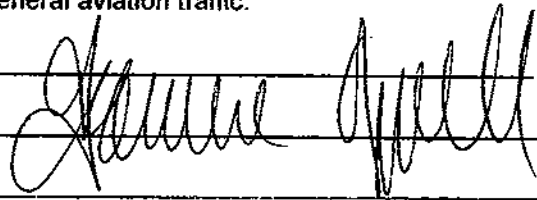
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Additional Comments: _____



Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Cassandra Smith
213 5th Ave
Venice, CA 90291

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

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Additional Comments: _____

August 21, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Ofer Grossman
1115 Hill Street
Santa Monica, CA 90405

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

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Sincerely,


Ofer Grossman
Vice-Chairperson
Santa Monica Airport Commission
1115 Hill Street
Santa Monica, CA 90405

Rec'd
SPFA00013

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Jordan & Alice Ellis
1782 Bryn Mawr Ave
Santa Monica, CA 90405

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

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Additional Comments: _____

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: LEWIN WEITHEIMER
115 WAVECREST AVE.
VENICE, 90291

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

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Additional Comments:

Sincerely, Lewin Weithamer

C.C. CONGRESSWOMAN JANE HARRMAN
SENATOR DIANE FEINSTEIN
SENATOR BARBARA BOXER

SPFA00015

Inge Mueller and Doug Morris
226 6th Avenue
Venice, CA 90291

September 28th, 2003

Mr. Jim Ritchie
City of Los Angeles
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

RE: Mayor Hahn's LAX Master Plan Proposal

Dear Mr. Ritchie:

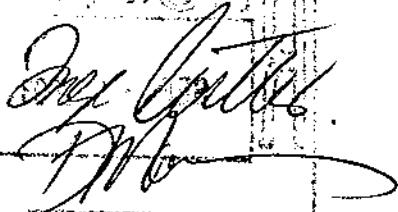
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Sincerely,

A handwritten signature in black ink, appearing to read "Inge Mueller" and "Doug Morris", is written over a rectangular stamp. The stamp contains some illegible text and a circular emblem.

SPFA00016

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Nico and Susan Philippon
234 Ruth Ave.
Venice, CA 90291

RE: Mayor Hahn's LAX Master Plan Proposal

Although, Mayor Hahn's recent proposed LAX Master Plan Alternative was intended to focus on "safety and security" issues, it has become apparent that there are very serious flaws in this proposal.

A recent Rand Corp. study has indicated that congregating all commercial passengers in one location increases the risk and harm to a greater number of people by a terrorist attack.

The added inconvenience of additional time required to be screened and transported to the airline terminals encourages business and wealthy travelers to engage private business jets, charters, and fractional share aircraft for transportation. These general aviation options are not regulated as strictly as commercial aircraft nor are the aircraft or their passengers screened for security purposes at LAX or any general aviation airport in the area.

I urge Los Angeles World Airports (LAWA) to thoughtfully consider the risks of this proposal and to address the lack of security at the general aviation passenger access to LAX at the Imperial entrance. In addition, encourage the FAA to increase security standards nationwide for access to all general aviation areas and other airports with general aviation traffic.

Additional Comments: _____

Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: Roger Allen
1722 Bryn Mawr Ave
Santa Monica CA 90405

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Aug. 7, 2003

TO: Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

FROM: HAL LINDEN
209 6TH AVE
VENICE, CA 90291

RE: Mayor Hahn's LAX Master Plan Proposal

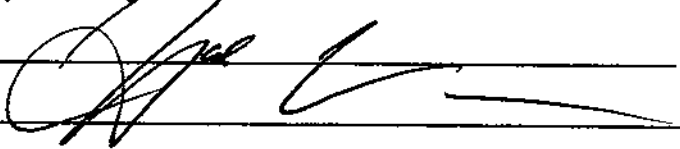
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Additional Comments:



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**Official Hearing Transcript
Radisson Plaza Hotel
Los Angeles, California
Monday, August 11, 2003**

Following this page is the transcript of the oral testimony taken at the above hearing. Each speaker at the hearing has been assigned a unique identification number. The numbers assigned to each speaker for this hearing are:

Number	Speaker	Affiliation
SPHL00001	Jack Byun	None Provided
SPHL00002	Piedmont Brown	Ironworkers Local 433
SPHL00003	Sam Bell	Los Angeles Business Advisors
SPHL00004	Kelly McDowell	City of El Segundo
SPHL00005	Charles Chung	Korean-American Citizen's League of Los Angeles
SPHL00006	Bart Reed	Transit Coalition
SPHL00007	Michael Collins	Los Angeles Convention and Visitors Bureau
SPHL00008	Michael Scavo	None Provided
SPHL00009	Gene Brewer	Teamsters Local 986
SPHL00010	Peter Woo	None Provided
SPHL00011	Richard Slawson	LA/O Counties Building & Construction Trades Council
SPHL00012	Jim Hilfenhaus	Laborers Local 300
SPHL00013	Henry Lee	None Provided
SPHL00014	Shawn Lim	Korean-American Business Association
SPHL00015	James Hahn	City of Los Angeles
SPHL00016	Mahala Walter	None Provided
SPHL00017	Alan Wayne	United Airlines, West Region
SPHL00018	Sam Kim	Korean-American Garment Industry Association
SPHL00019	Domingo Leon	Society of Hispanic Engineers
SPHL00020	Alex Cha	Cha & Park
SPHL00021	Janine Soukiasian	Cha & Park
SPHL00022	Ken Alpern	Friends of the Green Line
SPHL00023	Salvador Brown	None Provided
SPHL00024	Michele Grumet	None Provided
SPHL00025	Carole Hossan	None Provided
SPHL00026	John Ulloth	None Provided
SPHL00027	Joe Lyons	None Provided
SPHL00028	Daniel Walker	Friends of the Green Line
SPHL00029	Darryl Clark	None Provided

Any exhibits attached to this hearing transcript have been previously reproduced in this Final EIS/EIR as individual public comment letters.

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ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION AND
LOS ANGELES WORLD AIRPORTS, THE FIRST PUBLIC HEARING
ON THE SUPPLEMENT TO THE DRAFT EIS/EIR
FOR THE PROPOSED MASTER PLAN AT LAX

REPORTER'S TRANSCRIPT OF
PUBLIC TESTIMONY

TAKEN ON
MONDAY, AUGUST 11, 2003
HELD AT THE RADISSON PLAZA HOTEL
3515 WILSHIRE BOULEVARD
LOS ANGELES, CALIFORNIA 90010

REPORTED BY:

LISA ANN VARGAS, C.S.R. NO. 12049

NORMAN SCHALL & ASSOCIATES
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1 APPEARANCES OF FACILITATORS:

2 SHAUNA BAIN SMITH, Public Affairs Director for the
3 Lee Andrews Group

4 DAVID KESSLER, Airport Planner for the FAA

5 JIM RITCHIE, Deputy Executive Director for LAWA

6 APPEARANCES OF PUBLIC SPEAKERS:
7

- 8 1. JACK BYUN, Representing Himself and the Korean
9 Community
- 10 2. PIEDMONT BROWN, Representing Ironworkers Local 433
- 11 3. SAM BELL, Representing Los Angeles Business Advisors
- 12 4. KELLY MCDOWELL, Councilmember Kelly McDowell for the
City of El Segundo
- 13 5. CHARLES CHUNG, President of Korean-American Citizen's
14 League of L.A.
Maintenance, Inc.
- 15 6. BART REED, Executive Director of the Transit
16 Coalition
- 17 7. MICHAEL COLLINS, Executive Vice President of LA
Convention & Visitors Bureau
- 18 8. MICHAEL SCAVO, Represents Steamfitters Union of L.A.
- 19 9. GENE BREWER, Represents Teamsters Local 986
- 20 10. PETER WOO, President of Historic Council,
21 Neighborhood Council
- 22 11. RICHARD SLAWSON, Executive Secretary of the
23 Los Angeles/Orange Counties
Building and Construction
Trades Council
- 24 12. JIM HILFENHAUS, Represents Laborers Local 300
- 25 13. HENRY LEE, Korean-American Attorney Representing
Himself

1 APPEARANCES OF PUBLIC SPEAKERS CONTINUED:

2 14. SHAWN LIM, President of the Korean-American
3 Business Association

4 15. JAMES HAHN, Mayor of the City of Los Angeles

5 16. MAHALA WALTER, Representing Herself

6 17. ALAN B. WAYNE, Director of Governmental and
7 Public Affairs for United Airlines

8 18. SAM KIM, Representing the Korean-American Garment
Industry Association

9 19. DOMINGO LEON, Representing the Society of Hispanic
10 Engineers

11 20. ALEX CHA, Attorney with Cha & Park Representing
Himself

12 21. JANINE SOUKIASIAN, Representing Cha & Park

13 22. KENNETH ALPERN, M.D., Representing the Friends of
14 the Green Line

15 23. SALVADOR BROWN, Representing Himself

16 24. MICHELE GRUMET, Representing Herself

17 25. CAROLE HOSSAN, Representing Herself

18 26. JOHN ULLOTH, Representing Himself

19 27. JOE LYONS, Airport Tenant Representing Himself

20 28. DANIEL WALKER, Representing Friends of the Green
Line

21 29. DARREL CLARKE, Representing Himself

22

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STATEMENTS SUBMITTED FOR THE RECORD

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8	Statement Submitted by Salvador Brown	66

1 LOS ANGELES, CALIFORNIA MONDAY, AUGUST 11, 2003

2 6:05 O'CLOCK P.M.

3 ---oOo---

4
5 MS. SMITH: Good evening, ladies and gentlemen. On
6 behalf of the Federal Aviation Administration and
7 Los Angeles World Airports, I want to welcome you to a
8 first of a series of public hearings to receive your
9 testimony on the Los Angeles Airport Master Plan and
10 Environmental Impact Statement and Environmental Impact
11 Report.

12 My name is Shauna Bain Smith. I will be your
13 facilitator this evening. The two gentlemen to my right
14 will be receiving your testimony this evening.

15 Before we start the formal proceedings, they
16 each have introductory remarks that they'd like to make
17 to you. We'll start with Mr. David Kessler, who is an
18 environmental protection specialist with the Federal
19 Aviation Administration.

20 Mr. Kessler.

21 MR. KESSLER: Thank you. Good evening, ladies and
22 gentlemen. My name is David Kessler. I'm the
23 environmental protection specialist for the Airport's
24 Division of the Federal Aviation Division,
25 Western-Pacific Region.

1 I'd like to welcome you to the first of a
2 series of public hearings the FAA and Los Angeles World
3 Airports, or LAWA, are conducting for a Supplement to
4 the Draft Impact Statement, Draft Environmental Impact
5 Report, or EIS/EIR, for the proposed Master Plan at
6 Los Angeles International Airport.

7 The Supplement to the Draft EIS/EIR addresses
8 an additional Alternative, Alternative D, the Enhanced
9 Safety and Security Plan that was added in the fall of
10 2001. This new alternative was added as a result of
11 comments submitted on the 2001 Draft EIS/EIR and the
12 terrorist attacks that occurred on September 11th, 2001.

13 The notice of availability of the Supplement
14 to the Draft EIS/EIR was published in various local
15 newspapers and in the Federal Register on Friday, July
16 11, 2003. The FAA and LAWA are the authors of the
17 Supplement.

18 The Federal Highway Administration is also a
19 cooperating agency in the preparation of the Draft
20 EIS/EIR that was published in January 2001. Both the
21 2001 Draft EIS/EIR and the 2003 Supplement have been
22 prepared pursuant to the National Environmental Policy
23 Act.

24 The purpose of these hearings is to collect
25 comments from the general public concerning the adequacy

1 of the information disclosed in the Supplement to the
2 Draft EIS/EIR on the proposed Alternative D.

3 I would like to take this opportunity to make
4 sure that everyone understands that no decision will be
5 made today regarding this proposed project. Today's
6 hearing is not a question-and-answer type of forum. Our
7 job is to listen to what you have to say about the
8 adequacy of the information in the Supplement to the
9 Draft EIS/EIR. In other words, it's your turn to talk
10 to us.

11 Since we are here to listen, we're not going
12 to respond to questions about the pros and cons of the
13 proposed project. Since 5:00 o'clock this afternoon we
14 have held a workshop just outside this room for anyone
15 to ask questions about the Master Plan, the
16 environmental process, and the various proposed
17 projects.

18 Following publication of the Supplement to the
19 Draft EIS/EIR for review and comment, the next step in
20 the joint Federal and State environmental disclosure
21 process is holding this and other public hearings during
22 this week and next week. I would like to take this
23 opportunity to recap the environmental disclosure
24 process for this project.

25 The environmental evaluation for the LAX

1 Master Plan began in 1997 with the publication of the
2 Notice of Intent to prepare the joint EIS/EIR in the
3 Federal Register. In July of 1997, we held a series of
4 meetings with members of the public and governmental
5 agencies to receive comments on the scope of the Draft
6 EIS/EIR.

7 Following those meetings, the Draft EIS/EIR
8 was published in January 2001. Both the 2001 Draft
9 EIS/EIR and the 2003 Supplement have been prepared
10 pursuant to the National Environmental Policy Act of
11 1969, or NEPA, the Council on Environmental Quality
12 Regulations, which are the implementing regulations for
13 NEPA, the California Environmental Quality Act of 1970,
14 or CEQA, and the Airport and Airway Improvement Act of
15 1982, as amended.

16 Following today's hearings and the close of
17 the comment period, we will then correct and revise the
18 EIS/EIR as necessary based on the comments received. We
19 also prepare responses to comments we receive and
20 include those responses along with those that were
21 submitted to the FAA and LAWA on the 2001 Draft EIS/EIR
22 in the Final EIS/EIR. The information contained in the
23 Supplement will also be combined with the information in
24 the 2001 Draft EIS/EIR into the Final EIS/EIR.

25 Before we begin receiving verbal comments,

1 we'd like to let you know the ground rules of this
2 hearing. First, as I said earlier, we are not here to
3 respond to questions about this project. We are only
4 here to listen to your comments and take notes. We also
5 have a court reporter present to ensure that we have an
6 accurate transcript of this hearing.

7 For anyone wishing to speak, we ask that you
8 fill out a speaker card, like this one, and give it to
9 one of the people at the sign-in desk. The cards will
10 then be brought up here to our facilitator. We will
11 then call the names of each speaker so we could proceed
12 in an orderly fashion.

13 So that everyone gets an opportunity to
14 provide verbal comment, everyone will get three minutes
15 to speak. To be fair to everyone, we are not going to
16 allow people to transfer their allotted time to someone
17 else. I ask that when you speak, you give us your name
18 and address for the record. We also have a Spanish
19 language translator for anyone wishing to provide their
20 comments in Spanish.

21 If there is anyone who is uncomfortable
22 speaking in front of a group or if you need more than
23 three minutes to provide your comments, we ask that you
24 provide your comments in writing. We have comment
25 sheets, like this one, available for use at the sign-in

1 desk. You can leave your comments at the sign-in desk,
2 or you can mail your written comments using the comment
3 sheet or a letter to either address listed on the cover
4 of the Supplement to the Draft EIS/EIR.

5 I would like you to understand that a verbal
6 comment is just as important as a written comment. So
7 please feel free to provide any comments on the document
8 you may have to us either verbally today or in writing.

9 At this time comments on the Supplement to the
10 Draft EIS/EIR are due by 5:00 p.m. Pacific Daylight
11 Time, on Monday, August 25th, 2003. The FAA is
12 currently considering a request from LAWA to extend the
13 public comment period to a total of 120 days.

14 At this time no decision has been made on
15 LAWA's request. If the FAA agrees to extend the comment
16 period, a notice announcing any extension will be
17 published in the Federal Register and in local
18 newspapers of general circulation.

19 Lastly, I would like everyone to know that
20 even though we have this meeting scheduled until
21 9:00 o'clock this evening, we will stay here as long as
22 necessary for everyone to get a chance to provide verbal
23 comments on the Supplement to the Draft EIS/EIR. As I
24 said earlier, our job here today is to listen to your
25 comments.

1 Now I will return the hearing back to our
2 facilitator, to introduce Mr. Jim Ritchie, who will
3 provide some introductory comments from LAWA. Following
4 Mr. Ritchie's comments, we will collect the speaker
5 cards and call the name of the first speaker. Thank
6 you.

7 MS. SMITH: Thank you, Mr. Kessler. I would next
8 like to introduce Mr. Jim Ritchie, who is the Deputy
9 Executive Director of Los Angeles World Airports.

10 Mr. Ritchie.

11 MR. RITCHIE: Good evening, ladies and gentlemen.
12 I'm Jim Ritchie. And on behalf of Los Angeles World
13 Airports, I would like to welcome you tonight to the
14 first public hearing at the Radisson Hotel.

15 This is one of a series of public hearings
16 incidental to the environmental review process. You may
17 recall the public hearing process in 2001 while we were
18 examining other alternatives for the modernization of
19 Los Angeles International Airport.

20 The tragic events of 2001 and the leadership
21 of Mayor Jim Hahn have reshaped our environmental
22 process. The Mayor's pressing concerns for safety and
23 security provided new guidance along with the public
24 comments received during the public comment period from
25 January to November of 2001. You are here tonight

1 primarily to provide comment on that new Alternative
2 referred to as Alternative D.

3 This is a supplement to the existing
4 environmental process, and it has undergone a rigorous
5 environmental review. We are here tonight to receive
6 your comments on this new Safety and Security Plan and
7 its impacts as disclosed in the Supplement to the Draft
8 Environmental Impact Statement/Draft Environmental
9 Report.

10 So with that, Shauna, please conduct the
11 meeting.

12 MS. SMITH: Thank you, Mr. Ritchie.

13 Again, my name is Shauna Bain Smith. And as
14 your facilitator, I'm here to ensure that everyone who
15 wishes to speak is able to do so in a timely and orderly
16 fashion. This high-tech clock here is going to be my
17 new best friend, and it's going to help you as well.

18 If you wish to speak, as Mr. Kessler
19 mentioned, I need you to fill out one of these cards
20 that you could find at the sign-in table. After you
21 fill it out, I need you to turn it in at the sign-in
22 table as well.

23 When you come up to the microphone, I need you
24 to state your name clearly and as slowly as possible so
25 that our court reporters can get your name into the

1 official record. After you speak your name, then I will
2 start the timer. I won't start the timer until after
3 you've said your name and address, and your three
4 minutes will begin at that time.

5 When you have 30 seconds of time left, you'll
6 see this yellow light flash. And at that time it's
7 probably a good idea to start wrapping up your remarks.
8 When your three minutes is completed, you will hear a
9 beep tone.

10 At that time if you still feel like you have
11 to make more remarks or need more time, as Mr. Kessler
12 mentioned, you can use one of those forms there to do
13 some written remarks, or we will allow you to fill out
14 another public speaking card here.

15 And after everyone has had a chance to speak
16 at least once in our first round, you will be permitted
17 to speak again if necessary.

18 One more thing. As you come up to speak, if
19 you come up to the podium on my right, I would
20 appreciate it if you would exit to your left and go back
21 to your seat through one of those aisles, only so that
22 we don't get a back log here in the center. And if you
23 speak at the podium on my left, you exit to the right.

24 I'm going to call three speakers at a time, so
25 you could begin to prepare to come up after the first

1 speaker is finished. And I will call your names in the
2 order you will come up to the podium. Without further
3 ado, I will call our first speakers.

4 Mr. Jack Byun, Piedmont Brown and Sam Bell, in
5 that order, please. Mr. Byun first.

6 MR. BYUN: Good evening, ladies and gentlemen. My
7 name is Jack Byun. I'm here today to speak in support
8 of Alternative D of the LAX Master Plan. As a business
9 leader in Korean Community, I appreciate Mayor Hahn's
10 efforts to modernize LAX while mitigating the impacts in
11 the surrounding community.

12 Mayor Hahn has made it his priority to ensure
13 that first and foremost safety and security, as there is
14 traveling convenience in the new design of the
15 Alternative D. The development of the Alternative D
16 will make significant improvements to the airport, will
17 bring state-of-the-art facilities and concessions. The
18 modernization of the airport will be a major business
19 attraction encouraging international tourists.

20 LAX is the third largest international gateway
21 in the United States, and it's international gateway has
22 reinforced its gross as a passenger and cargo hub. The
23 economy benefits to local and regional business will be
24 multiful. The 23 million annual visitors to Los Angeles
25 spends about \$10 billion. This translates to 5.4

1 billion in personal income for the residents of
2 Los Angeles.

3 We look forward to working closely with Mayor
4 Hahn and supporting his innovative Alternative D that
5 promotes business and travel in Los Angeles.

6 The LAX Master Plan means improved airport
7 safety. Alternative D modernized the airfields to
8 improve safety for aircraft, traveling passengers and
9 airport workers. Lax Master Plan means improved airport
10 security. Alternative D provided for multiple layers of
11 security protection for the traveling public, airport
12 workers and the surrounding communities.

13 Also Alternative D permits all observation and
14 assessment of passengers and baggages. LAX Master Plan
15 supports a regional transportation plan. Alternative D
16 addresses community interest and concern. Also LAX
17 Master Plan means modern airports.

18 Alternative D offers a redeveloped central
19 terminal area that provides for increased security
20 screening and enhanced passenger conveniences. And,
21 also, an automated people mover offers convenient access
22 from the new facilities to the central terminal area
23 every two minutes.

24 MS. SMITH: Thank you, Mr. Byun.

25 Mr. Piedmont Brown.

1 MR. BROWN: My name is Piedmont Brown. I live at
2 2057 South Atlantic Boulevard in Los Angeles. I
3 represent the Ironworkers of Local 433 and as being a
4 citizen of L.A., I think L.A. sets a trend not only for
5 this country but for the whole entire world.

6 Alternative D offers a long-awaited, greatly
7 needed modernization, especially in the light rail
8 transportation. As I've flown around through the U.S.,
9 I've seen Detroit. Orlando has this. It's very
10 convenient. It helps their elderly people. It gets you
11 to and from the airport in an orderly and conductive
12 manner. It also reduces congestion and pollution. And
13 being a citizen of L.A., this is very important for me
14 as I'm sure the people here amongst us.

15 And most important, the Alternative D offers
16 aviation safety, safety at the airport and security, the
17 best state-of-the-art that is offered in the world.

18 With this, I would like to conclude this and
19 thank you for letting me speak here.

20 MS. SMITH: Thank you.

21 Mr. Sam Bell.

22 MR. BELL: Good evening. My name is Sam Bell. I'm
23 a President of Los Angeles Business Advisors, 333 South
24 Hope Street, Los Angeles, California 90071.

25 It's a pleasure for me to be here tonight

1 representing our group, which is a group of business
2 executives, which our employers maintained the largest
3 presence of some of the larger companies in Los Angeles.
4 That is my role to representative them.

5 We want to first congratulate Mayor Hahn, Jim
6 Ritchie, the LAWA staff on the progress today. We think
7 they've done a fine job in addressing a major
8 infrastructure issue that faces the Southern California
9 region.

10 I think we can all realize but maybe not
11 appreciate the impact of LAX being the huge economic
12 engine that it is for the Southern California area.
13 Sometimes, unfortunately, we don't recognize the need
14 and the role that a huge economic engine like that plays
15 until we're faced with challenges and changes and
16 modifications to that.

17 The local impact for the Southern California
18 region of LAX is like \$26 billion dollars a year,
19 180,000 jobs. Someone said it's the largest -- it's one
20 of the three gateway airports of the United States.
21 Twelve percent of international passengers across the
22 country flow through LAX.

23 But there is one problem. LAX is old. It's
24 antiquated. It's unsafe and it's vulnerable. It's
25 really vital that we modernize and make it more safe for

1 our passengers and for the people moving through the
2 airport that work there.

3 The last modification took place 20 years ago.
4 It's designed for 707 aircraft, an aircraft that is old.
5 We have new generations of aircraft coming on board day
6 to day, and L.A.'s will be coming on board within the
7 next couple of years. Of course, we've got the major
8 challenges faced in the aftermath of 9-11.

9 So we've got to do something long-term-wise
10 relative to economic viability to the airport. LAX is
11 the linchpin for the Southern California regional
12 airport transportation system. Obviously, we've got to
13 implement the new safety and security guidelines at the
14 airport that will make it safe.

15 We feel Alternative D addresses these issues.
16 Public comment period is useful. It's constructive.
17 I'm sure we'll get great comments coming from that that
18 could be built into the final model. But our mission
19 here tonight and what we want to do is to encourage you
20 to keep moving and keep moving rapidly.

21 The worse thing that could happen to us is to
22 do nothing. It would be a financial disaster for the
23 economy, and it would be totally unsafe for the people
24 working and moving through LAX.

25 Again, we congratulate you for the progress,

1 and we encourage you to move forward steadfastly, and
2 thank you for your time.

3 MS. SMITH: Thank you, Mr. Bell.

4 Before I call our next speakers, can I remind
5 all of our audience members to please keep your
6 conversation to a minimum. We are trying to make sure
7 everyone's speaking gets into the official record, and
8 our court reporters need to be able to hear them. It's
9 hard to hear when people are speaking in the audience.
10 I would appreciate that. Thank you.

11 Our next three speakers are Kelly McDowell,
12 Charles Chung and Bart Reed, in that order, please.

13 Mr. McDowell.

14 MR. MCDOWELL: Good evening. I'm Councilmember
15 Kelly McDowell representing the City of El Segundo.
16 Given the length and the complexity of the Master Plan
17 and the environmental documents concerned with it, our
18 full comments on the technical issues presented will not
19 be ready for some time, and my City's comments tonight
20 are preliminary in nature because of that.

21 We continue to oppose Alternatives A, B and C
22 for the many reasons the City expressed both orally and
23 in writing during the public review and comment period
24 for the Draft EIS/EIR in the year 2002.

25 El Segundo has not endorsed Alternative D, but

1 we feel its stated objectives support a regional
2 aviation approach. My City supports an alternative with
3 fewer environmental impacts. We would like to see the
4 adverse impacts of the airport minimized and mitigated
5 to the greatest extent possible.

6 El Segundo supports enhanced safety and
7 security at LAX, and my City supports an alternative,
8 that by its design, will accommodate passenger and cargo
9 levels no greater than the physical capacity of the
10 airport as it exists today.

11 Limiting LAX's capacity to its current
12 capacity has always been our number one goal, and we
13 believe that limiting LAX's capacity will allow other
14 airports in the region to develop and handle a fair
15 share of future regional aviation demand, will result in
16 fewer environmental impacts and will improve safety and
17 security at the airport.

18 However, my City is greatly concerned about
19 the impacts of south side airfield changes that would
20 move the southernmost runway 50 feet closer to
21 El Segundo.

22 LAWA has stated that it believes these changes
23 are necessary to improve runway safety. However, we are
24 currently studying the impacts of the reconfiguration
25 and the options for the southern runway complex.

1 In particular, we urge full public
2 consideration of the end-around taxiways as an
3 alternative that could provide greater safety at lower
4 cost and with fewer burdens on local communities.
5 Safety at LAX must be a priority for everyone.

6 The City is prepared to support measures
7 necessary to enhance safety, even if those measures
8 increase our burden, but only if we are assured, through
9 an independent expert, that other alternatives are not
10 equally effective.

11 In conclusion, we are grateful for Mayor
12 Hahn's responsive leadership and his pledge to constrain
13 growth at LAX and to foster a regional approach to
14 meeting future aviation demand in our region.

15 It is our hope that the ultimate outcome of
16 this Master Plan process will be a regional airport
17 approach that ensures that LAX does not exceed its
18 current capacity. Thank you.

19 (The statement submitted for the
20 record was marked as Statement 1
21 and is attached hereto.)

22 MS. SMITH: Thank you, Councilmember McDowell.

23 Charles Chung.

24 MR. CHUNG: Good evening. My name is Charles Chung,
25 President of Korean-American Citizen's League of

1 Los Angeles, also chairman of Korean-American Federation
2 of Los Angeles.

3 I am here today in support of the Mayor LAX --
4 (Cell phones are ringing in the audience.)

5 MS. SMITH: Mr. Chung.

6 MR. CHUNG: Yes.

7 MS. SMITH: Excuse me. I apologize for
8 interrupting. Can I please ask that everyone turns off
9 their cell phones and any other devices in the audience,
10 please. I'll give you an opportunity to do that.

11 UNIDENTIFIED SPEAKER: Could you do something about
12 the people that are standing in the doorway?

13 MS. SMITH: And, also, if I can ask the spectators
14 and audience members that are standing near the back,
15 you are welcome to take a seat. We have plenty of empty
16 seats here, but I must ask that you carry your
17 conversations to outer parts of this area, please.
18 Thank you.

19 MR. CHUNG: I am here today in support of the
20 Mayor's LAX Master Plan.

21 Los Angeles is the second largest
22 transportation in the United States for international
23 visitor. About 5.5 million international tourists visit
24 Los Angeles in 2000. International tourists spend five
25 times more than what rest of travelers would spend. We

1 appreciate Mayor Hahn's leadership in the showing of the
2 importance of the international market. Now we stand
3 together for subject of this L.A. Master Plan. Thank
4 you.

5 MS. SMITH: Thank you.

6 Bart Reed.

7 MR. REED: Before I start, could you ask the people
8 to turn their cell phones off? You asked them and they
9 didn't pay any attention. There are like seven cell
10 phones still going.

11 MS. SMITH: Thank you, Mr. Reed. While we have
12 people speaking up here, if you could respect them and
13 make sure all cell phones or any other electronic
14 devices are turned off or put on mute, any electronic
15 devices, please. If you have a watch or anything of
16 that nature, out of respect for the speakers and of our
17 court reporters, we would appreciate that.

18 And after Mr. Reed we'll have Walter Dahlem
19 and Michael Collins. Thank you, Mr. Reed.

20 MR. REED: Hi. I'm Bart Reed, Executive Director of
21 the Transit Coalition, a Sylmar-based non-profit that
22 works on transportation mobility for our region.

23 Simply put, we are concerned since the MTA has
24 no money to pay for the Green Line extension to
25 Westchester, the notion of such an extension should fall

1 under the traffic and/or environmental mitigation with
2 the final EIR of any Alternative D, including a specific
3 design, preferably one that has the written blessing of
4 the FAA, because that's who blocked the last extension
5 of the Green Line ten years ago or so.

6 Our goal of the Friends of the Green Line,
7 which is a non-profit organization that I'm the
8 executive director of in addition to the Transit
9 Coalition, is that we would like to see the Green Line
10 connect to the Ground Transportation Center wherever it
11 ends up to be.

12 Manchester Square is being discussed as a site
13 for the Ground Transportation Center solely because it's
14 on the drawing board as the current site, but our group
15 is neutral as to where the actual location should be.

16 The Green Line Westchester Extension would
17 enhance the usefulness of the people mover that is being
18 proposed by connecting it to the local hotels and
19 businesses. We are here for the economic vitality of
20 the area.

21 A people mover has one function, to connect
22 the airport to the parking center, but the Green Line
23 adds a mitigation to the airport rather than -- and in
24 addition to mitigations of roads, is a legitimate
25 mitigation.

1 We support the LAWA people mover for airport
2 transportation purposes, but not as a people mover that
3 would harm our regional transportation efforts such as
4 getting in the way of the Green Line and aviation.

5 Friends of the Green Line recommends a direct
6 connection of the Green Line to the Ground
7 Transportation Center as an alternative to the
8 potentially duplicative Intermodal Transportation
9 Center, which is adjacent to the Aviation/Imperial Green
10 Line station.

11 A direct Green Line Ground Transportation
12 Center connection would not interfere with the people
13 mover designed to connect parking lots C and D with the
14 Ground Transportation Center, but it instead would offer
15 a separate rail-and-car-bound -- it would adjust those
16 traffic issues.

17 Federal funding for both a rail connection
18 from the south along the MTA Harbor Subdivision is also
19 useful because it is right outside the Ground
20 Transportation Center. The MTA Harbor subdivision
21 connects between LAX and L.A. Union Station. It's a
22 rail line that already exists. It just needs to be used
23 as a mitigation to the airport.

24 As far as rail connections, as I just
25 mentioned, between north and Downtown, it might be a

1 better argument for L.A. related traffic mitigation
2 than the Green -- it just might be a better argument.

3 The northern connection of the Green Line
4 would be -- okay. The northern connection would be from
5 the previously planned Westchester extension and from
6 Downtown and Inglewood via the MTA Harbor Subdivision to
7 the Ground Transportation Center.

8 And in closing, I want to say the Bay area
9 just established a rail/airport connection, and Orange
10 County has just started last week looking into its own
11 airport/rail connections via the Centerline project.
12 L.A. County should strive for nothing less than its own
13 rail connections to the airport as a mitigation for
14 traffic. Thank you.

15 MS. SMITH: Thank you, Mr. Reed.

16 MR. REED: I want to enter our brochure into the
17 record, too.

18 MS. SMITH: Can you give it to her?

19 MR. REED: Sure.

20 MS. SMITH: Thank you.

21 (The brochure and statement submitted
22 for the record was marked as
23 Statement 2 and is attached hereto.)

24 MS. SMITH: Mr. Dahlem. Walter Dahlem?

25 MR. DAHLEM: I'm going to pass.

1 MS. SMITH: Mr. Michael Collins. And after that,
2 Michael Scavo and Gene Brewer, please.

3 MR. COLLINS: Hello. I'm Michael Collins, Executive
4 Vice President of L.A., Inc., the Convention & Visitors
5 Bureau. And I'm here in support of the Master Plan that
6 is before you.

7 Again, I want to represent the industry that
8 we work with; and that is, indeed the second largest
9 economic engine in this community. It's \$10 billion
10 dollars a year in direct income, 23 million visitors and
11 reportedly 240,000 jobs.

12 LAX in our minds is the shelf upon which our
13 customers buy L.A. It is fundamental to all of those
14 very large numbers that I just rattled off, which are
15 inclined by the repetition to become unimportant. But
16 it is the method by which this economy works, and it
17 can't be overstated.

18 The Master Plan has, as anyone could see out
19 there, hundreds, if not, thousands of pages of detail.
20 And there is and there will be lots and lots of
21 discussion about those details, and those discussions
22 are merit, I'm sure.

23 But I am here to ask that the strategic
24 perspective reflected in this plan not get lost in the
25 discussion of all of those very important details.

1 There are three parts to this strategy, the strategic
2 perspective that I hope the discussion could continue to
3 focus on, because they are elemental to the success of
4 the business I just mentioned.

5 One is building a safe and secure facility.
6 It goes without saying that that is something
7 fundamental to the success of any such facility. Sadly,
8 it has become absolutely crucial, not only from a
9 practical perspective, but from a perceptual dimension,
10 that is, our customers both in the consumer and in the
11 travel industry will need to know that that is the first
12 priority.

13 Second strategic perspective is designing an
14 airport that maintains L.A.'s status as an international
15 gateway. There are cities all over the United States
16 building very long runways. Everyone seeks the same
17 customer, the international customer. Either we build a
18 user-friendly facility for this customer, or they will
19 go elsewhere. And they are being given reasons to do
20 that every single day.

21 And the last part of this strategic
22 perspective, that I hope we can maintain a focus on, is
23 that this plan recognizes a truth. And it's a very
24 controversial one, I know; that demand for air travel
25 cannot be built for Southern California; that demand for

1 air travel cannot be built on the backs of the citizens
2 of a single city.

3 This plan addresses a truth that there must be
4 a regional solution to what is clearly a regional
5 demand. Thank you very much.

6 (The statement submitted for the
7 record was marked as Statement 3
8 and is attached hereto.)

9 MS. SMITH: Thank you.

10 Mr. Scavo. Either one.

11 MR. SCAVO: Michael Scavo. I live at 18355 Figueroa
12 in Gardena. I am a representative for the Steamfitters
13 Union of Los Angeles. But, actually, when I got here, I
14 decided that I was going to speak as a frequent flyer
15 out of LAX, and I am going to speak on what I consider
16 almost an invasion of sensibility and an invasion of my
17 rights as a human to fly anymore, which is why I decided
18 to drive the last time I went to Indianapolis where I'm
19 building a race car for the Indy 500 next year.

20 The last time I flew, I had to leave very
21 late. I had to fly overnight just to be able to beat
22 the hassle of what the security process is at LAX, which
23 is why I applaud this pamphlet right here that I read.
24 This will bring this airport up to the reason why other
25 people are flying out of Long Beach and flying out of

1 Orange County and smaller airports because it is
2 consumer and customer friendly.

3 The way that they have the security at LAX,
4 it's almost offensive to fly out of the airport for me.
5 I sometimes want to turn around and walk away and go
6 back. That's not what this city deserves and that's not
7 what the city was planning on.

8 Due to 9-11 we had to update it, but it's all
9 in the wrong spots. There is no spot for it. No right
10 spot for it. What this plan will do is it will make a
11 more user-friendly airport. Okay.

12 The last time this airport was updated was
13 1984. It was updated for the Olympics. I think it was
14 finished probably in '82. It's 20 years outdated. And
15 I applaud Mayor Hahn for this safety alternative. I
16 thank you very much.

17 MS. SMITH: Thank you, Mr. Scavo.

18 Before I call Mr. Brewer -- you could come up
19 Mr. Brewer. Before you start speaking, I just want to
20 make another announcement that we do have a Spanish
21 translator available if anyone should need a translator.

22 Mr. Brewer.

23 MR. BREWER: Yes, ma'am, Ms. Smith, Mr. Kessler and
24 Mr. Ritchie, my name is Gene Brewer. I represent the
25 Teamsters Local 986, at 1198 South El Monte, California.

1 I am a business representative of the
2 Construction Division of the Teamsters, which is the
3 largest Teamsters Local west of the Mississippi river
4 with a membership in our Local of 16,000 members.

5 Not only does our Local represent construction
6 workers, but we represent warehouse members. We
7 represent manufacturing members. We represent retail,
8 food processing members, airline mechanics and pilots,
9 convention industry, plus a wide variety of other types
10 of professions which are affiliated with the L.A.
11 Airport.

12 We know that this proposal Number D projects
13 benefits that will create nearly 49,000
14 construction-related jobs in Los Angeles County. We
15 know that its projected that we will result in 350,000
16 direct jobs in the region at all skill levels in the
17 year 2015. And we know it will generate \$63.7 billion
18 annual economic activities for the region by 2015 with
19 \$22 billion annually going to the City of Los Angeles.

20 But to me, the 128,000 Teamsters that are
21 represented here by joint council, 42 in Southern
22 California, the most important point is that the
23 proposal will improve the security and safety of the
24 airport.

25 And believe me, after the unforgivable

1 incident on September the 11th, 2001, we need to have
2 safe airports not only here in Los Angeles but across
3 the entire nation of ours.

4 Mayor Hahn's Master Plan Proposal D for the
5 LAX is a must, and the Teamsters of Southern California
6 endorse his proposal. Thank you.

7 MS. SMITH: Thank you very much.

8 Our next speakers will be Peter Woo, Richard
9 Slawson and Jim Hilfenhaus. In that order, please.

10 Mr. Woo.

11 MR. WOO: Good evening. My name is Peter Woo. I'm
12 the President of Historic Council, Neighborhood Council,
13 an entity funded by the City Charter of 1999, and we are
14 elected by shareholders in our district. The district
15 comprises of Little Tokyo, Chinatown District. I am
16 coming here to testify and to propose to you to accept
17 this Plan D for the modernization of LAX.

18 We all know the airport was built in 1950.
19 The only time we modernized it was in 1984. It was
20 originally a loop runway with terminals situated on the
21 side. Later, because of the necessity, we
22 double-stacked the roadway and we have two levels.

23 The problem of that is air travel is a
24 necessity for everyone now. It is no longer a luxury.
25 The way that our present airport is overloaded, the

1 roadway, and creates a traffic jam and deadlock. It
2 creates not only delay but also pollution.

3 Before the tragedy of 9-11, it is not unusual
4 for you to get stuck in the roadway for two or three
5 hours before you get on the plane in the summertime. A
6 huge amount of traffic jammed in the airport will really
7 increase our smog emission, which is not good for the
8 environment.

9 We're moving out of the present terminal to
10 another location is not only -- if security is another
11 tier of protection, it also diverts the traffic so the
12 traffic flow can be much smoother and reduce the
13 emission, and that will be helpful, a lot helpful to our
14 environment.

15 And with all the passengers lining up outside
16 the terminal for security check now, it really makes the
17 airport very wonderful. I disagree with the theory that
18 an outside terminal is more hazardous for security. It
19 is even worse.

20 Besides, tourism is a major factor in our
21 economy. As the district I represent, a lot of business
22 rely on international travels. And we look at around
23 the world in Asia. Look at the City of Hong Kong,
24 Singapore, Taiwan. We all have new airports there, and
25 we greet our passenger with an old, obsolete airport.

1 The modernization is not about expansion.
2 It's about to improve the efficiency, to reduce the
3 planes taxiing on the runway to produce pollution.

4 So I urge you to support this plan. It's a
5 \$10-billion-dollar endeavor. It's almost two-and-a-half
6 times the city budget, but it's something worthwhile
7 that we should put and invest for the future and also to
8 add to our economy as well. Thank you.

9 MS. SMITH: Thank you, Mr. Woo.

10 Richard Slawson.

11 MR. SLAWSON: Good evening. My name is Richard
12 Slawson. I'm the Executive Secretary of the
13 Los Angeles and Orange Counties Building and
14 Construction Trades Council. Our office address is at
15 1626 Beverly Boulevard in the city of Los Angeles.

16 Our council represents 130,000 craftsmen and
17 women who live and work throughout the Los Angeles
18 region. We're here tonight to let you know that we
19 enthusiastically support Mayor Hahn and his Master Plan
20 for LAX. When this plan gets underway, besides moving
21 forward the needed modernizations of our airport, nearly
22 49,000 construction-related jobs will be directly
23 generated during the entire construction phase.

24 This is welcomed news for our regional economy
25 because putting 49,000 men and women to work at good

1 wages is a boost not only to those on the job but
2 throughout Southern California. This many new jobs will
3 have a tremendous ripple effect that will, in fact,
4 support at least 100,000 jobs around the region and
5 \$11 billion dollars to total economic activity. This
6 region desperately needs the economic stimulus that this
7 LAX Master Plan will bring.

8 I'd like for just a second to have many that
9 are here tonight with our organization that will not be
10 speaking to stand up for a minute so that everyone can
11 see the support that we have for the airport plan.
12 Thank you very much.

13 With this plan, our other concerns are also
14 being met through Alternative D, as in the case of many
15 other world-class airports, including Washington Dulles
16 International Airport, Orlando International Airport and
17 Denver International Airport. Their terminals are
18 linked by the use of trams, people movers and trains.

19 Washington Dulles uses what they call moveable
20 lounges. Orlando uses trains and Denver uses a
21 combination of moving walkways and an underground train.
22 All of these are similar to the Ground Transportation
23 Center and the Intermodal Transportation Center included
24 in Alternative D in the LAX Master Plan.

25 These then connect with the main or central

1 terminal area by the automated people mover. With the
2 heightened security measures that are needed today, this
3 makes absolute sense.

4 I would like also to commend Mayor Hahn for
5 the commitment that he made to hold LAX to 78 million
6 annual passengers. We all know that LAX must be
7 modernized, but it must also meet the needs and concerns
8 of the residents of Los Angeles and the surrounding
9 communities and especially those residents who live near
10 the airport.

11 This plan addresses traffic, security and
12 noise in its design and regulations. We support the LAX
13 Master Plan, and ask that you give it your approval.
14 Thank you very much.

15 (The statement submitted for the
16 record was marked as Statement 4
17 and is attached hereto.)

18 MS. SMITH: Thank you.

19 MR. HILFENHAUS: My name is Jim Hilfenhaus. And I'm
20 a representative from Laborers Local 300. We're the
21 largest construction Local in America.

22 We've had many comments from people up here.
23 We support the jobs issue on there. The one thing
24 people need to recognize about LAX is it doesn't
25 currently work. You've retrofitted security on top of

1 an infrastructure that cannot accept it.

2 Unfortunately, the tragedy of 9-11 has reduced
3 passenger traffic, so that the accommodations have not
4 reached crunchtime. Should it come back to
5 78-million-passenger capacity with the current standards
6 out at the airport, your gridlock is going to destroy
7 the west side of Los Angeles.

8 As another speaker mentioned, the Green Line
9 will be brought in under this. We have an area transit
10 program to be involved. Visionaries like Hector
11 Delatorre in South Gate want to extend the Green Line to
12 the Metrolink. We have a regional transportation
13 solution potentially in the offing with the
14 modernization of LAX.

15 The facilities there, as I said, with
16 security, you cannot move around. The modernization is
17 necessary. It needs to incorporate the new security
18 features which will expedite passenger flow. The trucks
19 going in under diesel standards will reduce air
20 pollution. Less traffic idling in the area reduces
21 further the air pollution.

22 The modern jets, although twice the passenger
23 capacity, are cleaner and quieter which will enhance the
24 environment of the neighborhoods under the flight path,
25 one of the continual complaints that nobody continues to

1 mention.

2 The job factors is a boost to this economy.
3 Our \$38-billion-dollar budget is because personal income
4 tax has been reduced in this state because the
5 millionaires are losing a fortune and the working class
6 is losing their jobs.

7 Now, we are always hammered as the building
8 trades for fighting for the jobs. We're proud of it.
9 We don't have anything to take back on that. Our
10 workers feed their families, buy houses, buy cars and
11 send their kids to college on the wages that are
12 provided. But in doing that, we've also taken up
13 programs for youth at risk. So there is a social
14 environment to be added to this and it is a component of
15 LAX.

16 You will see hires from the community around
17 there, and impacted areas that are under-served, with
18 decent well-paying jobs. There will be opportunities
19 for children that are at risk of being involved in gangs
20 to provide careers in the construction industries. And
21 I mean careers, not a job for a week, for a month, but
22 years, lifetimes, including retirement. This is
23 something that needs to be focused on. We can't always
24 be saying no.

25 Now, does this LAX have to move or does L.A.

1 have to move? It's an airport. It's there. It's a
2 site of transportation. The neighbors are upset. El
3 Segundo may have their reasons. But unfortunately for
4 the safety of the planes, the runways have to go in.

5 They must accept the widening and the
6 distances of the runways. We need to have something
7 that fits L.A. And the modernization security plan will
8 give us a 21st Century terminal that everyone in
9 Los Angeles can be proud to travel through speedily,
10 efficiently and safely. Thank you.

11 MS. SMITH: Thank you.

12 Henry Lee, Shawn Lim and Jonathan Hong, in
13 that order, please.

14 Mr. Lee.

15 MR. LEE: Thank you. Henry Lee. I'm a
16 Korean-American attorney, 3350 Wilshire Boulevard,
17 Suite 1110.

18 I think everybody in this room has read the
19 newspapers and heard the news, and I have, too. Every
20 time you listen to the news, there is something negative
21 about the State of California. There is something
22 negative about our budget. There is something negative
23 about our governor, and there is something negative
24 about the leaders of our state.

25 That's why I feel lucky, and at times very

1 proud to live in the City of Los Angeles because the
2 leaders of our city are promoting growth. The leaders
3 of our city is promoting safety and security, and the
4 leaders of our city are trying to create jobs.

5 Alternative D to the LAX Master Plan is a
6 perfect example of the positive leadership that our city
7 has. I think everybody here agrees, whether you support
8 it or not, that LAX is the front door to the city of
9 Los Angeles. And through that front door hundreds and
10 thousands of Koreans have come through that front door,
11 and ultimately become Korean-Americans to live in the
12 city of Los Angeles and to do business in the city of
13 Los Angeles just like me and my family.

14 And just like the front door to our own homes,
15 we should make the front door to our city bigger and
16 better and safer for all the residents who live here.
17 As a Korean-American attorney practicing in the City of
18 Los Angeles, I was recently designated a class-action
19 attorney representing 40,000 Korean-American consumers,
20 most of whom live in the city of Los Angeles.

21 And I believe I can speak on behalf of those
22 40,000 Korean-Americans and say thank you, Mayor Hahn,
23 for a plan that will create 350,000 jobs over the course
24 of the next few years. Thank you, Mayor Hahn, for a
25 plan that will improve the safety and security of our

1 front door. Thank you, Mayor Hahn, for Alternative D.

2 Alternative D has the support of the
3 Korean-American community, and hopefully has yours as
4 well. Thank you.

5 MS. SMITH: Thank you.

6 Mr. Lim.

7 MR. LIM: Good evening, everyone. My name is Shawn
8 Lim. I'm President of the Korean-American Business
9 Association.

10 First of all, I wanted to say is -- this is
11 Korea Town, middle of Korea Town. But, I mean, you're
12 saying that is -- they have Spanish people, Spanish
13 translator, but I see a lot of Korean people. That
14 means Korean people. I'm not saying is not speaking
15 English, but what I'm saying is I see some of these old
16 people. I respect all people. They come in here, show
17 up here every time, long period of time, but they speak
18 Korean language.

19 Next time a meeting like this, I want to set
20 it up with a Korean translator, so that way whatever
21 people here, some people I heard about it, they like a
22 speaking issue, but they can't speak. So next time
23 chances are, this is a Korean Town. You see a lot of
24 Korean people. So next time you have got to provide a
25 Korean interpreter, translator. I would appreciate it.

1 Okay. Welcome to Korea town, everyone. I
2 support Mayor Hahn, Alternative D, LAX is a Master Plan.
3 This idea is 100 percent support Mayor Hahn, because
4 that I have a business on Wilshire, 3319 Wilshire
5 Boulevard. We have a lot of Korean-American, then
6 Korean people, all the other nations is a business
7 owners as Korean, you know, Korean Town on Wilshire
8 Boulevard.

9 It's especially a lot of our people coming
10 from Korea, coming from Japan, coming from China. They
11 are coming here first LAX. LAX is a small. LAX after
12 9-11 terrorism everyone, they don't feel comfortable
13 here. There is a safety issue. So we have a Mayor
14 Hahn, is a Master Plan. This is a real good thing
15 working on. We're going to put the safety high-tech
16 everything. So people all over the world is coming into
17 Los Angeles airport is a safety issue.

18 So that way we have more people coming from
19 foreign people travel here, LAX feel comfortable. We
20 got to modernize everything in a new facilities at LAX.
21 So we have a lot of benefits for business people because
22 of people travel from Korea. My nationality is a Korea
23 background. I have a lot of traveler that don't come in
24 Los Angeles because safety issue.

25 But our concern is a safety issue. We need to

1 build new airport, put a high-tech safety issue so that
2 way people come here feel real comfortable. Then first
3 impression our airport is kind of old. First impression
4 you're going to make is a brand-new airport. Is a
5 Korean International Airport, move it to new airport
6 about a year ago, international airport. They made a
7 big one, expanded, complete different.

8 So our wish is Mayor Hahn had good idea. I
9 support him 100 percent. We have to do Master Plan. We
10 have to approve. Thank you.

11 MS. SMITH: Thank you.

12 Mr. Jonathan Hong. Mr. Hong?

13 At this time we're going to take a short
14 recess of approximately 10 to 15 minutes. 15 minutes,
15 Mr. Kessler and Mr. Ritchie? Is that fine with you?
16 We'll reconvene at 7:10.

17 (Recess was taken.)

18 MS. SMITH: If we could get everyone to take their
19 seats. For those of you that are new and joining our
20 audience, if you could bear with us; those that have
21 already been here, we're going to do our introductions
22 briefly again.

23 Again, good evening. My name is Shauna Bain
24 Smith. I will be your facilitator this evening. And on
25 behalf of the Federal Aviation Administration and

1 Los Angeles World Airports, I'd like to welcome you to
2 the first of a series of public hearings to receive your
3 testimony on the Los Angeles Airport Master Plan,
4 Environmental Impact Statement and Environmental Impact
5 Report.

6 These gentlemen to my right will now give some
7 introductory remarks starting with Mr. David Kessler
8 with the Federal Aviation Administration.

9 MR. KESSLER: Good evening, everyone. My name is
10 David Kessler. I am the environmental protection
11 specialist for the Airport's Division for the Federal
12 Aviation Administration, Western-Pacific region.

13 I would also like to welcome you to the first
14 of a series of public hearings that the FAA and
15 Los Angeles World Airports are conducting on the
16 Supplement to the Draft Environmental Statement/
17 Environmental Impact Report for Alternative D, Enhanced
18 Safety and Security Plan for Los Angeles International
19 Airport.

20 The purpose of these hearings is to collect
21 comment for the general public concerning the adequacy
22 of the information disclosed in the Supplement to the
23 Draft EIS/EIR on Alternative D.

24 I'd like to take the opportunity to make sure
25 everyone understands that no decision will be made today

1 regarding the proposed project. Today's hearing is not
2 a question-and-answer type of forum. Our job is to
3 listen to what you have to say about the adequacy of the
4 information in the Supplement to the Draft EIS/EIR. In
5 other words, it's your turn to talk to us.

6 Since we're here to listen, we're not going to
7 respond to questions about the pros and cons of the
8 proposed project. Since 5:00 o'clock this afternoon, we
9 held a public workshop just outside of this room for
10 anybody to ask questions about the Master Plan, the
11 environmental process and the various proposed projects.

12 I'd like to also take the opportunity to recap
13 the environmental disclosure process for this project.
14 The environmental evaluation for the LAX Master Plan
15 began in 1997 with the publication of a Notice of Intent
16 to prepare the joint EIS/EIR in the Federal Register.
17 In July 1997, we held a series of meetings with members
18 of the public and governmental agencies to receive
19 comments on the scope of the Draft EIS/EIR.

20 Following those meetings, the Draft EIS/EIR
21 was published in January 2001. Both the 2001 Draft
22 EIS/EIR and the 2003 Supplement have been prepared
23 pursuant to the National Environmental Policy Act of
24 1969, or NEPA, the Council on Environmental Quality
25 Regulations, which are the implementing regulations for

1 NEPA, the California Environmental Quality Act of 1970,
2 or CEQA, and the Airport and Airway Improvement Act of
3 1982 as amended.

4 Following today's hearings, we will correct
5 and revise the Draft EIS as appropriate and combine that
6 information into a Final EIS/EIR.

7 At this point if someone has public comments,
8 they can fill out a speaker card like this one. Cards
9 are available at the sign-in desk. They are then
10 brought up in groups to our facilitator here who will
11 call the names of the speakers. If you have -- if
12 you're uncomfortable about speaking in front of a group
13 or have more comments than can be provided to us in
14 three minutes, we have comment sheets that are available
15 also at the sign-in desk. You could either leave them
16 here today, or you could provide them to us by mail at
17 the address on the cover of the EIS/EIR.

18 Before we begin, I would also like to indicate
19 that we have afforded everyone an opportunity for three
20 minutes to speak. We're not going to allow people to
21 reallocate their allotted time to others in order to
22 ensure fairness.

23 Lastly, I would like to ask that anyone that
24 has a cell phone or pager, please put them on a silent
25 mode or turn them off to be considerate of the speakers.

1 Thank you.

2 MS. SMITH: Thank you, Mr. Kessler.

3 I would like to next introduce Mr. Jim
4 Ritchie, Deputy Executive Director of Los Angeles World
5 Airports.

6 MR. RITCHIE: Thank you, Shauna. I'm Jim Ritchie.
7 And on behalf of Los Angeles World Airports we welcome
8 you again to this public hearing. My introductory
9 remarks remain the same, and Shauna, let's get to work.

10 MS. SMITH: The ground rules, I will repeat them
11 again very quickly. Each speaker will have three
12 minutes, as Mr. Kessler mentioned. I need you to fill
13 out one of these speaker cards that you can pick up at
14 the sign-in table. You turn them back in at the sign-in
15 table, and I will call you in the order in which you
16 have turned in your speaker card.

17 When you approach the podium, I need you to
18 say your name and address, if you'd like, loudly and
19 clearly and as slowly as possible so our lovely court
20 reporters to my left can get everything you say
21 officially into the record.

22 After you speak your name, I will then start
23 the three-minute timer. When you see the yellow light
24 flash, you will have about 30 seconds left to speak. At
25 that time it's a good idea to start wrapping up your

1 remarks.

2 And if you feel like you need more time after
3 you've made your remarks, you are welcome to fill out
4 another speaker card. And after we've gone through all
5 of the first round of speaker cards and everyone has had
6 an opportunity to speak at least once, we will give you
7 an opportunity to speak again if you so choose.

8 Without any further ado, I would like to call
9 our first speaker, Mayor James Hahn.

10 MAYOR HAHN: LAX also known as Alternative D --
11 thank you.

12 MS. SMITH: I think the crowd likes you.

13 MAYOR HAHN: I hope they don't take all my time.
14 Thank you all for being here today. I appreciate
15 everybody who is here, and I appreciate the opportunity
16 to talk.

17 I am here to support the Enhanced Safety and
18 Security Plan for LAX, also known Alternative D.

19 I believe this alternative breaks new ground
20 in airport design for the 21st Century. We think it
21 can serve as a model for airports around the world.

22 My staff and I have brief thousands of
23 stakeholders on this plan, including community
24 residents, airlines, labor, local business leaders. And
25 this plan incorporates many of their suggestions and

1 addresses their concerns, and its concerns that have
2 been expressed previously as to other alternatives.

3 Alternative D puts safety and security first.
4 It includes modernization of the airfield, including the
5 addition of the center taxiways to improve safety for
6 aircraft, for traveling passengers and airport workers.
7 And it's also going to provide multiple layers of
8 security for passengers, multiple layers of security for
9 airport workers and the surrounding communities as well.

10 We're dispersing travelers and moving them
11 rapidly through four separate and secure entry points.
12 It also allows security screeners to make assessments of
13 passengers and baggage before they ever get into the
14 central terminal area.

15 And most importantly, this plan significantly
16 reduces the opportunity for a vehicle with an explosive
17 device to get close to the central terminal area by
18 eliminating private traffic through the area. Security
19 experts believe that the central terminal area and its
20 impact on our economy are the key targets for
21 terrorists.

22 Alternative D also supports my goal of
23 creating a regional air transportation plan. It designs
24 LAX to accommodate approximately 3 million annual tons
25 of cargo, 78 million annual passengers, consistent with

1 the goals of the Southern California Association of
2 Governments. We're working to promote the use of
3 regional airports to meet increased demand.

4 Alternative D also means a more modern and
5 convenient LAX for passengers. It includes new
6 passenger terminals with improved ticketing, baggage
7 processing, circulation and concessions. The automated
8 people mover designed to easily accommodate rolling
9 luggage and baggage carts is going to offer very
10 convenient access to the central terminal area.

11 Alternative D means jobs. It's expected to
12 contribute \$64 billion dollars to the regional economy.
13 In addition to connecting the Green Line to the airport,
14 we're going to have direct access from the 405 and the
15 105 Freeways.

16 I think as more people learn about
17 Alternative D, they will see that we've addressed a lot
18 of the concerns that people had. They are not for
19 unlimited growth at the airport. They are not for
20 growth that is going to harm the environment at the
21 airport. They are not for growth that will tie up the
22 traffic so that no one will be able to move. They are
23 for a responsible modernization plan, and to make LAX as
24 safe and secure as possible.

25 I want to especially thank all of our

1 community leaders and representatives who are here
2 today, also my staff, Troy Edwards and Patricia Torres,
3 I especially want to thank the Federal Aviation
4 Administration and L.A. World Airports and your staff
5 for the dedication and support of this process. Thank
6 you.

7 (The statement submitted for the
8 record was marked as Statement 5
9 and is attached hereto.)

10 MS. SMITH: Thank you, Mayor Hahn. That was perfect
11 timing.

12 Next, we'll have Jonathan Hong, Mahala Walter
13 and Erica Kim, in that order, please.

14 Mahala Walter.

15 MS. WALTER: Yes. Hi. I'm Mahala Walter; 7015
16 South Sepulveda, Los Angeles.

17 Today the Los Angeles World Airports continues
18 to celebrate 75 years of connecting Southern California
19 with the world. Commonly known as LAWA, the Los Angeles
20 World Airports has four airports. Van Nuys is the
21 world's biggest general aviation airport. Ontario
22 International serves the Inland Empire, the fastest
23 growing region in Southern California. And the Palmdale
24 Regional has its 25-year Master Plan for the residents
25 of Antelope and Santa Clara Valleys plus portions of

1 San Bernardino and Inyo Counties.

2 And then there is LAX where passengers
3 throughout the world think of LAX not only as an
4 airport, but an entire city, Los Angeles. True, LAX
5 is -- has had a spectacular past, but now we must
6 prepare for a safe future.

7 Prior to 9-11, LAX contributed \$60 billion
8 dollars per year in economic output, contributed 59,000
9 thousand jobs at or near LAX, plus 408,000 jobs in the
10 Southern California region. LAX security is of major
11 importance to not only our state, but our nation.

12 California has the fifth largest economy in
13 the world, and we need better security now. So, please,
14 Mayor Hahn, don't wait 15 years for a Master Plan for it
15 will be outdated. The war will be over. The terrorists
16 will have been hunted down, and 15 years is just too
17 long to wait for Alternative D.

18 With the TSA Home Land Security, the walls
19 came tumbling down in the terminals, moving hundreds of
20 million-dollar explosive scanners with one
21 \$100,000-dollar-yearly maintenance fee. Unfortunately,
22 these monsters had far too many false positive readings
23 with only food being the problem.

24 Who pays for Alternative D? We're told a
25 major part is going to be passed on to the airlines via

1 landing fees, et cetera. Now, that sounds just like
2 what the airlines need, especially those that are in or
3 fighting bankruptcy. Besides, the small business and
4 hotels around LAX will have a very difficult time for
5 the next many years, and some may not survive.

6 This plan has been said to be costing \$9.1
7 billion, then \$9.6 billion. Honestly, how many billions
8 more is it going to be? Proponents like to couch this
9 whole scenario about security and cars in LAX don't mix.
10 Well, I ask you, how now are those people going to get
11 to the Ground Transportation Center?

12 MS. SMITH: Thank you.

13 MS. WALTER: I just have one more. If a terrorist
14 wants to inflict major loss on life and damage, you
15 would have to have a passenger load widely distributed
16 around nine different terminals where everyone and all
17 flights will congregate in only one drop-in and drop-off
18 site. Thank you.

19 (The statement submitted for the
20 record was marked as Statement 6
21 and is attached hereto.)

22 MS. SMITH: Thank you. You're welcome to turn in
23 your written comments, Ms. Walter. Ms. Walter, you are
24 welcome to turn them in to our court reporters, and we
25 can get all of your comments in. Thank you.

1 Next, I'll have Erica Kim. Okay.

2 Alan Wayne, Sam Kim and Domingo Leon, in that
3 order, please.

4 Mr. Wayne.

5 MR. WAYNE: Yes. Is this on?

6 MS. SMITH: Yes, it is.

7 MR. WAYNE: All right. Great. Thank you. Good
8 evening. For the record, my name is Alan Wayne. I am
9 Director of Governmental and Public Affairs for the
10 United Airlines West Region. We're located at 1960 East
11 Grand, Suite 1000, in El Segundo.

12 I am appearing here tonight on behalf of not
13 only United but also ten other fellow members of the
14 Star Alliance, the largest airline consortium operating
15 at Los Angeles International Airport. In addition to
16 United, which operates a major hub at LAX, the Star
17 members include Air Canada, Air New Zealand, All Nippon,
18 Asiana, Lufthansa, Mexicana, Singapore, Thai, Varig and
19 U.S. Airways.

20 Those 11 carriers plus United's regional
21 marketing partners Skywest, whose 133 daily departures
22 are the most of any carrier at LAX, wish tonight to
23 underscore our collective support for Mayor Hahn's
24 ongoing effort to craft a Master Plan for LAX, as
25 reflected in Alternative D, that would ultimately

1 improve and modernize this critical but sadly antiquated
2 facility.

3 United and the Star carriers plus Skywest
4 account for the 30 percent of the flight activity here.
5 We are working with the City to address the airfield
6 safety, airport security, ground access and passenger
7 terminal enhancements that must be achieved if this
8 airport, which is so important to the region's economic
9 competitiveness and the thousands of jobs that depend on
10 it, is to remain in the forefront of commercial
11 aviation.

12 To do nothing or to not do this project
13 realistically is not acceptable. This project is
14 overdue. It must get underway. Other airports,
15 Seattle, Portland, San Francisco, Las Vegas, Denver,
16 Phoenix, to name just a few, have modernized or
17 advancing programs to draw business away from LAX.

18 United and the Star Carriers believe that this
19 plan focuses on the issues and elements that will move
20 LAX forward. And we plan to continue our collaboration
21 with the City and the airport to meet these future
22 requirements. Thank you very much.

23 (The statement submitted for the
24 record was marked as Statement 7
25 and is attached hereto.)

1 MS. SMITH: Thank you, Mr. Wayne.

2 Sam Kim.

3 MR. KIM: Good evening. My name is Sam Kim. I am
4 here on behalf of Korean-American Garment Industry
5 Associations.

6 I'd like to thank in advance for having this
7 function here in our Korea Town, and we appreciate it.
8 It's actually an honor to have this great function here
9 in my town.

10 In our association we have about 600 members.
11 And we employ about 20,000 employees in Los Angeles
12 vicinity. And from our association, we have decided to
13 endorse this project here, and we support Mayor Hahn's
14 project 100 percent. We're behind it.

15 Instead of going through all the details and
16 the stats, I want to say ditto to all the stuff that was
17 mentioned here, which is the same as mine. And
18 everything that Mr. Mayor said, I agree and I will
19 support that 100 percent as well.

20 This project is something that was needed long
21 ago. It is something that needs to be in place on it.
22 I'd like to see it in place as soon as possible. So in
23 closing, I'd like to thank in advance for approving this
24 project. Thank you.

25 MS. SMITH: Thank you.

1 Mr. Domingo Leon.

2 MR. LEON: Hi. My name is Domingo Leon. I am a
3 civil engineer. I am speaking on behalf of the Society
4 of Hispanic Engineers.

5 Mayor Hahn and also LAWA staff have addressed
6 a problem which is facing a problem in the future to the
7 increasing on the number of passengers at LAX and also
8 the cargo. Passengers will increase from, I think, 59
9 million to 70 million, so something has to be done.

10 And as engineers, we like any kind of plans to
11 improve the phases for jobs for construction and also
12 for engineers, also for the Hispanic, you know. I mean,
13 unfortunately, low-paid people at the airport are
14 Hispanic. We do janitorial type of work, but that also
15 we are helping out in the future.

16 I think there is room for certain improvements
17 on the Plan D. Currently, what we do is I unload my
18 suitcases. I walk 30 feet to the ticketing. Now, in
19 the future you are going to tear down the parking
20 structure. So I have to go into the terminal, which is
21 like no 30 feet, like probably miles away, and I have to
22 bring my suitcases -- it's a mover; right? You have a
23 mover thing coming. So that is a little, you know,
24 annoying and inconvenient.

25 So I would like to address the issue, as I

1 have seen airports in Frankfurt and Madrid, you don't
2 bring your suitcases to the ticket office. I mean, you
3 just do it in Downtown or at the terminal.

4 So I think I would like to address the issue.
5 You can look at that alternative off-ticketing your
6 suitcases at the terminal because there will be no cars
7 once you build the moving train into the terminals for
8 significant reason.

9 So I would like to -- I applaud, you know, the
10 Plan D, which is I think good for the community. Thank
11 you very much.

12 MS. SMITH: Thank you.

13 Our next speakers are Alex Cha, "Cha," I
14 apologize, Alex Cha, Janine Soukiasian and Kenneth
15 Alpern, in that order.

16 MR. CHA: Good evening. My name is Alex Cha. I'm
17 an attorney with Cha & Park. My address is 3435
18 Wilshire Boulevard, Suite 2600, L.A.

19 First of all, I want to thank you for having
20 regular citizens like us staying late to hear our
21 concerns. Tonight I'm here to support Mayor Hahn
22 Alternative D for three reasons.

23 First, in the aftermath of 9-11, the City's
24 major concerns are the safety and security of the
25 citizens of L.A. and the citizens of the world. And

1 with the modern LAX, there definitely will be an
2 increase in the security and safety for the citizens of
3 L.A. as well as the citizens of the world.

4 Second, LAX is the largest gateway to the
5 United States from Asia. And as you know, there are
6 state-of-the-art Asian airports such as one in Hong
7 Kong, in South Korea and Japan, which has tremendously
8 increased their reputation as well as the image of those
9 respective cities and countries. And it's about time
10 L.A., as a trend-setter, has a state-of-the-art airport.

11 And finally economically, I would want to say
12 everybody loves L.A. Everybody wants to visit L.A., and
13 a modernized airport will definitely attract more
14 visitors domestically as well as internationally to this
15 great city of Los Angeles, and a tremendous increase to
16 the businesses as well as the tourism, in the city of
17 L.A. as well Southern California. Thank you for your
18 attention.

19 MS. SMITH: Thank you, Mr. Cha.

20 MS. SOUKIASIAN: Hi. My name is Janine Soukiasian.
21 I work at mid-Wilshire at 3435 Wilshire Boulevard.

22 I am a born and raised L.A-an, if you will,
23 and I have lived in this community all my life. I
24 support Mayor Hahn's plan. And I'm concerned about the
25 air traffic and safety, LAX and past local businesses as

1 well as international travel.

2 Because of continual increase of national
3 security, tourism has lessened and has had a negative
4 impact on recent businesses.

5 I'm a recent bar applicant, and I want to
6 practice immigration law. As an Armenian-American I
7 don't see how LAX could have more visitors and tourists.
8 And immigration, it does impact. I mean, it might be a
9 selfish reason, but I would like the Armenian community
10 to grow.

11 Our concerns on both sides of this plan are
12 the same, which includes security of our citizens and
13 safe travel to further interstate commerce, which also
14 eventually affects us locally.

15 This new plan will further our economy and
16 provide an Alternative D which is attractive, a new and
17 safe mode of travel.

18 As someone mentioned before, California is the
19 fifth largest economy in the world, and Los Angeles is
20 what you first think of when you think of California.
21 "I am going to Los Angeles, L.A., Hollywood."

22 Thus, the state-of-the-art facilities and
23 modernization of the airport will play an integral role
24 in encouraging international travel. Other major cities
25 have implemented this type of plan. And when I visit

1 Chicago or New York, I have such an easy to and from the
2 airport. And I do like to mention, San Francisco and
3 Oakland, the use of Bart, the Bart Air that picks you up
4 from the airport. And then you take the Bart, you go
5 under the water and then you're in the city. I mean,
6 that is remarkable.

7 As a representative of Cha & Park, we are
8 willing to support Mayor Hahn's Alternative D plan. And
9 I will vote and work hard towards the implementation of
10 it. Thank you.

11 MS. SMITH: Thank you.

12 Dr. Alpern.

13 DR. ALPERN: Good evening. My name is Ken Alpern.
14 I'm a board certified dermatologist, drove up from my
15 clinic in Huntington Beach, but I live in West
16 Los Angeles. I am President of the Transit Coalition
17 and Co-chair of one of its most active wings which is
18 Friends of the Green Line.

19 Friends of the Green Line supports a regional
20 air traffic approach. As a matter of fact, we're not
21 only interested in LAX, but trying to establish other
22 gold line and/or Metrolink connection with Ontario. We
23 very much want this regional air approach championed by
24 Mayor Hahn become a reality. Frankly, growing up in
25 Long Beach, we all hated going to LAX. And those of us

1 living near LAX hate people coming to LAX. It's sort of
2 a mutual feeling.

3 I need to emphasize that I want to talk about
4 transportation. I've heard both sides of the security
5 issue with regards to the concept of a Ground
6 Transportation Center, and I'm glad we have more time
7 for comments. I think those living next to LAX need to
8 have their time to be heard, and I think there are two
9 sides of the issue. But if you're going to make the
10 decision to go with the Ground Transportation Center,
11 then I think it's very good for transportation and
12 particularly with respect to the Green Line.

13 Friends of the Green Line is neutral on where
14 the Ground Transportation Center is, but we know that
15 we'd like the Green Line to connect directly to it,
16 whether it's in Eagle Rock, Tombouctou or Newark, New
17 Jersey. The idea is, and we've given you a copy of this
18 brochure, that the Green Line does not hit -- does not
19 affect areas north of LAX.

20 The people mover is a wonderful concept, but
21 currently it will not benefit those coming distantly
22 from the West Side, the Valley, Downtown. And frankly,
23 the local hotels and businesses won't be benefited by
24 the people mover as much as if you have a proposed Green
25 Line extension to Westchester approved ten years ago in

1 an EIR by the MTA. We need to revisit it. It does not
2 compete with the people mover. We do not want the Green
3 Line to compete with the people mover. The idea is it
4 is to supplement the people mover.

5 But the question of security comes back as to
6 whether or not you're going to have good security at the
7 Intermodal Transit Center. Are you going to have really
8 good security? Because if you're not, then you really
9 need to shuttle people from the Green Line all directly
10 to the Ground Transportation Center.

11 The Ground Transportation Center is built next
12 to the MTA Harbor Subdivision rail line. That's one of
13 its most wonderful features. Why not exploit it?
14 Again, L.A. World Airports is not in the business of
15 building regional airport -- regional rail systems, but
16 having a Westchester system that enables northern rail
17 access to LAX, and the people mover is not outside the
18 aegis of this plan.

19 As forementioned by a colleague earlier, Bart
20 Reed, the Bay area has its own rail airport connection.
21 Orange County, they don't want to repeat the mistake of
22 L.A. It's a new century. Let's do this right. Let's
23 make this LAX reconfiguration plan a good neighbor.

24 Thank you for your attention and your time.

25 MS. SMITH: Thank you, Dr. Alpern. One quick

1 question for you, Dr. Alpern. Is the literature to
2 which you referred there the same literature that
3 Mr. Reed gave to our court reporters earlier? If not, I
4 need you to --

5 MR. ALPERN: Yes, ma'am. If you want anymore
6 copies, I'm happy to do it.

7 MS. SMITH: I just wanted to make sure they had one
8 in the record because you referred to it while you were
9 speaking.

10 DR. ALPERN: Yes, ma'am.

11 MS. SMITH: Thank you very much. Our next speakers
12 are Salvador Brown, Michelle Grumet and Ronald Murphy,
13 in that order, please.

14 Mr. Brown. Thank you.

15 MR. BROWN: Hello. My name is Salvador Brown. And
16 I'll give you my PO Box address. Is that all right?

17 MS. SMITH: Yes, sir.

18 MR. BROWN: PO Box 70312, Los Angeles, California.

19 MS. SMITH: Excuse me one second, Mr. Brown. We are
20 going to have to adjust the microphone for you. Mary,
21 would you like to excuse me. Perfect. Let's start
22 again.

23 MR. BROWN: All right. My name is Salvador Brown.
24 My mailing address, PO Box 70312, Los Angeles,
25 California 90070.

1 It seems to me that too much is being
2 concentrated in one place. This project, as proposed,
3 would increase traffic congestion in one area. There is
4 no room for another freeway, and increasing traffic in
5 the immediate area will overwhelm the surface streets
6 with the people coming off the freeway. I'm trying to
7 bypass the congestion that's on the 405 in that area.

8 The plan discusses mitigations to meet that
9 possibility, but there have been examples in the past
10 where mitigation plans, like, for example, the expansion
11 of the 405 Freeway didn't pan out. And I think that the
12 same result will happen with this plan here.

13 We have this great idea, but in the end,
14 increase in populations in the area, increase in
15 traffic, people going to and from the airport will
16 overwhelm the mitigations that's being planned today.

17 I think that the best solution, in my opinion,
18 would be to spread out that parking. Instead of having
19 it all in one area, that little area there, you should
20 spread the parking out in a more wider area so the
21 people, the traffic would spread out going to those
22 parking areas instead of like one concentrated parking
23 area.

24 And we're all worried about these truck bombs
25 going to the airport and blowing up underneath the

1 concourse area there, but how about a truck bomb blowing
2 up in one of those massive structures for the thousands
3 of people going to and from their cars. Again, that
4 would be another thing to consider, spreading out those
5 parking areas throughout that region and not in one
6 area. That's basically what I was thinking about. I
7 didn't read my speech.

8 MS. SMITH: Thank you, Mr. Brown.

9 MR. BROWN: Thank you.

10 (The statement submitted for the
11 record was marked as Statement 8
12 as is attached hereto.)

13 MS. SMITH: With time left over, Michele Grumet. Am
14 I pronouncing that correctly?

15 MS. GRUMET: I would just like to raise one issue
16 here. Since the city is spending a huge amount of money
17 on this project, this proposed project, I think there is
18 no reason why the lead agencies or the city cannot
19 afford sending a Draft EIR/EIS, or whatever, to the
20 people who are very -- who are affected in the areas
21 that don't have access to the internet, that don't --
22 you know, I know I live not too far from some of the
23 affected areas.

24 And many of the people are elderly. Some of
25 them live alone. A lot of them do not even know what a

1 CD is or do not have access to that, you know,
2 computers, and do not know how to work on a computer.
3 And I think I've worked on, you know, five other, you
4 know, projects that have had Environmental Impact
5 Reports. And I think people do not -- a lot of people
6 that are very affected by this do not understand even
7 what it is.

8 I went to a meeting that my councilman had,
9 and I wasn't even sure what it was about. And I went to
10 it, and they were talking about soundproofing these
11 people's homes, but they didn't even raise at the
12 meeting the whole issue of an Environmental Impact
13 Report. And I think the people, even if they did, they
14 just mentioned it in passing and didn't explain to them,
15 this is the most important document. This is the
16 document that they have a right to challenge or to
17 question. And they should do it in writing or they
18 should do it orally.

19 So I think people -- a lot of people, and it's
20 not that these people are not intelligent. They've just
21 never participated in anything like this before, and
22 they don't understand it. And, therefore, I think -- I
23 had asked the -- I was kind of hard-nosed about it and
24 angry about it, the Mayor saying, you know, because the
25 Mayor did grow up in my neighborhood where I live, and

1 he does know, and his parents certainly knew that many
2 of the people are elderly and are not into all of this
3 and familiar with this.

4 So I think if some kind of executive summary
5 of the main issues and maybe just a piece of paper. I
6 mean, we'd be glad, a lot of us, to go and leaflet the
7 area and say "For your comments," and this is where the
8 hearing is, because I know in my own neighborhood, I
9 live on 77th Street, and I'm the only person that got a
10 notice of any of these hearings, and the person that I
11 brought I told him about it.

12 So I think that, you know, when you talk about
13 environmental justice, I think in a lot of ways it may
14 not be done on purpose, but not everyone is up to speed
15 with the internet. A lot of people aren't. I know my
16 own mother isn't. And, you know, she has a college
17 degree.

18 So I think that to kind of take it for granted
19 that these people are somehow going to understand what
20 this is, and these are the people that are going to be
21 really affected by this, and I think, I really hope that
22 you think about that.

23 And I know that many of us there would be glad
24 to go and walk the neighborhoods. I am sure we could
25 get 10 or 15 people. And I know I and the person I am

1 with here would be glad to do that, to explain to people
2 even simply what's in store for them in their
3 alternatives. Thank you.

4 MS. SMITH: Thank you.

5 MS. GRUMET: And, also, just one other -- and the
6 thing that kind of upset me was the price, you know, it
7 was quite pricey, \$50 for CD and the price there -- and
8 there are only a couple of libraries in the particular
9 area where I am. And if everyone went, they wouldn't be
10 able to look at the documents because there is only one
11 document.

12 MS. SMITH: Thank you.

13 Ronald Murphy. Okay. Thank you.

14 Carole Hossan. Carole Hossan?

15 MS. HOSSAN: I'm Carole Hossan. I live in
16 Westchester at 7725 Hindry.

17 And just briefly for the audience, you know,
18 people in Westchester, we'd like a big, beautiful
19 airport in Palmdale where they have room for it, and
20 where they've owned Palmdale for decades. We'd like to
21 see them make use of that property.

22 I'm just going to have some brief poetry for
23 you. They are haikus. And the first one is -- they are
24 on the topic of the myth of 78 MAP. Mayor Hahn
25 mentioned 78 MAP. In newspaper articles, I've been

1 seeing 78.9 million annual passengers.

2 So this poem says, "The promise broken behind
3 that decimal point, 900,000."

4 Second poem, "Fewer gates limit MAP. Are you
5 so sure? Bigger planes bring more people."

6 Next one, it's entitled "Weasel Words."
7 "Could, should, may, perhaps mitigate." There's a good
8 one. "My neighborhood chokes."

9 Second, the last one, "Moving the runways
10 apart. Is it safety or is it increase throughput that
11 is the real goal here?"

12 And I'm saying this because we're a major
13 city. We need more than one major airport. Other
14 cities have other airports. We shouldn't be putting all
15 of our airplanes into one little, tiny space. And
16 that's considering passengers' safety and security. And
17 Los Angeles has had years to work on this. It's time
18 for them to really get serious.

19 If Palmdale had some of that billions and
20 billions of dollars put in there, what we would have?
21 We'd have something beautiful and something useful and
22 something that would spread the air traffic around.
23 Thank you.

24 MS. SMITH: Thank you. John "Ulloth?"

25 MR. ULLOTH: "Ulloth."

1 MS. SMITH: And after Mr. Ulloth, I have Joe Lyons.

2 MR. ULLOTH: Thank you for calling me so quickly.
3 After the Mayor left, it seems a lot of the interest
4 died down perhaps.

5 Thank you for holding this event. Maybe we
6 should have more than one of two years to see how we're
7 doing.

8 I signed in and they asked what my address
9 was. I'm not sure because I live all over Los Angeles.
10 We need a transit system, an air system, a highway
11 system that intergrades all of our modes together and
12 spreads all over the region. What's missing in this
13 picture? It's transit. That's what I'm here to talk
14 about today.

15 Please do nothing to limit the Green Line from
16 entering right inside the airport. Like JFK's people
17 mover, make sure it's the same technology so your people
18 mover can interline with the Green Line.

19 The reason to do that is, first of all, you
20 don't need to build a new people mover. The Green Line
21 has the capacity. It has the maintenance yard, which I
22 haven't seen identified for a people mover, and it can
23 handle all the traffic in a much faster way in terms of
24 getting it up to speed.

25 If you'll cooperate with the MTA rather than

1 being hostile to them, it will be much easier for
2 everyone. Make sure we have a one-seat ride from our
3 transit lines inside the airport, as close as you can
4 get, because it's not cars that are the most efficient
5 way to unload thousands of passengers. It's rail. It's
6 bus. Please prioritize those modes and keep the parking
7 far away from the terminal and connect that with your
8 people mover.

9 If you make sure that there is only a few
10 stops on the rail line into the airport, that will
11 benefit everyone. It will benefit people by leaving all
12 the congestion and traffic that people bring with their
13 cars at home and out of the residents' hair. It will
14 keep them out of the space of the employees and get them
15 their ride to work.

16 And I would also mention that if you want to
17 expand without airplanes the capacity of this airport,
18 connect it to L.A. Union Station. Connect it with the
19 line that runs on Slauson, the BNSF of Harbor Sub, which
20 MTA owns.

21 Please coordinate with the MTA instead of the
22 hostility toward them that has been shown in the past.
23 Thank you very much.

24 MS. SMITH: Thank you. Joe Lyons.

25 MR. LYONS: Good evening.

1 MS. SMITH: Good evening.

2 MR. LYONS: My name is Joe Lyons. And I'm an
3 airport tenant. We run stores at the airport. And I
4 would like to say a few words in favor of the Master
5 Plan.

6 I have been through a number of hearings
7 several years ago looking at the last Master Plan. And
8 as a tenant at the airport, of course, we have been
9 privy and have been experienced in seeing the
10 development of the airport over a number of years.

11 It seems to me that in looking in perspective
12 we have an airport here which is always in the top three
13 or the top five in the world. It's an airport which is
14 an engine of the economy in Southern California in the
15 western part of the U.S. It's a major gateway to Asia.
16 It's a mix of O & D, 60 percent. It's a mix of short
17 haul; Southwest, long haul; United/American
18 International, 7.5 million passengers. So you've got an
19 enormously complicated and dynamic mix of passengers.
20 And we have to look forward to the future, and at the
21 same time deal with the passengers we have today.

22 The last great infrastructure development or
23 the improvements here were made in the early 1980s in
24 connection with the Olympics. Since that time, there
25 has been a series of improvements, but at the end, they

1 haven't been able to keep up with the pace of travel.
2 Much has happened since that time. And, of course the
3 tragic events of 9-11 overshadow everything.

4 And I think this plan certainly addresses a
5 number of the critical issues we have before us; the
6 issue of security, which is first and foremost, the
7 issue of passenger movements and the people mover,
8 transit in and out of the airport, the issue of new
9 terminals or improvements in terminals to be able to
10 accommodate larger jets, and the issue of improved
11 passenger service through facilities which will address
12 the needs to service a type of traffic and passengers in
13 the future that inadequately service today.

14 So I think all of these points here come
15 through well on the Master Plan. We had an office in
16 El Segundo for a number of years. And every day I drove
17 past the rail just coming to the airport and then taking
18 a quick left and going down Nash Street. All of those
19 things I think are addressed in some form in this Master
20 Plan.

21 No Master Plan is perfect, but clearly there
22 is a need to act. There is a need to go through these
23 hearings we have today and work through a plan we have
24 out on the table, which I believe is essentially a good
25 plan and should help carry the airport into a future

1 which I think will be bright and will speak to the
2 issues that we have before us today. So thank you very
3 much.

4 MS. SMITH: Thank you, Mr. Lyons.

5 MR. LYONS: Thank you.

6 MS. SMITH: Walter Dahlem, Jonathan Hong, Erica Kim
7 and Ronald Murphy.

8 At this time we're going to take another break
9 for 15 minutes and reconvene at 8:10.

10 (Recess was taken.)

11 MR. KESSLER: Good evening, ladies and gentlemen.

12 My name is David Kessler. I'm the environmental
13 protection specialist for the Airport's Division of the
14 Federal Aviation Administration, Western-Pacific Region.

15 I'd like to welcome you to the first of a
16 series of public hearings the FAA and Los Angeles World
17 Airports, or LAWA, are conducting on the Supplement to
18 the Draft Environmental Statement, Environmental Impact
19 Report for the proposed Master Plan at Los Angeles
20 International Airport.

21 The Supplement to the Draft EIS/EIR addresses
22 an additional alternative, Alternative D, Enhanced
23 Safety and Security Plan that was added in the fall of
24 2001. This Alternative was added as a result of
25 comments submitted on the 2001 Draft EIS/EIR and the

1 terrorist attacks that occurred on September 11th, 2001.

2 The purpose of these hearings is to collect
3 comments from the general public concerning the adequacy
4 of the information disclosed in the Supplement to the
5 Draft EIS/EIR on the proposed Alternative D. I'd like
6 to take this opportunity to make sure everyone
7 understands no decision will be made today regarding the
8 proposed project.

9 Today's hearing is not a question-and-answer
10 type of forum. Our job is to listen to what you have to
11 say about the adequacy of the information in the
12 Supplement to the Draft EIS/EIR. In other words, it's
13 your turn to talk to us. Since we are here to listen,
14 we're not going to respond to comments and questions
15 about the pros and cons of the proposed project.

16 Since 5:00 o'clock this afternoon, we have
17 held a workshop just outside of this room for anyone to
18 ask questions about the Master Plan, the environmental
19 process and the various proposed projects.

20 Following publication of the Supplement to the
21 Draft EIS/EIR for review and comment, the next step in
22 the joint Federal and State environmental disclosure
23 process is holding this and other public hearings during
24 this week and next week.

25 Both the Draft EIS/EIR published in 2001 and

1 the 2003 Supplement have been prepared pursuant to the
2 National Environmental Policy Act of 1969 or NEPA, the
3 Council on Environmental Quality Regulations, which are
4 the implementing regulations of NEPA, and the California
5 Environmental Quality Act of 1970, or CEQA, and the
6 Airport and Airway Improvement Act of 1982, as amended.

7 Following today's hearing and the close of the
8 comment period, we will then correct and revise the
9 EIS/EIR as necessary based on the comments received.

10 We'll also prepare responses to the comments we receive
11 and include those responses along with those that were
12 submitted to the FAA and LAWA on the 2001 Draft EIS/EIR
13 into the Final EIS/EIR. The information contained in
14 the Supplement will also be combined with the
15 information in the 2001 Draft EIS/EIR into the Final
16 EIS/EIR.

17 Before we begin receiving additional verbal
18 comments tonight, we'd like to remind everyone of the
19 ground rules of this hearing.

20 As I said earlier, we're not here to respond
21 to questions about the project. We're here to listen to
22 your comments and take notes. We have a court reporter
23 present to ensure we have an accurate transcript of this
24 hearing.

25 For anyone who would like to speak, we ask

1 that you fill out a speaker card and give it to one of
2 the people at the sign-in desk. Cards are then brought
3 up here to our facilitator who calls the names of each
4 speaker so we could proceed in an orderly fashion.

5 So that everyone gets an opportunity to speak
6 and provide verbal comments, everyone will get three
7 minutes. To be fair to everyone, we are not going to
8 allow people to transfer their allotted time to someone
9 else. I ask that when you speak, you give us your name
10 and address for the record.

11 We also have a Spanish language translator for
12 anyone wishing to provide their comments in Spanish.

13 If there is anyone uncomfortable about
14 speaking in front of a group or you need more time than
15 the three minutes provides, we ask that you provide your
16 comments in writing. We have a sign-up sheet, like this
17 one, available for your use at the sign-in desk. You
18 can leave your comments at the sign-in desk, or you may
19 mail your comments using the comment sheet or letter to
20 either address listed on the cover of the EIS/EIR.

21 I would like you to understand that a verbal
22 comment is just as important as a written comment. So
23 please feel free to provide any comments on the document
24 you may have either verbally today or in writing.

25 At this time comments on the Supplement are

1 due by 5:00 p.m. Pacific Daylight Time, on Monday,
2 August 25th, 2003. The FAA is currently considering a
3 request from LAWA to extend the public comment period to
4 a total of 120 days. At this time no decision has been
5 made on LAWA's request. If the FAA agrees to extend the
6 comment period, a notice announcing any extension would
7 be published in the Federal Register and the local
8 newspapers of general circulation.

9 As I've stated earlier, while we have this
10 meeting scheduled until 9:00 o'clock this evening, we
11 will stay here as long as necessary for everyone to
12 provide their verbal comments on the Supplement. As I
13 said, our job here is to listen to your comments.

14 Now, I'll return the hearing back to our
15 facilitator to reintroduce Mr. Jim Ritchie to provide
16 some additional introductory comments.

17 MS. SMITH: Thank you, Mr. Kessler.

18 Mr. Jim Ritchie, Deputy Executive Director of
19 Los Angeles World Airports.

20 MR. RITCHIE: Thank you. Again, I'm Jim Ritchie. I
21 welcome you on behalf of Los Angeles World Airports.
22 And we'll conduct the final stage of the meeting. Thank
23 you again.

24 MS. SMITH: Thank you, Mr. Ritchie.

25 I will call Daniel Walker and Darrel Clarke to

1 the podium. In that order, please. Just to remind you
2 that you have three minutes. And when you see the
3 yellow light appear, that means you have 30 seconds to
4 start wrapping up. Thank you.

5 Mr. Walker.

6 MR. WALKER: Thank you. My name is Daniel Walker.
7 Thanks for this opportunity to come and address you.

8 Tonight I am speaking as cochair of the
9 Friends of the Green Line. I'm also a local resident.
10 I live at 7416 West 82nd Street, which is about eight or
11 nine blocks north of the airport.

12 Friends of the Green Line is an all-volunteer
13 group. You may have heard from some of our colleagues
14 earlier. We basically are just users of mass transit
15 that live in the area around LAX and other parts of the
16 city that we simply would like to see improved access to
17 LAX.

18 We don't have any bone to gripe with the LAWA
19 experts and the fine engineers and planners at LAWA and
20 the city officials. We just think in the past there has
21 been some oversights or some conflicts, or whatever the
22 situation is. Today we don't have very good mass
23 transit access to LAX, and we'd like to see approved
24 access through the Green Line or other mass transit rail
25 services to LAX.

1 Specifically, we would like to see the airport
2 in their Master Plan address a fast rail service from
3 Downtown along the Harbor Subdivision right-of-way the
4 MTA owns. We would like to see the plans that you have
5 accommodate, not necessarily design the entire rail
6 corridor from LAX to Downtown, but make sure that the
7 plan at least doesn't preclude that from happening. So
8 far I know you have just preliminary plans, but we don't
9 really see much more than just a dotted line.

10 The people mover, we had some discussions
11 about that in our group, and we're generally supportive
12 of that concept. Using a people mover to get around the
13 airport rather than the current bus system is a step
14 forward if that comes out and meets a fast rail service,
15 either the Green Line or someday also the Harbor
16 Subdivision connection to Downtown. We think that will
17 be an improvement over today's system, which is simply
18 just cars and buses.

19 So the Friends of the Green Line is definitely
20 supportive of improving access to LAX, getting cars off
21 the roads and the local streets and highways. It seems
22 like you've made a lot of effort to provide direct
23 freeway access to the new facilities, but we don't see
24 that same amount of planning or effort of extending the
25 rail lines as well.

1 It seems like you've done a great job
2 internally of looking at how you can move people around
3 within the airport, but maybe it's MTA's job or your job
4 to work with MTA to find a line that can make it to LAX
5 and improve access. Not only to LAX, but also a rail
6 system that can access Burbank Airport, which is on the
7 Metrolink system. Metrolink also goes out and goes
8 right past the Ontario Airport, and that Master Plan is
9 coming out as well for some study.

10 So we think that a fast rail network would
11 certainly benefit the local residents of Westchester,
12 and it would also make a better L.A. World Airport.
13 Thank you for your time.

14 MS. SMITH: Thank you very much.

15 Mr. Darrel Clarke.

16 MR. CLARKE: Thank you. That was a well-timed
17 finish.

18 MS. SMITH: I agree.

19 MR. CLARKE: Okay. I'm Darryl Clark. I live at 339
20 10th Street, Santa Monica. I'm currently chair of the
21 City of Santa Monica Planning Commission. I am also
22 cochair of the Sierra Club Angeles Chapter
23 Transportation Committee, although tonight I'm speaking
24 as an individual.

25 Two things I would like to focus on. One is

1 that ground connections are critical, as was just
2 commented. I look at in terms of the Green Line
3 definitely needs to access LAX directly. The former
4 Santa Fe now MTA-owned Harbor Subdivision track from
5 Downtown Union Station to Aviation Boulevard in front of
6 LAX could run a very good rail car service in the near
7 term at a rather low cost.

8 We have to think about the 405 Corridor as
9 more than just high-speed ramps from a freeway that
10 doesn't move into the airport. I drive that freeway
11 every day. Fortunately, I'm going from Santa Monica to
12 Orange County, and the bad traffic is the other way.
13 But to have a fast approach to a non-moving freeway,
14 we've got to do better.

15 Down the road, I would really like to see the
16 Green Line extended north along the 405 Corridor to the
17 San Fernando Valley, so it would be serving both LAX as
18 well as the whole west side.

19 And, finally, the Lincoln Corridor. I'm an
20 appointee of the City of Santa Monica on the Lincoln
21 Corridor Task Force Citizen's Advisory Committee. And
22 that's a major challenge because we all know Lincoln
23 Boulevard is just a detour to the 405. We're not going
24 to -- we have no more right-of-way. We're not going to
25 be widening Lincoln Boulevard. We're probably going to

1 be ending up with something like peak hour dedicated bus
2 lines for more rapid bus service at least in the near
3 term on Lincoln Boulevard. That's my personal opinion,
4 but I think that's sort of where we're headed with that.
5 So ground connections are critical.

6 The second point I'd really want to touch on,
7 I find myself favoring a much more modest improvement to
8 the airport than the \$10-billion-dollar tearing down
9 three terminals, reconfiguring the whole central
10 terminal area.

11 First of all, I have to wonder if it's really
12 necessary to in terms of making it terrorist proof. It
13 just creates a different single point of failure. We
14 have a single point of failure at a remote terminal
15 rather than multiple points of failure at individual
16 terminals, and it would make it less convenient for
17 people like me that typically get dropped off or drive
18 ourselves down to the airport or hopefully someday take
19 the train down there.

20 And just the enormous cost of such a
21 reconfiguration. I would really say, keep the basic
22 terminal arrangement. Add a people mover to replace the
23 many buses that are jamming all of those roadways today.
24 Add better ground links, but don't do a major
25 reconstruction. I just don't think it is necessary,

1 which leads me to a final recommendation in 17 seconds.

2 I would suggest another alternative be added.
3 We have the past alternatives from the previous mayor
4 administration. We have this alternative. If we had an
5 alternative of not a no-build, but build less, improve
6 ground connections, improve circulation, but don't do a
7 major reconstruction.

8 MS. SMITH: Thank you very much.

9 MR. CLARKE: Thank you.

10 MS. SMITH: Do we have any other speaker cards
11 filled out? Anyone else wishing to speak, please feel
12 free to fill out one of these speaker cards and turn
13 them into the sign-in table. We're here for you at
14 least another half hour, and we'll stay here longer if
15 we need to.

16 MR. KESSLER: At this time since we don't have any
17 other speaker cards, we'll go into another recess until
18 we get another speaker card.

19 MS. SMITH: Thank you.

20 (Recess was taken.)

21 MS. SMITH: It's 9 p.m. If we don't have any
22 further comments from the public, this hearing will be
23 officially closed. Thank you very much for coming out.

24 As you know, there are some additional
25 hearings this week and next week. We'll wait to hear

1 Mr. Kessler for some closing remarks.

2 MR. KESSLER: All right. If there is anyone else
3 who has not had an opportunity to speak concerning the
4 information proceeding to the Supplement Draft EIS/EIR?

5 Not seeing anyone else, I'll remind everyone
6 if you feel uncomfortable about providing verbal
7 comments today, we will be accepting written comments by
8 5:00 p.m. Pacific Daylight Time, on Monday, August 25th,
9 2003. You could mail your comments to me either at the
10 FAA or Jim Ritchie at LAWA at the address on the cover
11 of the Draft EIS/EIR.

12 I want to thank everyone for your comments
13 today. The public hearing for the Supplement to the
14 Draft EIS/EIR on the LAX Master Plan is now closed.
15 Thank you.

16 MS. SMITH: Thank you.

17 (Whereupon the proceeding adjourned
18 at 9:01 o'clock p.m.)

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1 STATE OF CALIFORNIA)
2 COUNTY OF RIVERSIDE) ss.

3

4 I, LISA ANN VARGAS, certified shorthand reporter,
5 License No. 12049, do hereby certify:

6 That the proceedings contained herein were taken
7 before me at the time and place herein set forth and was
8 taken by me in shorthand and thereafter transcribed into
9 typewriting by me, and I hereby certify that the said
10 proceedings are a full, true and correct transcript of
11 my shorthand notes so taken.

12 I further certify that I am not interested in the
13 event of the action.

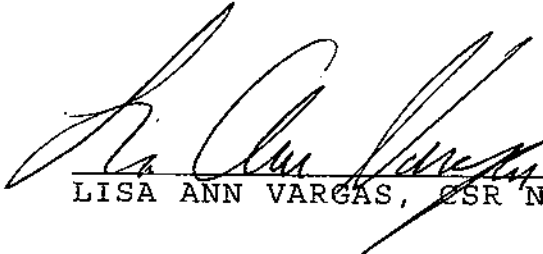
14

15 WITNESS my hand this 1st day of September 2003.

16

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LISA ANN VARGAS, CSR NO. 12049

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ERRATA SHEET

I declare under penalty of perjury that I have read the foregoing _____ pages
of my deposition testimony, taken on _____ at _____
_____, California,
and that the same is a true record of the testimony given by me at the time and place hereinabove
set forth, with the following exceptions:

Page Line Should read:

Date: _____

Signature of the Witness

Name Typed or Printed

ATTACHMENT

Councilmember Kelly McDowell,
City of El Segundo
Comments on the
LAX Master Plan Draft EIS/EIR Supplement
August 2003

- Good Evening. I am Councilmember Kelly McDowell, representing the City of El Segundo.
- Given the length and complexity of the Master Plan and environmental documents, our full comments on technical issues will not be ready for some time, therefore the City's comments tonight are preliminary.
- The City continues to oppose Alternatives A, B, and C for the many reasons the City expressed orally and in writing during the public review and comment period for the initial Draft EIS/EIR in 2002.
- *ES* ~~We feel the stated objectives of preferred Alternative D support a regional aviation approach that makes proper use of Inland Empire airports.~~ *not endorsed alt. D, but*
- *MY* ~~The City supports an alternative with fewer environmental impacts. We would like to see the adverse impacts of the airport minimized and mitigated to the greatest extent feasible.~~ *(i+s)*
- *ES* ~~The City supports enhanced safety and security at LAX.~~
- *MY* And the City supports an alternative that by design will accommodate passenger and cargo levels no greater than the physical capacity of the airport as it exists today.
- Limiting LAX's capacity to its current capacity has always been our number one goal and we believe limiting LAX's capacity will allow other airports in the region to develop and handle a fair share of future regional aviation demand,
- will result in fewer environmental impacts,
- and will improve safety and security at the airport.

- However, the City is greatly concerned about the impacts of southside airfield changes that *would* move the southernmost runway 50 feet closer to El Segundo.
- LAWA has stated that it believes these changes are necessary to improve runway safety.
- However, we are currently studying the impacts of the reconfiguration, and the options for the southern runway complex.
- In particular, we urge a full public consideration of end-around taxiways as an alternative that could provide greater safety at lower cost and with fewer new burdens on local communities.
- Safety at LAX must be a priority for all of us.
- The City is prepared to support measures necessary to enhance safety, even if those measures increase our burden, but only if we are assured, through an independent expert, that other alternatives are not equally effective.
- In conclusion, we are grateful for Mayor Hahn's responsive leadership and his pledge to constrain growth at LAX and foster a regional approach to meeting future aviation demand.
- It is our hope that the ultimate outcome of this Master Plan process will be a regional airport approach that ensures that LAX does not exceed its current capacity.
- Thank you.

Jart Reed

Subject: FW: Talking points for LAX EIR hearings with respect to rail/airport connections

Sent: Sunday, August 10, 2003 1:59 PM

Subject: Talking points for LAX EIR hearings with respect to rail/airport connections

To All:

The following "talking points" below are the result of many meetings and discussions of rail advocates, the latest of which was last Thursday evening's Friends of the Green Line (FoGL) Meeting in El Segundo.

Key: Since the MTA has no money to pay for a Green Line extension to Westchester, the notion of a Green Line extension should fall under traffic and/or environmental mitigation, with a final EIR of any Alternative D including a specific design--preferably one that has the written blessing of the FAA.

More talking points:

1) Our goal is for the Green Line to connect to the GTC, wherever it ends up. Manchester Square is being discussed as a site for the GTC solely because it's on the drawing board as the current site--FoGL is neutral on where the actual location should be..

2) A Green Line Westchester extension would enhance the usefulness of the People Mover by connecting it to local hotels and businesses.

FoGL supports the LAWA People Mover for airport transportation purposes, but not a People Mover that would harm future regional transportation efforts.

3) FoGL recommends a direct connection of the Green Line to the GTC as an alternative to a potentially-superfluous Intermodal Transit Center adjacent to the Aviation/Imperial Green Line station.

A direct Green Line/GTC connection would not interfere with the People Mover designed to connect Parking Lots C and D with the GTC, but would instead separate rail- and car-bound LAX traffic.

4) Federal funding for both a rail connection from the south (along the MTA Harbor Subdivision Line to the GTC), as well as funding for rail connections from the north and Downtown, might be a better argument for LAX-related traffic mitigations than "a Green Line extension to Westchester".

The northern connection would be from the previously-planned Westchester extension, and from Downtown and Inglewood via the MTA Harbor Subdivision Line to the GTC.

5) The Bay Area just established a rail/airport connection, and Orange County has just started looking into its own airport/rail connection via its Centerline--L.A. County should strive for nothing less than its own rail connection(s).

The nine Public Hearings for the Supplement to the Draft EIS/EIS and Draft Master Plan Addendum are scheduled as follows:

Date

Location

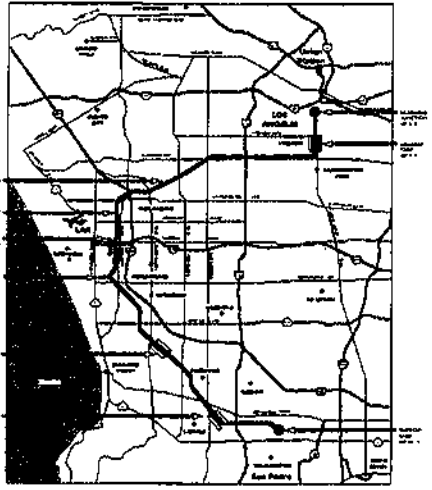
8/10/03

SPHL

AX Express Proposal

Most world-class airports offer direct rail service to the heart of their cities. Friends of the Green Line (FoGL) advocates the LAX Express with rail service between Los Angeles International Airport (LAX) and downtown Los Angeles Union Station.

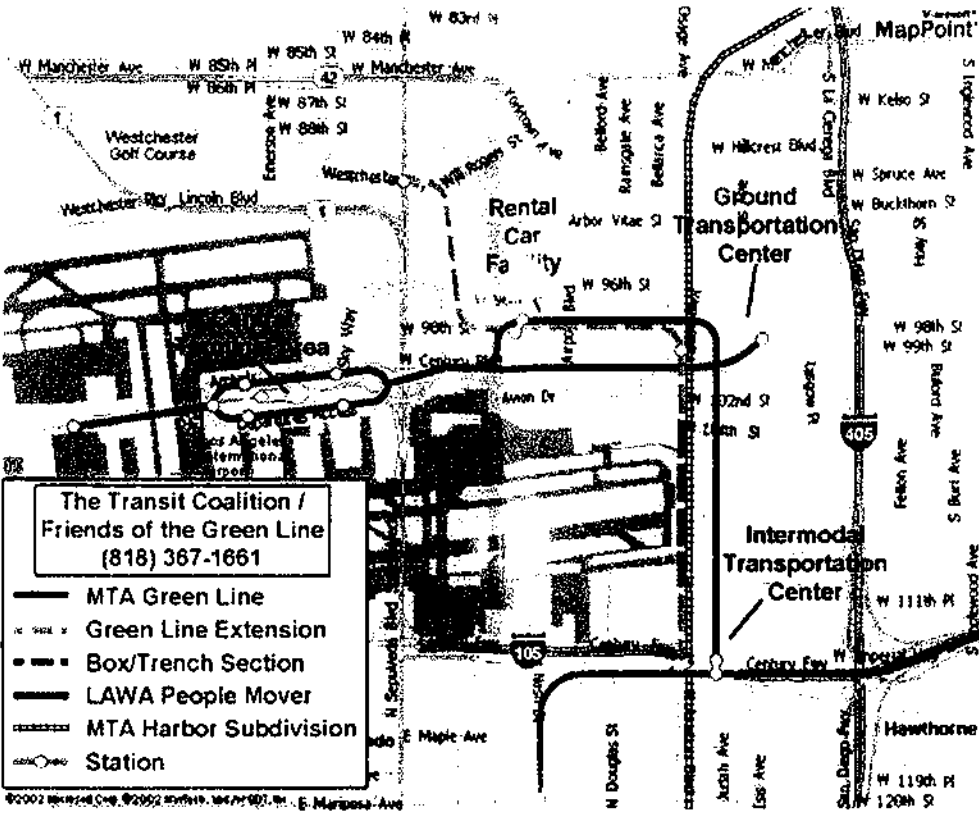
The Metropolitan Transportation Authority owns a lightly used existing Right-of-Way known as the MTA Harbor Subdivision.



This map shows the complete Right-of-Way, which runs northwest from San Pedro, past LAX, then continuing northeast on to Long Beach Junction, a rail interchange with connections to Los Angeles Union Station (LAUS). At LAUS there are connections to existing rail lines and future proposals like California High Speed Rail to the Bay Area.

The LAX Express proposal could provide local and Crosstown Express service for South Bay and West Los Angeles residents between transit hubs at LAX and LAUS.

Green Line Rail Access To Westchester Via LAX



The Transit Coalition / Friends of the Green Line (818) 367-1661

- MTA Green Line
- - - Green Line Extension
- - - Box/Trench Section
- LAWA People Mover
- - - MTA Harbor Subdivision
- Station

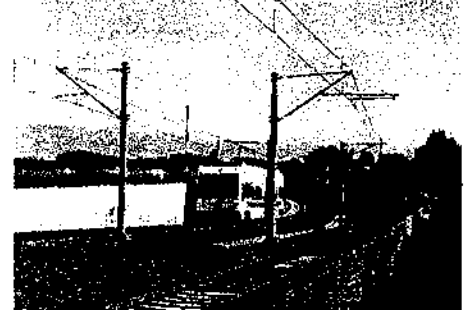
Friends of the Green Line (FoGL) recommends that any plan for improvements in security, noise abatement and traffic include the FoGL LAX Express proposal and the FoGL Green Line extension proposal to Westchester via LAX as an integral part of the overall LAX Master Plan and not just a connection to the Green Line on the outskirts of LAX. By reducing the number of transfers, more passengers will utilize public transit and this will reduce traffic congestion, air pollution and noise around LAX.

FoGL recommends a regional airport system, and the LAX Express can be modified for direct transit between most of the major Airports in the Los Angeles Region. The above map shows the Green Line as originally adopted by the MTA, and includes the Los Angeles World Airport (LAWA) proposed People Mover. FoGL remains neutral on any LAWA proposal and supports efforts to regulate passenger capacity at LAX.

Light Rail and Airports A Perfect Match

Construction of the Green Line past LAX was halted in the 1990's due to concerns about interference from the trains' overhead power collectors interfering with airplane landing systems. An exhaustive study showed a shallow trench, which lowers the light rail trains below the line of sight of the radar beacons, solves the problem.

The Santa Clara Valley Transportation Authority (VTA) Light Rail system in San Jose California was extended past the end of the runways at NAS Moffett Field with its highly sensitive electronic equipment without any problems, using the same exact configuration recommended by the Green Line Interference study.



This photo shows the train's overhead wires—the source of the potential interference—just above the level of the fence and just feet from the end of the runway as a VTA Light Rail train passes under the flight path in a trench that helps shield any interference from the train.

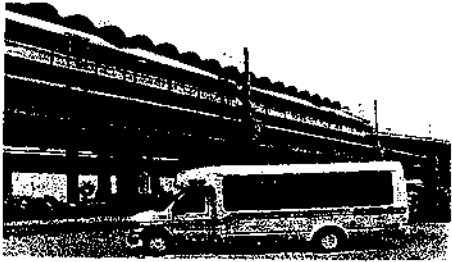
FoGL advocates extending the Green Line in a trench, similar to the one shown in the above photo, past LAX's south runways and continuing on to Westchester.

Why The Green Gap?

Extending the Green Line 2.5 miles north to Westchester with stations at LAX would save 15-30 minutes per trip by eliminating the walking and shuttle transfer currently needed to get from the Green Line to LAX.

Extending the Green Line 2.5 miles east to the Norwalk Metrolink Station would save 15-45 minutes per commute by not having to use the current shuttle bus system.

Extending the Green Line 2.5 miles south to the South Bay Galleria would move the terminus to an existing transit hub, a busy shopping mall and provide a friendlier pedestrian environment.



Commuters on this Shuttle bus will miss the East Bound Green Line Train by seconds and have a 15-minute wait for the next mid-day train to arrive.

Save Our Health

Traffic noise at all I-105 freeway median Green Line stations frequently reaches the 85 to 90 db range.

This is not only uncomfortable but also unhealthy. Prolonged exposure to noise levels over 85 db may gradually lead to some hearing loss. Simple measures such as sound barriers can significantly reduce noise levels at the station platforms.

Protection from noise and weather is urged at all Green Line Stations.

Friends Of The Green Line Goals

- 1 Extend the Green Line thru LAX to Westchester to allow access from the North and the South
- 2 Provide Express Train Service between LAX and Union Station
- 3 Extend the Green Line South to the South Bay
- 4 Extend the Green Line East to the Norwalk Metrolink Station
- 5 Provide shelter from noise and weather at Green Line Stations

Conceptual Westside Rail



Who Are We?

Friends of the Green Line (FoGL) is an all-volunteer organization of frustrated commuters and transit users working for improved mobility and less pollution in the Greater Los Angeles Region. FoGL is not affiliated with the MTA or LAWA.

FoGL recognizes the Green Line as a form of mass transit that is positioned to improve ground and air transportation throughout Southern California, in particular because of its proximity to LAX, the Westside, the South Bay and the Norwalk Metrolink Transit Center which would link MetroRail to Orange, Riverside and San Diego Counties.

How Can You Help?

The Transit Coalition is a 501 (c) (3) non-profit organization. Please contact us if you would like to attend our meetings, make a tax-deductible contribution, volunteer your time or help in any other way.



www.transitcoalition.org
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Please make your donation payable to:
SEE/The Transit Coalition
 12463 Telfair Avenue
 Sylmar, CA 91342-3736

transitcoalition@earthlink.net
 Voice: 818-367-1661 • Fax: 818-362-7997



Green Line Extensions:

The Ones That Got Away!



Friends of the Green Line

There are three ^{parts} parts to this ^{strategic perspective} strategy:

1. Building a Safe and Secure facility: This is elemental to the future on a both practical and perceptual dimension. *Sadly,*
2. Designing an airport that maintains LA's status as an international gateway: The international customer is the most sought after in the world. Either we build a user-friendly facility for this customer or they will go elsewhere.
3. Last, this plan recognizes a truth that Southern California's demand for air-travel cannot be built on the backs of the citizens of single city. This plan addresses the truth that there must be a regional solution to regional demand.

Thank you.

Redesson Plaza
3515 Wilshire

Notes Re LAX

I'm.....

Speak in support of the Masterplan that's before you.

Our organization represents an industry:

~~\$11.8 billion~~ ^{10 billion}

23 million visitors

240K jobs

LAX is the shelf from which our customers buy LA.

The MasterPlan, Option D has 100's pages of detail.

There is and will be lots of discussion of those details.

But, I am here to ask that the strategic ~~vision~~ ^{perspective} reflected in this plan not get lost the discussion of details.

not exact

Speaker 11

Good afternoon, my name is Richard Slawson and I am the Executive Secretary of the Los Angeles/Orange Counties Building and Construction Trades Council. Our Council represents over 130,000 Craftsmen and women who live and work throughout Los Angeles. We enthusiastically support Mayor Hahn and his master plan alternative for LAX.

When this plan gets underway, besides moving forward the needed modernization of our airport, nearly 49,000 construction-related jobs will be directly generated during the entire construction phase.

Statement #4

This is welcome news for our regional economy because putting 49,000 men and women to work, at good wages, is a boost not only to those on the job but throughout Southern California. This many new jobs will have a tremendous ripple effect that will in fact support 100,000 jobs around the region and \$11 billion to total economic activity.

This region desperately needs the economic stimulus from this LAX Master Plan.

Our other concerns are also being met by the Alternative D Plan. As in the case of many other world class airport, including Washington Dulles International Airport , Orlando International Airport and Denver

International Airport, their terminals are linked by the use of trams, people movers and trains. Washington Dulles uses what they call movable lounges. Orlando uses trains and Denver uses a combination of moving walkways and an underground train.

All of these are similar to the Ground Transportation Center and the Intermodal Transportation Center included in alternative D in the LAX Master Plan.

These then connect with the main or Central Terminal Area by the automated people mover. With the heightened security measures that are needed today, this makes absolute sense.

I would also like to commend Mayor Hahn for the commitment that he made to hold

LAX to 78 Million Annual Passengers. We all know that LAX must be modernized, but it must also meet the needs and concerns of the residents of Los Angeles and surrounding communities and especially those residents who live near the airport. This plan addresses, traffic, security and noise in its design and regulations.

We support the LAX Master Plan and asked that you give it your approval.

Thank you.

Testimony by Mayor James K. Hahn

Joint Hearing of the Federal Aviation Administration and
The City of Los Angeles/Los Angeles World Airports
Radisson Plaza Hotel
3525 Wilshire Blvd.
Los Angeles, California
5 p.m., Monday, August 11, 2003

Good evening. My name is Mayor Jim Hahn of the City of Los Angeles.

I am here to voice support for the Enhanced Safety and Security Plan - Alternative D. I believe this alternative that has evolved over the past year breaks new ground in airport design and planning for the 21st century and can serve as a model for airports throughout our nation and the world.

This plan designs the future LAX to accommodate approximately 78 million annual passengers and 3 million annual tons of cargo. Modernizing LAX in this way will help to secure LAX's role as the airport of choice for long haul operations - both passengers and cargo.

78 million annual passengers is consistent with the goals established in the Southern California Association of Governments Regional Transportation Plan. These goals promote growth of underutilized airports in outlying areas and allow us to achieve a more decentralized distribution of future air traffic around the region. It is also fair for the surrounding communities who will also have to bear a burden with increased traffic. Previous proposals that called for up to 98 million annual passengers were unrealistic.

I am pleased that support for my plan is growing. As people learn more about it, they come to understand that my plan is the environmentally superior alternative of all the concepts and plans studied over the past decade. They also realize that my plan incorporates leading-edge technology and design standards to provide travelers and airport workers with unmatched safety and security at the world's largest origination and destination airport.

LAX Master Plan means improved airport safety.

- Alternative D modernizes the airfield to improve safety for aircraft, traveling passengers, and airport workers.
- Center taxiways will provide additional protection against runway incursions.
- Parallel taxiways and full taxiway spacing improve aircraft movement and reduce taxiing times, improves safety and reduces delays for passengers.

LAX Master Plan means improved airport security.

- Alternative D provides for multiple layers of security protection for the traveling public, airport workers and the surrounding communities.

- Alternative D eliminates the high concentration of people as a potential terrorist target - it disperses the passengers and moves them rapidly among four separate and secure entry portals.
- Alternative D eliminates roadway traffic in the Central Terminal Area and significantly reduces the chance of an oversized vehicle explosive device being delivered to the Central Terminal Area.
- Alternative D permits early observation and assessment of passengers and baggage.

LAX Master Plan supports a regional transportation plan.

- Alternative D addresses community interests and concerns; Alternative D supports only LAX's fair share of the total regional air service market.
- Alternative D allows other regional airports to accommodate a greater share of the air traffic demand.

LAX Master Plan means a modern airport.

- Alternative D offers a redeveloped Central Terminal Area that provides for increased security screening and enhanced passenger conveniences.
- Alternative D will have new passenger terminals that provide for improved ticketing, baggage processing, circulation and concessions
- An Automated People Mover offers convenient access from the new facilities to the Central Terminal Area every two minutes
- The Automated People Mover trains will be modern, designed to easily accommodate rolling luggage and baggage carts.

LAX Master Plan improves ground transportation.

- Alternative D provides key improvements to the ground transportation system in and around LAX.
- Alternative D reduces thousands of private vehicles and commercial shuttle buses from the roadways and significantly reduces the impacts on surface streets and freeways.
- Alternative D designs convenient, easy access to the new facilities and proposes mitigation measures that provide direct access to and from the I-405 and I-105 Freeways to discourage residential street use.
- Alternative D means a direct connection to the Metro Green Line and encourages the use of mass transit.
- An expanded FlyAway Program encourages the use of high-occupancy vehicles and eliminates thousands of vehicles from the region's roadways.

LAX Master Plan sustains a region's key economic engine.

- LAX Master Plan means jobs; 351,000 jobs in the region by 2015, 295,000 jobs in LA County and nearly 139,000 jobs in the City of Los Angeles.
- LAX Master Plan means LAX will contribute \$64 billion to the regional economy in 2015, \$22 billion annually to the City of Los Angeles.

- Alternative D means nearly 49,000 construction-related jobs.

In conclusion, I want to emphasize that the goal of creating the Enhanced Safety and Security Master Plan is to modernize LAX to protect one of Los Angeles' key economic engines. At the same time, the plan addresses community interests and concerns by designing the facility to serve only LAX's fair share of the total regional air service market.

I thank the staffs of the Federal Aviation Administration and Los Angeles World Airports for your dedication and support of the master plan process. I look forward to the process continuing so that we can begin the long-overdue modernization of LAX as soon as possible. Thank you.

Speaker 1615

Testimony for LAX Master Plan Hearing
August 11, 2003

I am here to support the Enhanced Safety and Security Plan for LAX – also known as Alternative D. I believe this alternative breaks new ground in airport design for the 21st century and can serve as a model for airports throughout the world.

My staff and I have briefed thousands of stakeholders on this plan, including community residents, airlines, labor, and local business leaders. I believe that this plan incorporates many of their suggestions and addresses their concerns with the other alternatives.

Alternative D puts safety and security first. It includes modernization of the airfield, including the addition of center taxiways, to improve **safety** for aircraft, traveling passengers, and airport workers.

It also provides for multiple layers of **security** for the passengers, airport workers and the surrounding communities. It disperses travelers and moves them rapidly through four separate and secure entry points. It also allows security screeners to make assessments of passengers and baggage before they get into the Central Terminal Area.

Most importantly, this plan significantly reduces the opportunity for a vehicle with an explosive device to get close to the Central Terminal Area by eliminating traffic through the area. Security experts believe that the Central Terminal Area and its impact on our economy – not passengers – are the key targets for terrorists.

Alternative D also supports my goal of creating a regional air transportation plan. It designs LAX to accommodate approximately 3 million annual tons of cargo and 78 million annual passengers, which is consistent with the goals established in the Southern California Association of Governments Regional Transportation Plan. We are also working to promote use of our other regional airports to meet demand.

Alternative D also means a more modern and convenient LAX for our passengers. The plan includes new passenger terminals with improved ticketing, baggage processing, circulation and concessions. An Automated People Mover designed to easily accommodate rolling luggage and baggage carts will offer convenient access to the Central Terminal Area every two minutes.

Alternative D also provides key improvements to the ground transportation around LAX to reduce congestion and pollution. It will finally provide a direct connection from the Metro Green Line and direct access to and from the 405 and 105 freeways. Approximately 36 new lane-miles and improved curb access will improve passenger access and reduce traffic congestion on surface streets. An expanded FlyAway Program will eliminate thousands of vehicles from the region's roadways.

Finally, Alternative D means jobs and is expected to contribute \$64 billion to the regional economy.

As people learn more about Alternative D, I have found that they support the leading-edge technology and design standards that will provide travelers and airport workers with unparalleled safety and security. They also find that this plan is the environmentally superior alternative compared

with the other plans that have been studied over the past decade.

I want to thank all of the community leaders, business leaders, airline representatives, labor leaders, and others who shaped Alternative D. I want to acknowledge Deputy Mayor Troy Edwards and Patricia Torres of my staff. And I want to especially thank the Federal Aviation Administration and Los Angeles World Airports staffs for your dedication and support of the master plan process. I look forward to the process continuing so that we can begin the long-overdue modernization of LAX as soon as possible.

Thank you.

Today, the Los Angeles World Airports continues to celebrate 75 years of connecting Southern California to the World. Commonly known as LAWA, the Los Angeles World Airports actually consists of FOUR airports...VAN NUYS is the world's BUSIEST general aviation airport. ONTARIO INTERNATIONAL serves the Inland Empire, the fastest growing region in Southern California. The PALMDALE REGIONAL has its' 25 year Master Plan for residents in Antelope & Santa Clarita Valleys, plus portions of San Bernardino/Inyo Counties. And the fourth one, LAX, where travelers throughout the world think of LAX as not only a ~~an~~ airport but an ^{entire} city, LOS ANGELES. True, LAWA has had a spectacular past BUT now we must ^{now} prepare for a SAFE future.

Prior to 9/11, LAX contributed \$60 BILLION per year in economic output, contributed 59,000 JOBS at or near LAX, plus 408,000 JOBS in the southern California region.

~~The~~ LAX security is of major importance to not only our state, but ^{our} the nation. Since California has the 5th largest economy in the world, we ^{must start} ~~must start~~ improving security NOW; not ^{please} waste time on a Master Plan that will be out dated in 15 years, when the war will be over. The terrorists will have been hunted down. Just think in 15 years, ^{is just too long to wait} ~~this project may be nearing completion.~~ *for alternative D.*

With TSA/Home Land Security, the walls came tumbling down in the terminals, moving in 100 huge explosive scanners, costing ^{million dollars} ~~1.9 MILLION~~ each, plus a ^{yearly} ~~yearly~~ \$100,000 maintenance fee. Unfortunately, these monsters had ^{with a} 25% false positive readings with food being a problem! *far too many*

* WHO PAYS for Alternate D? We're told a major part will be passed on to airlines via landing fees, etc. NOW that sounds like just what airlines need, especially those who are either in or fighting off bankruptcy!! Besides, the small businesses & hotels around LAX will have a very difficult time for many years and some may not survive. This plan was said to cost 9.1 BILLION, then 9.6. How many billions more will it be?

Honestly,
* Proponents like to couch this whole scenario around "security" as cars and LAX facilities DON'T MIX! Now how do they think people are going to get to this Ground Transportation Center? If you were a terrorist wanting to inflict major loss of life and damage, would you rather have the passenger load widely distributed around 9 different terminals or where EVERYONE for ALL flights congregated at 1 check in/drop off site?

Speakers 18/17

STATEMENT BY ALAN B. WAYNE
REGIONAL DIRECTOR - GOVERNMENTAL AND PUBLIC AFFAIRS
UNITED AIRLINES / LOS ANGELES

SUPPLEMENT TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT/
ENVIRONMENTAL IMPACT REPORT
LOS ANGELES INTERNATIONAL AIRPORT MASTER PLAN

MONDAY, AUGUST 11, 2003
RADISSON PLAZA HOTEL, LOS ANGELES

FOR THE RECORD, MY NAME IS ALAN WAYNE. I AM DIRECTOR OF
GOVERNMENTAL AND PUBLIC AFFAIRS FOR UNITED AIRLINES' WEST
REGION.

I AM APPEARING TONIGHT ON BEHALF OF NOT ONLY UNITED, BUT
ALSO TEN OTHER FELLOW MEMBERS OF THE STAR ALLIANCE, THE
LARGEST AIRLINE CONSORTIUM OPERATING AT LOS ANGELES
INTERNATIONAL AIRPORT. IN ADDITION TO UNITED, WHICH OPERATES A
HUB AT LAX, THE STAR MEMBERS INCLUDE AIR CANADA, AIR NEW
ZEALAND, ALL NIPPON, ASIANA, LUFTHANSA, MEXICANA, SINGAPORE,
THAI, VARIG AND U.S. AIRWAYS.

THOSE ELEVEN CARRIERS, PLUS UNITED'S REGIONAL MARKETING
PARTNER SKYWEST, WHOSE 133 DAILY DEPARTURES ARE THE MOST OF
ANY CARRIER AT LAX, WISH TONIGHT TO UNDERSCORE OUR COLLECTIVE
SUPPORT FOR MAYOR HAHN'S ONGOING EFFORT TO CRAFT A MASTER

PLAN FOR LAX THAT WOULD ULTIMATELY IMPROVE AND MODERNIZE THIS CRITICAL, BUT SADLY ANTIQUATED FACILITY.

UNITED AND THE STAR CARRIERS, PLUS SKYWEST, WHO ACCOUNT FOR 30 PERCENT OF THE FLIGHT ACTIVITY HERE, ARE WORKING WITH THE CITY TO ADDRESS THE AIRFIELD SAFETY, AIRPORT SECURITY, GROUND ACCESS, AND PASSENGER TERMINAL ENHANCEMENTS THAT MUST BE ACHIEVED IF THIS AIRPORT, WHICH IS SO IMPORTANT TO THE REGION'S ECONOMIC COMPETITIVENESS, AND THE THOUSANDS OF JOBS THAT DEPEND ON IT, IS TO REMAIN IN THE FOREFRONT OF COMMERCIAL AVIATION.

TO DO NOTHING, OR TO NOT DO THIS PROJECT REALISTICALLY, IS NOT ACCEPTABLE. THIS PROJECT IS OVERDUE AND MUST GET UNDERWAY. OTHER AIRPORTS - SEATTLE, PORTLAND, SAN FRANCISCO, LAS VEGAS, DENVER, PHOENIX - TO NAME A FEW, HAVE MODERNIZED OR ARE ADVANCING PROGRAMS TO DRAW BUSINESS AWAY FROM LAX.

UNITED AND THE STAR CARRIERS BELIEVE THAT THIS PLAN FOCUSES ON THE ISSUES AND ELEMENTS THAT WILL MOVE LAX FORWARD, AND WE PLAN TO CONTINUE OUR COLLABORATION WITH THE CITY AND THE AIRPORT TO MEET THESE FUTURE REQUIREMENTS.

THANK YOU.

It seems to me that too much is ^{being} concentrated in one area. This project, as proposed would increase traffic congestion in that one small area. There is no room for another freeway, and increased traffic in the immediate area will overwhelm the surface streets with people getting off the freeway looking for alternative ways to ~~get to~~ by pass the freeway congestion.

What about the mitigation studies done to address the traffic? Well, complex studies have been done ~~for~~ for the 405 Fwy expansion. Yet, after the expense and long years of construction, it is just as congested as if no work were done to reduce the congestion.

← I believe the same results will be likely for the current traffic mitigation plan for ~~the~~ Alternative Plan D.

To mitigate traffic and improve security for people arriving and returning to their cars, I think the parking should be spread out in smaller lots through out ~~the~~ ^{the} region. From those parking areas have shuttles ^{transport} ~~move~~ the passengers to the people movers.

As people buy their air line tickets, ^{they} ~~people~~ can be ^{assigned} ~~directed~~ to the various parking facilities. ~~We control the flow of~~ ~~traffic by spreading it out~~ This would be an effective means by which to spread the traffic ~~out~~ through out that area and prevent large concentrations of traffic.

Many are concerned with a car bomb going off in the terminal area, but a giant parking structure full of thousands of travelers is just as juicy a target ^{terrorist's} for a car bomb.

~~By creating~~ ^{more} smaller parking facilities

By creating smaller, more numerous parking structures, the attractiveness of such a target is reduced, and even if such an ~~the~~ attack occurred at one structure the loss of life and injuries would be reduced.

There would also be plenty of other structures to fall the increased ^{parking} demand of a lost structure

It would also be easier to distribute the loss of one or two lost structures among the remaining parking structures, than if one giant structure were lost.

**Official Hearing Transcript
Ontario, California
Tuesday, August 12, 2003**

Following this page is the transcript of the oral testimony taken at the above hearing. Each speaker at the hearing has been assigned a unique identification number. The numbers assigned to each speaker for this hearing are:

Number	Speaker	Affiliation
SPHO00001	Kelly McDowell	City of El Segundo
SPHO00002	Max Villar	Los Angeles Convention and Visitors Bureau
SPHO00003	Mary Jane Olhasso	City of Ontario
SPHO00004	Mahala Walter	None Provided
SPHO00005	Frank Zavala	Laborers Local 300
SPHO00006	Jorge Rivera	Local Union 250
SPHO00007	Peter Barrera	Local Union 250

Any exhibits attached to this hearing transcript have been previously reproduced in this Final EIS/EIR as individual public comment letters.

ORIGINAL

PUBLIC HEARING OF THE LAX MASTER PLAN
ENVIRONMENTAL IMPACT STATEMENT AND
ENVIRONMENTAL IMPACT REPORT

PUBLIC HEARING
HELD AT ONTARIO, CALIFORNIA
TUESDAY, AUGUST 12, 2003

REPORTED BY:

LORI DENISE KOSTER
C.S.R. NO. 10430

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APPEARANCES OF FACILITATORS:

SHAUNA BAIN SMITH
DAVID KESSLER
JIM RITCHIE

APPEARANCES OF PUBLIC SPEAKERS:

KELLY MC DOWELL
MAX VILLAR
MARY JANE OLHASSO
MAHALA WALTER
FRANK ZAVALA
JORGE ROCKY RIVERA
PETER BARRERA

1 ONTARIO, CALIFORNIA, TUESDAY, AUGUST 12, 2003

2 AT 6:00 O'CLOCK P.M.

3 ---o0o---

4
5
6 MS. SMITH: Good evening, ladies and gentlemen.
7 On behalf of the Federal Aviation Administration and
8 Los Angeles World Airports, I would like to welcome
9 you to the second in a series of hearings to receive
10 public testimony on the Los Angeles Airport Master
11 Plan Environmental Impact Statement and Environment
12 Impact Report.

13 My name is Shauna Bain Smith, and I will
14 be your facilitator this evening. The two gentlemen
15 to my right will be receiving your testimony. And
16 before we start the formal proceedings, they have a
17 few introductory remarks.

18 I'll start with Mr. David Kessler with the
19 Federal Aviation Administration.

20 Mr. Kessler.

21 MR. KESSLER: Thank you. Good evening ladies
22 and gentlemen.

23 My name is David Kessler. I'm the
24 environmental protection specialist for the Airports
25 Division of the Federal Aviation Administration

1 Western Pacific Region.

2 I'd like to welcome you to a second of a
3 series of public hearings the FAA and Los Angeles
4 World Airports, or LAWA, are conducting on the
5 supplement to the Draft Environmental Impact
6 Statement/Environmental Impact Report, or EIS/EIR,
7 for the proposed Master Plan at Los Angeles
8 International Airport.

9 The supplement to the Draft EIS/EIR
10 addresses an additional alternative, Alternative D,
11 the Enhanced Safety and Security Plan that was added
12 in the fall of 2001. This new alternative was added
13 as a result of comments submitted on the 2001 Draft
14 EIS/EIR and the terrorist attacks that occurred on
15 September 11th, 2001.

16 The notice of availability of the
17 supplement to the Draft EIS/EIR was published in
18 various local newspapers and in the Federal Register
19 on Friday, July 11, 2003. The FAA and LAWA are the
20 authors of the supplement. The Federal Highway
21 Administration is also a cooperating agency in the
22 preparation of the Draft EIS/EIR that was published
23 in January 2001.

24 The purpose of these hearings is to
25 collect comments from the general public concerning

1 the adequacy of the information disclosed in the
2 supplement to the Draft EIS/EIR on the proposed
3 Alternative D.

4 I would like to take this opportunity to
5 make sure that everyone understands that no decision
6 will be made tonight regarding the proposed project.
7 Today's hearing is not a question-and-answer type of
8 forum. Our job is to listen to what you have to say
9 about the adequacy of the information in the
10 supplement to the Draft EIS/EIR. In other words,
11 it's your turn to talk to us. Since we're here to
12 listen, we are not going to respond to the pros or
13 cons of the proposed project.

14 Since 5:00 o'clock this afternoon we've
15 held a public workshop just outside of this room for
16 anyone to ask questions about the Master Plan, the
17 environmental process and the various proposed
18 projects.

19 Following publication of the supplement to
20 the Draft EIS/EIR for review and comment, the next
21 step in the joint Federal and State Environmental
22 Disclosure process is holding this and the other
23 public hearings during this week and next week.

24 I would like to take this opportunity to
25 recap the environmental disclosure process for this

1 project.

2 The environmental evaluation for the LAX
3 Master Plan began in 1997 with the publication of a
4 notice of intent to prepare the joint EIS/EIR in the
5 Federal Register. In July of 1997 we held a series
6 of meetings with members of the public and
7 governmental agencies to receive comments on the
8 scope of the Draft EIS/EIR. Following those
9 meetings the Draft EIS/EIR was published in January
10 2001.

11 Both the 2001 Draft EIS/EIR and the 2003
12 supplement have been prepared pursuant to the
13 National Environmental Policy Act of 1969, or NEPA,
14 the Council on Environmental Regulations, which are
15 the implementing regulations of NEPA, the California
16 Environmental Quality Act of 1970, or CEQA, and the
17 Airport and Airway Improvement Act of 1982 as
18 amended.

19 Following today's hearing and the close of
20 the comment period, we will then correct and revise
21 the EIS/EIR as necessary based on the comments
22 received. We will also prepare responses to the
23 comments we receive and include those responses
24 along with those that were submitted to the FAA and
25 LAWA on the 2001 Draft EIS/EIR into the final

1 EIS/EIR. The information contained in the
2 supplement will also be combined with the
3 information in the 2001 Draft EIS/EIR into the final
4 EIS/EIR.

5 Before we begin receiving verbal comments,
6 I would like to let you know the ground rules of
7 this hearing. First, as I said earlier, we are not
8 here to respond to questions about this project. We
9 are here only to listen to your comments and take
10 notes.

11 We also have a court reporter present to
12 ensure that we have an accurate transcript of this
13 hearing. For anyone wishing to speak, we ask that
14 you fill out a speaker card like this one. Give it
15 to one of the people at the sign-in desk. The cards
16 will then be brought up here to our facilitator who
17 will then call the names of each speaker so that we
18 can proceed in an orderly fashion.

19 So that everyone gets an opportunity to
20 provide verbal comments, everyone will get three
21 minutes to speak. To be fair to everyone, we are
22 not going to allow people to transfer their allotted
23 time to someone else. I ask that when you speak,
24 you give us your name and address for the record.
25 We also have a Spanish language translator for

1 anyone wishing to provide their comments into
2 Spanish.

3 If there's anyone who is uncomfortable
4 speaking in front of a group or you need more than
5 three minutes to provide your comments, we ask that
6 you provide your comments in writing. We have
7 comment sheets like this one available for your use
8 at the sign-in desk. You can leave your comments at
9 the sign-in desk, or you can mail your comments
10 using the comment sheet or a letter to either
11 address listed on the cover of the EIS/EIR.

12 I would like everyone to understand that a
13 verbal comment is just as important as a written
14 comment. So please feel free to write any comments
15 on the document you may have to us either verbally
16 today or in writing.

17 At this time comments on the supplement to
18 the Draft EIS/EIR are due by 5:00 p.m. Pacific
19 Daylight Time on Monday, August 25th, 2003. The FAA
20 is currently considering a request from LAWA to
21 extend the public comment period to a total of 120
22 days. At this time no decision has been made on
23 LAWA's request. If the FAA agrees to extend the
24 comment period, a notice announcing any extension
25 would be published in the Federal Register and local

1 newspapers of general circulation.

2 Lastly, I would like everyone to
3 understand that even though we have this hearing
4 scheduled until 9:00 o'clock this evening, we will
5 stay here as long as necessary for everyone to get a
6 chance to provide verbal comments on the supplement
7 Draft EIS/EIR.

8 As I said earlier, our job today here is
9 to listen to your comments. At this time I would
10 ask everyone in the room to please turn off your
11 cell phones and pagers to be courteous to those
12 making verbal comments at tonight's hearing.

13 Now I'll return our hearing back to our
14 facilitator and introduce Mr. Jim Ritchie, who will
15 provide some introductory comments from LAWA.
16 Following Mr. Ritchie's comments, we will collect
17 the speaker cards and call the name of the first
18 speaker.

19 Thank you.

20 MS. SMITH: Thank you, Mr. Kessler.

21 I would like to introduce Mr. Jim Ritchie,
22 Deputy Executive Director of Los Angeles World
23 Airports.

24 Mr. Ritchie.

25 MR. RITCHIE: Thank you, Shauna.

1 Good evening, ladies and gentlemen. I'm
2 Jim Ritchie representing Los Angeles World Airports,
3 and welcome tonight for this public hearing.

4 This is the second in a series of public
5 hearings incidental to the environmental review
6 process. You may recall the public hearing process
7 in 2001 while we were examining other alternatives
8 for the modernization of LAX. The tragic events of
9 2001 and the leadership of Mayor Jim Hahn have
10 reshaped our environmental process. The mayor's
11 pressing concerns for safety and security have
12 provided new guidance along with the public comments
13 received during the public comment period from
14 January to November of 2001.

15 You are here tonight primarily to provide
16 comments on that new alternative referred to as
17 Alternative D. This is a supplement to the existing
18 environmental process, and it has undergone a
19 rigorous environmental analysis. We are here
20 tonight to receive your comments on this new safety
21 and security plan and its impacts as disclosed in
22 the Draft Environmental Impact Statement and
23 Environmental Impact Report.

24 So with that, Shauna, let's proceed.

25 MS. SMITH: Thank you, Mr. Ritchie. Thank you,

1 Mr. Kessler.

2 Again, my name is Shauna Bain Smith. I
3 will be your facilitator this evening. My only
4 purpose here is to ensure that those that wish to
5 speak are able to do so in a timely and orderly
6 fashion.

7 This high-tech clock is my best friend and
8 will help us do that. You will have three minutes
9 to speak, as Mr. Kessler said. When you have 30
10 seconds left on your time, you will see a yellow
11 light flash here. When your time has expired, you
12 will see a red light and you will hear a beep tone.

13 I ask that when you approach the podium,
14 after you've turned in the speaking card that
15 Mr. Kessler showed you, you state your name and your
16 address as clearly and slowly as possible so that
17 our court reporters can put it into the official
18 record. And I will not begin the timer until after
19 you have said your name and your address.

20 And with that, I will call the first
21 speakers, Councilman Kelly McDowell.

22 MR. MC DOWELL: Good evening. I'm Councilman
23 Kelly McDowell representing the City of El Segundo
24 tonight. Given the length and complexity of the
25 Master Plan and the environmental documents

1 associated with it, my City's full comments on the
2 technical issues will not be ready for some time,
3 and therefore my comments tonight are somewhat
4 preliminary.

5 My city continues to oppose Alternatives
6 A, B and C for the many reasons the City expressed
7 orally and in writing during the public review and
8 comment period for the initial Draft EIR/EIS in
9 2002. El Segundo has not endorsed Alternative D,
10 but we feel its stated objectives support a regional
11 aviation approach.

12 Specifically, the City of El Segundo
13 supports a regional approach alternative that makes
14 proper use of Inland Empire airports. We support an
15 alternative with fewer environmental impacts. We
16 would like to see the adverse impacts of the airport
17 minimized and mitigated to the greatest extent
18 possible. And we support enhanced safety and
19 security at LAX and we support an alternative that
20 by its design will accommodate passenger and cargo
21 levels no greater than the physical capacity of the
22 airport as it exists today.

23 Limiting LAX's capacity to its current
24 capacity has always been our number one goal, and we
25 believe that limiting LAX's capacity will allow

1 other airports in the region to develop and handle a
2 fair share of future regional aviation demand, will
3 result in fewer environmental impacts, and will
4 improve safety and security at the airport.
5 However, the City is greatly concerned about the
6 impacts of Southside Airfield changes that would
7 move the southernmost runway 50 feet closer to our
8 city of El Segundo.

9 LAWA has stated it believes these changes
10 are necessary to improve runway safety. However, we
11 are currently studying the impacts of the
12 re-configuration and the options for the southern
13 runway complex. In particular, we urge full public
14 consideration of end-around taxiways as an
15 alternative that can provide greater safety at lower
16 cost and with fewer new burdens on local nearby
17 communities.

18 Safety at LAX must be a priority for us
19 all, and El Segundo is prepared to support measures
20 necessary to enhance safety even if those measures
21 increase our burden, but only if we are assured
22 through an independent expert that other
23 alternatives are not equally affected.

24 In conclusion, we are grateful for Mayor
25 Hahn's responsive leadership and his pledge to

1 constrain growth at LAX and foster a regional
2 approach to meeting future aviation demand in our
3 region. And it is our hope that the ultimate
4 outcome of this Master Plan process will be a
5 regional airport approach that ensures that LAX does
6 not exceed its current capacity.

7 Thank you.

8 MS. SMITH: Thank you.

9 Max Villar.

10 MR. VILLAR: My name is Max Villar. I live in
11 Los Angeles. My address is 333 South Hope,
12 18th Floor in the Los Angeles Convention Visitor's
13 Bureau.

14 My position at the Los Angeles Convention
15 Visitor's Bureau is director of the Americas, and as
16 such, I'm also participant as the marketing arm for
17 Los Angeles World Airports in the international
18 market. Specifically, I'm responsible to develop
19 travel business from Mexico, Latin America and LAX
20 and Ontario Airport. We have a success story to
21 tell.

22 Aeromexico started service about three
23 years ago with one flight from Guadalajara to Mexico
24 to Ontario Airports and was turned around and turned
25 over to a daily flight. Recently they have added

1 another flight from Ontario to San Jose Los Cabos.
2 We were instrumental to bring another airline to
3 Ontario Airport as well, which is Lineas Ayadas
4 Aztecas with a daily flight from Mexico to
5 Guadalajara.

6 So what I'm saying -- what I'm trying to
7 say here is that we're here to support the Master
8 Plan as stated to preserve L.A.'s status of the main
9 gateway in the West Coast.

10 It is also fitting to mention that we are
11 engaged in an industry that represents, according to
12 your numbers, about 21 billion dollars in direct
13 expenditures and over 328,000 employment.

14 Approving the plan not only means better
15 service to our great region of Los Angeles, but it
16 also showcases the Ontario Airport as one of the
17 premier international airports in Southern
18 California.

19 As I will normally promote it while I'm
20 abroad and talking to my Spanish-speaking
21 colleagues, Los Angeles y Ontario (inaudible)
22 perfecto.

23 Thank you.

24 MS. SMITH: Thank you.

25 Mary Jane Olhasso.

1 MS. OLHASSO: Mary Jane Olhasso, city of
2 Ontario, 303 East B Street, Ontario. Olhasso is
3 O-l-h-a-s-s-o.

4 The Mayor of Ontario, Mr. Gary Ovit, has
5 asked me to read this letter into the record. It is
6 dated today, August 12th, 2003, addressed to
7 President Stein and Commissioners.

8 "As both the Mayor of Ontario and a member
9 of the Skag Aviation Task Force, I am in support of
10 Alternative D of the LAX Master Plan. Under this
11 plan LAX will accommodate its fair share of
12 passengers and cargo while providing limits which
13 will encourage growth at other Southern California
14 airports. This will create a regional solution to
15 the air transportation issue and preserve our
16 position as global economic leader."

17 "We look forward to a continued
18 partnership in providing air service to the
19 residents and businesses of Southern California."

20 Signed, sincerely, Gary C. Ovit, Mayor.

21 MS. SMITH: Mahala Walter.

22 MS. WALTER: Mahala Walter, M-a-h-a-l-a, at 7015
23 South Sepulveda, Westchester.

24 Proponents like to coach the following
25 scenario about security as cars and LAX facilities

1 don't mix. Now, I want you to think about that.
2 How on earth are they going to get to the ground
3 transportation center then?

4 If there were a terrorist waiting to
5 inflict major loss of life and damage, would you
6 rather have the passenger load widely distributed
7 around nine different terminals or where everyone
8 for all flights would be congregated in one security
9 end drop-off center off-site?

10 There's a definite problem with a check-in
11 drop-off site at Manchester squares. The gridlock
12 on the 405 is totally impossible now. Using
13 Sepulveda, the community surrounding the airport can
14 be at their terminal in just a few minutes.
15 Alternate D would add at least an hour or two to
16 travel time.

17 The whole idea of safety is to get the
18 travelers in and out of the airport fast. Why
19 should travelers staying at the Radisson Hotel
20 across the street from LAX have to take the shuttle
21 to the ground transportation center to get on the
22 people-mover to go to the airport?

23 The word from USC students is that if the
24 105 does not go directly to LAX, they'll fly Jet
25 Blue. Why now doesn't the green line go directly

1 into LAX, and why not work together with MTA to
2 solve the current and future problems of not only
3 the airport, but the 405 and Sepulveda Boulevard?

4 Adding a one or two nonstop lanes for
5 departures coming off of Lincoln to join Skyway
6 Drive into LAX would be a very helpful thing for
7 Westside, Santa Monica, Marina del Rey travelers,
8 relieving Sepulveda traffic during peak and holiday
9 hours.

10 LAX must start the new center runways
11 immediately. However, I wish to see extending the
12 north runway over Pershing Drive. Since we are at
13 war, the butterflies might as well deal with these
14 inconveniences just as the rest of us are having to
15 do.

16 The south runway, I would like to know why
17 is it necessary to move it 50 feet closer to
18 El Segundo and the Hyperion.

19 Retinal scanning is one of the most
20 important security measures I think we can take at
21 this time for LAWA employees, airlines, TSA,
22 concessionaires, taxis, shuttles, airport drivers
23 plus owners and pilots at the 48 airports that are
24 in our area.

25 MS. SMITH: Thank you, very much. At this time,

1 before I call the next speaker, I would like to
2 remind all of our participants that if in fact you
3 do need more time to make your comments after we
4 finish the first round and everyone is provided an
5 opportunity to make comments at least once, you're
6 welcome to fill out another speaker card, and we
7 will call your name again. That's it.

8 Mr. Walter Dahlem, please.

9 MR. DAHLEM: No comment.

10 MS. SMITH: No comment?

11 At this time we don't have any other
12 comments or public speaking cards filled out, but
13 we're here until 9:00 p.m. If anyone wishes to
14 comment, please do fill out a public speaker card,
15 turn it in at the sign-in table, and we'll be happy
16 to take your testimony.

17 We'll take a break for approximately
18 fifteen minutes and reconvene at 6:30, 6:35.

19 Thanks.

20 (Brief recess was taken.)

21 MS. SMITH: If I can get everyone to make their
22 way back into the public hearing room, please.

23 You don't want me to start singing for you
24 guys. You know what I'm saying?

25 I was going to clear the room and start

1 singing.

2 THE REPORTER: Is this on the record?

3 MS. SMITH: Our public hearing is now officially
4 re-commencing. I'm introducing Mr. David Kessler
5 again to give a few introductory remarks for those
6 that are just joining us.

7 MR. KESSLER: Good evening, ladies and
8 gentlemen. My name is David Kessler. I'm the
9 environmental protection specialist for the Airports
10 Division of the Federal Aviation Administration
11 Western Pacific Region.

12 Again, I would like to welcome you to the
13 second of a series of public hearings the FAA and
14 the Los Angeles World Airports are conducting on the
15 supplement to the Draft EIS/EIR for the proposed --
16 excuse me -- for the proposed Master Plan at
17 Los Angeles International Airport.

18 The supplement addresses an additional
19 alternative, Alternative D, the Enhanced Safety and
20 Security Plan that was added in fall of 2001.

21 The new alternative was added as a result
22 of comments submitted on the 2001 Draft EIS/EIR and
23 the terrorist attacks that occurred on September 11,
24 2001.

25 The purpose of these hearings is to

1 collect comments from the general public concerning
2 the adequacy of the information disclosed on the
3 supplement to the Draft EIS/EIR on the proposed
4 Alternative D.

5 I would like to remind everyone that to
6 make sure that you understand that no decision will
7 be made today regarding the proposed project.
8 Today's hearing is not a question-and-answer type of
9 forum. Our job to listen to what you have to say
10 about the adequacy of the information in the
11 supplement to the Draft EIS/EIR.

12 In other words, it's your turn to talk to
13 us. Since we're here to listen, we're not going to
14 respond to questions about the pros and cons of the
15 proposed project.

16 Since 5:00 o'clock this afternoon we've
17 held a public workshop just outside this room for
18 anyone to ask questions about the Master Plan, the
19 environmental process, and the various proposed
20 projects.

21 At this time I'd like to see if
22 Mr. Ritchie would have any other additional remarks,
23 and then we'll go to our next speaker.

24 MR. RITCHIE: No, sir. I have no comments.
25 Let's proceed.

1 MS. SMITH: Just to remind you again, each
2 speaker will have three minutes. When you have 30
3 seconds left, you'll see a yellow light. When
4 you're time is expired, you'll see a red light and
5 you'll hear an beep tone.

6 If you can state your name and address
7 when you come to the podium please, and speak slowly
8 and clearly, spelling your last name when possible
9 for our court reporters, we'd appreciate that. And
10 I won't start the time until after you've stated
11 your name and address.

12 Our first speaker is Jorge Rocky Rivera.

13 While we wait for Mr. Rivera, I'll go to
14 our second speaker, Frank Zavala.

15 MR. ZAVALA: Good afternoon. My name is Frank
16 Zavala. Location of address is 12635 Franklin
17 Court, Unit 3A in Chino, California. I'm a field
18 representative for the Laborers' Local 300 and an
19 auditor as well, and last name is spelled Z-, as in
20 Zebra, -a-v, as in Victor, a-l-a. I just want to
21 make sure that's clear. She did say that.

22 Well, I'm here to speak in regards to this
23 plan. Actually, I'm a resident as well as a family
24 member out here. I have three girls out here. And
25 it's plenty of work for our members, for Laborers'

1 Local 300 that I represent as well. And I'm here to
2 speak not only for the laborers, but to -- about all
3 the crafts in the unions. We have plenty of members
4 that live out here from all types of crafts. So
5 this is more beneficial to the residents of, I would
6 say, Ontario and also Chino and various locations,
7 because the unions are represented from different
8 wide world of cities, so -- and the Master Plan that
9 we're supporting, I'm sure you've already heard the
10 comments, and I'm not going to go into length with
11 that, but it is very, very well planned out.

12 And in the past there's been some
13 questions in regards to it, so I would like to state
14 personally here and as well as a field
15 representative that this plan here is the best plan
16 for everyone in the surrounding communities.

17 Thank you, very much.

18 MS. SMITH: Thank you. Jorge Rocky Rivera,
19 please.

20 If you can state your name and spell your
21 name for our court reporters, please, Mr. Rivera.

22 MR. RIVERA: Jorge Rocky Rivera, Jorge,
23 J-o-r-g-e, Rocky, R-o-c-k-y, Rivera, R-i-v-e-r-a.

24 As I introduced myself, again, my name is
25 Rocky Rivera. I'm a resident of Riverside,

1 California. I live at 5141 Poinsettia Place. I'm
2 also a member of Local 250. I'm also an individual
3 who helped build the Bradley Terminal when I worked
4 for Sam p. Wallace of Local 250.

5 I come here in support of Alternative D,
6 and the reason being is that it provides not only
7 safety, but jobs, present and in the future, because
8 we got to take into consideration -- we can be like
9 the crab, walk sideways and never go nowhere, or we
10 can take a step forward and face the future head on.
11 Because the only way you're going to do it is by
12 being bold, and that's what our pioneer forefathers
13 did before in the past.

14 I say for security it is the best because
15 it does give us -- it gives us a way to implement
16 the security in which baggages are checked and
17 individuals are also checked.

18 I will make my comment short because I'm
19 not a public speaker. From the past, my history, I
20 was a construction worker, and before that I was a
21 boxer.

22 So anyway, I thank you for your
23 opportunity to give me this chance to speak. You
24 have a nice day.

25 MS. SMITH: You're an excellent orator to me.

1 Thank you.

2 Mr. Peter Barrera.

3 And again, I'll ask if you can spell your
4 name for the court reporters, please.

5 MR. BARRERA: Yes. My name is Peter Barrera
6 B-a-r-r-e-r-a. I live at 1908 Bellmont Lanes,
7 Redondo Beach, California. I'm a fifth-generation
8 Californian.

9 I've been here -- I mean, my family -- all
10 my life. And when I'm -- I'm a member of the
11 organization of the Local 250. I'm a business
12 organizer for refrigeration and air-conditioning.

13 The -- one of the reasons that I'm here to
14 speak is I was just talking to a person, Richard
15 Slausson, and it kind of reminds me of the airports
16 that I've been to in the past. I've been to Orlando
17 where they have people-movers, and it was easier for
18 us to get -- I've been into Dulles where there was
19 people-movers. I've been to Denver, Colorado where
20 my son goes to school at. It's people-movers. It's
21 time for (inaudible) people-movers, and for
22 security-wise it would be the best. I mean, I'm for
23 it. Like I said, I live in the area. My family
24 lives in the area, and I want to stay in the area.
25 So I'm for this.

1 Thank you, very much.

2 MS. SMITH: Thank you. At this time I'm not
3 holding any more speaker cards.

4 I will remind you that we're here until
5 9:00 p.m., and if you wish to speak, please fill out
6 a speaker card and turn it in at the sign-in desk.
7 If you wish to submit a written comment, we have
8 forms at the sign-in desk as well that you can fill
9 in. We're here for the duration.

10 At this time I think we'll take another
11 break and wait for some more speaker cards.

12 Thank you.

13 For the record, we'll reconvene at
14 7:00 p.m.

15 (Brief recess was taken.)

16 MS. SMITH: We still don't have any more
17 speaking cards, so we're going to extend our break,
18 and we'll come back at 7:15.

19 Thank you.

20 (Brief recess was taken.)

21 MS. SMITH: As to any more speakers, Mr. Kessler
22 from the Federal Aviation Administration has some
23 closing remarks. He'll be at the podium shortly.

24 Mr. Kessler.

25 MR. KESSLER: Thank you. I have it at

1 9:00 o'clock, the evening, by my watch. I will ask
2 if there's anyone else who has not had an
3 opportunity to speak, please identify yourself.

4 Not seeing anyone, I will remind everyone
5 that if you feel you are unable to provide us with
6 verbal comments today, we will be accepting written
7 comments until 5:00 p.m. Pacific Daylight Time,
8 Monday, August 25th, 2003. You can mail your
9 comments either to me at the FAA or to Jim Ritchie
10 at LAWA. The mailing addresses are listed on the
11 cover of the EIS/EIR.

12 I want to thank everyone for your comments
13 today. This public hearing for the supplement to
14 the Draft EIS/EIR on Los Angeles International
15 Airport Master Plan is now closed.

16 Thank you.

17 MS. SMITH: Thank you. And that's a wrap,
18 folks.

19 (The deposition was concluded at 9:05 p.m.)

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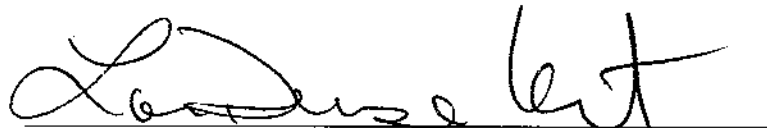
R E P O R T E R ' S C E R T I F I C A T E

I, Lori Denise Koster, a certified shorthand reporter, No. 10430, for the State of California, do hereby certify:

That the said proceedings were taken down by me in stenotype at the time and place therein stated and was thereafter reduced to printing under my direction.

I further certify that I am not in any way interested in the event of this cause, and that I am not related to either of the parties hereto.

In witness whereof, I have hereunto subscribed my name this 31st day of August, 2003



Lori Denise Koster, C.S.R.
No. 10430

ERRATA SHEET

I declare under penalty of perjury that I have read the foregoing _____ pages
of my deposition testimony, taken on _____ at
_____, _____, California,
and that the same is a true record of the testimony given by me at the time and place hereinabove
set forth, with the following exceptions:

Page **Line** **Should read:**

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Date: _____

Signature of the Witness

Name Typed or Printed

**Official Hearing Transcript
Luminarias Restaurant
Monterey Park, California
Wednesday, August 13, 2003**

Following this page is the transcript of the oral testimony taken at the above hearing. Each speaker at the hearing has been assigned a unique identification number. The numbers assigned to each speaker for this hearing are:

Number	Speaker	Affiliation
SPHMP00001	David Lau	City of Monterey Park
SPHMP00002	Mike Eng	City of Monterey Park
SPHMP00003	Benjamin Venti	City of Monterey Park
SPHMP00004	Larry Johnson	None Provided
SPHMP00005	Patti MacJennett	Los Angeles Convention and Visitors Bureau
SPHMP00006	Daniel Humber	Ironworkers Local 433
SPHMP00007	Walter Dahlem	UA Local 345
SPHMP00008	Philip Morris	Bricklayers, Stonemasons, Marble Masons Union
SPHMP00009	John Ferruccio	Pipe Trades Local Union 250
SPHMP00010	Carole Hossan	None Provided
SPHMP00011	Luis Robles	Laborers Local 300

Any exhibits attached to this hearing transcript have been previously reproduced in this Final EIS/EIR as individual public comment letters.

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ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION AND
LOS ANGELES WORLD AIRPORTS, THE THIRD PUBLIC HEARING
ON THE SUPPLEMENT TO THE DRAFT EIS/EIR
FOR THE PROPOSED MASTER PLAN AT LAX

REPORTER'S TRANSCRIPT OF
PUBLIC TESTIMONY

TAKEN ON
WEDNESDAY, AUGUST 13, 2003

HELD AT THE LUMINARIAS RESTAURANT

3500 RAMONA BOULEVARD
MONTEREY PARK, CALIFORNIA

REPORTED BY:

LISA ANN VARGAS, C.S.R. NO. 12049

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1 APPEARANCES OF FACILITATORS:

2

3 SHAUNA BAIN SMITH, Public Affairs Director for the
4 Lee Andrews Group

5 DAVID KESSLER, Airport Planner for the Federal Aviation
6 Administration

7 JIM RITCHIE, Deputy Executive Director for the
8 Los Angeles World Airports

9

10 APPEARANCES OF PUBLIC SPEAKERS:

11

12 1. DAVID LAU, Mayor of the City of Monterey Park

13 2. MIKE ENG, Councilmember of the City of Monterey Park

14 3. BENJAMIN FRANK VENTI, Councilmember of the City
15 of Monterey Park

16 4. LARRY JOHNSON, Representing Ironworkers Local 433

17 5. PATTI MACJENNETT, Senior Vice President of Marketing
18 with the Los Angeles Convention &
19 Visitors Bureau

20 6. DANIEL HUMBER, Represents Ironworkers Local 433

21 7. WALTER DAHLEM, Represents UA Local 345, Landscape
22 and Irrigation Fitters

23 8. PHILIP MORRIS, Represents Bricklayers and
24 Stonemasons Local Union

25 9. JOHN FERRUCCIO, Member of the Pipe Trades Local
Union 250

10. CAROLE HOSSAN, Representing Herself

11. LUIS ROBLES, Representing Laborers Local 300

24

25

1 MONTEREY PARK, CALIFORNIA, WEDNESDAY, AUGUST 13, 2003

2 6:00 O'CLOCK P.M.

3 ---oOo---

4
5 MS. SMITH: Good evening, ladies and gentlemen. On
6 behalf of the Federal Aviation Administration and
7 Los Angeles World Airports, I would like to welcome you
8 to the third in a series of hearings to receive public
9 testimony on the Los Angeles Airport Master Plan,
10 Environmental Impact Statement and Environmental Impact
11 Report. My name is Shauna Bain Smith, and I will be
12 your facilitator.

13 The two gentlemen to my right will be
14 receiving your testimony this evening. Before we start
15 the formal proceedings, they each have introductory
16 remarks. I will start with Mr. David Kessler who is an
17 Environmental Protection Specialist with the Federal
18 Aviation Administration.

19 Mr. Kessler.

20 MR. KESSLER: Thank you. Good evening, ladies and
21 gentlemen. My name is David Kessler. I'm the
22 Environmental Protection Specialist for the Airports
23 Division of the Federal Aviation Administration,
24 Western-Pacific Region. I would like to welcome you to
25 the third of a series of public hearings the FAA and the

1 Los Angeles World Airports, or LAWA, are conducting on
2 the Supplement to the Draft Environmental Impact
3 Statement/Environmental Impact Report, or EIS/EIR, for
4 the proposed Master Plan at Los Angeles International
5 Airport.

6 The Supplement to the Draft EIS/EIR addresses
7 an additional Alternative, Alternative D, the Enhanced
8 Safety and Security Plan that was added in the fall of
9 2001. This new alternative was added as a result of
10 comments submitted on the 2001 Draft EIS/EIR and the
11 terrorist attacks that occurred on September 11th, 2001.

12 The Notice of Availability of the Supplement
13 to the Draft EIS/EIR was published in various local
14 newspapers and in the Federal Register on Friday, July
15 11, 2003. The FAA and LAWA are the authors of the
16 Supplement. The Federal Highway Administration is also
17 a cooperating agency in the preparation of the Draft
18 EIS/EIR that was published in January 2001.

19 The purpose of these hearings is to collect
20 comments from the general public concerning the adequacy
21 of the information disclosed in the Supplement to the
22 Draft EIS/EIR on the proposed Alternative D.

23 I would like to take this opportunity to make
24 sure that everyone understands that no decision will be
25 made today regarding the proposed project. Today's

1 hearing is not a question-and-answer type of forum. Our
2 job is to listen to what you have to say about the
3 adequacy of the information in the Supplement to the
4 Draft EIS/EIR. In other words, it's your turn to talk
5 to us. Since we're here to listen, we are not going to
6 respond to questions about the pros and cons of the
7 proposed project.

8 Since 5:00 this afternoon we held a public
9 workshop just outside of this room for anyone to ask
10 questions about the Master Plan, the environmental
11 process and the various proposed projects.

12 Following publication of the Supplement to the
13 Draft EIS/EIR for review and comment, the next step in
14 the joint Federal and State environmental disclosure
15 process is holding this and the other public hearings
16 during this week and next week.

17 I would like to take this opportunity to recap
18 the environmental disclosure process for this project.
19 The environmental evaluation of the LAX Master Plan
20 began in 1997 with the publication of a Notice of Intent
21 to prepare the joint EIS/EIR in the Federal Register.
22 In July 1997 we held a series of meetings with members
23 of the public and governmental agencies to receive
24 comments on the scope of the Draft EIS/EIR. Following
25 those meetings, the Draft EIS/EIR was published January

1 2001.

2 Both the 2001 Draft EIS/EIR and the 2003
3 Supplement have been prepared pursuant the National
4 Environmental Policy Act of 1969, or NEPA, the Council
5 on Environmental Quality Regulations, which are the
6 implementing regulations for NEPA, the California
7 Environmental Quality Act of 1970, or CEQA, and the
8 Airport and Airway Improvement Act of 1982, as amended.

9 Following today's hearings and the close of
10 the comment period, we will then correct and revise the
11 EIS/EIR, as necessary, based on the comments received.
12 We will also prepare responses to those comments we
13 receive and include those responses along with those
14 that were submitted to the FAA and LAWA on the 2001
15 Draft EIS/EIR into the Final EIS/EIR. The information
16 contained in the Supplement will also be combined with
17 the information in the 2001 Draft EIS/EIR into the Final
18 EIS/EIR.

19 Before we begin receiving verbal comments, we
20 would like to let you know the ground rules of the
21 hearing. First, as I said earlier, we're not here to
22 respond to questions about the project. We are only
23 here to listen to your comments and take notes. We
24 have a court reporter present to ensure that we have an
25 accurate transcript of this hearing.

1 For anyone wishing to speak, we ask that you
2 fill out a speaker card, like this one, and give it to
3 one of the people at the sign-in desk. The cards will
4 then be brought up here to our facilitator who will then
5 call the names of each speaker so we could proceed in an
6 orderly fashion.

7 So that everyone gets an opportunity to
8 provide verbal comments, everyone will be given three
9 minutes to speak. To be fair to everyone, we are not
10 going to allow people to transfer their allotted time to
11 someone else. I ask that when you speak, you give us
12 your name and address for the record. We also have a
13 Spanish language translator for anyone wishing to
14 provide their comments in Spanish.

15 If there is anyone who is uncomfortable
16 speaking in front of a group or if you need more than
17 three minutes to provide your comments, we ask that you
18 provide your comments in writing. We have comment
19 sheets, like this one, available for your use at the
20 sign-in desk. You can leave your comments at the
21 sign-in desk or you can mail your written comments using
22 the comment sheet or a letter to either address listed
23 on the cover of the EIS/EIR.

24 I would like you to understand that a verbal
25 comment is just as important as a written comment. So

1 please feel free to provide any comments you may have on
2 the document to us either verbally today or in writing.
3 At this time comments on the Supplement to the Draft
4 EIS/EIR are due by 5:00 p.m., Pacific Daylight Time, on
5 Monday, August 25, 2003. The FAA is currently
6 considering a request from LAWA to extend the comment
7 period to a total of 120 days. At this time no decision
8 has been made on LAWA's request. If the FAA agrees to
9 extend the comment period, a notice announcing any
10 extension would be published in the Federal Register and
11 local newspapers of general circulation.

12 Lastly, I would like everyone to know that
13 even though we have this hearing scheduled until
14 9:00 o'clock this evening, we will stay here as long as
15 necessary for everyone to get a chance to provide verbal
16 comments on the Supplement to the Draft EIS/EIR. As I
17 said earlier, our job here today is to listen to your
18 comments.

19 At this time I would also ask everyone in the
20 room to please turn off your cell phones and pagers to
21 be courteous to those making verbal comments at
22 tonight's hearing.

23 Now I will turn the hearing back to our
24 facilitator who will introduce Mr. Ritchie who will
25 provide some introductory comments from LAWA. Following

1 Mr. Ritchie's comments, we will then collect the speaker
2 cards and call the name of the first speaker. Thank
3 you.

4 MS. SMITH: Thank you. Mr. Jim Ritchie, Deputy
5 Executive Director of Los Angeles World Airports.

6 Mr. Ritchie.

7 MR. RITCHIE: Thank you for that kind introduction.
8 Good evening, ladies and gentlemen. I'm Jim Ritchie.
9 And on behalf of L.A. World Airports, welcome to the
10 Luminarias Restaurant tonight for a public hearing.

11 This is the third of a series of public
12 hearings incidental to the environmental review process
13 that Mr. Kessler has described. You may recall the
14 public hearing process in 2001. In fact, we're in the
15 same room while we were examining other alternatives for
16 the modernization of the LAX.

17 The tragic events of 2001 and the leadership
18 of Mayor Jim Hahn has reshaped our environmental
19 process. The Mayor's pressing concerns for safety and
20 security have provided new guidance along with the
21 public comments received during that public comment
22 period from January to November of 2001.

23 You're here tonight primarily to provide
24 comments on that new alternative referred to as
25 Alternative D. This is a supplement to the existing

1 environmental process and it has undergone a rigorous
2 environmental analysis. We're here tonight to receive
3 your comments on this new Safety and Security Plan and
4 its impacts as disclosed in the Supplement to the Draft
5 EIS/EIR. Ms. Smith.

6 MS. SMITH: Thank you, Mr. Ritchie. Thank you
7 Mr. Kessler. Again, my name is Shauna Bain Smith. As
8 your facilitator I am here to ensure that everyone who
9 wishes to speak is able to do so in a timely and orderly
10 fashion. This high-tech clock to my left will help us
11 do that. And I just wanted to go over some of the rules
12 that Mr. Kessler briefly explained.

13 Every person will have three minutes to speak.
14 I won't start the time until after you've given us your
15 name and address for the record. I ask that when you
16 give your name, you do so slowly and as clearly as
17 possible so that the court reporters can get it. And if
18 you can spell your last name, we would greatly
19 appreciate that.

20 Once I start the timer. When you're at 30
21 seconds of time left, you will see this yellow light
22 flash in the middle of the timer. At that time I
23 suggest you start wrapping up your remarks. When your
24 time has expired, you will see the red light flash and
25 you will hear a beep tone. At that time I will have to

1 ask that you complete your remarks.

2 If after you've given your remarks you feel
3 that you still need more time, as Mr. Kessler said, you
4 could provide your comments in writing, or if time
5 permits we will allow you to fill out another speaker
6 card. And once everyone has had an opportunity to speak
7 at least once, you're able to come up and speak again.

8 With that, I will call our first speakers.
9 Mayor David Lau, please.

10 MR. LAU: Thank you. My name is name is David Lau.

11 MS. SMITH: Give us a second. Our tech will take
12 care of that. Mayor Lau.

13 MR. LAU: My name is David Lau, Mayor of the City of
14 Monterey Park; 320 West Newmark Avenue, Monterey Park,
15 California.

16 The City of Monterey Park is extremely
17 disappointed with the Supplement to the Draft
18 Environmental Impact Statement and Environmental Impact
19 Report, LAX Master Plan. This document shares the same
20 deficiencies and problems as the January 18, 2001 Draft
21 EIS/EIR document that proposed the first three
22 Alternatives, A, B and C. L.A. World Airports and the
23 Aviation Administration once again failed to address
24 impacts to the west San Gabriel Valley community that is
25 currently suffering from severe negative impacts from

1 the LAX operations.

2 Our citizens submitted comments to the January
3 18, '01 draft document and voiced our concerns regarding
4 absence of remedy of the impacts to outlying areas. In
5 regard to Alternative D, Monterey Park is clearly
6 concerned with the proposed changes to the airport that
7 will bring about larger aircraft and a disproportionate
8 increase to the number of approaches to the north runway
9 complex.

10 The city appreciates LAWA's efforts to reduce
11 a number of aircraft operations by encouraging the use
12 of larger wide body aircraft. However, the louder noise
13 associated with the larger aircraft will not offset the
14 benefit of lesser traffic. Our community cannot
15 tolerate the noise level generated by LAX operation at
16 81 decibels. How are we expected to live with an
17 estimated 81 decibels or even higher noise levels.
18 Thank you very much for your attention.

19 MS. SMITH: Thank you. Our next speaker is
20 Councilman Mike Eng.

21 MR. ENG: Yes. My name Mike Eng; 712 Baton Way in
22 Monterey Park. Thank you very much for having your
23 hearing in the beautiful City of Monterey Park. This is
24 a residential community of about 64,000 people.

25 We have a median age that is higher than the

1 county, which means that we have a lot of seniors that
2 live here. We also have four school districts, which
3 means we also have a lot of young people and a lot of
4 students.

5 As an elected official I can tell you that
6 Monterey Park was founded about almost 90 years ago by
7 people that came here to escape underground pollution.
8 We're very concerned now by above-ground pollution. And
9 that's why we're here today.

10 I understand, as an elected official, the
11 difficulty of balancing various economic health and
12 safety factors, but let me tell you where our residents
13 come down on this issue.

14 First of all, we are very concerned that Plan
15 D continues the lack of monitoring for the cities east
16 of Vermont. We feel that by not having permanent
17 monitoring instruments in these eastern-most cities,
18 that this deprives us of the right to give you the data
19 that you need to know about the negative impact of noise
20 levels.

21 Currently noise assessment levels for cities
22 that are east of Vermont Avenue where there is no
23 monitoring equipment is based on radar data that is fed
24 into a computer for purposes of mathematical modeling.
25 The problem is that mathematical modeling, while looking

1 good on paper, does not take into account single effect
2 noise levels that could be as high as 81 decibels, as
3 was caused here in Monterey Park. By not taking into
4 account single effect noise levels that could be caused
5 by aircraft as low -- that are 1,900 feet above our city
6 is similar to saying that Cal Tech should not report to
7 earthquake data because there was only one earthquake
8 that year and they required two to have mathematical
9 modeling.

10 So what is it that we want? We would like to
11 have a realtime, realistic monitoring system that puts
12 actual monitors in our city. That's number one.

13 Number two, we would like to have studies of
14 the impact of the noise level in our cities that do not
15 have current access to actual noise monitors more
16 frequently than every five years. The last time that we
17 had sound monitoring equipment here in this city and the
18 surrounding areas was five years ago. We don't feel
19 that the data that's taken every five years and fed into
20 a computer along with modeling gives you the type of
21 data that you need to make the decisions about such
22 issues as threshold levels and frequency of flights and
23 modification of runways.

24 So in conclusion, we would like to have more
25 representation, not less. It's one thing that noise

1 will make us deaf. But when your procedures make us
2 speechless and muzzle our voices by not having the data,
3 that is not fair. Thank you.

4 MS. SMITH: Thank you. Councilman Frank Venti,
5 please.

6 MR. VENTI: Yes. Good evening Mr. Kessler and
7 Mr. Ritchie and facilitator. My name is Benjamin Frank
8 Venti. Benjamin and Frank. Venti is spelled V, as in
9 Victor, e-n-t-i.

10 First of all, I've lived in Monterey Park for
11 about 40 years. I have seen the impacts and heard the
12 impacts and felt the impacts of these aircrafts that
13 continue to come over.

14 I'm a little concerned about the fact that
15 we -- one of the things I read outside here on your
16 criterias was criteria number 8, which says "To minimize
17 the environmental impacts of the surrounding
18 communities." I think that's what we're trying to do.

19 But I also read a letter dated November 8,
20 2001 that was sent to you in regards to our concerns.
21 And let me just read some of the headings of these
22 concerns. I don't think they've been addressed and
23 we're concerned about that because now what's going to
24 happen with the wide body aircrafts, they are going to
25 actually come further east, but we are east. We are

1 east of LAX. They are going to drop down and come
2 further and it's going to cause some very -- noise
3 concerns to us.

4 The air quality impacts, the noise impacts,
5 the human health impacts, the traffic impacts. That's
6 another thing I don't see you addressing. And that is
7 the fact that with all this cargo being brought into
8 LAX, we are going to have an increase of truck traffic
9 coming from the Alameda corridor and that whole area of
10 the airport. I think it's -- it's a big concern for us
11 because most of those freeways come right through
12 Monterey Park. So the actual traffic issues are a real
13 problem.

14 And the environmental justice. Let me just
15 explain one thing to you. We are basically a minority
16 city. We're adjacent to East Los Angeles, a heavily
17 minority area also. And we just kind of feel that we're
18 being pushed with all this aircraft coming over there as
19 opposed to wanting to deal with Palmdale, wanting to use
20 that more frequently, wanting to get -- to stop the
21 people in Orange County from being -- from stopping the
22 FAA from putting in an airport at the El Toro facility.
23 I think it's very important that this should stop.
24 You're the Federal Government. You should be able to
25 have some impact on these people and not let them push

1 it over here just because we happen to be a more
2 minority area and a poverished area in this area here.

3 So in conclusion, I would like to say that in
4 reading this, in looking at -- and we haven't really
5 digested the new environmental impact. It doesn't seem
6 like you've had covered the areas that we're greatly
7 concerned with. So we ask that you consider that. And
8 I understand that the Los Angeles World Airports is
9 trying to push the cargo facility -- cargo traffic into
10 the Palmdale/Ontario and all these other airports. We
11 appreciate that. We would like you to continue pushing
12 for that. We thank you very much. By the way, welcome
13 to the City of Monterey Park. Thank you.

14 MS. SMITH: Thank you. Our next speaker is Larry
15 Johnson. Mr. Johnson.

16 MR. JOHNSON: Hi. I'm Larry Johnson, J-o-h-n-s-o-n.
17 I live at 8203 Owens Street, Buena Park, California.

18 First of all, I would like to say that it is a
19 beautiful presentation out there. That alternative is a
20 beautiful facility to add to our region. One reason I
21 believe that it is important is that people, especially
22 lately, they've been talking about the loss of jobs
23 leaving the area and trying to attract new business to
24 our area. One of the first things anyone interested in
25 starting a business here is going to see is the airport.

1 That is our face to the world. What they've seen for
2 the last five or ten years hasn't been a real pretty
3 face. It's been a lot of confusion, a lot of -- well,
4 you know, it just needs to -- it's a problem that needs
5 to be alleviated. It's a problem that needs to be
6 addressed. There is a lot of other -- you know, it's
7 just part of the regional planning for our airports.

8 LAX is just one facility, but it's the main
9 facility we have right now. It's the one with the
10 infrastructure in place. It's the one that can get
11 things going the soonest. What we have here is a very
12 good plan. One thing I've been reading about is people
13 talking about the \$9-billion-dollar bid and how that can
14 escalate.

15 It seems that whenever a construction project
16 comes up, people compare it to the Boston Big Dig
17 Artery. You know, it bloomed from probably four times
18 of what it originally cost. And I say, why compare it
19 to that? Why can't we compare it to the Gold Line, for
20 instance, the project that came in virtually on time and
21 on budget. All that matters is good management and good
22 workforce. We have both available.

23 In conclusion, you know, the project, it's not
24 like the Boston Project. It's something that's very
25 doable. There is no magic about it. It's something we

1 have the technology to do. We have the manpower. And
2 we just need to get some inertia behind it and get some
3 decisions made. Because to do nothing would be -- that
4 wouldn't be the legacy to leave behind. Thank you.

5 MS. SMITH: Thank you. Patti MacJennett please.
6 Did I pronounce your name correctly?

7 MS. MACJENNETT: Yes.

8 MS. SMITH: And after Ms. MacJennett, we'll have
9 Daniel Humber.

10 MS. MACJENNETT: Hi. I'm Patti MacJennett. That's
11 M-a-c-J-e-n-n-e-t-t, Senior Vice President of Marketing
12 with the Los Angeles Convention and Visitor's Bureau.

13 I'm here to speak in support of the LAX Master
14 Plan. Our organization represents the tourism industry
15 in Los Angeles County.

16 Tourism is the second largest industry. It
17 employs over 240,000 people in L.A. County. Last year
18 the tourism industry, the 23 million visitors that came
19 to Los Angeles injected \$11.8 billion dollars into our
20 economy.

21 L.A. is a strong position as a travel
22 destination, a large measure due to LAX's international
23 gateway status providing visitors direct access from all
24 over the world.

25 Today airports and cities are fiercely

1 competing for visitors and the lucrative visitor dollar.
2 This is particularly true of the very high-spending
3 international visitor.

4 And today tour operators and travel agents, as
5 well as today's travelers, have choices. They have lots
6 of choices and they are choosing airports that are safe,
7 modernized and convenient.

8 We know that the Master Plan Option D has
9 hundreds of pages of details which are going to be
10 greatly discussed. But I'm here to ask you that in all
11 of these discussions the vision of this plan does not
12 get lost and that three important points that we feel
13 this plan addresses do not get lost. And that is that
14 we build a safe and secure facility. That is obviously
15 critical on all dimensions; that we design an airport
16 that maintains L.A.'s status as an international
17 gateway. Either we build a user-friendly facility or
18 our customers, our visitors are going to go elsewhere.

19 And, lastly, this plan does address the need
20 that there must be a regional solution to Southern
21 California's demand for air travel. Thank you for your
22 time.

23 MS. SMITH: Thank you. Daniel Humber.

24 MR. HUMBER: Daniel Humber, H-u-m-b-e-r. That's
25 2220 Via Corona, Montebello, California.

1 I've been a resident for California all my
2 life. I grew up with LAX. Since September 11th, you
3 know, picking up friends and family members at the
4 airport with security issues, it was very inconvenient
5 when we had to go to that parking lot and be bussed in
6 because of a high alert status. Now if we get a high
7 alert status, we're going to go back to the bussing and
8 parking lot, outlying parking lots.

9 The facility is outdated. It was designed for
10 smaller planes originally. They got the big planes in
11 there now that barely fit on the runways. It's not safe
12 for travel. And like a lot of people mentioned, you
13 know, people look at us. Denver put in a beautiful
14 airport.

15 I'm a member of Ironworkers local 433. A lot
16 of union members went up there and worked on that
17 airport. We have plenty of skilled craftsman here in
18 town that could build a beautiful facility there. It
19 needs to be upgraded. It's outdated. It's not safe.
20 It's not secure for people who want to come to Los
21 Angeles. You could see international -- you know, we
22 have a lot of airports around us. And it's true, they
23 are worried about cargo coming into LAX. Well, the
24 cargo could be diverted to all these other airports, but
25 we've got to focus on bringing people in and out of this

1 airport.

2 I've traveled a lot. I've been to a lot of
3 different airports. We're just way behind. I don't
4 know how many -- you have A, B, C and D. How far do we
5 have to go down the alphabet before we get going? I've
6 been here two years ago. When are we going to do
7 something about it and quit talking about it? Get
8 something where everybody could agree on and get this
9 airport modernized and safe. Because when I was in CTAG
10 airport, they had the shuttle system that worked fine.
11 I've been in a lot of airports. We're behind. And
12 something has got to be done with that airport. It's
13 outdated. Something needs to be done there.

14 I just feel that Los Angeles is -- we have
15 lost a lot of industry here. People -- I don't think
16 people really look at Los Angeles. I think
17 San Francisco right now has done a lot of work on their
18 airport. Up in Portland they've done a lot of work.
19 Everybody has been doing work on the airport. What
20 about us? When are we going to get the ball rolling on
21 our airport and make it attractive for businesses,
22 travelers, people who want to come? We have a lot to
23 offer here in California. There is a lot of places
24 people like to come and see.

25 But in conclusion, I would just hope we could

1 get through all this, what we need to do, and make
2 everybody happy and modernize this airport. Thank you.

3 MS. SMITH: Thank you. Next we have Walter Dahlem.
4 And after Mr. Dahlem we'll have Phillip Morris.

5 Mr. Dahlem.

6 MR. DAHLEM: Yes. My name is Walter Dahlem. Last
7 name is spelled D-a-h-l-e-m. I'm the President of UA
8 Local 345 Landscape & Irrigation Fitters of Southern
9 California, Division of Plumbers and Pipe Fitters of
10 Southern California.

11 I've attended the last two meetings, Monday
12 night and last night, heard a lot of pros, heard some
13 cons. And all I can say is my Local, and I suppose
14 along with the rest of the Southern California Pipe
15 Trades, would fully endorse Amendment D and the work it
16 brings for the construction trade and also the
17 infrastructure that goes with it, to bring up the whole
18 entire economy of Southern California, particularly L.A.
19 Thank you.

20 MS. SMITH: Thank you, Mr. Dahlem. Philip Morris,
21 please. After Mr. Morris we'll have John Ferruccio.

22 MR. MORRIS: Hello. My name is Philip Morris. Last
23 name is spelled M-o, double R, i-s. I'm the President,
24 Secretary & Treasurer of the Bricklayers and
25 Stonemasons, Marble Masons Union in Los Angeles.

1 Some of my brothers and sisters here have
2 already pointed out some -- or I just want to echo their
3 remarks. Patty here -- I guess Patty left -- about the
4 tourism and the Convention Center Downtown. Everybody
5 is worried about bringing conventions. We want to build
6 new hotels around staples arena there and draw big
7 conventions here, like Chicago, New York City and the
8 likes.

9 If the people can't get here, an antiquated
10 airport like we have here in the City of Los Angeles
11 compared to the rest of them, we're lagging way behind.
12 We've got to get this airport going, not only the
13 construction hours, the man-hours worked, and the
14 economy that the brother said of dollars spent by the
15 workers. We've got to get things rolling and get it
16 going for the whole survival of Los Angeles in itself.
17 The economy is in a bad shape, and this will be a boom
18 to everybody.

19 I can't believe somebody would oppose this
20 strictly on the noise factor. I never met anybody that
21 went deaf from the noise of an aircraft going overhead.
22 I've lived here 40 years. I've lived with the
23 airplanes -- I live right here down the street in
24 Baldwin Park. Solely for the noise factor I think
25 that's a misnomer there. There is no basis for opposing

1 something just because of the noise.

2 I say, let's get on with it and get going in
3 the right direction for the City of Los Angeles and all
4 the residents here. Thank you.

5 MS. SMITH: Thank you. Mr. Ferruccio. And after
6 Mr. Ferruccio we'll have Carole Hossan, please.

7 MR. FERRUCCIO: Thank you. Good evening. My name
8 is John Ferruccio. That's F-e-r-r-u-c-c-i-o. And
9 presently I am residing in the City of Gardena. I've
10 been there all my life.

11 I'd like to go on the record in support of
12 Alternative D this evening. As I've said, my wife and I
13 have been life-long citizens of Los Angeles. And we've
14 seen quite a few changes in the city, most of them very
15 good. And I think we should continue to grow.

16 Currently I am a member of the Pipe Trades
17 Local Union 250 of the South Bay area. And I worked 22
18 years in the field. And presently in the last five
19 years I've been a union organizer in my trade. And I
20 feel that this would be -- what a better way to promote
21 my industry to not only the people and the young people
22 that we are encouraging to get into the trade, but also
23 people that are coming from other states getting
24 involved in our trade to get them involved in something.
25 And this would be a great way to start with a big

1 project that the LAX proposal would adopt.

2 I believe the long-awaited renovations for LAX
3 are overdue. And once again, I definitely am in favor
4 of Mayor Hahn's proposal. Thank you.

5 MS. SMITH: Carole Hossan.

6 MS. HOSSAN: Carole Hossan, Westchester, right by
7 LAX.

8 I would like to say, as I said at the other
9 place, I and many other people in Westchester would like
10 to see a beautiful new airport in Palmdale where they
11 have the room for it and where they want it. LAX is
12 surrounded by communities. It's a cramped space. It's
13 at its limit really, although supposedly its capacity is
14 much more even without renovations. But this plan has
15 said that it is going to be limited to 78 million annual
16 passengers. Well, there is no realistic way to do that.

17 I just wanted to briefly say about the noise.
18 Part of LAX's goal should be being a good neighbor and
19 trying to accommodate people in Monterey Park with their
20 noise concerns. And we, of course, have definite noise
21 concerns living right next to it. And our sound
22 monitors are not close to where we live. In Westchester
23 we would like more sound monitors and more pollution
24 monitors to see exactly what it is we are breathing.

25 Now, on another note, I'll read you some poems

1 that I wrote for the occasion. 78.9 million annual
2 passengers, the mayor at his last -- at this hearing
3 even said 78, but we've been seeing newspaper articles,
4 and I believe in the EIS 78.9. Well, that's a lot --
5 900,000 extra people than we're promised, which is a lot
6 when you live right next to the airport. So I made that
7 point. So I won't read that one.

8 But another thing is they were saying about
9 the larger planes, "Fewer gates limit MAP. Are you so
10 sure? Bigger planes bring more people. Fewer gates,
11 it's true, but remaining gates will be changed for
12 larger planes."

13 So we're not too sure about this 78 MAP.
14 That's why a lot of surrounding cities signed onto
15 regionalism. So we would like you to really be real.
16 You've had Palmdale and Ontario for decades. Let's do
17 some creative building out there and not expand LAX.
18 Thank you.

19 MS. SMITH: Thank you. Luis Robles, please.

20 MR. ROBLES: Good evening. My name is Luis Robles.
21 My address is 117 West Victoria Avenue in Montebello.
22 I'm also a fellow representative and President of
23 Laborers Local 300. We represent approximately 7,000
24 construction craft laborers in the City of L.A.

25 I'm here today to voice my support for the LAX

1 upgrade, or Alternative D Plan by Mayor Hahn. By
2 upgrading the existing conditions at LAX, you will not
3 only make flight out of L.A. more secure, you will add
4 millions of dollars to the local economy through the
5 jobs that will be created by this project. You will
6 help -- you will also help business survive by providing
7 income to hard-working families that will also spend
8 that same money in their local area. They will have the
9 ability to visit restaurants, go to shopping centers, go
10 to entertainment, all that money that will go around and
11 still be spent here in the cities.

12 The people that will be working in the
13 construction phase from all over L.A. County,
14 individuals will take pride in what they do.

15 The tragic events of 9-11 was a rude awakening
16 for Americans. It is our responsibility to redesign
17 this airport and make it safer for future generations.
18 Alternative D provides multiple layers of security that
19 will make it more difficult for such tragic events to
20 repeat themselves.

21 By not taking action, roadway congestion will
22 continue to grow increasing the possibilities of
23 explosive vehicles with the ability to reach the
24 airfields. It doesn't take much to realize if we all
25 drive down Sepulveda, that all that stops any explosive

1 vehicle to go down is a sign that says "No Explosive
2 Vehicles Allowed." It will make it a lot safer.

3 For those of us who reside in the east side,
4 we have a difficult choice when we fly. Our choices are
5 LAX, Burbank, Long Beach or Ontario. They are all very
6 difficult to get to during rush hour.

7 The proposal to build more fly-away stations
8 is necessary for the east side. This will make LAX more
9 appealing. For me, personally, the ability to leave my
10 car and take a tram to the airport will give me that
11 extra convenience when flying.

12 I thank you for the opportunity to speak on
13 behalf of the 7,000 laborers we represent and hope that
14 our support for the Alternative D will help make your
15 decision a little easier. Thank you.

16 MS. SMITH: Thank you. By our watch it's
17 approximately 6:45. At this time we would like to call
18 a 15-minute recess and reconvene at 7:00 p.m. We do
19 encourage you to visit our sign-in desk, please, and
20 fill out a speaker card so that we could hear your
21 testimony. We'll reconvene at 7:00 p.m. Thanks.

22 (Recess was taken.)

23 MS. SMITH: We have another speaker card. For those
24 of you who would like to participate in the public
25 hearing, take a seat and participate, please.

1 Mr. Herb Herr, or "Hair." Herb.

2 Mr. Herr? One more chance for Mr. Herb Herr, "Hair."

3 Maybe I'm pronouncing it wrong.

4 At this time I don't have any more speaking
5 cards. Gentlemen, shall we take another recess -- okay.
6 Is that Mr. Herr?

7 MR. HERR: "Herr."

8 MS. SMITH: If you give us one moment, we're waiting
9 for our other party here.

10 MR. HERR: Actually, what I'm doing is asking a load
11 of questions in the adjacent room and looking at the
12 diagrams and getting explanations, some of which are not
13 very clear. There is a lot to be worked out on this --

14 MS. SMITH: Just give me one moment because you're
15 not on the record yet. We are waiting for our other
16 party to arrive, and then we will have you on the
17 record. Okay?

18 MR. HERR: Yeah, if I could come back later. I
19 might get some more questions answered over there first.

20 MS. SMITH: That's fine with us. We'll be here
21 until 9:00 p.m.

22 (Recess was taken.)

23 MS. SMITH: We still do not have any speaker cards.
24 We would encourage you to please fill out a speaker card
25 if you wish to speak. If not, please use these written

1 comment forms. We will be here until 9:00 p.m. We want
2 to take your testimony. We're willing to take your
3 testimony, and our court reporters would love to hear
4 your testimony as well. In the meantime our workshop is
5 still open if you need to look at some of the exhibits
6 and ask some of your questions there. It's open for you
7 there as well. Until 7:20 we'll recess again and
8 reconvene at 7:20.

9 (Recess was taken.)

10 MS. SMITH: At this time we do have one speaker
11 that would like to come up to the podium, but he would
12 like several more minutes to ask questions of our
13 consultants. So we are extending the recess to 7:45
14 p.m. by my clock. It's about 7:25 now. So at 7:45 we
15 will reconvene. Thank you.

16 (Recess was taken.)

17 MS. SMITH: Good evening. Again, it's 7:45 p.m.
18 We don't have any other speaker cards filled out, but we
19 would encourage you to please visit our sign-in desk,
20 fill out a speaker card and come give us your testimony.
21 We'll be here until 9:00 p.m. Until we receive another
22 speaker card, we are in recess. We will reconvene at
23 8:15 to check in to see if there are more speakers
24 waiting. Thank you.

25 (Recess was taken.)

1 MS. SMITH: Good evening, ladies and gentlemen.
2 It's 8:15. And at this time we don't have any speaker
3 cards in our possession. Again, we do encourage you to
4 visit our sign-in desk and sign up to speak, if you
5 wish, fill out a speaker card. We will be here until at
6 least 9:00 p.m. and we would love to get your testimony.
7 Thank you. We will recess until 8:30. Thanks.

8 (Recess was taken.)

9 MS. SMITH: Good evening, ladies and gentlemen. It
10 is 8:30 p.m. At this time we still do not have any
11 public speaking cards at our desk. We are here and
12 available to hear your testimony. We are going to
13 continue the recess until 8:45. Thank you.

14 (Recess was taken.)

15 MS. SMITH: Good evening, ladies and gentlemen.
16 It is approximately 8:45. Once again, we are awaiting
17 more public speaking cards. We are here until 9:00 p.m.
18 or thereafter if you need us. At this time we will
19 continue to recess until we get a speaking card. And
20 we'll check back in with you right before 9:00 p.m.
21 Thank you.

22 (Recess was taken.)

23 MR. KESSLER: Is there anyone else who has not had
24 an opportunity to speak concerning the information in
25 the Draft EIS/EIR and the Supplement?

1 Not seeing anyone else, I will remind everyone
2 that if you feel that you are unable to provide us with
3 verbal comments today, we will be accepting written
4 comments until 5:00 p.m. Pacific Daylight Time, Monday,
5 August 25th, 2003. You could mail your comments either
6 to me at the FAA or to Jim Ritchie at LAWA. The mailing
7 addresses are listed on the cover of the Supplement to
8 the Draft EIS/EIR.

9 I want to thank everyone for your comments
10 today. This public hearing for the Supplement to the
11 Draft EIS/EIR on the Los Angeles International Airport
12 Master Plan is now closed. Thank you.

13 (Whereupon the proceeding adjourned
14 at 9:00 o'clock p.m.)

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1 STATE OF CALIFORNIA)
2 COUNTY OF RIVERSIDE) ss.

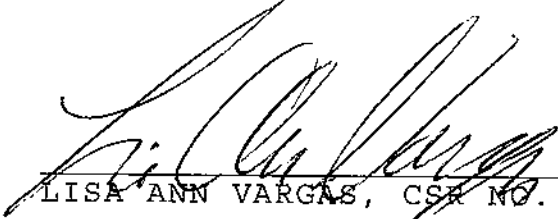
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I, LISA ANN VARGAS, certified shorthand reporter,
License No. 12049, do hereby certify:

That the proceedings contained herein were taken
before me at the time and place herein set forth and was
taken by me in shorthand and thereafter transcribed into
typewriting by me, and I hereby certify that the said
proceedings are a full, true and correct transcript of
my shorthand notes so taken.

I further certify that I am not interested in the
event of the action.

WITNESS my hand this 1st day of September 2003.


LISA ANN VARGAS, CSR NO. 12049

ERRATA SHEET

I declare under penalty of perjury that I have read the foregoing _____ pages of my deposition testimony, taken on _____ at _____, California, and that the same is a true record of the testimony given by me at the time and place hereinabove set forth, with the following exceptions:

Page Line Should read:

Date: _____

Signature of the Witness

Name Typed or Printed

**Official Hearing Transcript
Peck Park Auditorium
San Pedro, California
Thursday, August 14, 2003**

Following this page is the transcript of the oral testimony taken at the above hearing. Each speaker at the hearing has been assigned a unique identification number. The numbers assigned to each speaker for this hearing are:

Number	Speaker	Affiliation
SPHSP00001	Fred Mackenbach	City of Palos Verdes Estates
SPHSP00002	Mike Molina	Councilwoman Janice Hahn
SPHSP00003	Dwight Abbott	City of Palos Verdes Estates
SPHSP00004	Beverly Ackerson	None Provided
SPHSP00005	Lynn Jones	None Provided
SPHSP00006	Joe Visaleya	None Provided
SPHSP00007	Katheryn Cvelbar	None Provided
SPHSP00008	Joel Barton	None Provided
SPHSP00009	Johnny O'Kane	None Provided
SPHSP00010	Pete Makoni	None Provided
SPHSP00011	Terry Martin	Local 250
SPHSP00012	Daniel Humber	Ironworkers Local 433
SPHSP00013	Larry Johnson	Ironworkers Local 433
SPHSP00014	Arthur Guzman	None Provided
SPHSP00015	Tom Lemmon	None Provided
SPHSP00016	Carole Hossan	None Provided
SPHSP00017	Denny Schneider	Alliance for Regional Solution to Airport Congestion
SPHSP00018	Harry Rose	None Provided
SPHSP00019	Joe DiMassa	Yusen Terminals
SPHSP00020	Dennis Dyer	None Provided
SPHSP00021	Robert Hunter	None Provided

Any exhibits attached to this hearing transcript have been previously reproduced in this Final EIS/EIR as individual public comment letters.

CERTIFIED COPY

ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION AND
LOS ANGELES WORLD AIRPORTS, THE FOURTH PUBLIC HEARING
ON THE SUPPLEMENT TO THE DRAFT EIS/EIR
FOR THE PROPOSED MASTER PLAN AT LAX

REPORTER'S TRANSCRIPT OF
PUBLIC TESTIMONY

TAKEN ON

THURSDAY, AUGUST 14, 2003

HELD AT THE PECK PARK AUDITORIUM

560 North Western Avenue

San Pedro, California

REPORTED BY:

LISA ANN VARGAS, C.S.R. NO. 12049

NORMAN SCHALL & ASSOCIATES
Certified SHORTHAND REPORTERS

1055 Wilshire Blvd. Suite 1503
Los Angeles, CA 90017
(800) 734-8838
(213) 481-3636 Fax
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APPEARANCES OF FACILITATORS:

- TOM WALL, Senior Project Manager
- DAVID KESSLER, Airport Planner for the Federal Aviation Administration
- JIM RITCHIE, Deputy Executive Director for the Los Angeles World Airports

APPEARANCES OF PUBLIC SPEAKERS:

- 1. FRED MACKENBACH, Mayor of the City of Palos Verdes Estates
- 2. MIKE MOLINA, Chief of Staff for Councilwoman Janice Hahn
- 3. DWIGHT ABBOTT, Councilmember of Palos Verdes Estates
- 4. BEVERLY ACKERSON, Representing Herself
- 5. LYNN JONES, Representing Herself
- 6. JOE VISALEYA, Representing Himself
- 7. KATHRYN CVELBAR, Representing Herself
- 8. JOEL BARTON, Representing Himself
- 9. JOHNNY O'KANE, Representing Ironworkers Local 433
- 10. PETE MAKONI, Representing Himself
- 11. TERRY MARTIN, Representing United Association of Steam and Pipe Fitters Local 250
- 12. DANIEL HUMBER, Representing Ironworkers Local 433
- 13. LARRY JOHNSON, Representing Ironworkers Local 433
- 14. ARTHUR GUZMAN, With United Association 250 Representing Himself
- 15. CAROLE HOSSAN, Representing Herself
- 16. TOM LEMMON, Representing Himself

1 APPEARANCES OF PUBLIC SPEAKERS CONTINUED:

- 2 17. CAROLE HOSSAN, Representing Herself
3
4 18. DENNY SCHNEIDER, Vice President of ARSAC, Alliance
for a Regional Solution to
5 Airport Congestion
6
7 19. HARRY ROSE, Representing Himself
8
9 20. JOE DIMASSA, General Manager of Yusen Terminal
Representing Himself
10
11 21. DENNIS DYER, Representing Himself
12
13 22. ROBERT HUNTER, Representing Himself
14

15 STATEMENTS SUBMITTED FOR THE RECORD

16	<u>STATEMENT NUMBER</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
17	1	Statement Submitted by Dwight Abbott	18
18	2	Internet Printout Submitted by Daniel Humber	30
19	3	Statement Submitted by Harry Rose	40

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1 SAN PEDRO, CALIFORNIA, THURSDAY, AUGUST 14, 2003

2 6:00 O'CLOCK P.M.

3 ---oOo---

4
5 MR. WALL: Now, ladies and gentlemen, on behalf of
6 Los Angeles World Airports and the Federal Aviation
7 Administration I would like to welcome you this evening
8 to the fourth in a series of public hearings dealing
9 with the Supplemental Environmental Impact
10 Report/Environmental Impact Statement for
11 Los Angeles International Airport.

12 I'll begin by introducing one at a time the
13 two gentlemen to my right, who will make some brief
14 comments. And then we'll begin the public hearing
15 process.

16 Mr. Dave Kessler from the Federal Aviation
17 Administration.

18 Mr. Kessler.

19 MR. KESSLER: Good evening, ladies and gentlemen.
20 My name is David Kessler. I'm the Environmental
21 Protection Specialist for the Airports Division of the
22 Federal Aviation Administration, Western-Pacific Region.

23 I would like to welcome you to the fourth of a
24 series of public hearings the FAA and Los Angeles World
25 Airports, or LAWA, are conducting on the Supplement to

1 the Draft Environmental Impact Statement/Environmental
2 Impact Report, or EIS/EIR, for the proposed Master Plan
3 at Los Angeles International Airport.

4 The Supplement to the Draft EIS/EIR addresses
5 an additional Alternative, Alternative D, the Enhanced
6 Safety and Security Plan that was added in the fall of
7 2001. This new alternative was added as a result of
8 comments submitted on the 2001 Draft EIS/EIR and the
9 terrorist attacks that occurred on September 11th, 2001.

10 The Notice of Availability of the Supplement
11 to the Draft EIS/EIR was published in various local
12 newspapers and in the Federal Register on Friday, July
13 11, 2003. The FAA and LAWA are the authors of the
14 Supplement. The Federal Highway Administration is also
15 a cooperating agency in the preparation of the Draft
16 EIS/EIR that was published in January 2001.

17 The purpose of these hearings is to collect
18 comments from the general public concerning the adequacy
19 of the information disclosed in the Supplement to the
20 Draft EIS/EIR on the proposed Alternative D.

21 I would like to take this opportunity to make
22 sure that everyone understands that no decision will be
23 made tonight regarding the proposed project. Today's
24 hearing is not a question-and-answer type of forum. Our
25 job is to listen to what you have to say about the

1 adequacy of the information in the Supplement to the
2 Draft EIS/EIR. In other words, it's your turn to talk
3 to us. Since we are here to listen, we are not going to
4 respond to questions about the pros and cons of the
5 proposed project.

6 Since 5:00 this afternoon we have held a
7 public workshop on the side of the room for anyone to
8 ask questions about the Master Plan, the environmental
9 process and the various proposed projects.

10 Following publication of the Supplement to the
11 Draft EIS/EIR for review and comment, the next step in
12 the joint Federal and State disclosure process is
13 holding this and the other public hearings during this
14 week and next week.

15 I would like to take this opportunity to recap
16 the environmental disclosure process for this project.
17 The environmental evaluation of the LAX Master Plan
18 began in 1997 with the publication of a Notice of Intent
19 to prepare the joint EIS/EIR in the Federal Register.
20 In July 1997 we held a series of meetings with members
21 of the public and governmental agencies to receive
22 comments on the scope of the Draft EIS/EIR. Following
23 those meetings, the Draft EIS/EIR was published in
24 January 2001.

25 Both the 2001 Draft EIS/EIR and the 2003

1 Supplement have been prepared pursuant the National
2 Environmental Policy Act of 1969, or NEPA, the Council
3 on Environmental Quality Regulations, which are the
4 implementing regulations for NEPA, the California
5 Environmental Quality Act of 1970, or CEQA, and the
6 Airport and Airway Improvement Act of 1982, as amended.

7 Following today's hearings and the close of
8 the comment period, we will then correct and revise the
9 EIS/EIR, as necessary, based on the comments received.
10 We will also prepare responses to the comments we
11 receive and include those responses along with those
12 that were submitted to the FAA and LAWA on the 2001
13 Draft EIS/EIR into the Final EIS/EIR. The information
14 contained in the Supplement will also be combined with
15 the information in the 2001 Draft EIS/EIR into the Final
16 EIS/EIR.

17 Before we begin receiving verbal comments, we
18 would like to let you know the ground rules of this
19 hearing. First, as I said earlier, we are not here to
20 respond to questions about this project. We are only
21 here to listen to your comments and take notes. We
22 also have a court reporter present to ensure that we
23 have an accurate transcript of this hearing.

24 For anyone who would like to speak, we ask
25 that you fill out a speaker card, like this one, that

1 are available at the sign-in desk. After you filled one
2 out, you could give it to one of the people at the
3 sign-in desk. And they will bring the cards up here to
4 our facilitator who will call the names of each speaker
5 so we can proceed in an orderly fashion.

6 So that everyone gets an opportunity to
7 provide verbal comments, everyone will be given three
8 minutes to speak. To be fair to everyone, we are not
9 going to allow people to transfer their allotted time to
10 someone else. I ask that when you speak, you give us
11 your name and address for the record. We also have a
12 Spanish language translator for anyone wishing to
13 provide their comments in Spanish.

14 If there is anyone who is uncomfortable
15 speaking in front of a group or if you need more than
16 three minutes to provide your comments, we ask that you
17 provide your comments in writing. We have comment
18 sheets, like this one, available for your use at the
19 sign-in desk. You can leave your comments at the
20 sign-in desk or you can either mail your written
21 comments using the comment sheet or a letter to either
22 address on the cover of the EIS/EIR.

23 I would like you to understand that a verbal
24 comment is just as important as a written comment. So
25 please feel free to provide any comments on the document

1 you may have to us either verbally today or in writing.

2 At this time comments on the Supplement to the
3 Draft EIS/EIR are due by 5:00 p.m., Pacific Daylight
4 Time, on Monday, August 25, 2003. The FAA is currently
5 considering a request from LAWA to extend the public
6 comment period to a total of 120 days. At this time no
7 decision has been made on LAWA's request. If the agency
8 agrees to extend the comment period, a notice announcing
9 any extension would be published in the Federal Register
10 and in local newspapers of general circulation.

11 Lastly, I would like everyone to know that
12 even though we have this hearing scheduled until
13 9:00 tonight, we will stay here as long as necessary for
14 everyone to get a chance to provide verbal comments on
15 the Supplement to the Draft EIS/EIR. As I said earlier,
16 our job here is to listen to your comments.

17 At this time I would like to ask everyone in
18 the room to please turn off your cell phones and pagers
19 to be courteous to those people making verbal comments
20 at tonight's hearing.

21 Now I will return our hearing back to our
22 facilitator who will introduce Mr. Jim Ritchie, who will
23 provide some introductory comments from LAWA. Following
24 Mr. Ritchie's comments, we will collect the speaker
25 cards and call the name of the first speaker. Thank

1 you.

2 MR. WALL: Thank you, Mr. Kessler. I would now like
3 to introduce Mr. Jim Ritchie, who is the Deputy
4 Executive Director of long-range planning for
5 Los Angeles World Airports.

6 MR. RITCHIE: Thank you, Tom, and welcome everyone.
7 I am Jim Ritchie from Los Angeles World Airports, and on
8 behalf of the Airports, welcome to San Pedro for this
9 hearing process.

10 For the purposes of consistency with the many
11 hearings that we will be doing, I'll read my comments
12 into the record.

13 You may recall the public hearing process in
14 2001 -- in fact, we were here just about two years to
15 the day -- while we were examining other alternatives
16 for the modernization of the LAX.

17 The tragic events of 2001 and the leadership
18 of Mayor Jim Hahn have reshaped that environmental
19 process. The Mayor's pressing concerns for safety and
20 security have provided new guidance along with the
21 public comments that we received during that public
22 comment period in 2001 that ran from January through
23 November.

24 You are here tonight primarily to provide
25 comments on that new Alternative, referred to as

1 Alternative D. This is a supplement to the existing
2 environmental process, and it has undergone a rigorous
3 environmental analysis.

4 We are here tonight to receive your comments,
5 we welcome them, to take a look at this new Safety and
6 Security Plan and its impacts, as disclosed in the Draft
7 Environmental Impact Statement/Environmental Impact
8 Report. Thank you very much. And, Tom, let's go to
9 work.

10 MR. WALL: Thank you, Mr. Ritchie. We want to make
11 sure that everyone tonight feels comfortable. And we
12 want to make sure that everyone has a chance to say
13 exactly what they feel like saying during the three
14 minutes allotted.

15 What I intend to do is to call the speakers up
16 one at a time. I'll call three at first so that you
17 have a little heads-up. If you're concerned about
18 public speaking, if you would prefer simply to make your
19 comments in writing, you can do that, but I want you to
20 feel comfortable this evening.

21 I want to introduce our two court reporters,
22 Lisa and Kim. They are going to copy verbatim what you
23 say. So it's very important that you state your name
24 and address clearly so they can get it in the record,
25 and then speak slowly and clearly. As you can hear, we

1 have an echo in this room. So it will be difficult
2 sometimes for them to follow if you're not very clear.

3 The clock in front of me is our official
4 timer. It is very simple to operate. I hit a button,
5 and it starts counting down from three minutes. If
6 there is a problem during your speech, if you want to
7 take some time, I can pause it to get your thoughts
8 together for those who might be nervous this evening.

9 When we get to 30 seconds remaining, a yellow
10 light will light at the top of the clock. And when your
11 time is up, when your three minutes are up, you'll see
12 three zeros on the clock and the red light will be on.
13 We would appreciate at that time if you could wrap up if
14 you have not completed your comments.

15 If everyone is ready to go, I'll call the
16 first three speakers.

17 The first will be Mr. Fred Mackenbach,
18 followed by Mr. Mike Molina, followed by Mr. Dwight
19 Abbott.

20 Mr. Mackenbach, if I could have you join us at
21 the lectern. I will not start the clock, sir, until you
22 are finished stating your name and address so that does
23 not count as part of your three minutes.

24 MR. MACKENBACH: Good evening. My name is Fred
25 Mackenbach, 732 Via Somonte, Palos Verdes Estates,

1 California. I'm on the City Council of Palos Verdes
2 Estates.

3 I have just two points that I would like to
4 make. The figure of 40 million, maybe 42 million sticks
5 in my mind as what the airport was designed to do back
6 in the '80s. If my memory and the figures I was given
7 are correct, we got up to almost 68 million before 9-11.
8 We're told that the capacity of the current airport is
9 roughly 78 or 79 million.

10 Now, when somebody tells me they are going to
11 basically tear the airport apart and completely
12 reconfigure it and say they are going to hold the
13 passenger count to 78 or 79 million, it is very
14 difficult to believe those figures based on past
15 history. That's point number one.

16 Point number two. I've been attending the
17 meetings that were initially at the FAA and now at -- in
18 conjunction with the airport, the noise group, and the
19 noise continues over the peninsula. The noise is not
20 addressed in the proposal. And I am always taken back
21 by the fact that we are positioned uniquely, the airport
22 is positioned uniquely along the ocean.

23 I was looking at the video earlier. And in
24 the lower right-hand corner it showed this airplane
25 taking off. And here is this wide span of the Pacific.

1 All they've got to do is go out farther and higher
2 before they come back over. And we're just sick and
3 tired of the turboprops. Those things are not being
4 addressed either in the proposal or apart from the
5 proposal.

6 So it makes it very difficult when somebody
7 comes with a plan and -- that a lot of people feel is
8 disguised as security. And I'm not against security.
9 I'm for security. But the issues that are really
10 driving people crazy and impacting values of homes,
11 being concerned at night, are not being addressed.

12 I thank you for listening to me very politely.
13 And I tried to be as right to the point as I could.
14 Thank you very much.

15 MR. WALL: Thank you, sir. Very well done. A good
16 role model for us this evening.

17 Our next speaker is Mr. Mike Molina.

18 MR. MOLINA: Good evening. I'm Mike Molina, 200
19 North Spring Street, Los Angeles. I am a Chief of Staff
20 for Councilwoman Janice Hahn.

21 And I'm here this evening merely just to offer
22 my welcome to the airport staff and Mr. Kessler,
23 yourself as well, to say welcome to San Pedro. And the
24 councilwoman wholeheartedly endorses this public comment
25 period. And, Mr. Kessler, so you know, she also

1 supports the extension of the public hearing process to
2 120 days because she is a firm believer that the more
3 opportunity we can provide the public to provide public
4 comment and opinions regarding this -- this plan, the
5 more sound and the better the plan will be at the very
6 end.

7 So I'm just here to offer a welcome from the
8 councilwoman of the district that we're in this evening,
9 and most especially provide a welcome to the many people
10 who have gathered here this evening and encourage all of
11 you to provide comment either through written form or
12 verbal form this evening about this most important
13 project in the life of the city now and in the next
14 decade. So once again, thank you and welcome.

15 MR. WALL: Thank you, sir. Following Mr. Dwight
16 Abbott will be Beverly Ackerson, Lynn Jones and Joe
17 Visaleya.

18 Mr. Abbott.

19 MR. ABBOTT: Thank you. My name is Dwight Abbott;
20 address 1825 Via Estudillo, Palos Verdes Estates,
21 California. Just another quick background before --
22 well, okay.

23 I have done a review and I found three
24 important areas. Number one, passenger convenience.
25 Number two, safety and security, and number three, the

1 cost.

2 First passenger convenience. I find the
3 Master Plan imposes great inconveniences on the
4 passengers that will use it. The FAA now recognizes
5 passenger convenience as an important airport design
6 factor and defines it in terms of the time to move the
7 passenger from the parking lot of the departure airport
8 to the parking lot of the arrival airport, not simply
9 airline gate to airline gate. That's the old
10 definition. The LAX Master Plan will greatly increase
11 the parking lot to parking lot time required over the
12 current LAX configuration.

13 The proposed Ground Transportation Center and
14 the Intermodal Transportation Center are nearly a mile
15 removed from the terminal area. They are connected via
16 a train called a people mover that passengers must ride
17 to the terminal. Passengers must carry any carry-on
18 baggage and other packages on the train. The current
19 LAX configuration imposes no such inconvenience.

20 Safety and security. Aircraft collisions
21 during taxi take-off and landing can result in more
22 casualties than any terrorist attack. I believe that
23 the proposed reconfigured runways are an improvement.
24 However, I believe that the proposal to move the runway
25 to five left only 50 feet to the south is short-sighted.

1 Moving it farther south would provide greater aircraft
2 separation, less weight turbulence, interference between
3 runways and improved safety.

4 The location of the new rental car facility
5 very near the end of the newly positioned runway to four
6 left is unsafe. An aircraft landing short of the runway
7 or not successfully taking off when the runways are
8 configured for easterly departure will risk impacting
9 the proposed rental car facility.

10 The Master Plan puts high importance on
11 security, as it should, but it includes several factors
12 that appear to reduce security. Centralizing passenger
13 check-in at the proposed Ground Transportation Center
14 provides a single location that if incapacitated will
15 shutdown entire airport operations.

16 Similarly, the train, the people mover, is
17 another single point failure that can shutdown airport
18 operations. A small bomb, a bomb scare, a mechanical
19 failure, even protesters on the track to bring the
20 entire airport operations to a halt.

21 An independent RAND Corporation study that
22 you're probably aware of that looked at security
23 afforded by the Master Plan found that the proposed
24 changes would not increase security.

25 I have additional comments. I have submitted

1 a written report. Those additional comments concerning
2 cost and proposals for a better approach are included in
3 that written comment.

4 (The statement submitted for the
5 record was marked as Statement 1
6 and is attached hereto.)

7 MR. WALL: Thank you very much, sir. Ms. Beverly
8 Ackerson.

9 MS. ACKERSON: I'm Beverly Ackerson, 27129 Spring
10 Creek Road, Rancho Palos Verdes. Down a little.

11 MR. WALL: Thank you, Beverly.

12 MS. ACKERSON: I have two items. One is that the
13 residents on the Palos Verdes peninsula are not included
14 in your Master Plan, yet, we are impacted by turboprops
15 and jets that go over us. And the FAA has been to our
16 home. Tracon has been to our homes. And they state,
17 yes, we do have the noise problem. And the
18 recommendation of the South Bay Task Force by Donna
19 Vickers was to move the turboprops off the peninsula and
20 reroute them. They would reroute them around the
21 peninsula out from LAX.

22 The jets, we recently have a lot more jets
23 going over the top of us. And we are getting calls from
24 across the peninsula. It isn't one isolated area. We
25 do have ravines and canyons that traps the noise and the

1 vibration from that noise.

2 So we really wonder why we are not included in
3 the Master Plan when you impact -- when LAX impacts us
4 so much and keeps us awake at night with the eastern
5 departures going to the Asian countries.

6 And we've heard reasons of being overweight
7 aircraft, the slight incline going to the west that is
8 easier for them to take off to the east. But the pilots
9 themselves at a meeting told us that it is because of
10 curfews that they take off at that time from LAX going
11 to Australia, Japan and the Asian countries. I think
12 the curfew issue needs to be addressed. And I would
13 like to see LAX recommend to Congress that they do look
14 into the curfew issue.

15 The second thing is, when -- I just looked
16 briefly. I haven't looked at all of the total plan yet,
17 but briefly looking at the way the people are moved
18 around the airport, I think is a safety issue. I don't
19 like to see so many people in one spot in the center of
20 the airport that then are going to go like spokes to the
21 airlines. I think that's a set-up that could be a very
22 big problem. Thank you.

23 MR. WALL: Thank you, Mrs. Ackerson. Next Mrs. Lynn
24 Jones.

25 MS. JONES: Good evening. Number one, security --

1 I'm sorry.

2 MR. WALL: Mrs. Jones, yes, if you could give us
3 your name and address, please.

4 MS. JONES: 5511 Eau Claire Drive, Rancho Palos
5 Verdes.

6 MR. WALL: Thank you.

7 MS. JONES: Number one, security. From all the
8 indications that I've seen via the internet and also
9 here, the security looks like it only takes place at the
10 CTA. People do not seem to be screened, or their
11 luggages not screened prior to placing it in a plane or
12 moving to the CTA, which is in the middle of the
13 airport. This seems like it is a dangerous place so
14 close to the airplane slots.

15 Number two, in the EIR/EIS Report are they
16 addressing other than noise the following: Pollution
17 from aircraft; two, easterly flights; three, curfews on
18 foreign carriers.

19 Number three, why is Congress not insisting on
20 an EPA and the AQMD be involved in assessing the EIR and
21 the EIS?

22 Since the aircraft taking off at LAX or any
23 other airport, a jet, is like setting fire to a gas
24 station. That's the pollution that you're getting in
25 the air. And I think that the pollution should be

1 addressed.

2 Number four, the EIR, the EIS addresses the
3 noise from jets only, not turboprops. Thank you.

4 MR. WALL: Thank you, Mrs. Jones.

5 Next is Mr. Joe Visaleya followed by
6 Ms. Katheryn Cvelbar and Mr. Joel Barton.

7 Mr. Visaleya.

8 MR. VISALEYA: Yeah, Joe Visaleya; 1218 Koleeto,
9 Harbor City.

10 I have several things I want to present.
11 Number one is, it was brought up by Mr. Abbott about
12 access by the people. Presently we have over 12,000
13 lineal feet of curb available at the airport for picking
14 up and discharging passengers. The new facility doesn't
15 appear to have that.

16 Secondly on the parking. We have 8,000
17 parking spaces within 600 feet of the terminal. If you
18 use the center -- using the airport's own figures of
19 8,000 parking spaces in those structures, and those
20 structures are generally within 600 feet of where you'd
21 be entering the terminal, which means it's going to be
22 very inconvenient.

23 And, thirdly, will we have the same amount of
24 counter space when we arrive at the CTA? Presently you
25 have pretty close to 5,000 lineal feet of counter space.

1 And any of us who fly in and out realize that presently
2 we have to wait in line. If that is made smaller, the
3 length of time that we as passengers will have to wait
4 will be increased.

5 And, thirdly, the other thing I wanted to
6 bring up is presently we have about four or five
7 accesses to LAX. You have Sepulveda Boulevard north and
8 south. You've got Lincoln. You've got the 405, the
9 105, as well as Century.

10 The way this new system is laid out, we have
11 basically one. We have maybe three accesses. You could
12 come across on Century. You might be able to come
13 across Imperial and then up Aviation, which may not be
14 acceptable, and coming off the 405.

15 There is -- right now we have so many local
16 streets that we can get on that they can manipulate the
17 traffic and the transportation system. The grid permits
18 us to all get into the airport at a much more easily
19 activity than we do when it's going to all be confined
20 to one small location, the intersection of Aviation and
21 Century, or wherever that intersection is. I wasn't
22 able to ascertain the exact location.

23 But these are the things that I think need to
24 be addressed. And as Mr. Abbott pointed out, the FAA is
25 concerned about time from your vehicle to the time of

1 your vehicle at your next destination. And this system
2 that we have here is not going to do it.

3 And one other thing. On the safety issue, we
4 talked about this thing of safety. I understood that we
5 were going to be checking in at the outer terminal. And
6 seeing the video today, it looks like we're going to be
7 carrying our bags unsecured to the CTA.

8 MR. WALL: Thank you, sir, for your comments.

9 Ms. Katheryn Cvelbar, please.

10 MS. CVELBAR: Katheryn Cvelbar, C-v-e-l-b-a-r, 23530
11 Arlington Avenue, Torrance.

12 I actually came here tonight to blast you
13 about what I have been reading in the newspapers about
14 the plans, and what the gentleman was just talking
15 about, having your luggage checked at an outer limit.
16 And upon having the plan explained and shown how it
17 actually would work, I actually like it. I think right
18 now I, myself, I always use lot B for my parking anyway.
19 This seems to be -- and use the shuttle to get to the
20 airport. This seems so much more easier.

21 I just feel that I think it's a good thing
22 that you have expanded the number of meetings and
23 hearings like this so that the more people who are able
24 to see the plans and actually how they are laid out and
25 how they will work, more people will like it a lot more.

1 My only question is that, the plan hinges upon
2 the Manchester Square area being a part of airport
3 property. Is it currently still residential or has all
4 of that been purchased by the airport and is vacant?

5 Thank you.

6 MR. WALL: Thank you, ma'am, very much.

7 Next will be Mr. Joel Barton followed by
8 Mr. Johnny O'Kane, Mr. Pete Makoni and Terry Martin.

9 MR. BARTON: Good evening, Joel Barton, 833 Airport
10 Boulevard in the city of Los Angeles. I was originally
11 just going to show up here to speak about the good
12 aspect of the creation of good construction paying jobs
13 with this project. But after viewing the video and
14 reading all this material here and going and looking at
15 those boards back there, this is amazing how good this
16 project is going to be for LAX.

17 I'm a Los Angeles native. LAX looks -- I love
18 this city. It's going to put us in the 21st Century. I
19 like that idea. I liked everything I saw about this.
20 You know, you talk about Orange County and all the other
21 airports, but LAX is the airport.

22 I like the idea of having everybody take the
23 train in because I take a lot of flights out of LAX. I
24 don't like sitting there waiting for someone to pick me
25 up breathing all the fumes coming from all the cars

1 constantly circling the airport. So I do like that
2 aspect of it. I like the added security. So I just
3 wish to speak in favor of this project.

4 MR. WALL: Thank you, sir.

5 Next will be Mr. Johnny O'Kane.

6 MR. O'KANE: Johnny O'Kane, 3158 Almeria Street, San
7 Pedro.

8 And I'm a union ironworker. So, of course,
9 I'm in favor of construction. And it just seems to me
10 that progress can't always be in someone else's
11 backyard. And the jobs for us as construction workers
12 would be grand at the time, but overall you're going to
13 have jobs that come off of the work that we do, which
14 will be Californians paying tax in a state that could
15 use some tax money right now. I'm in favor of it 100
16 percent. Thank you.

17 MR. WALL: Thank you, sir.

18 Folks, if I could remind you, please, it's
19 difficult for the court reporters to hear if there is
20 other talking going on in the room. So if we can keep
21 the noise down, please, while the speakers are speaking.

22 The next speaker is Mr. Pete Makoni.

23 MR. MAKONI: Pete Makoni, 4345 East Rosecrans
24 Avenue, Hawthorne, California.

25 I'm in favor of this project because it helped

1 all of us here. California and L.A. is a multi-cultural
2 people live here. And the people come from all over.
3 You are all aware if you're going to Dallas, anywhere
4 else the airplanes are modernized. Ours have been built
5 in the 1950s and remodified in 1980s. You all hear
6 about that all the time, the near miss in landing and
7 takeoff, the near miss. The airport is not big enough
8 for the airline flying out and coming in.

9 Also I like the plan to take the
10 people outside. I fly out of LAX about three or four
11 times a year. And you see how many people gridlock.
12 You hear on the news. It takes you three to four hours
13 since 9-11 to wait on the freeway, Century Boulevard, to
14 wait to get in the airport. And, also, you're going to
15 check in, for safety's sake. That's why I like this
16 plan. And it's good for all people.

17 I'm a construction worker. I'm a pipe fitter
18 by trade. In ten years I'll be retired. But I look
19 forward to my children and my grandchildren to fly out
20 in a safe place like LAX.

21 MR. WALL: Thank you, sir.

22 Next is Terry Martin. Following Mr. Martin
23 will be Mr. Daniel Humber, Mr. Larry Johnson and
24 Mr. Arthur Guzman.

25 Mr. Martin.

1 MR. MARTIN: Good evening. Terry Martin, 18355
2 South Figueroa, Gardena. 30-year member of United
3 Association, Local 250 steam and refrigeration pipe
4 fitters, currently serving as union representative
5 representing 5,000 members.

6 I have a list here of 600 of our members that
7 live within a ten-mile radius of this auditorium.
8 That's not including the family and friends. That's
9 just our members.

10 And I'll tell you, listening to some of our
11 Rancho Palos Verdes audience, I'm going to have to get
12 into contact with nine of my members that live there and
13 tell them to pay attention to that one commercial where
14 the father and son are sitting there and that plane
15 flies overhead, and that piece of plane falls off and he
16 says, "You better get yourself a good realtor. Trust
17 me."

18 Well, I think this airport, in a lot of cases
19 with most people living in Rancho Palos Verdes, unless
20 it's old money, knew about the airport problem if they
21 had any.

22 Property values, apparently Newport Beach has
23 more money because they got what they wanted. That's
24 where they turn the engines off when it takes off and
25 they don't have that problem.

1 I'd like to thank Mayor Hahn for all these
2 different alternatives, including the one that he
3 recently tried to get over there at El Toro, another
4 alternative that was turned down by Orange County.

5 This is going to create a lot of jobs. And
6 being in construction in which it would be nice to
7 finally go to LAX and walk away from their urinal. In
8 case you forgot to flush, it flushes itself. That's
9 some of the work we do. The heating and cooling, the
10 pipeline work, any relocation work we'll be doing it.

11 Tonight I have 15 of my members that took
12 their time away from their families to be in attendance.
13 These are members that live in San Pedro or in the
14 surrounding area. They are participating in the public
15 hearing, which we encourage all people to do, take part.

16 It's not easy getting up to speak, but I'm
17 very proud to be a member of a union, very proud of our
18 mayor, very proud of our airport authority for taking
19 time, very proud of the FAA. And I'm very proud of this
20 new Alternative D. Let's get it done. Thank you.

21 MR. WALL: Thank you, Mr. Martin.

22 Next will be Mr. Daniel Humber.

23 MR. HUMBER: I'm Daniel Humber. I reside at 2220
24 Via Corona, Montebello, California. I'm a union
25 ironworker.

1 I was on the internet this morning with MSN.
2 And I was really surprised at what I'd seen here. It
3 says five airports to avoid. And it says five airports
4 to avoid, if you can.

5 "LAX is oppressive, says one traveler."

6 "I dread it, says another traveler."

7 It also had another article on five airports
8 to layover, you know. They talked about these airports,
9 you know. And they talked about Orlando Airport. It's
10 the best airport in the United States for a layover, bar
11 none. Easy to find parking isn't a problem. And the
12 terminal is easy -- incredibly user-friendly.

13 And they went down the list and talked about
14 Denver and they talked about Chicago O'Hare and they
15 talked about Atlanta International. They are talking
16 about how great these airports are. So there is --
17 we've got five airports that have solved the problems
18 that they had to do to make these things modernized.

19 It also talked about San Francisco. It's
20 being done right now. It's much better today for what
21 work they have done already. You know, we've got -- we
22 can do the work, you know. We've got a lot of people
23 who are in the business here. We do big projects in
24 this town. And we have a lot of skilled labor that can
25 modernize this airport.

1 You know, I talked last night in Montebello --
2 up there in another one up -- on the other one we had
3 last night and talked about the safety issues, you know,
4 especially if they have an alert. We had the alert
5 here. And it was -- it was a mess, that we came into
6 the parking lot and being shuttled into the airport. So
7 we need this -- we need this.

8 And, also, it talked about the five airports
9 to avoid. It said LAX International. "Friends do not
10 let friends fly into LAX." You know, the circular
11 design needs to be redesigned. LAX is oppressive. It's
12 dingy, dilapidated, noisy, overcrowded, unfriendly and
13 with poor facilities.

14 You know, I'm embarrassed and I'm a native
15 Californian. I was born in Burbank. This has been my
16 city. I want to be proud of my airport. You know, I
17 fly out of LAX a lot. It's a main hub, if we get direct
18 flights to Hawaii, New York and other places, you know.
19 I don't want to have to use these other airports to have
20 to do these transfers and things.

21 And I like to turn this in for the record,
22 too, so you guys have it for the record and review it.
23 So thank you very much.

24 (The statement submitted for the
25 record was marked as Statement 2

1 and is attached hereto.)

2 MR. WALL: Thank you, sir, very much.

3 Next will be Mr. Larry Johnson.

4 MR. JOHNSON: I'm Larry Johnson, 8203 Owens Street,
5 Buena Park, California.

6 First I'd like to say, when I saw the
7 presentation tonight and last night of the Plan D, you
8 know how proud I'd be to go to that airport or have my
9 friends or family come in. It's -- you know, it's going
10 to be a good thing for everyone. You know, it's not
11 just -- it's not just the construction jobs. It's
12 business. It's tourism.

13 The first thing a tourist or someone seeking
14 to relocate a business when he comes to L.A. is the
15 airport. And, you know, sometimes I'm surprised I don't
16 see some -- why some of them don't turn around and go
17 back of what they see when they come.

18 I flew in and out of Orlando last spring. I
19 am just amazed at how clean, how well laid-out, how good
20 the people mover worked. It was -- we checked our
21 baggages, you know. We didn't walk maybe 200 feet.
22 We're on the people mover. Then we're right at the
23 terminal. All the newer airports seem to be going that
24 route. And I can see why. It's -- you know, it spreads
25 out the people, gets them away from being concentrated

1 in such a big area like they are now.

2 As a union ironworker, I don't see anything in
3 that proposal that our craftsmen could not handle and
4 build very well.

5 One thing I've seen in the newspaper, I think
6 it was Monday in the Times, they were talking about
7 comparing this project to other projects with huge cost
8 overruns. And they compared it especially to the Boston
9 Big Dig. And, you know, that's like comparing apples to
10 oranges. The Boston Big Dig is basically trying to put
11 all the downtown freeways underground while they are
12 still running. This is a complicated project, but it's
13 all doable. It's doable now.

14 Palmdale was a great alternative. I just
15 worked out at Plant 42. I can tell you, they don't have
16 the infrastructure in place out in Palmdale. It would
17 be nice. It would be a nice regional commuter airport,
18 but for now I don't see it happening. I can see this
19 happening now. It should have happened five years ago.
20 And hopefully when all the talk is said and done, it
21 will happen. Thank you.

22 MR. WALL: Thank you, Mr. Johnson.

23 Next is Mr. Arthur Guzman followed by Mr. Tom
24 Lemmon, Ms. Carole Hossan and Mr. Denny Schneider.

25 Mr. Guzman, welcome.

1 MR. GUZMAN: Thank you. Arthur Guzman, 17111 Steven
2 Street in Gardena, which is about approximately a
3 15-minute drive to LAX.

4 And I am understanding what the concerns that
5 those who oppose this project have. But in reality, if
6 you were to weigh the total picture, you would see that
7 the positives outweigh the negatives.

8 We all understand that the State of
9 California, and in particular Los Angeles, is in an
10 economic downturn. And we need -- by these projects,
11 these well-paying projects, these jobs will help
12 stimulate the economy. Not only will it help stimulate
13 the economy, but it will also put to work apprentices,
14 our high school graduates that feel that college
15 education is not their main concern. It's not their
16 forte. How do we give these people the skills, the
17 tools that they need to be a middle-class American? As
18 we all know, it's a strong middle-class America that
19 also secures democracy and freedom for us all. We have
20 to take a look as to Third World countries like Cuba,
21 China, the Middle East. And you will see where there is
22 no strong middle-class America. There is no democracy
23 and freedom.

24 So this is an opportunity that we all have to
25 help stimulate the economy through good, decent-paying

1 jobs. You do not stimulate the economy by giving tax
2 cuts to a certain segment of society. When this
3 administration in Washington first took office, my wife
4 and I received \$600. Did that help stimulate the
5 economy? Obviously not because we're still suffering an
6 economic downturn.

7 The way we stimulate the economy is to provide
8 good, decent-paying jobs, also, to train people out of
9 high school into decent, good-paying jobs. That helps
10 stimulate the economy. After all, what do we do with
11 these kids who graduate from high school that don't want
12 to go on to college? We have to find a place for them
13 to make a good, decent living. And projects like this
14 will give them the opportunity to do that because this
15 project will employ about 20 percent of apprentices. So
16 it's for us a win-win situation. Thank you.

17 MR. WALL: Thank you, Mr. Guzman.

18 Next Mr. Tom Lemmon. Welcome, sir.

19 MR. LEMMON: Thank you. Tom Lemmon, 3566 Bayonne
20 Street in San Diego.

21 As a union asbestos worker, I want to
22 compliment -- oh, I broke the table -- Mayor Hahn and
23 Staff for this visionary LAX plan. I wish the City of
24 Los Angeles and the County's success in approval of this
25 most important project that creates jobs.

1 (Someone came up to fix the podium.)

2 MR. LEMMON: Thank you.

3 MR. WALL: Now don't break that again, sir. Okay.
4 Here we go.

5 MR. LEMMON: My hope is this that project will be
6 approved and move forward. I also hope that my hometown
7 of San Diego will soon follow L.A.'s lead and do
8 something with its unlimbered feild. Thank you for the
9 opportunity to speak.

10 MR. WALL: Thank you, sir. Ms. Carole Hossan.

11 MS. HOSSAN: I'm Carole Hossan, Westchester. And I
12 know here in San Pedro people are very interested in
13 pollution because they get a lot of pollution from the
14 Port. Well, we have the same situation at LAX, but we
15 don't know what we're -- we don't have the studies.
16 We'd like to see more studies of our air quality
17 monitoring because I believe the closest one we have is
18 at 120 in La Cienega. The other evening I believe I
19 misspoke and said Century, but La Cienega.

20 A speaker had a question about the Manchester
21 Square area, which is the proposed new Gateway to LAX.
22 Well, that is currently a residential area. Some people
23 don't want to move. And Mayor Hahn in his campaign
24 pledge said he was going to use existing LAX facilities.
25 Now, that currently is not an existing LAX facilities.

1 So that's an expansion into the community of
2 Westchester.

3 And I heard another speaker say, well,
4 Palmdale is there, but it's not ready. Well, if not
5 now, when? Spend some of that money in Palmdale. There
6 would be lots of work there building a new beautiful
7 airport instead of enabling LAX to grow. It's already
8 bigger than it should be. And why should the City of
9 Los Angeles -- I can't say this enough -- only have one
10 major airport that serves Central California to the
11 Mexican border. We deserve better, more airports, more
12 jobs. Build a beautiful airport in Palmdale. Thank
13 you.

14 MR. WALL: Thank you, ma'am. Next will be Mr. Denny
15 Schneider.

16 MR. SCHNEIDER: Denny Schneider, 7929 Breen Avenue
17 in Los Angeles.

18 I come before you as the Vice President of
19 ARSAC, Alliance for a Regional Solution to Airport
20 Congestion. According to the EIR, one out of every
21 20 people is impacted by the economics of LAX. And
22 that's great except that we also have all of the air
23 commerce, 75 percent of it at least, concentrated at
24 LAX. If anything happens there, the economy here is
25 going to tank. We would have a lot more jobs if we

1 built a regional solution and distributed the air
2 traffic.

3 Now, if we look at the EIR and read it in
4 detail, it doesn't necessarily match the renderings that
5 we've seen. And, in fact, it is very difficult to
6 evaluate what Alternative D is because within
7 Alternative D, there are at least 40 different options
8 within it.

9 As an example, the runway on the north is
10 supposed to be moving some amount toward the Central
11 Terminal Area. One area of the plan says 340 feet.
12 Another says 380. Another says 388. It says that the
13 runway on the northern-most runway would stay at 150
14 feet. It would be evaluated to be increased to 200
15 feet. It doesn't say whether it's going to move north,
16 south or whatever. The real issue is costing it, but
17 it's also a matter of what are the impacts going to be
18 on all of the people of Southern California.

19 The 405 is already like a parking lot. You're
20 going to add more than 20 million cars. You want to add
21 one and a half million annual tons at LAX. It's one of
22 the smallest footprints of any airport in the world of
23 this caliber. One and a half, divide that by ten tons
24 per truck and figure out how many trucks it's going to
25 take. You need a different and more infrastructure.

1 That's why it needs to be spread out. That's why it
2 needs to be developed across all of Southern California.
3 Thank you.

4 MR. WALL: Thank you, Mr. Schneider. Our next
5 speaker will be Mr. Harry Rose followed by Mr. Joe
6 DiMassa followed by Mr. Dennis Dyer, and then Mr. Robert
7 Hunter.

8 Mr. Rose.

9 MR. ROSE: Good evening, gentlemen. My name is
10 Harry Rose. I live at 7725 Hindry Avenue in the lovely
11 community of Westchester. If you don't know where that
12 is, that's eight-tenths-of-a-mile south of the proposed
13 boondoggle of the Ground Transportation Center that LAWA
14 planned on acquiring.

15 I came here tonight to speak primarily on two
16 issues. The first issue is regionalism of airports.
17 How many airports, how many international airports do we
18 have in Southern California to serve the entire southern
19 half of the state? From my count we have one, to serve
20 all the way down to San Diego. I mean, this is insane.
21 If we want to come here and talk about jobs, let's talk
22 about building a real airport somewhere. I mean, you're
23 not going to do the job on 20 -- or 3,200 acres, give or
24 take a few hundred that you add in land acquisitions.
25 You need room. Denver has 53 square miles for an

1 airport. If you're going to operate a large
2 international airport, you need to operate it away from
3 a community in an area that's not congested so that
4 people can get there. I mean, this is a project to
5 2015. According to the City of Los Angeles, the
6 population of my community is going to double in 2025.
7 And if that happens in all of the west side communities,
8 you guys are going to have this wonderful modern airport
9 and nobody is going to be able to get there.

10 The other issue I want to talk about primarily
11 is Manchester Square. The residents of Manchester
12 Square are denied the option for soundproofing and the
13 insulation of jet noise for a noise mitigation project
14 and are forced to indefinitely endure unsafe and unfit
15 environmental conditions perpetuated by LAWA, or
16 conceded to LAWA's voluntary acquisition project, which
17 is wrought with violations of federal law for land
18 acquisitions and relocation of displaced persons,
19 including discrimination, coercion and under-valued
20 purchase offers for property.

21 Resident appeals to the FAA in Washington,
22 D.C., have resulted in lack of uniform treatment of
23 minority persons and a subjective disregard of FAA
24 guidelines for airport acquisition procedures prescribed
25 in FAA Order 5100 37A.

1 In essence, this particular land acquisition
2 is being financed by noise mitigation money. That's
3 money that's set aside for soundproofing people's homes.
4 And, yet, when people who live in Manchester Square ask
5 for soundproofing, they are told they don't qualify for
6 soundproofing, but LAWA will buy your house. Personally
7 I would like for the FAA to answer to that. Thank you.

8 (The statement submitted for the
9 record was marked as Statement 3
10 and is attached hereto.)

11 MR. WALL: Thank you, Mr. Rose.

12 Next will be Mr. Joe DiMassa. Welcome, sir.

13 MR. DIMASSA: Thank you. My name is Joe DiMassa.
14 My address is 3725 Myrtle Avenue in Long Beach. I'm the
15 general manager of Yusen Terminals, a major container
16 terminal at the L.A. complex located at Terminal Island.

17 And I'm here tonight to express our support
18 for this Master Plan, as provided by the Mayor's office.

19 This plan will provide needed safety,
20 security, and will allow for a state-of-the-art
21 transportation facility. This is needed for us to
22 maintain our position here in the L.A. basin and the
23 L.A. region as a world leader in transportation
24 logistics. Not only will it help in a regional way, but
25 it will help in a local way and our local economies,

1 which will especially help us maintain and generate more
2 jobs.

3 I can't emphasize more how important it is for
4 this project to move forward. Thank you very much.

5 MR. WALL: Thank you, Mr. DiMassa.

6 Next is Mr. Dennis Dyer. Welcome Mr. Dyer.

7 MR. DYER: My name is Dennis Dyer. I live at 1102
8 Paseo del Mar -- excuse me, here in San Pedro.

9 And first of all I would like to say, my wife
10 loves to travel. And she drags me to the airport about
11 five times a year. So I go through LAX quite often.
12 And in general I think that the plans as presented
13 are -- all of them, really, look very good because I
14 really agree with the idea of dealing with the surface
15 traffic inside the airport. It's just horrendous. And,
16 really, something needs to be done about that.

17 But in general, the one drawback that I can
18 see with the plan is that I believe that passenger
19 convenience -- I think other people have mentioned this
20 as well. Passenger convenience is really being reduced,
21 reduced substantially. This is because of a couple of
22 things.

23 One is the people mover, of course, adds an
24 extra step in everybody's trip. That's going to be more
25 time, more effort to have to go through the whole

1 process. Also, I think that the plan is going to
2 refocus surface street traffic and, of course, cause the
3 same sorts of surface street traffic problems that other
4 people have addressed.

5 One other thing is it looks to me the plan is
6 eliminating the heliport that's currently there. It
7 occurs to me that given the inconvenience of someone
8 deplaning and then getting their luggage and then
9 getting on the people mover and then taking it to where
10 they finally get to surface transportation like a cab,
11 public transportation, so that they can get to their
12 final destination, it occurs to me that given the
13 inconvenience of all of that, that there will be a
14 certain level of people who would love to just be able
15 to get off a plane here, get on a helicopter and go
16 straight to Downtown or the Valley or down here to the
17 Harbor. So I would suggest that the helipad should be
18 back into the plan in some way or another. Thank you.

19 MR. WALL: Thank you, Mr. Dyer, very much.

20 Next is Mr. Robert Hunter. Welcome
21 Mr. Hunter.

22 MR. HUNTER: How are you doing? Robert Hunter,
23 28832 Carnation Court, Castaic.

24 You know, they call LAX an international
25 airport. Really, it's just a large regional airport

1 that needs adjusted. But those people in California,
2 just like we did the power crisis, we put off building
3 power plants for 35 years until we were in a crisis. It
4 cost us three times the amount of money. It brought the
5 state to almost a halt. If we don't do something about
6 LAX in the very near future, it's going to be the same
7 thing. We're going to end up doing something that we're
8 going to regret in a hurry.

9 And this has been a well thought-out plan.
10 It's been adjusted to fit a lot of the problems and
11 a lot of the worries of residents and the people of
12 California. It's got everything. It's got mass
13 transport. It helps pollution. And it addresses
14 security. And it does provide jobs for Californians
15 which will boost the economy. But in the long run, all
16 of our children and the people that live here after
17 we're gone will have a facility that they can use rather
18 than at the end of the Century hopefully. Thank you
19 very much.

20 MR. WALL: Thank you, Mr. Hunter. Mr. Murphy, do I
21 have any other speaker cards? All right. We will take
22 a 15-minute break.

23 I want to congratulate and thank you all for
24 the thoughtful comments, a lot of divergent views.
25 That's exactly why we're here this evening. Thank you

1 very much. We'll be back in 15 minutes.

2 (Recess was taken.)

3 MR. WALL: Good evening. We don't have any other
4 speaker cards filled out, but we do encourage you to
5 please visit our sign-in desk, fill out your speaker
6 card and give us your testimony. Until we receive
7 another speaker card, we are in recess. We will
8 reconvene at 8:15 to check to see if there are more
9 speakers waiting. Thank you.

10 (Recess was taken.)

11 MR. WALL: Good evening, ladies and gentlemen. It's
12 8:15. At this time we don't have any speaker cards in
13 our possession. Again, we do encourage you to visit our
14 sign-in desk and sign up to speak, if you wish, fill out
15 a speaker card. We will be here until 9:00 p.m. We
16 will be in recess.

17 MR. WALL: Ladies and gentlemen, it is 8:30 p.m. At
18 this time we still do have not any public speaking cards
19 at our desk. We are here and available to hear your
20 testimony. We are going to continue the recess until
21 8:40. Thank you.

22 (Recess was taken.)

23 MR. WALL: Thank you. It is now about 8:40 p.m. Is
24 there anyone else who has not had an opportunity to make
25 a comment? If so, please fill out a comment card.

1 Seeing no one, we will recess again and remain in the
2 hall until the public hearing closes at 9:00 o'clock.

3 (Recess was taken).

4 MR. KESSLER: Is there anyone else who has not had
5 an opportunity to speak concerning the information in
6 the Supplement to the Draft EIS/EIR?

7 Not seeing anybody else, I will remind
8 everyone that if you feel you are unable to provide us
9 with verbal comments today, we will be accepting written
10 comments until 5:00 p.m. Pacific Daylight Time, Monday,
11 August 25th, 2003. You can mail your comments either to
12 me at the FAA or to Jim Ritchie at LAWA. The mailing
13 addresses are listed on the cover of the EIS/EIR.

14 I want to thank everyone for your comments
15 today. This public hearing for the supplement to the
16 Draft EIS/EIR of the Los Angeles International Airport
17 Master Plan is now closed. Thank you.

18 (Whereupon the proceeding adjourned
19 at 9:00 o'clock p.m.)

20 ---oOo--

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1 STATE OF CALIFORNIA)
2 COUNTY OF RIVERSIDE) ss.


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I, LISA ANN VARGAS, certified shorthand reporter,
License No. 12049, do hereby certify:

That the proceedings contained herein were taken
before me at the time and place herein set forth and was
taken by me in shorthand and thereafter transcribed into
typewriting by me, and I hereby certify that the said
proceedings are a full, true and correct transcript of
my shorthand notes so taken.

I further certify that I am not interested in the
event of the action.

WITNESS my hand this 3rd day of September 2003.


LISA ANN VARGAS, CSR NO. 12049

ERRATA SHEET

I declare under penalty of perjury that I have read the foregoing _____ pages
of my deposition testimony, taken on _____ at _____
_____, California,
and that the same is a true record of the testimony given by me at the time and place hereinabove
set forth, with the following exceptions:

Page Line Should read:

Date: _____

Signature of the Witness

Name Typed or Printed

ATTACHMENT

COMMENTS ON LAX MASTER PLAN

Name: Dwight Abbott, 1825 Via Estudillo, Palos Verdes Estates, CA

Background includes: ASEB, Univ degree in Aero Engr, licensed pilot, freq user of LAX & other major airports.

My review finds deficiencies in three important areas: 1) passenger convenience, 2) safety and security, and 3) costs.

Passenger Convenience

This master plan imposes great inconvenience on the passengers that will use it.

The FAA now recognizes passenger convenience as an important airport design factor and defines it in terms of time to move the passenger from the parking lot of the departure airport to the parking lot of the arrival airport - not simply airline gate to airline gate as previously defined. The LAX Master Plan will greatly increase the parking lot to parking lot time required over that of the current LAX configuration.

The proposed Ground Transportation Center (GTC) and Intermodal Transportation Center (ITC) are nearly a mile removed from the terminal area. They are connected via a train (people mover) that passengers must ride to the terminal. The passengers must carry any carry-on baggage and packages on the train. The current LAX configuration imposes no such inconvenience.

Safety & Security

Aircraft collisions during taxi, takeoff and landing can result in more casualties than any terrorist attack. I believe that the proposed reconfigured runways are an improvement, however, I believe that the proposal to move the runway 25L only 50 feet to the south is short sighted. Moving it farther south would provide greater aircraft separation, less wake turbulence interference between runways, and improve safety.

The location of the new Rental Car Facility very near the end of the newly positioned runway 24L is unsafe. An aircraft landing short of the runway or not successfully taking off when the runways are operating in an easterly departure pattern will risk impacting with the proposed Rental Car Facility.

The master plan puts high importance on security as it should, but it includes several factors that appear to reduce security.

Centralizing passenger check-in at the proposed Ground Transportation Center provides a single location that if incapacitated will shut down the entire airport operations. Incapacitation could come from earthquake, fire, electrical outage, and other factors as well as from terrorist activity. The current multi-terminal, decentralized check-in configuration does not have this weakness.

The proposed train (people mover) is another single point failure that can shut down airport operations. A small bomb, bomb scare, mechanical failure, or even protestors on the tracks could bring the entire airport operations to a halt.

An independent RAND Corporation study of the security afforded by the proposed LAX Master Plan found that the proposed changes would not increase security compared to the current LAX configuration.

Cost

The proposed cost of about \$10 billion is simply too high. My written statement explains this conclusion.

Summary

The proposed LAX Master Plan is unacceptable.

Los Angeles County Supervisor Don Knabe has called the LAX Master Plan unacceptable.

Congresswoman Jane Harmon also does not support the plan.

Media reports state that the airlines don't favor it.

The communities near the airport do not favor it.

Certainly the user passengers can not favor it due to the high costs it will impose on them, the lengthened parking lot to parking lot time, the greater inconvenience, and the dubious added security.

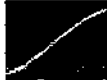
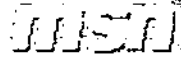
A new plan is needed. That plan should have 4 features:

- 1) minimize parking lot to parking lot time for travelers
- 2) improve aircraft safety
- 3) not include centralized facilities that when incapacitated can cause shutdown of the entire airport
- 4) reduce development costs to a level half or less of those proposed.

Speake 12

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5 airports to avoid if you can

"LAX is oppressive," says one traveler. "I dread it," says another about Miami's airport. But New York's 3 are the worst. Here's why.

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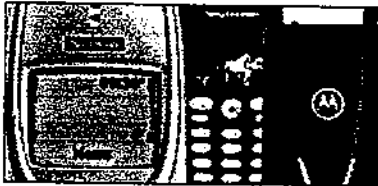
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5 best airports for layovers

Power Trip / Christopher Elliott



Airport layovers are as inevitable these days as cramped economy class seats, annoying security checkpoints and nitpicky ticket agents. But unlike the other realities of flying, you've often got a choice about the terminal you're trapped in.

Which airport should you pick? J.D. Power and Associates tried to answer that question a few years ago when it released its "inaugural" customer satisfaction study on U.S. airports. It named Orlando, Fla., the No. 1 airport, a choice I'm inclined to agree with. But then it offered a bizarre selection for runner-up: Las Vegas (Nev.) McCarran International Airport.

What's wrong with McCarran? Well, just walk through the doors and take a whiff. If you're a nonsmoker, you'll know what I mean. Even though passengers are only allowed to light up in limited smoking "areas" in the terminal, those places seem to be everywhere — in bars, waiting areas and almost anywhere there's a slot machine. I dread landing in Las Vegas.

My point is that customer satisfaction surveys seem to be just about as reliable as calling a few frequent travelers and asking them which airports they like. So that's what I decided to do.

Here are five favorite airports for layovers, as determined by my completely unscientific, random poll of road warriors. And by me.

1. Orlando International Airport (MCO).

I've been stuck at Orlando several times for up to a whole day, have flown into and out of every one of its terminals, and I think J.D. and company are right about this one. Orlando is the best airport in the United States for a layover, bar none. It's easy to find, parking isn't a problem and the terminals are incredibly user-friendly. Like some of the other highly-rated Florida airports, notably Tampa, Orlando

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5 best airports for layovers

1. **Orlando International Airport (MCO).**

Orlando is the best airport in the United States for a layover, bar none. It's easy to find, parking isn't a problem and the terminals are incredibly user-friendly.

2. **Denver International Airport (DEN).**

The layout of its terminals is highly intuitive and the food is palatable, which is more than I can say for a lot of other airports. Plus, it *looks* great. "It's the coolest-looking airport,"

3. **Chicago O'Hare International Airport (ORD).**

The international terminal is really a work of art "Best Airport in North America"

4. **Hartsfield Atlanta International Airport (ATL).**

1996 Summer Olympics, when this airport gave itself a much-needed facelift and opened a new international terminal.

5. **San Francisco International Airport (SFO).**

The new San Francisco International is much better than what it was, and it's still improving. I like to think of it as a work in progress, with coming-soon train service, redesigned road and new parking facilities, a vice president for a San Francisco computer company, counts the new SFO among his favorites.

5 airports to avoid if you can

1.

2.

3.

4. **Los Angeles International Airport (LAX).** Friends don't let friends fly into LAX. The circular design isn't well suited, a desperately needed expansion. "LAX is oppressive," "It's dingy and dilapidated, noisy and overcrowded, unfriendly and with poor facilities."

*Victims of
Environmental & Governmental Havoc
Caused by **LAX** Airport*

Since initiation of the **LAX** voluntary acquisition project in 1999, the Los Angeles World Airport has acquired private land for public use and subsequently demolished and moved acquired homes out of the noise-impacted area, leaving the remaining Manchester Square neighborhood "damaged" desecrated, unsafe and un-fit to live. Tall chain link fences have been erected throughout most parts of the neighborhood, enclosing old broken concrete foundations of former-standing homes and other vacant lots and abandoned houses. Today, Manchester Square is a mere skeleton of its former thriving community.

The residents of Manchester Square are denied the option for soundproofing and insulation of jet noise for this noise-mitigation project and are forced to indefinitely endure unsafe and unfit environmental conditions perpetuated by **LAX**, or concede to **LAX**'s voluntary acquisition project which is wrought with violations of federal law for land acquisition and relocation of displaced persons including discrimination, coercion, and under-valued purchase offers for property. Resident appeals to the FAA in Washington D.C. have resulted in *lack of uniform* treatment of minority persons and a subjective disregard of FAA Guidelines for airport acquisition procedures prescribed in FAA Order 5100 37A.

Your review of the previously mailed (MARCH 07, 2003) document and exhibits and your subsequent attention to this matter will serve the mass of Californians victimized by **LAX**.

Respectfully Submitted, In Truth and Light

**C.L. Parrish,
Resident Homeowner / Advocate for Minority Persons**

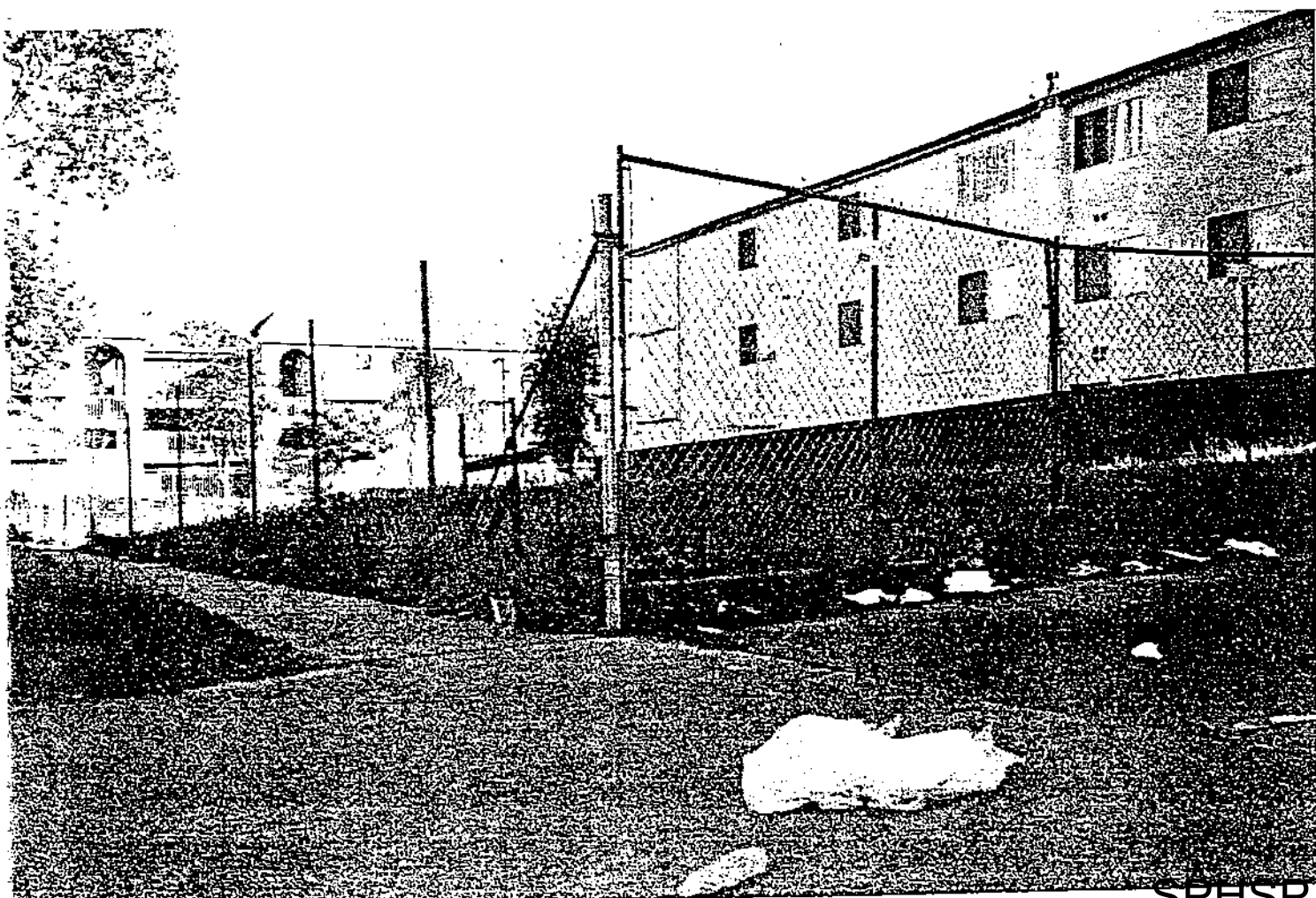
9606 Hindry Avenue, Los Angeles, California 90045, phone# 310-568-1497, parrishtrade@earthlink.net

**LAX
CHEATS
MANCHESTER SQUARE
HOMEOWNERS
IN LAND ACQUISITION**

**Petition to Audit
Prepared March 07, 2003**

Those Honorable Persons and Agencies Receiving this Petition

<p>The Honorable James K. Hahn, Mayor of Los Angeles</p>	<p>Dept. of Transportation Secretary The Honorable Norman Mineta</p>	<p>Dept. of Justice U.S. Attorney General The Honorable John Ashcroft</p>
<p>The Honorable Cindy Miscikowski Councilwoman, Eleventh District</p>	<p>Dept. of Transportation Inspector General The Honorable Kenneth Mead</p>	<p>LA City Attorney Rocky Delgadillo & John Werlich, Airport Div.</p>
<p>Councilwoman District 6 The Honorable Ruth Galanter</p>	<p>Chief of Staff Administrative Office The Honorable David Mandell</p>	<p>Attorney Berger and Norton Attn. Michael Berger</p>
<p>[Claims against the Gov.] City Clerk</p>	<p>Dept of Business, Transportation & Housing (BT&H) Honorable Maria Contreras-Sweet</p>	<p>Attorney Masry & Vititoe Attn. Ed Masry</p>
<p>FAA Civil Rights Judith Crosby</p> <p>Rick Etter FAA, Washington D.C. Federal Aviation Administration Airport Acquisition Specialist</p>	<p>Office of Planning and Research (OPR) Honorable Sandra Salazar-Thompson Project Director Environmental Justice</p>	<p>Attorney Law Office of Chris Sutton</p> <p>Case Investigations at Institute for Justice</p>
<p>Reginald K. Bessmer, FHWA, Washington D.C. Federal Highway Administration, Office of Real Estate Services</p>	<p>Office of Planning and Research (OPR) Honorable Terry Roberts State Clearinghouse Director</p>	<p>Media Channel 4 KNBC Manny Medrano</p>
<p>Ronald Fannin FHWA, Washington D.C. Federal Highway Administration, Office of Real Estate Services</p>	<p>Honorable Sonya K. Blake, Director Advocate for Small Business (ASB)</p>	<p>Newspaper LA Times Jennifer Oldham</p>
<p>Layne A. Patton Realty Specialist FHWA-CA Division</p>	<p>Theodore Stein, Jr. President, Airport Commission</p>	<p>Newspaper Daily Breeze Ian Gregor</p>
<p>Bob Swenson, W.D. Schock CO, Inc (LAWA)</p>	<p>Lydia Kennard Executive Director, Airport Commission</p>	<p>Newspaper Argonaut</p>
<p>Intissar Durham Program Director LAWA</p>	<p>Intissar Durham Program Director LAWA</p>	<p>Newspaper The New York Times Company</p>
<p>Lourdes Romero Property Manager II, LAWA</p>	<p>Lourdes Romero Property Manager II, LAWA</p>	<p>Newspaper The Washington Post</p>



“Coercive action was taken by LAX to intimidate homeowner to rescind advocacy of rights and representation to a willing minority individual”

LAX's full-fair-offer policy is an inflexible one-price procedure...

LAX denied homeowner a sound proofing option for this noise-mitigation project, exacting the only alternative: to participate in Acquisition, or to remain in a noise impacted neighborhood -which has been “damaged,” demolished, nearly abandoned of single-family homes and residents, unsafe and un-fit to live, due to the airport’s destructive actions in this Acquisition and Relocation project.

Los Angeles World Airport practiced unlawful subjective omissions and deviations from the Uniform Act using the term “voluntary” acquisition as their authority.

**IN THE STATE OF CALIFORNIA
CITY OF LOS ANGELES, COUNCIL DISTRICT 11**

**C. L. Parrish/
Manchester Square Resident and Homeowner,**

Petitioner,

v.

**Theodore Stein, Jr./
President, Airport Commission
Los Angeles World Airport,**

Respondent.

**PETITION FOR AUDIT OF "VOLUNTARY" ACQUISITION EXEMPTION AND
ACQUISITION AND RELOCATION PROCEDURES**

Petitioner, C.L. Parrish, pursuant to Public Law 91 -646 Uniform Relocation Assistance and Real Property Acquisition Policies, 49 CFR Part 24 and FAA Order 5100.37A, petitions Honorable persons and Agencies of California to take notice of, act against, and implement corrective action for a particular havoc of state and federal law and abuse of power committed by the Los Angeles World Airport (LAWA).

The Petition for Audit is a result of the Los Angeles World Airport's (LAWA) procedurally barred and unlawful practices and policies, inequitable treatment, coercive actions, and denied benefit entitlements causing material damage to residents, within the current acquisition of private property from specific and designated areas within the community of Westchester known as Manchester Square/Belford.

The purpose of the Petition for Audit is to determine whether LAWA violated state and federal law for conformity and compliance of Acquisition and Relocation procedures prescribed in the Uniform Act; whether LAWA failed to administer a *uniform* corrective action of a prevalent, known violation, and states:

1. Petitioner is a citizen of the State of California, a resident and homeowner in Los Angeles County, Council District 11, and currently resides in the neighborhood of Westchester known as Manchester Square. Respondent Theodore Stein, Jr., is President of the Board of Airport Commissioners that governs the operating department of the Los Angeles World Airport (LAWA) for the City of Los Angeles.

2. Respondent failed to strictly adhere to the Uniform Act procedures for acquisition and relocation, to such a degree that displaced persons are materially affected; accordingly, LAWA invalidates its certificate of assurances for compliance of the Uniform Act to FAA, thus requiring forfeit/withdraw of all future FAA funding or reimbursement for airport projects utilizing acquired land void of Uniform Act requirements, till such time corrective action is taken to correct known violations or until property owners are compensated for material damage.

3. Respondent's use of a "voluntary" acquisition exemption does *not* meet all federal regulation requirements.

4. Respondent practiced unlawful subjective omissions and deviations from the Uniform Act using the term "voluntary" as their authority.

5. Respondent's Noise mitigation project *does* need to acquire all, or substantially all designated residential property for redevelopment into noise compatible land uses to accomplish the noise mitigation project –not voluntary.

6. Respondent denied Petitioner a sound proofing option for this noise-mitigation project, exacting the only alternative for Petitioner: to participate in Acquisition, or to remain in a noise impacted neighborhood -which has been "damaged," demolished, nearly abandoned of single-family homes and residents, un-safe and un-fit to live, due to the airport's destructive actions in this Acquisition and Relocation project.

7. Respondent refused negotiated purchase; engaged in an inflexible one-price Offer policy

8. Respondent denied Petitioner's request to *uniformly* correct a prevalent violation of "timeliness of purchase offers" for an individual case involving a minority and project-wide; a correction that was granted to Petitioner upon appeal to the FAA in Washington D.C..

9. Issue. Respondent invoked coercive action in order to compel an agreement for the price to be paid for property in violation of Uniform Act and FAA Guidelines.

10. Issue. Respondent invoked coercive action to intimidate Petitioner to rescind advocacy of rights and representation of a willing minority individual in violation of Uniform Act and FAA Guidelines [S. R. Sribour case]

11. Petitioner's extraordinary measures and volumes of research and time necessary to become proficiently knowledgeable of Public Law 91 -646, Uniform Relocation Assistance and Real Property Acquisition Policies, federal regulations 49 CFR Part 24, FAA Order 5100.37A, in order to present technically sound case to FAA and LAWA and obtain only one correction of a basic acquisition procedure for "timeliness of purchase offers," which recouped monumental amounts of material damage, is incomprehensible, unorthodox, and nearly unattainable by most residents.

12. Respondent unlawfully charged specific "Close of escrow" fees to displaced persons, despite technical merit evaluation by FAA to reconsider practice.

13. Petitioner is alleging specific and unlawful procedures and inappropriate determinations of entitlements within the Relocation Phase, personally experienced as an advocate for Rights of Manchester Square residents and as a voluntary representative of a minority individual.

14. Respondent violated his own declared Appeal Process procedures.

15. Respondent failed to update *inadequate* Purchase Price Differential (PPD) under Housing of Last Resort (HLR) provisions; derived unlawful payment determinations of PPD from inferior neighborhoods with home sale values less than that of displaced neighborhood; causing substantial financial consequences affecting purchase of comparable replacement dwelling.

16. Petitioner in this case has exhausted the remedies by the airport by filing appeals to the Los Angeles World Airport staff, the Airport Commission, the City Attorney's Office, and other governmental representatives, and by meeting with an Ombudsman and retaining legal council. The request for Audit of Acquisition and Relocation Procedures has been drafted following repeated written appeals spanning twelve months (one year) for *uniform* correction of violations in LAWA's acquisition policy.

17. Petitioner experienced extreme stress, and financial hardship, and suffered disproportionate injuries as a result of the airport project.

18. The Honorable persons and Agencies of this review can exert significant influence on this Petition and the issues raised pursuant to oath of office to serve people, especially when a large mass of Californians is affected, particularly those residing in Manchester Square within the community Westchester and because violations herein are continuing to present date, and not limited to Petitioner's standing, advocacy claims, investigation and evidence.

19. Petitioner incorporates by referencing the Memorandum of Points and Authorities in support of the Petition for Audit of Voluntary exemption and Acquisition and Relocation Procedures of the Los Angeles World Airport and the Exhibits in the Appendix.

WHEREFORE, Petitioner C. L. Parrish moves Honorable persons and Agencies of this review and enclosure to seek the following relief:

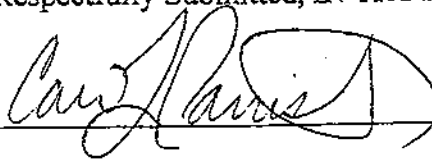
- a. Accept responsibility to pursue and resolve issues of this case.
- b. Accept responsibility to pursue and resolve issues on project-wide magnitude
- c. Require the Respondent to answer the allegations in this Petition and Points and Authorities in Support
- d. Seek a project-wide audit for "timeliness of Purchase offer" presentations following an approved appraisal and establishment of just compensation
- e. Seek a project-wide audit for *uniform* corrections of known violations
- f. Seek a project-wide audit for evidence of negotiated purchase(s) –flexible offers.
- g. Seek an evidentiary audit of federal requirements for a "voluntary" acquisition
- h. Seek an evidentiary audit for intended use of acquired land
- i. Seek a project-wide audit of "close of escrow" fees charged to displaced persons, particularly those evaluated by FAA and recommended to reconsider not charging
- j. Seek a project-wide audit for appropriate benefit entitlement determinations and strict conformity to procedures deriving a Purchase Price differential (PPD) payment
- k. Seek an evidentiary audit for HLR provision for "updates" of inadequate PPDs
- l. Seek a project-wide audit of actualized Relocation Appeal Process
- m. At the conclusion of the evidentiary audit find that:

1. Respondent failed to strictly conform to Uniform Act procedures for individual parcels of land.
2. Respondent failed to strictly conform to Uniform Act procedures for project-wide acquisition.
3. Respondent violated state and federal law by exceeding the prescribed thirty day (30 day) time span permitted from an establishment of just compensation to Purchase Offer presentation date; Respondent's delays have ranged between two and six months (2 – 6 months)
4. Respondent failed to *Uniformly* correct known violations of a basic acquisition practice requiring "timeliness of Purchase Offers"
5. Respondent failed to implement a "negotiated Purchase" policy; LAWA's full-fair-offer policy is an inflexible one-price procedure
6. Respondent invalidated a certificate of assurance for conformity and compliance of the Uniform Act procedures, policies, and practices
7. Respondent failed to meet "voluntary" acquisition requirements narrowly defined in FAA Order and Uniform Act
8. Respondent intends to purchase and redevelop acquired land to noise compatible land use; not reconveyed to continual residential use with avigation easements
9. Respondent abused it discretion and power in failing to provide full benefit entitlements of relocation provisions for "separate household"

10. Coercive action was taken by Respondent to unlawfully defer negotiations in order to compel an agreement for the price to be paid for Petitioner's property
11. Coercive action was taken by Respondent to intimidate Petitioner to rescind representation and advocacy of rights to a willing minority individual; and a *Reversal* of favorable determinations [S.R. Sribour]
12. Respondent erroneously charged: Reconveyance fees, Recording fees and documentation [Fax] fees, in close of escrow of acquired dwelling; despite technical merit evaluation by FAA to reconsider practice
13. Respondent violated Uniform Act procedures by improperly deriving Purchase Price Differential (PPD) payments from comparables located in *inferior* neighborhoods with lower home sales values than displaced neighborhood; not from "same or better" neighborhoods
14. Respondent failed to *update inadequate* PPD payments under provisions of Housing of Last Resort (HLR)
15. Respondent failed to comply with own declaration of Appeal Process
 - n. Seek professional services of independent company specializing in Acquisition and Relocation provisions to conduct Audit, IE, O.R. Colan & Associates; Alliance
 - o. Seek continuous professional monitoring from a Federal Cognizant Agency of all present and future airport procedures till completion of the airport project
 - p. Seek project-wide mandated corrective action and/or compensation for material loss for all present and past land acquisitions found in violation of the Uniform Act.

- q. Inform the lead agency (FHWA) and the Federal Aviation Administration, (FAA) of Respondent's repeated procedural non-conformity and non-compliance with Uniform Act for individual parcels of land and throughout entire airport project, and request subsequent appropriate consequences of actions.

Respectfully Submitted, IN TRUTH AND LIGHT



C. L. Parrish,
Manchester Square Resident/ Homeowner

POINTS IN SUPPORT OF PETITION FOR AUDIT

INTRODUCTION

The spirit of the Uniform Act is clearly people-oriented; the implementation of the Uniform Act by the Los Angeles World Airport clearly is not. The allegations of violations in the Acquisition Phase and Relocation Phase are written from first-hand experience and knowledge of the Petitioner. Also, the mentioned plights of S.R. Sribour, henceforth, are from first-hand knowledge, as the Petitioner has served as a volunteer advocate for the Rights of this neighboring Thai family, single father and daughter, who case is wrought with violations including coercion, discrimination, denial of entitlements and indefinite delays of *small-business* and *residential* relocation payments.

Since initiation of the airport project in 1999, the Los Angeles World Airport has acquired private land for public use and subsequently demolished and moved acquired homes out of the affected area leaving Manchester Square nearly abandoned of single-family residents. This growing airport project has left the remaining Manchester Square neighborhood "damaged" demolished, unsafe and un-fit to live. Tall chain link fences have been erected throughout most parts of the neighborhood, enclosing old broken concrete foundations of former-standing homes and other vacant lots and abandoned houses. Today, Manchester Square is a mere skeleton of its former community. EXHIBIT A.

C.L. Parrish, hereinafter referred to as "Petitioner" desires to participate in this airport project, and to relocate out of affected area, as Acquisition is the only alternative to remaining on an irreversibly demolished street within a baron neighborhood of Manchester Square. Petitioner, however, is unable to proceed with the acquisition because of the airport's procedurally barred and *unlawful* practice of a utilizing an inflexible one-price procedure for purchase offers, which is presented in a "take-it-or-leave it" manner. This unlawful situation has continued for twelve months.

"If you truly do not agree with our offer then you may rescind your interest to participate in the program." - Intissar Durham, of LAWA September 21, 2002

Respondent also demonstrated lack of veracity and unresponsiveness to Petitioner's earlier requests for a correction of a basic acquisition procedure that violated the Uniform Act policy. LAWA declined to respond to Petitioner's repeated letters of appeal, certified mailings, and telephone queries which compelled Petitioner to present case directly to the FAA in Washington D.C. to encourage a response from LAWA and to remit a technical review of merits of the alleged violation of the Uniform Act requiring "timeliness of Purchase offers."

Petitioner's indispensable, extraordinary measures and volumes of research and time necessary to become proficiently knowledgeable, well beyond the handbook of Benefits and Rights of Displaced Persons provided by the airport, to present a technically sound case to FAA Officer Rick Etter in Washington D. C., perpetuated a favorable technical merit evaluation by FAA of Petitioner's appeal. LAWA, in turn, implemented corrective action for the violation of "timeliness of purchase offers" resulting in "significant agency delays" and granted Petitioner an updated appraisal—a reestablishment of valuations recouping \$60,000 (sixty-thousand dollars), an amount necessary to correct the violation of the Uniform Act. Petitioner stated that LAWA's inefficient procedures resulted in "significant agency delays" of two and one half months (2 ½ months) from the date of the purchase offer presentation following the establishment of the estimate of compensation. The FAA Order 5100 37A Chap. 3. SEC 1. 3 --3(a), guidelines for proper airport procedures in implementing the Uniform Act, clearly allows for a thirty-day (30-day) time-span to present a purchase offer following establishment of just compensation. Again, material damages recouped totaled \$ 60,000 (sixty thousand dollars) in corrective action by airport.

LAWA *denied* Petitioner's requests for correction of this prevalent violation for a minority individual, S.R. Scribner, whom the Petitioner serves as a willing representative and advocate of Rights, at the choosing of S.R. Scribner, and LAWA also denied a project-wide correction of this same violation of the Uniform Act claiming a "voluntary" acquisition exemption of the Uniform Act policies and FAA Guidelines therein.

Accordingly, LAWA must invalidate its certificate of assurances to

**"In this case (Scribner) it happened to take three months to complete the process. Despite the timeframe of the process and because the program is voluntary it is ultimately the decision of the property owners whether the offer is fair and just"
— Lourdes Romero, LAWA, Aug. 23, 2002**

FAA for conformity and compliance of the Uniform Act, thus requiring withdraw of all federal funding or reimbursement for each parcel of land or entire project void of Uniform Act provisions during acquisition and relocation.

Petitioner also presented evidence to LAWA of appraisal procedural violations within the updated appraisal, which repeated the appeal process; Requests of "amicable negotiations" for an agreed purchase price based on the inexact nature of the appraisal process, an expeditious acquisition of property and corrections of appraisal procedural violations. LAWA repeatedly denied all requests and refused a *negotiated purchase* for twelve months (one year) to date, with NO foreseeable resolution -coercive action taken by the airport to *defer negotiations* in order to compel an agreement for the price to be paid for the property, in violation of the Uniform Act.

Respondent's lack of veracity, unresponsiveness, and non-conformity to Uniform Act procedures is not limited to Petitioner's allegations of this case. LAWA also practices inequitable treatment of certain displaced persons within the acquisition relocation process including: coercion, discrimination, inadequate payment determinations, and denied entitlements.

S. R. Sribour has suffered serious financial hardship from this airport project and has received *no* Relocation Payments for his *small business*, or his *residential move*, both occurring on August 01, 2002. LAWA's continuing unresolved issues, inadequate determinations and violations of the Uniform Act policies are prolonging issuance of proper entitlement payments indefinitely.

On October 09, 2002 the Respondent invoked coercive actions of intimidation over S.R. Sribour, of minority race, and Petitioner during an airport meeting. LAWA denied S.R Sribour the Right to representation by another willing party of his choosing to speak on his behalf, namely the Petitioner in violation of the Uniform Act.

During the same October 09, 2002 meeting, Dario Polintan, of LAWA and Bob Swenson,

'The business portion of your (S.R. Sribour) relocation claim does not seem to a point of contention and we will process your claims for your two business expeditiously' – Lourdes Romero, Aug. 23, 2002

W.D. Schock Company Inc, *reversed* a previously favorable determination of Aug. 23, 2002 to expeditiously issue a small-business relocation payment to S.R. Sribour, per letter by Lourdes Romero, dated Aug. 23, 2002. *No* payment for small business relocation was

ever issued.

LAWA AND FAA FAIL TO UNIFORMLY IMPLEMENT UNIFORM ACT

LAWA denied Petitioner's request for a *uniform* correction of the violation of "timeliness of purchase offers" causing "significant agency delays"; FAA denied technical merit of appeal to Sribour for this issue, but granted favorable merit to Petitioner. FAA stated to the Agency that in the case referencing, *specifically*, S.R. Sribour, the three month (3 month) agency delay *was* conforming to Uniform Act and its FAA Guidelines; in the case of the Petitioner, the two and one half month (2 ½ month) delay was not conforming -contradicting his earlier technical merit review & FAA Order 5100 37A Chap. 3 SEC 1. 3 -3(a) *The Offer to purchase the property should be within thirty days (30 days) of the establishment of just compensation.* LAWA practices delays ranging from 2 -6 months.

The result of this havoc of laws and subjective deviations of the Uniform Act policies is loss of Rights, *material damage* and substantially under-valued offers to purchase property.

Both Petitioner and S.R. Sribour have similar properties in location (neighbors), lot size and living space and had airport-appointed appraisals conducted within thirty days of each other, by the same appraiser, Lea Associates. LAWA's failure to grant *uniform* corrective action for S.R. Sribour, resulted in a \$70,000 (seventy-thousand dollars) difference in the purchase Offer.

EXHIBIT B.

It is the duty of the airport to *uniformly* make all corrective actions necessary if procedural violations actually occurred on individual parcels of land or if violations are prevalent in the project-wide acquisition, or risk the consequences. Also, the FAA, in an advisory capacity to the airport for appeals, becomes a critical entity in this airport project and the recommendations provided by an FAA Officer must be delivered in a *uniform* manner that strictly adheres to its own FAA Guidelines for an airport's proper implementation of procedures prescribed for the Uniform Act.

The Petitioner claims that The Los Angeles World Airport's (LAWA) project-wide acquisition and relocation procedures are amiss of the Uniform Act provisions and are preventing *full entitlements* and denying *full rights* and causing *material damage* to the displaced residents from Manchester Square. A favorable assessment of this Petition by way of an Audit of conditions herein, to be conducted by knowledgeable individuals and/or an independent professional company familiar with acquisition and relocation procedures prescribed by the Uniform Act of 1970, will confirm validity of the facts presented.

POINTS OF AUTHORITIES

POINTS OF AUTHORITIES

Under the Uniform Act of 1970, known as 49 CFR Part 24 in the Code of federal regulations, the Legislative effort was to address the burden of public projects on private individuals. The purpose of the Uniform Act was to establish uniform policy of fair and equitable treatment of persons to be displaced and provide certain eligible protections and relocation benefits that go beyond the just compensation allowed under the Fifth Amendment of the United States Constitution [Fourteenth due process], [California Constitution Article 1 SEC. 19]. The provisions of these benefits are outlined in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

MAJOR COMPONENTS of the Uniform Act in particular interest to this case are as follows: 1) It requires an "approved" appraisal be prepared prior to presentation of Purchase offer 2) No coercion is allowed in the negotiation process 3) If the agency intends to acquire the real property, it shall not intentionally make it necessary for the property owner to institute legal council 4) Appraisal must be completed by qualified independent appraisers 5) Appropriate financial assistance shall be provided to all displaced parties

The Uniform Act was amended in 1987 and the Department of Transportation (DOT) was appointed lead agency. D.O.T. in turn delegated this responsibility to the Federal Highway Administration (FHWA).

On March 02, 1989, the FHWA published the government-wide single rule in the Federal Register. The objective of the single rule was to maintain a consistent application of the regulations as well as the following duties: 1) encourage the expeditious acquisition of property through "negotiation" 2) establish public confidence in land acquisitions 3) provide fair treatment of persons displaced 4) minimize litigation and relieve congestion in the courts 5) ensure that agencies implement the regulations in an efficient manner.

FAA Order 5100 37A is not a regulatory order but it is the implementing procedure to assist airport owners in carrying out provisions of the Uniform Act, 49 CFR Part 24 for airport projects.

CLAIMS OF "VOLUNTARY" ACQUISITION SUSPECT

Certain major components of the Uniform Act are subjectively omitted and modified by LAWA causing under-valued offers to purchase, loss of benefits, entitlements and provisions to displaced individuals, under a false authority that a "voluntary" acquisition allows for deviations and/or omissions of prescribed Uniform Act procedures. The requirements for a voluntary acquisition are narrowly defined in Uniform Act and FAA Order 5100 37A Chapter 3. SEC. 3 -9

et al. and when applicable invoke optional use of the Uniform Act; however, subjective omissions of procedures and deviations from practices and policies are not permitted. The Uniform Act, when engaged, provides full rights and entitlements and procedures *uniformly* to displaced persons within the entire project; with or without eminent domain power.

Petitioner alleges that the Manchester Square acquisition *may not* be a voluntary acquisition and states the following: specific Manchester Square/Belford noise-impacted properties are intended to be purchased by Acquisition *without* the option for soundproofing for this Noise-mitigation program, then demolished or moved, in order to accomplish the noise-mitigation project; not reconveyed to continued residential use with aviation easements. Noise mitigation projects, which acquire designated residential property for redevelopment into noise compatible land uses do require the acquisition of all or substantially all of the property in the project area to accomplish the intended noise mitigation. Therefore acquisitions for these projects may NOT be considered "voluntary" transactions; with or without the eminent domain authority to acquire needed property FAA Order 5100 37A Chap. 3. SEC. 1. 3 -9(3).

The Los Angeles World Airport's (LAWA) project-wide procedures are amiss of the Uniform Act policies contained herein, under which the Petitioner is appealing.

The spirit of the Uniform Act is clearly people-oriented. The implementation of the Uniform Act by the Los Angeles World Airport clearly is not.

**C. L. Parrish/
Manchester Square Resident and Homeowner,**

Petitioner,

v.

**Theodore Stein, Jr./
President, Airport Commission
Los Angeles World Airport,**

Respondent.

APPENDIX

**TO PETITION FOR AUDIT OF "VOLUNTARY" ACQUISITION EXEMPTION AND
ACQUISITION AND RELOCATION PROCEDURES**

EXHIBITS A - B

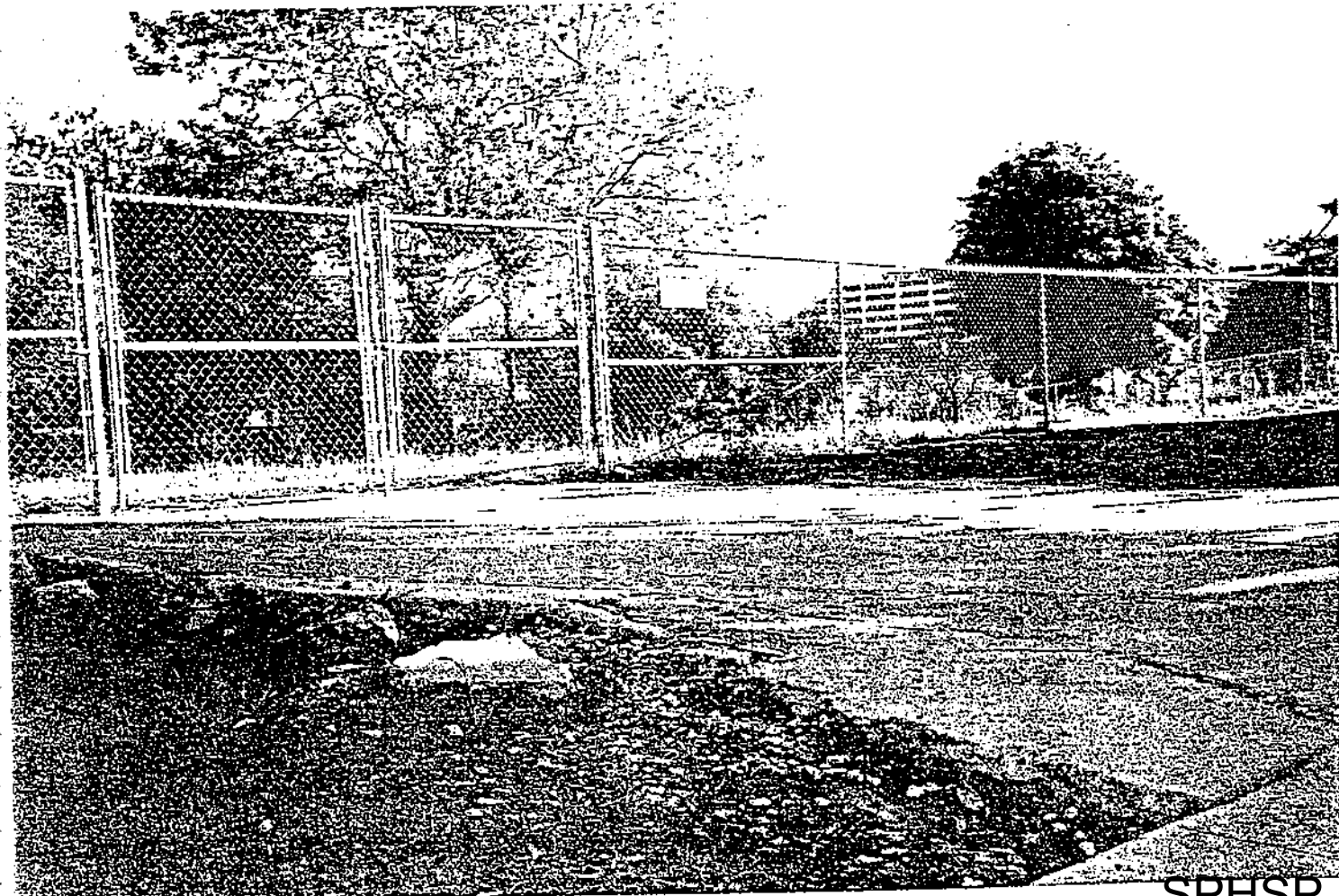
APPENDIX

**EXHIBIT A MANCHESTER SQUARE NEIGHBORHOOD PHOTOS DATED
03/06/03 (photos by S.D. Parrish)**

**EXHIBIT B NO UNIFORM POLICY: COMPARISON CHART -\$70,000 (SEVENT-
THOUSAND DOLLAR) LESS IN OFFER TO PURCHASE**

1

Exhibit -A-



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22

SPHSP

To: Federal Aviation Administration, Mr. Rick Etter
 From: Mr. Soros Rod Sribour
 Ms. C.L. Parrish

Exhibit - B-

RE: Under-valued purchase offers by LAWA;
Reference Sribour, S.R. and Parrish, C.L. files

Quick Date Reference;
 Property acquisition

Sribour

Parrish

[NO]

FAA monitoring of LAWA YES

February 07, 2002

Property Appraisal

March 07, 2002

February 26, 2002

Review Appraisal Approved

March 18, 2002

Three Months

Additional Agency Delay

Two Months

May 22, 2002

Offer Presentation Date

May 30, 2002

\$ 320,000

Purchase offer Amount

\$330,000

[NO]

Updated Appraisal Granted;

[YES] [violation corrected]

\$0

Reestablished compensation

\$390,000

\$70,000 difference in valuation for Similar Homes

appraised thirty days apart by same appraiser and same review appraiser;
 LAWA Purchase Offer presentation dates only eight (8) days apart

Sribour

Parrish

NO

Appeal to FAA [GRANTED] YES

1077

Home Square footage

1076

6254

Lot size Square footage

5936

3/2

Bedrooms & Baths

3/2

One Studio

Full Guesthouse

none

Average

Overall Condition

Good

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**Official Hearing Transcript
Hollywood Park Pavilion
Inglewood, California
Monday, August 18, 2003**

Following this page is the transcript of the oral testimony taken at the above hearing. Each speaker at the hearing has been assigned a unique identification number. The numbers assigned to each speaker for this hearing are:

Number	Speaker	Affiliation
SPHP00001	Jessie Gaddis	None Provided
SPHP00002	Laura Royster	None Provided
SPHP00003	Rose Morse	None Provided
SPHP00004	Roy Hefner	None Provided
SPHP00005	Kevin Norton	IBEW Local 11
SPHP00006	Larry Henderson	IBEW Local 11
SPHP00007	Willa Short	None Provided
SPHP00008	Art Guzman	None Provided
SPHP00009	Gordon Mego	None Provided
SPHP00010	Tom Moxley	None Provided
SPHP00011	Virgil Benson	None Provided
SPHP00012	Mahala Walter	None Provided
SPHP00013	Ken Alpern	Friends of the Green Line
SPHP00014	Eric Jackson Jr	None Provided
SPHP00015	Jack Kenton	None Provided
SPHP00016	Lawrence Teeter	Coalition Against the Pipeline
SPHP00017	Joyce Jacquet	None Provided
SPHP00018	Giovanni Giammarco	None Provided
SPHP00019	Robert Hunter	None Provided
SPHP00020	Thirkiel Patterson	None Provided
SPHP00021	Sparky Carpio	None Provided
SPHP00022	Carole Hossan	None Provided
SPHP00023	Harry Rose	None Provided
SPHP00024	Daniel Walker	Friends of the Green Line
SPHP00025	Diane Sambrano	None Provided
SPHP00026	Michele Grumet	None Provided
SPHP00027	Cecil Carpio	None Provided
SPHP00028	Patt Sanders	None Provided

Any exhibits attached to this hearing transcript have been previously reproduced in this Final EIS/EIR as individual public comment letters.

CERTIFIED COPY

ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION AND
LOS ANGELES WORLD AIRPORTS, THE FIFTH PUBLIC HEARING
ON THE SUPPLEMENT TO THE DRAFT EIS/EIR
FOR THE PROPOSED MASTER PLAN AT LAX

REPORTER'S TRANSCRIPT OF
PUBLIC TESTIMONY

TAKEN ON

MONDAY, AUGUST 18, 2003

HELD AT THE HOLLYWOOD PARK PAVILION

3883 West Century Boulevard
Inglewood, California

REPORTED BY:

LISA ANN VARGAS, C.S.R. NO. 12049

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1 APPEARANCES OF FACILITATORS:

2 TOM WALL, Senior Project Manager

3 DAVID KESSLER, Airport Planner for the Federal Aviation
4 Administration

5 JIM RITCHIE, Deputy Executive Director for the
6 Los Angeles World Airports

7 APPEARANCES OF PUBLIC SPEAKERS:

8 1. JESSIE GADDIS, Representing Himself

9 2. LAURA ROYSTER, Representing Herself

10 3. ROSE MORSE, Representing Herself

11 4. ROY HEFNER, Representing Himself

12 5. KEVIN NORTON, Business Representative of IBEW
13 Local 11

14 6. LARRY HENDERSON, Business Representative of IBEW
15 Local 11

16 7. WILLA SHORT, Representing Self

17 8. ARTHUR GUZMAN, With United Association Local 250
Representing Himself

18 9. GORDON MEGO, Representing Himself

19 10. TOM MOXLEY, Representing Ironworkers

20 11. VIRGIL BENSON, Representing Himself

21 12. MAHALA WALTER, Representing Herself

22 13. Dr. KENNETH ALPERN, Co-Chair of the Friends of the
23 Green Line

24 14. ERIC JACKSON, Representing Himself

25 15. JACK KENTON, Representing Himself

1 APPEARANCES OF PUBLIC SPEAKERS CONTINUED:

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- 16. LAWRENCE TEETER, ESQ., Attorney for the Coalition
Against the Pipeline
- 17. JOYCE JACQUET, Representing Herself
- 18. GIOVANNI GIAMMARCO, Representing Himself
- 19. ROBERT HUNTER, Representing Himself
- 20. THIRKIEL PATTERSON, Representing Laborer's
Local 300
- 21. SPARKY CARPIO, Representing Herself
- 22. CAROLE HOSSAN, Representing Herself
- 23. HARRY ROSE, Representing Himself
- 24. DANIEL WALKER, Representing the Friends of the
Green Line
- 25. DIANE SAMBRANO, Representing Herself
- 26. CECIL CARPIO, Representing Herself
- 27. PATT SANDERS, Representing Herself

STATEMENTS SUBMITTED FOR THE RECORD

<u>STATEMENT NUMBER</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1	Statement Submitted by Mahala Walter	31

1 INGLEWOOD, CALIFORNIA, MONDAY, AUGUST 18, 2003

2 ---oOo---

3
4 MR. WALL: Ladies and gentlemen, good afternoon.
5 And welcome to the public hearing to hear testimony on
6 the Los Angeles Airport Supplemental Environmental
7 Impact Report and Environmental Impact Statement. I'll
8 be your facilitator this evening.

9 My name is Tom Wall. I'd like to introduce
10 the two gentlemen to my right. First, Mr. David Kessler
11 from the Federal Aviation Administration.

12 MR. KESSLER: Good evening, ladies and gentlemen.
13 My name is David Kessler. I'm the Environmental
14 Protection Specialist for the Airports Division of the
15 Federal Aviation Administration, Western-Pacific Region.

16 I would like to welcome you to the fifth of a
17 series of public hearings the FAA and Los Angeles World
18 Airports, or LAWA, are conducting on the Supplement to
19 the Draft Environmental Impact Statement/Environmental
20 Impact Report, or EIS/EIR, for the proposed Master Plan
21 at Los Angeles International Airport.

22 The Supplement to the Draft EIS/EIR addresses
23 an additional Alternative, Alternative D, the Enhanced
24 Safety and Security Plan that was added in the fall of
25 2001. This new alternative was added as a result of

1 comments submitted on the 2001 Draft EIS/EIR and the
2 terrorist attacks that occurred on September 11th, 2001.

3 The Notice of Availability of the Supplement
4 to the Draft EIS/EIR was published in various local
5 newspapers and in the Federal Register on Friday, July
6 11, 2003. The FAA and LAWA are the authors of the
7 Supplement. The Federal Highway Administration is also
8 a cooperating agency in the preparation of the Draft
9 EIS/EIR that was published in January 2001.

10 The purpose of these hearings is to collect
11 comments from the general public concerning the adequacy
12 of the information disclosed in the Supplement to the
13 Draft EIS/EIR on the proposed Alternative D.

14 I would like to take this opportunity to make
15 sure that everyone understands that no decision will be
16 made today regarding the proposed project. Today's
17 hearing is not a question-and-answer type of forum. Our
18 job is to listen to what you have to say about the
19 adequacy of the information in the Supplement to the
20 Draft EIS/EIR. In other words, it's your turn to talk
21 to us. Since we are here to listen, we are not going to
22 respond to questions about the pros and cons of the
23 proposed project.

24 Since 5:00 this afternoon we have held a
25 public workshop just outside of this room for anyone to

1 ask questions about the Master Plan, the environmental
2 process and the various proposed projects.

3 Following publication of the Supplement to the
4 Draft EIS/EIR for review and comment, the next step in
5 the joint Federal and State environmental disclosure
6 process is holding this and the other public hearings
7 beginning last week and continuing through this week.

8 I would like to take this opportunity to recap
9 the environmental disclosure process for this project.

10 The environmental evaluation of the LAX Master Plan
11 began in 1997 with the publication of a Notice of Intent
12 to prepare the joint EIS/EIR in the Federal Register.

13 In July 1997 we held a series of meetings with members
14 of the public and governmental agencies to receive
15 comments on the scope of the Draft EIS/EIR. Following
16 those meetings, the Draft EIS/EIR was published in
17 January 2001.

18 Both the 2001 Draft EIS/EIR and the 2003
19 Supplement have been prepared pursuant the National
20 Environmental Policy Act of 1969, or NEPA, the Council
21 on Environmental Quality Regulations, which are the
22 implementing regulations for NEPA, the California
23 Environmental Quality Act of 1970, or CEQA, and the
24 Airport and Airway Improvement Act of 1982, as amended.

25 Following today's hearings and the close of

1 the comment period, we will then correct and revise the
2 EIS/EIR, as necessary, based on the comments received.
3 We will also prepare responses to the comments we
4 receive and include those responses along with those
5 that were submitted to the FAA and LAWA on the 2001
6 Draft EIS/EIR into the Final EIS/EIR. The information
7 contained in the Supplement will also be combined with
8 the information in the 2001 Draft EIS/EIR into the Final
9 EIS/EIR.

10 Before we begin receiving verbal comments, we
11 would like to let you know the ground rules of this
12 hearing. First, as I said earlier, we are not here to
13 respond to questions about this project. We are only
14 here to listen to your comments and take notes. We
15 also have a court reporter present to ensure that we
16 have an accurate transcript of this hearing.

17 For anyone wishing to speak, we ask that you
18 fill out a speaker card, like this one, and give it to
19 one of the people at the sign-in desk. The cards will
20 then be brought up here to our facilitator who will call
21 the names of each speaker so we can proceed in an
22 orderly fashion.

23 So that everyone gets an opportunity to
24 provide verbal comments, everyone will get three minutes
25 to speak. To be fair to everyone, we are not going to

1 allow people to transfer their allotted time to someone
2 else. I ask that when you speak, you give us your name
3 and address for the record. We also have a Spanish
4 language translator for anyone wishing to provide
5 comments in Spanish.

6 If there is anyone who is uncomfortable
7 speaking in front of a group or if you need more than
8 three minutes to provide your comments, we ask that you
9 provide your comments in writing. We have comment
10 sheets, like this one, available for your use at the
11 sign-in desk. You can leave your comments at the
12 sign-in desk or you may mail your written comments using
13 the comment sheet or a letter to either address listed
14 on the cover of the EIS/EIR.

15 I would like you to understand that a verbal
16 comment is just as important as a written comment.
17 Please feel free to provide any comments on this
18 document today or in writing. At this time comments on
19 the Supplement to the Draft EIS/EIR are due by 5:00
20 p.m., Pacific Daylight Time, on Monday, August 25, 2003.
21 The FAA is currently considering a request from LAWA to
22 extend the public comment period to a total of 120 days.
23 At this time no decision has been made on LAWA's
24 request. If the FAA agrees to extend the comment
25 period, a notice announcing any extension would be

1 published in the Federal Register and in local
2 newspapers of general circulation.

3 Lastly, I would like everyone to know that
4 even though we have this hearing scheduled until
5 9:00 this evening, we will stay here as long as
6 necessary for everyone to get a chance to provide verbal
7 comments on the Supplement to the Draft EIS/EIR. As I
8 said earlier, our job here today is to listen to your
9 comments.

10 At this time I would like to ask everyone in
11 the room take a moment to turn off your cell phones and
12 pagers to be courteous to those people making verbal
13 comments at tonight's hearing.

14 Now I will return our hearing back to our
15 facilitator who will introduce Mr. Jim Ritchie who will
16 provide some introductory comments from LAWA. Following
17 Mr. Ritchie's comments, we will collect the speaker
18 cards and call the name of the first speaker. Thank
19 you.

20 MR. WALL: Thank you, Mr. Kessler. Representing
21 Los Angeles World Airports this evening is Mr. Jim
22 Ritchie, the Deputy Executive Director for long range
23 planning. Mr. Ritchie.

24 MR. RITCHIE: Thank you, Tom, and welcome on behalf
25 of Los Angeles World Airports to the Inglewood forum

1 tonight -- or not the Inglewood forum, I should say the
2 Hollywood Park. We welcome you in a series of public
3 hearings that are throughout the region. We will
4 conduct approximately 12 throughout this environmental
5 period.

6 Recalling the past, recalling the year of
7 2001, you will recall we had a series of significant
8 events. We had a new mayor -- well, I should back up.
9 We started with a public comment period on three
10 alternatives at the time, Alternatives A, B and C
11 referred to as expansional alternatives. We had a new
12 mayor come to office. That new mayor gave us guidance
13 on how we should address issues raised during the public
14 comment period. And, particularly, he made a -- took a
15 specific stance on expansion and told us to plan a new
16 alternative. Additionally, in that year, of course, we
17 had the tragic events of September the 11th and we
18 proceeded on with reshaping, consistent with Mayor Jim
19 Hahn's leadership and guidance, a Safety and Security
20 Alternative that we would present to you this evening.

21 That Alternative is referred to as
22 Alternative D. That Alternative has undergone the same
23 rigorous environmental analysis that previous
24 alternatives have where at the point you understand now
25 we have released it to the public. This evening we look

1 forward to receiving your comments on the document as
2 you have reviewed it. We've had a workshop out front,
3 as Mr. Kessler indicated. We're here to listen to you.
4 We welcome your comments. And much like we shaped the
5 environmental process in the past based on the public
6 comment period, we're here to do the same tonight.

7 So with that, again, thank you, welcome. And
8 Mr. Wall, let's proceed.

9 MR. WALL: Thank you, Mr. Ritchie. In order to
10 assist you in determining how much time is left in your
11 three-minute presentation, we have an electronic clock.
12 When I start the clock, which will be after you have
13 stated and perhaps spelled your name and address for the
14 court reporters Lisa and Kim, I will start the clock and
15 you'll see a green light illuminate. When you have 30
16 seconds left, the yellow light will illuminate. And at
17 the end of three minutes the red light will come on and
18 it will start to beep. We appreciate your assistance in
19 moving through.

20 I will probably call three names at a time so
21 you could be prepared to come up to the microphone. You
22 could use either microphone. So if we're ready to
23 begin, I'll call the first three speakers.

24 First will be Jessie Gaddis, Laura Royster and
25 Rose Morse.

1 Jessie, if you'll come to the microphone,
2 please. Yes, ma'am. And, again, if you will state and
3 spell your name and address for the record.

4 MR. GADDIS: Yes. My name is Jessie Gaddis. But
5 the address is 8838 Haas Avenue, Los Angeles, 90047.

6 Okay. My presentation here today is I have
7 quite a few questions, but I know time is limited and I
8 really -- I'm concerned about the path, which as you see
9 my address I'm concerned about the path that you have to
10 be in the order to qualify for this operation of
11 soundproofing.

12 Okay. If I'm laying up there and watching my
13 TV and I'm looking at two lights focusing right on me,
14 that's on my pathway. Look to the right, there is
15 another one. Well, okay. I'm getting two or three at
16 the same time. So that is on my pathway. And I want to
17 know what can be done about it. And that's why I'm
18 voicing my opinion, to be heard today. This isn't my
19 first meeting of attending about this matter. And I'm
20 very much concerned and I want improvement done about
21 it. And that's my opinion about it.

22 When are we going to get to hear from this?
23 So I know it takes time for everything, but, like I say,
24 time is of vital importance. And we want to be heard
25 and we want to be assured that we can get quality in our

1 neighborhood, which I truly know that that is coming
2 over -- that noise is coming over my household. I am a
3 single person, a taxpayer, and I feel I deserve to ask
4 these questions. And I want to be heard. So that's my
5 opinion about the matter. Thank you.

6 MR. WALL: Thank you, ma'am. The next speaker will
7 be Laura Royster. Either microphone, ma'am.

8 MS. ROYSTER my name is Laura Royster L-a-u-r-a,
9 Royster, R-o-y-s-t-e-r. My address is 8826 Haas,
10 H-a-a-s, Avenue, Los Angeles, California.

11 Is it three minutes I get?

12 MR. WALL: Yes, ma'am.

13 MS. ROYSTER: Because it is on 59 -- 57 now. You
14 didn't reset it. I won't need the complete three
15 minutes, but I would like to have that. Okay.

16 Since May I have been contacting the
17 residential soundproofing program. I have not received
18 what I would consider a fair letter explaining anything
19 to me. As Ms. Jessie has said, the planes fly directly
20 over our home. I was told it appears they are flying
21 over our home, but they are not, that they are a
22 distance away. But when I can look up at a plane and
23 almost see the writing on it -- at least see the writing
24 on it and the emblem on the plane, for someone to tell
25 me the planes are not flying over my home is not correct

1 information.

2 I am also concerned -- I'm not that concerned
3 at this present time about whatever you planning on
4 doing. I'm concerned about the noise level that's in
5 our area. Constantly -- and in my letter the only thing
6 I requested was someone do a survey. Constantly the
7 planes are flying over. Sometimes it even appears that
8 they are waiting to land. Sometimes there are four or
9 five planes that are over -- over our area.

10 Well, I was given incorrect information, too,
11 because I was told we would get some type of response.
12 You're saying that we don't get anything, right, today?
13 That someone would get back to us later? Is that what
14 I'm understanding you to say?

15 MR. WALL: We're just receiving testimony.

16 MS. ROYSTER: Okay. My testimony is, we need help
17 and assistance in getting something done whereas our
18 homes can be soundproofed as we're told we're right in
19 the middle, but we don't qualify. To me that doesn't
20 make sense. If someone is on 88th and someone is on
21 89th that's getting assistance and we're between there
22 and we can't get assistance, something is wrong.

23 I'm also told we were governed by a plan that
24 was done in 1992 as for some noise level. Okay. Are
25 you saying the pathway hasn't changed since 1992 or the

1 noise level of the planes? Okay. I would like some
2 answers as well. Thank you very much.

3 MR. WALL: Thank you, ma'am.

4 Next will be Rose Morse.

5 MS. MORSE: My name is Rose Morse, R-o-s-e,
6 M-o-r-s-e. I'm at 8806 Haas Avenue, on the same block
7 as Ms. Jessie and Ms. Royster.

8 From what I can tell, and which is very true,
9 sometimes the planes come over until they -- sometimes
10 my windows actually shake. So when I called to find out
11 about it, they would come and do a survey or check it
12 out or whatever, the gentleman, I don't remember who I
13 spoke with. It was the office in Westchester. And what
14 he told me was that if it -- I don't remember if he said
15 if it wasn't -- wasn't 62 decibels or something like
16 that, then I didn't qualify.

17 And I told him, I said, "Well, I don't
18 understand that because from what I was told, the house
19 right next to me, which is on 88th and Haas Avenue, they
20 were on the waiting list. I don't know that for a fact
21 because I have not talked to the owners, but that's what
22 I was told." So I'm right next door to them.

23 And like I said, those planes, they are very
24 loud. Like I said, sometimes you can't hear the TV. Or
25 if you're talking on the phone, you have to say, "Oh,

1 hold on a minute because I can't hear until they clear
2 the path."

3 So I -- I -- like I said, I'm baffled by that
4 and I would like to know what -- you know, what do you
5 have to do to qualify? Do you have to sit on the runway
6 out at LAX to do that or what is it? I'm not trying to
7 be funny by saying that, by, I mean, the noise is just
8 like that. Okay. Thank you very much.

9 MR. WALL: Thank you for your comments.

10 Next will be Mr. Roy Hefner followed by
11 Mr. Kevin Norton and Mr. Larry Henderson.

12 Welcome, Mr. Hefner.

13 MR. HEFNER: Thank you. Roy Hefner, 6548 West 80th
14 Place, Los Angeles, 90045.

15 First of all, I'd like to thank the FAA and
16 the Airport Department for having these public meetings.
17 I know it's very trying for you to go out and hear us
18 night after night after night. And I know that last
19 time when the A, B, C one, Jim Ritchie used to say to
20 me, "Why do you even bother to come up because I know
21 what you're going to say." But I'm going to surprise
22 him tonight. I'm only going to deal with one basic
23 issue tonight. That is the relocation of the runways.

24 As you know, in your EIR it indicates that the
25 major reason to go ahead and relocate the runways was

1 for safety and security. And you list the incursion
2 factor as one of the problems. Certainly incursions are
3 a problem. However, if you look at the type of
4 incursions that have existed not only at LAX but
5 throughout, it's not the kind of incursions that the
6 public thinks about. When they hear the word incursion,
7 they think one airplane is going to come and crash into
8 another airplane.

9 We know that the FAA has published four
10 different categories of incursions of which the A
11 category only includes about six percent of all
12 incursions that are listed. And the others are all on a
13 relative basis.

14 LAX has an incursion ratio of I believe from
15 99 to 201 of 1.29 for over 100,000 operations. And when
16 we look at that, we say, "Hey, what kind of incursions
17 were they?"

18 Even this last year, the last ten months they
19 come out and they have six, but they have no Class A
20 incursions. Those are the serious ones. Even on a
21 national basis, that's only six percent.

22 And what causes the incursions? It's
23 primarily I think 58 percent the FAA says is of pilot
24 error. And then you have another 38 percent, something
25 of that nature, that deals with nothing more than bus

1 lines going ahead and not being where they are supposed
2 to be. But there is a very small percent of incursion.

3 The thing that disturbs me more than anything
4 else about the relocation of these runways is it's being
5 done for modernization procedures. It's not being done
6 for incursions and for safety. You're simply moving
7 these runways to go ahead and allow a greater number of
8 aircraft to utilize the airfield. And, of course, that
9 means the larger one yet to come, the A380. I'm not
10 going to deal with that issue per se, but I get
11 disturbed when I read EIRs, as the last time and this
12 time, when you go ahead and create a situation that has
13 an impact upon the public, which is a false impact and
14 it should be explained in a more realistic way.

15 One last item. I want to know how you're
16 going to build the Ground Transportation Center in
17 Manchester Square when you don't own it yet.

18 MR. WALL: Thank you, Mr. Hefner.

19 Next will be Mr. Kevin Norton.

20 MR. NORTON: Kevin Norton, 8833 Airport Boulevard,
21 Los Angeles. My name is Kevin Norton. I'm a business
22 representative with IBEW Local 11. We have over 7,000
23 members who live and work in Los Angeles. I also
24 represent California State Association of Electrical
25 Workers which represents 90,000 electrical workers in

1 California. We're a community stakeholder with an
2 office over here in Westchester. We've been training
3 and providing quality jobs in this community for over 50
4 years.

5 We're in support of Mayor Hahn's expansion of
6 LAX. We feel that it's hard times for construction
7 workers. And much needed quality, local jobs for local
8 people will be provided by the project. We think that
9 it's wonderful that Mayor Hahn wants to use local people
10 on the project. And so we rise in favor of it. Thank
11 you very much.

12 MR. WALL: Thank you, Mr. Norton.

13 Next will be Mr. Larry Henderson followed by
14 Ms. Willa Short and Mr. Arthur Guzman.

15 Welcome Mr. Henderson.

16 MR. HENDERSON: Good evening, gentlemen, ladies and
17 gentlemen of the audience. My name is Larry Henderson,
18 833 Airport Boulevard, IBEW business representative
19 also.

20 My partner Kevin Norton said almost everything
21 that there is to say about that. We appreciate Mayor
22 Hahn and his expansion project here. Everybody who uses
23 this airport knows that on any given holiday, you can't
24 hardly get in and out of there. This is not only good
25 for labor. This is good for the whole neighborhood,

1 good for people that need to use the LAX. An expansion
2 and a modernization of the way in and out is definitely
3 a need. We no longer have two engine reciprocating
4 aircraft. We've got modern jets coming in, one on top
5 of each other. We need a way to get them in and out, a
6 way to unload the people. And this plan looks very
7 efficient.

8 I want to thank you for all of your efforts.
9 And that's it for me. Thank you very much.

10 MR. WALL: Thank you, sir. Willa Short, please.

11 MS. SHORT: Thank you. I really didn't intend to
12 speak. My name is Willa Short. I live at 10108 3/4th
13 8th Avenue, Inglewood. I really didn't intend to speak.
14 So I'll make it short.

15 I do think that we do need airport expansion.
16 However, it is not too good for the community. There
17 have been cases of cancer in the area where I live. The
18 planes are going over my head actually 2:00 and
19 3:00 o'clock in the morning. When I go out to hose
20 down, it's dust. It's that black soot. So I don't
21 think it's too feasible. But, however, you know,
22 progress must go on.

23 However, I think they should increase a little
24 bit more at some of the other airports. Then we won't
25 have so much traffic over our heads, because in front of

1 us on 8th Avenue we have Smart & Final. They do not
2 listen to us. They honk their horns and they spew their
3 gas, the 18-wheelers. And they say "honk honk" in the
4 morning.

5 So I thank you for your attention. Thank you
6 very much.

7 MR. WALL: Thank you, Mrs. Short.

8 MS. SHORT: Yes, thank you.

9 MR. WALL: Mr. Arthur Guzman. He'll be followed by
10 Mr. Gordon Mego and Mr. Tom Moxley.

11 Welcome, Mr. Guzman.

12 MR. SPEAKER: Art Guzman, G-u-z-m-a-n, 17111 Steven
13 Street in Gardena.

14 As I hear the speakers speak here this
15 evening, I really sympathize and understand some of
16 their concerns because they are some of my concerns
17 simply coming from the area. But there is no way in the
18 world we're going to stop progress. Right now Los
19 Angeles is in an economic slump. And the only way we
20 will recover from an economic slump is to have good,
21 decent-paying jobs.

22 My wife and I received \$600 when the existing
23 administration in Washington took place. That was
24 supposed to stimulate the economy and we were supposed
25 to have economic development and growth. That never

1 happened because it never increased jobs. By increasing
2 or creating good, decent-paying jobs, that will
3 stimulate the economy. If we do not upgrade LAX, it
4 will become dilapidated. The surrounding areas will
5 become dilapidated. And pretty soon we have a ghetto
6 right here in LAX.

7 So we have to meet the challenges of
8 technology. And that is to upgrade the airport so that
9 it increases capacity so we can have economic --
10 stimulate economical growth here in the Los Angeles
11 area.

12 Another thing. What happens to these students
13 who graduate from high school that do not want to go on
14 to college? What chance do they have to fulfill the
15 American dream? Well, by having good, decent-paying
16 jobs. And this would be one example or one opportunity
17 for those who graduate from high school to go on and get
18 into our apprenticeship programs to get highly skilled
19 where they can get some decent wages and fulfill the
20 American dream. ;.

21 It's my understanding that this project should
22 it go through will employ something like 20 percent of
23 the labor force, which will be apprentices. This will
24 give them the opportunity to buy nice homes, to move
25 into an area should they decide to stimulate the

1 economy, by buying automobiles, by buying dishwashers,
2 TVs. And it's a snowball effect. You start on the top
3 of the hill with the snowball. You increase momentum
4 and the velocity. Pretty soon by the time it gets down
5 to the end of the hill, you have a big old snowball. So
6 this, even though it has some negative aspects to it,
7 the positive aspects of it outweigh the negatives by a
8 tremendous amount. So we're all for this project.

9 MR. WALL: Thank you for your comments, sir.

10 Mr. Gordon Mego followed by Mr. Tom Moxley.

11 Welcome, sir.

12 MR. MEGO: Hi. My name is Gordon Michael Mego, 4535
13 West 141st Street in Hawthorne. I'm a native and
14 resident of Hawthorne since October of 1952, former
15 aerospace engineer from the 1970s and '80s, design
16 engineer for various weapon systems, aircraft and so
17 forth.

18 My father had been a lead and senior mechanic
19 for American Airlines at the airports here back in the
20 1950s. So I got to see a lot of the different
21 operations behind the scenes and even up until current
22 times and have flown in many different aircraft starting
23 with the Lockheed Constellation, which it was a TWA,
24 that tri-tail, which is a very interesting plane.

25 So I've seen a lot that has gone on over the

1 years as far as, you know, the operations. I always
2 remember up until the '84 Olympics they have the moving
3 walkways, which I thought was fantastic for those that
4 carried the kind of -- traveled at kind of a slower pace
5 and so forth. But as I look at, you know, the new plan,
6 which is kind of following after, you know, the various
7 alternatives, the Riordon plan, I don't see it as
8 passenger friendly. And the convenience factor will be
9 greatly diminished. The efficiency operations for the
10 airlines and airport is not really greatly enhanced.

11 And as far as security aspects, you really,
12 essentially, are widening the envelope of the overall
13 airport property of the operations, will extend from the
14 ocean to the 405 Freeway essentially. And as far as the
15 terrorist aspects and all that, you really are
16 increasing that envelope that will be subject to
17 potential strikes and so forth.

18 As far as people being protected against that
19 really -- the Manchester Square area is definitely not a
20 way to go. You're concentrating too many people in one
21 area. And, essentially, why is the airport even going
22 ahead with the purchase of the properties when in all
23 reality there has been no contract let off or, you know,
24 the plan that's being proposed, nothing has been
25 approved. So nothing should have been even going

1 forward. Everything should have been stopped in its
2 tracks as far as that goes. And I believe it still
3 should remain a residential area.

4 As far as everything, the terminals,
5 everything should remain as they are with various
6 enhancements to basically the efficiency of the
7 operations of the airport, passenger convenience. And,
8 also, maintaining the inner perimeter roadway is very
9 important for bringing people to and from the airport
10 for unloading --

11 MR. WALL: Thank you sir --

12 MR. MEGO: -- and so forth, and also bringing in the
13 metro rail Green Line that will stop off at each of the
14 terminals so we have multi-modal system.

15 MR. WALL: Thank you, sir, for your comments.

16 Mr. Tom Moxley.

17 MR. MOXLEY: My name is Tom Moxley. That's
18 M-o-x-l-e-y. Address is 2057 South Atlantic Avenue,
19 Los Angeles, 90040. I'm here on behalf of 4200 members
20 that I represent, the ironworkers. We applaud Mayor
21 Hahn in his plan D. We support it.

22 Dealing first with safety, I worked at LAX.
23 I've traveled out of LAX, and my greatest fear is on the
24 ground until I get in the air. The airport was built
25 for 707s. The planes run close to each other. I've

1 worked at every terminal out there over 32 years. And
2 it's time that we not just put Band-Aids on like we have
3 in the past, but we truly modernize that airport for the
4 planes that are built today.

5 Dealing with security, I think Mayor Hahn's
6 idea of moving the terminal out to Manchester Square is
7 an excellent alternative. All the ticketing, baggage
8 and everything before it gets near the aircraft to have
9 time to disseminate the good and the bad and deal with
10 it appropriately.

11 I would be remised if I did not say that it's
12 the jobs. I travel a lot throughout this country and I
13 see modern airport and realize that LAX is the hub of
14 the Pacific rim. If we lose that to Vancouver, Denver,
15 Phoenix, we will lose jobs. These are jobs all around
16 the airport where people in the neighborhoods and
17 Inglewood and Westchester, Hawthorne and the other
18 cities travel to their jobs. They are airport-related.
19 They are manufacturing jobs. They are not just
20 construction jobs. The people I represent live in every
21 community here in Southern California and they are all
22 in favor of this.

23 Thank you for your time and this time to be
24 able to speak.

25 MR. WALL: Thank you for your comments, sir. Next

1 will be -- ma'am, please. Please. This will be -- next
2 will be Mr. Virgil Benson followed by Mahala Walter
3 followed by Kenneth Alpern.

4 Welcome, Mr. Benson.

5 MR. BENSON: Thank you. Virgil Benson, B-e-n-s-o-n,
6 3612 West 116th Street in California.

7 Basically I'm here to talk about the impact of
8 the noise in the area which I live, and that is the City
9 of Inglewood.

10 Impact on the noise, will it affect the land
11 values in the City of Inglewood, that is the commercial
12 and industrial? Primarily I'm concerned about the
13 multi-residential and residential values of the City of
14 Inglewood. If there is a diminution in value, will that
15 be considered a taking? What I'm saying of taking,
16 would that be considered an eminent domain taking such
17 as the First Amendment of the California Constitution
18 requires just compensation for that taking for the land
19 itself? If we are talking about a just compensation for
20 the decrease in value, who is going to be determining
21 what that value is going to be as far as what the
22 diminution in value is going to be on our land and on
23 our homes on the land as a result of the increase in
24 noise over our properties?

25 Now, we've always seen in other communities

1 where they have complained about the airport noise,
2 whereas what it does, it decreases the value of the
3 residential homes in the area in which the planes fly
4 over. If that in fact happens, who is going to be
5 compensated and who determines what compensation we will
6 be getting? Will it be your appraisers or will it be
7 local appraisers that will make that determination as to
8 the diminution of value on the land that we own? If
9 it's a taking, can we then do an inverse condemnation
10 against you in which to determine what the value of the
11 taking is going to be?

12 Now, if you're talking about bringing
13 insulated windows and insulating attics for the noise
14 factor, will that then be set against the value of the
15 property itself in which the taking is going to be?

16 Now, as we know in the past and over the years
17 when planes flew over on the beach community, the
18 airport then utilized the public use of the Eminent
19 Domain law of the State of California in taking those
20 lands, those homes, and they were compensated for those
21 homes. But there were a lot of complaints about the
22 just compensation of the homes were not at market value.
23 So who is going to determine what the market value is
24 going to be as far as the taking of the homes? I'm
25 concerned about my own properties. I'm also concerned

1 about the City of Inglewood because what's it's going to
2 impact are the land values and the commercial and
3 industrial and the residential areas in which I live and
4 in which I've invested in this community over the past
5 30 years.

6 So my concerns are basically just this. Who
7 is going to determine what the land values are going to
8 be? And is that taking going to be based on eminent
9 domain? And if so, will we be getting just compensation
10 for the land? Thank you very much.

11 MR. WALL: Thank you, sir, for your comments and
12 questions. Next will be Mahala Walter followed by
13 Mr. Kenneth Alpern and Mr. Eric Jackson.

14 MS. WALTER: Mahala Walter, M-a-h-a-l-a,
15 W-a-l-t-e-r, 7015 Sepulveda Boulevard, Westchester.

16 As your former airport commissioner, you told
17 me we need a three-dollar flyaway to LAX just like what
18 the valley has. You also said we don't -- why doesn't
19 the Green Line go to LAX? It would make it easier to
20 get to work. :

21 Now, I can tell you the flyaway is really
22 going to happen, but what about the Green Line? Instead
23 of Alternative D, extend the Green Line north two and a
24 half miles up Aviation turning left on 98th Street. And
25 then you go right to LAX at Sepulveda. Combine this

1 change with a north runway extension over Pershing
2 Drive. Not only will you have more land space available
3 for LAX passenger dissemination, but the two-mile
4 perimeter for shoulder firing missiles is also extended
5 over the ocean for shared protection by the coast guard.

6 Construction on the runways should start now,
7 not 2014. Contrary to Alternative D, the plane and the
8 traffic noise levels and the congestion will be
9 considerably less for the 105, 405 Sepulveda and the
10 Inglewood communities. There will be no need for a
11 people mover nor disruption on Century Boulevard.
12 Manchester Square will become a beautiful park not only
13 for tourists to see and enjoy, but, also, the community.

14 Seeing that there is a Green Line station plan
15 on Aviation between 98th and Century, one could
16 visualize the retail recreation center at this stop
17 where tourists could enjoy a six hour layover. LAX
18 could become the most tourist-friendly airport in the
19 world, benefiting Angelenos.

20 The Green Line has the right-of-way to go
21 north on Sepulveda Boulevard, hooking up with Slauson
22 for a Green Line LAX express to downtown Los Angeles
23 Union Station. However, the community won't like to
24 have the Green Line go through downtown Westchester, and
25 I certainly don't want it going by my house. Then when

1 I focus on the fact that in 20 years I will almost be
2 90. With a short walk, I could go anywhere. And best
3 of all, our grandchildren will enjoy a positive
4 environmental impact on our city.

5 MR. WALL: Thank you, ma'am. If you'd like to
6 submit those comments in writing, you can do so.

7 (The statement submitted for the
8 record was marked as Statement 1
9 and is attached hereto.)

10 MR. WALL: I want to remind everyone that Lisa and
11 Kim are trying to record everything that you're saying.
12 So we would like you to speak as slowly and clearly as
13 you can. I see smoke coming off of their fingertips
14 over there.

15 Next will be Mr. Kenneth Alpern.

16 MR. ALPERN: Good evening. My name is Ken Alpern.
17 I'm co-chair of Friends of the Green Line, which is a
18 very active wing at the Transit Coalition. Good evening
19 and thank you for the opportunity to let myself be heard
20 again. ;.

21 Last week at the Wilshire District I was able
22 to talk about the overall ideas of the Ground
23 Transportation Center being appropriately utilized
24 wherever it is. We're neutral on the location. But
25 we -- we really feel it's next to a rail line, and that

1 opportunity is not being utilized. And we're not going
2 to be able to achieve the true traffic mitigation, the
3 environmental mitigation that we need to make LAX
4 reconfigured in an environmental and traffic-friendly
5 way. For those of you who have been unable to read our
6 brochure, we're more than happy to forward that. That
7 might take care of a lot of what I'm about to say.

8 The following are concrete, concrete requests
9 that we're going to ask LAWA to do under the aegis of
10 traffic and environmental mitigation, and we're going to
11 send this to the councilmembers of Los Angeles and to
12 L.A. World Airports.

13 Specifically, we're asking the L.A. City
14 Council to include in the final EIR that the Green Line
15 extension north along Aviation Boulevard to the Ground
16 Transportation Center be included as an integral part
17 of the locally preferred alternative to rail traffic
18 access to LAX.

19 Two, the FAA, Caltrans, the LADOT and the MTA
20 should each approve in writing on the Green Line route
21 including the necessary trenching along Aviation
22 Boulevard to avoid potential electromagnetic
23 interference from the light rail wires with the airport
24 radar beacons. This has been done in San Jose. We can
25 do it here. Every airport in the country has been able

1 to do this. Certainly L.A. can do the same.

2 L.A. World Airports should allocate enough
3 funding to put preliminary design and engineering work
4 on the Green Line alignment to Manchester Square or
5 wherever the Green -- excuse me, wherever the Ground
6 Transportation Center is. For purposes of practicality,
7 I'm mentioning Manchester Square.

8 We need to have remote airport access anywhere
9 along the Green Line. And, frankly, this would both
10 obviate the need of a Norwalk flyaway service to LAX as
11 well as an Intermodal Transit Center. Frankly, I have
12 very strong concerns that security won't be as good as
13 at the Intermodal Transit Center as it will be at the
14 Ground Transportation Center. I'm very concerned that
15 even though I know you don't want to stop the Green Line
16 cold at Aviation and Imperial, it will have that effect.
17 After all, if we do manage to extend the Green Line
18 north, what are we going to do, deconstruct the
19 Intermodal Transit Center? It's just not something
20 that's good for long-term purposes.

21 Thank you. Again, we're going to be sending
22 this more in writing in a polished letter to you and to
23 the L.A. City Council. Thank you so very much for your
24 time.

25 MR. WALL: Thank you for your comments.

1 Next will be Mr. Eric Jackson. He'll be
2 followed by Mr. Jack Kenton and Mr. Lawrence Teeter.

3 Welcome, Mr. Jackson.

4 MR. JACKSON: Thank you. Eric G. Jackson Junior,
5 2526 West 18th Street, Los Angeles, 90019.

6 I used to be a resident of L.A. right over by
7 the airport. I lived on 105th and Wilton for five
8 years. The noise was uncomfortable, but not unbearable.
9 Progress, this is the United States of America.

10 Now, in the '70s you had roll-up windows,
11 8-tracks. In the '80s you came out with cassettes and
12 air conditioner. In the '90s you got lasers, CDs,
13 television in the back of cars, television in the
14 visors. We cannot stop the progress of this airport.
15 We have to move forward.

16 Take the City of Denver. You're 20 miles from
17 the City of Denver with Denver International Airport.
18 Go to Chicago. It's the same thing. Where do you
19 propose that we put this airport? Are butterflies more
20 important than human life? Nobody is talking about
21 let's move the butterflies. Move the butterfly
22 sanctuary. This project has to go.

23 You've got the youth. You've got jobs and you
24 have opportunity. All of us are not able to send our
25 kids to college. When it costs \$500 a unit to go to SC,

1 tell me who could afford it when you make \$60,000 and
2 you have a family of four. You will continually eat at
3 McDonald's. You will die of heart failure because
4 you're going to have too much cholesterol. People are
5 tired of working for kibbles and bits. Where is the
6 industry? If construction doesn't move in the United
7 States, the economy stops.

8 My father is 88 years old, still living and
9 never made over \$6.00 an hour in his life. When I got
10 out of the service in 1970, I came to Los Angeles and
11 made a \$1.78. Now I make over \$35 an hour. This is
12 America. And we must be courageous. And those who
13 cannot afford to go to college has to get a well-paying
14 job. I have a college education, but I make more than
15 an average teacher with a master's. So construction is
16 the way to go. I am for Plan D and we must move
17 forward.

18 God bless America.

19 MR. WALL: Thank you, sir, for your comments. Next
20 will be Mr. Jack Kenton followed by Mr. Lawrence Teeter
21 and Ms. Joyce Jacquet.

22 MR. KENTON: My name is Jack Kenton. I live at 835
23 Dune Street in El Segundo.

24 With all due respect to everyone that wants
25 jobs, I think we all want jobs, but I don't think we

1 should build an airport just for jobs. Let's build
2 light rail. Let's build transportation systems and not
3 necessarily noise here.

4 The runway issue, we have a north complex,
5 south complex. We want to put a taxiway between the
6 pairs of runways. That's supposed to be because we have
7 a safety problem with runway incursions. I don't think
8 that is justified to go through the expense. The
9 millions and billions of dollars of picking up a
10 perfectly good runway and moving it 50 feet. We had an
11 alternative of putting a taxiway out at the back end of
12 the outport runway going around the inboard runway. I
13 think if we have a safety problem, let's go that route.

14 On the security issue, we're talking about
15 moving vehicles from the Central Terminal Area and
16 moving them to the proposed Ground Transportation
17 Center. The idea is to get the terrorist attack away
18 from the populated area where the terminals are.
19 However, I can't see that we gain that much by moving
20 the target now to the Ground Transportation Center.
21 I'll be happy if someone could prove it to me that that
22 is what would happen. But it seems to me we still have
23 a large number of people that would be a target at the
24 Ground Transportation Center just as we would have had a
25 large target in the Central Terminal Area.

1 The move -- the vehicles, the movement, when I
2 looked through the Master Plan, I just cannot see enough
3 of a large change to justify all the expense that we're
4 going to put into it. And I don't think we should be
5 doing it just for jobs. We need jobs. Let's do it at
6 El Toro. Let's do it at Ontario, Palmdale, not just
7 here.

8 And by the way, when you do move that runway
9 50 feet, it gets 50 feet closer to my house in
10 El Segundo. And even another 50 feet of the noise
11 coming off that south runway is more than I want.
12 Thank you.

13 MR. WALL: Thank you, sir, for your comments
14 tonight. Next will be Mr. Lawrence Teeter.

15 MR. TEETER: Yes, good afternoon. My name is
16 Lawrence Teeter. I'm the attorney for Coalition Against
17 the Pipeline. We oppose this project for a variety of
18 reasons.

19 First of all, you're in violation of CEQA and
20 NEPA because you haven't considered a genuine no-project
21 alternative. The court says that a no-project
22 alternative is the status quo, the existing situation.
23 That's not what you consider. The existing situation is
24 Manchester Square is a functioning residential
25 community. You've written that out by treating the

1 disappearance of Manchester Square as a noise mitigation
2 measure. So you're not considering a no-project
3 alternative. And that means you're violating the first
4 principle of CEQA. You have to consider a reasonable
5 range of feasible alternatives. And you have to do it
6 in good faith. And you have to consider a true
7 no-project alternative.

8 The second problem is that this environmental
9 document is not a good faith document. It's a post hoc
10 rationalization for a preconceived result. Manchester
11 Square's disappearance is foreordained by the fact that
12 the City is telling people who live in the area they are
13 not eligible for noise insulation because the area has
14 been targeted for acquisition. And that news is going
15 out to people before this project is even approved. The
16 California Supreme Court has made it absolutely clear,
17 you can't do that. The environmental process has to run
18 its course. The environmental impact report has to be
19 completed and certified and analyzed in good faith
20 before you can take steps indicating that you've
21 committed to a specific course of action.

22 When Mayor Hahn told you, "Go ahead and
23 consider Alternative D because that's what I want,"
24 that's another indication of a fix of a foreordained
25 result. And no wonder the public gets turned off. What

1 you're going to find if you approve this project, it is
2 that is a violation of state law and it is a violation
3 of federal law and people have remedies.

4 The second area of major violation is that you
5 could have looked at a whole range of existing
6 alternatives. You could have looked at an expansion of
7 the Green Line. Somebody else already pointed that out.
8 You could have looked at people movers from Lot C or the
9 other lots. I'm not proposing that, but those are some
10 of the other alternatives you should have considered.

11 You should have considered if you need more
12 space at Lot C, expanding that upward, not taking that
13 existing residential community of Washington Square.
14 But that was the foreordained result. This is a fix,
15 and you didn't engage in the reasonable analysis of a
16 good faith reasonable analysis of feasible alternatives.

17 The other problem is Section 4(f) of the
18 National Transportation Act says you can't go ahead with
19 a project that is going to result in a use of a
20 sensitive resource. And this project, unless there are
21 no feasible alternatives and unless you've considered
22 and rejected all feasible -- all -- unless you have no
23 feasible mitigation measures you can adopt, this project
24 is going to result in increased stress on
25 environmentally sensitive areas including the wetlands

1 area in the Playa Vista.

2 MR. WALL: Thank you, Mr. Teeter. We appreciate your
3 comments. I encourage you to put those in writing and
4 send those to either Mr. Ritchie or to Mr. Kessler.

5 MR. TEETER: I've already done so. Thank you.

6 MR. WALL: Thank you. Next will be Ms. Joyce
7 Jacquet, followed by Mr. Giammarco, followed by
8 Mr. Hunter.

9 Welcome, ma'am.

10 MS. JACQUET: My name is Joyce Jacquet. The last
11 name J-a-c-q-u-e-t. And I live at 9431 South Hobart.

12 And my concern is the noise, because I have
13 gone to the office on Sepulveda to try to get some help
14 because of the noise. If the trees wasn't in front of
15 my house, the airplane lights would shine directly in my
16 living room window. And I can't seem to get any help.
17 Nobody seems to care. So I hope something can be done
18 about it. Thank you.

19 MR. WALL: Thank you, ma'am. Mr. Giovanni
20 Giammarco. ;.

21 MR. GIAMMARCO: Hi. My name is Giovanni Giammarco,
22 G-i-a-m-m-a-r-c-o, and I live in Marina del Rey. I'm an
23 investor and property owner, which is designated as the
24 Manchester Square area. And beside residential, there
25 are multi-family areas there. This is my first forum.

1 I commend you guys for doing an excellent job on getting
2 the word out and all the information.

3 What I'd like to find out is in future
4 upcoming forums, if there would be somebody that we
5 could ask questions to in regards to the buy-back
6 program. Nobody seems to have any questions or answers
7 to that particular Westchester -- or the Manchester
8 Square area. All of your plans have somehow designated
9 that particular area to be used either as a park or a
10 runway or something. I'd like to find out what the
11 future holds for several properties I own in the area.
12 That's it.

13 MR. WALL: Thank you, sir. Next, Mr. Robert Hunter
14 followed by Thirkiel Patterson -- I'm sorry, Ms. or
15 Mrs. Patterson, and then Ms. Sparky Carpio.

16 MR. HUNTER: Hello. My name is Robert Hunter. I
17 live at 2057 South Atlantic Boulevard, Los Angeles.

18 You know, when you look at LAX, it just
19 doesn't work. The pollution there is terrible. The
20 configuration of the airport, it really is a large
21 regional airport. It doesn't serve the purpose. The
22 reconfiguration that Plan D puts with LAX makes it
23 viable. It has got mass transit. It provides jobs for
24 local workers. Not everybody could go to college, and
25 these are good-paying jobs.

1 You know, California, we have a habit of
2 putting everything off until tomorrow, until it's too
3 late, until we have an emergency, like we did with the
4 power plants and the electricity system with the state.
5 We blocked it for 40 years until it became an emergency
6 and we had to do it. It cost us a lot more and it
7 probably wasn't done the best way. It's better that we
8 can plan things out like we've done with this airport.

9 We've reconfigured the thing three or four
10 times. And I believe the best plan is the one that we
11 have right now, Plan D. Mass transit, it makes the air
12 cleaner and, hopefully, it will make life better for
13 everybody in Los Angeles for a long time to come.

14 Thank you.

15 MR. WALL: Thank you for your comments, sir.

16 Mr. Patterson.

17 MR. PATTERSON: Yes, good evening. My name is
18 Thirkiel Patterson. I reside at 3634 West 106th Street
19 in Inglewood.

20 I'm a 30-year resident. I sympathize with
21 most of the resident people who live around here, but
22 progress -- I don't believe they are going to be able to
23 stand in the way of progress because the City of
24 Inglewood pacified me in the property that I own in
25 Inglewood when the noise level became intolerant. And

1 I'm pretty sure this program here would initiate some of
2 the same type of pacification, however you want to see
3 it.

4 I represent over 6,000 union workers in
5 Southern California. And we're in support of this
6 project. Thank you.

7 MR. WALL: Thank you for your comments, sir.

8 Mrs. Carpio. Welcome.

9 MS. CARPIO: Thank you. Sparky, S-p-a-r-k-y,
10 Carpio, C-a-r-p-i-o. I live at 407 E-x-t-o-n, Number 4,
11 Inglewood, California 90302.

12 I just want to say that I know people need
13 jobs, and Mayor Hahn's plan might be good for the
14 economy, but doesn't people's quality of life matter
15 more? What about the neighboring communities? How can
16 you say that something that has in just months grown
17 from 78 MAP to 78.9 MAP not being an expansion plan?
18 And I guess you don't care what the Southern California
19 Association of Government said about 78 MAP or less, but
20 there is a lot of second guessing. And, oh, Palmdale
21 really needs to be used. And I hope Mayor Hahn stays
22 true to his word of regionalization.

23 MR. WALL: Thank you very much.

24 MS. HOSSAN: It's Carol Hossan, like "Ha," 7725
25 Hindry, Westchester, 90045.

1 My theme is going to be the stealthiness of
2 all of this. Here is a quote I really like from a
3 comment from a report to the County.

4 "Because the new larger aircraft require many
5 smaller connecting planes to fill its 600 seats, this
6 improvement will strengthen the confluence of
7 connections that reinforce LAX as the preeminent airport
8 of the Southern California region, and at the same time
9 reduce the incentive for airlines to utilize other
10 regional facilities."

11 Now, I and many other people have been saying
12 that for months, but it is very reassuring and maybe
13 more convincing to you to have experts say it, too.

14 This is a poem, "If not now, when? City of
15 L.A. says regionalization. Actions belie words."

16 Now, I'm not going to go into the story of
17 SCRA with you, but those in the know know what that's
18 all about. The death of SCRA caused by the City of
19 Los Angeles, here is the second one.

20 "The myth of 78 MAP, fewer gates limit MAP.
21 Are you so sure? Bigger planes bring more people."

22 This is, again, from the County report.
23 "Alternative provides 150 fully functional and
24 high-capacity gates and does not remove the concrete
25 which will remain available for airport parking. The

1 true number of gates is there for over 200."

2 Interesting.

3 Stealth versus security -- or regarding
4 security. This is entitled, "Bull's-eye" and we
5 remember what the RAND study said about the plan.

6 My poem, "Bull's-eye" "Security, no. All
7 those people in one place, massive target stands."

8 And a -- a -- I guess a regular note. I ask
9 if you have the Westchester Streetscape Project
10 mentioned in your plan, if what they are planning is,
11 you know, in your EIS, et cetera. I'm hoping what
12 Westchester is planning is taken into account because
13 the County report says that a lot of current projects
14 are not mentioned in your supplement. Thank you.

15 MR. WALL: Thank you very much. Next is Mr. Harry
16 Rose followed by Mr. Daniel Walker.

17 MR. ROSE: Good evening. My name is Harry Rose. I
18 live at 7725 Hindry Avenue, Westchester, California.

19 I'm here tonight to speak of jobs. By God,
20 there is nothing like a public works boondoggle to get
21 the economy rolling again, isn't it folks?

22 Something that our union friends are probably
23 not aware of is that the community of Westchester and
24 Playa del Rey have devised an alternative to Alternative
25 D that we like to call Alternative E. And in devising

1 this alternative, we kind of looked at the Alternative D
2 and asked ourselves, what really needs to be done here?
3 From our standpoint, what really needs to be done is we
4 need to move the parking lot. And I think that we can
5 do this for far less than \$9.6 billion dollars.

6 What we propose to do was to move the parking
7 lot to the corner of Aviation and Century Boulevard on
8 airport property and to extend the Green Line into the
9 Ground Transportation Center along a trench on Aviation
10 Boulevard to -- at the Ground Transportation Center
11 provide the passenger with check-in and complete luggage
12 screening so once you arrive at the airport, you're free
13 of your luggage. You can travel on a people mover to
14 the airport.

15 And we thought that Manchester Square might be
16 a great location for a park, especially since the City
17 Council of Los Angeles promised us that's what it was
18 going to be. But we thought maybe a Convention Center
19 would be nice, too, something close to the hotels, maybe
20 a little larger than what they could accommodate, but
21 smaller -- small enough that it wouldn't compete with
22 downtown.

23 We propose moving the car rental facility,
24 consolidating it at the corners of Imperial and Aviation
25 so we don't have people driving down our streets asking

1 us, "Gee, how do I get to Hertz from here?"

2 And looking at the runway complexes, we see an
3 Alternative D essentially building up a flight field
4 that can handle far more capacity than it currently can.
5 And we thought we wouldn't even mess with the north
6 runway complex, but move the inside runway south in the
7 south -- north in the north -- move the inside runway
8 north in the south runway complex to accommodate the
9 larger aircraft. That would also provide them with the
10 12,500-foot runway and keep them where they belong, away
11 from our community.

12 We've really gotten no consideration at all
13 from the City of Los Angeles for our proposals. We'll
14 be submitting them in writing. And I'm certain that
15 this proposed alternative of the communities would
16 provide those much-needed construction jobs at a far
17 less -- far more reasonable cost to the airline and air
18 passengers. Thank you.

19 MR. WALL: Thank you, Mr. Rose.

20 MR. WALKER: Good evening. I'm Daniel Walker. I
21 live at 7416 West 82nd Street in Los Angeles. That's in
22 Westchester about 10 blocks north of LAX.

23 In talking to my family and people in my
24 neighborhood, they have -- they use LAX regularly and
25 they'd like to see it improved, but they also have a lot

1 of concerns primarily in terms of traffic congestion,
2 air pollution and noise. Those are the main three
3 things that my family talks about.

4 I'm a Friend of the Green Line, grass roots,
5 all-volunteer group. And we're promoting -- we're
6 promoting the Green Line to go to more places. Just
7 this last month the Green Line set an all time record of
8 over 36,000 rides, probably in conjunction with the
9 opening of the Gold Line. Even though the line really
10 goes from nowhere to Norwalk to nowhere here in the
11 South Bay area, it has so much more potential.

12 When you go to Europe and you go to the better
13 airports, what you can do is you could get off your
14 airplane and you have access to a rail system that takes
15 you all throughout Europe. You simply don't need to
16 take short -- short hop airline flights throughout the
17 rest of France, for example, when you land at Paris.

18 There is no reason why in California we can't
19 improve the quality of lives for my friends and
20 neighbors out here by reducing the need for some of
21 those local commuter flights by having a good rail
22 connection. The MTA already owns a line that runs from
23 LAX toward downtown L.A. that could be easily upgraded
24 for quiet, non-polluting light rail transit. The City
25 of Inglewood is very interested in hearing more about

1 that, studying that. That would provide the link from
2 here to Santa Barbara or from here to Las Vegas, here to
3 San Diego. It would reduce the need for people to drive
4 to LAX. It would certainly reduce the amount of
5 pollution in the local area.

6 So there is a lot of reasons why a better mass
7 transit airport access would make things better, not
8 only for the airport, but the communities around the
9 airport.

10 So the Friends of the Green Line is asking
11 LAWA and the City of L.A. and the City of Inglewood to
12 look a little bit more closely at this former BNSF, now
13 MTA-owned right-of-way that runs from the airport to the
14 rest of downtown Los Angeles and the rest of the County,
15 and see if that can be used as some mitigation for some
16 of the traffic and some of the pollution that are caused
17 by the airport.

18 So I certainly can sympathize with a lot of my
19 neighbors that are talking today about the problems they
20 face and the concerns they have about more people coming
21 to LAX. And I understand what people are saying about
22 jobs because we certainly need jobs as well. We are
23 here to talk about better access.

24 No matter what size the airport is, no matter
25 where the ultimate Ground Transportation Center ends up,

1 if it's located near the Harbor Subdivision tracks, we'd
2 like to see a station there that's connected to the rest
3 of the rail network. The people mover is a fine idea,
4 but let's get a real light rail connection as well.
5 Thank you.

6 MR. WALL: Thank you, Mr. Walker.

7 Ladies and gentlemen, do we have any other
8 speaker cards at this time? I want to thank everyone
9 who has spoken this evening for your thoughtful
10 comments. We'll take a short recess and we'll be back
11 if we have others that wish to speak. Thank you.

12 (Recess was taken.)

13 MR. WALL: Gentlemen, if you're ready, may I call
14 Diane Sambrano, please, to the podium. I'll remind you,
15 ma'am, if you would state your name and address and I
16 will begin the clock when you completed that.

17 MS. SAMBRANO: Okay. My name is Diane Sambrano,
18 3640 West 111th Place, Inglewood, California 90303.

19 Good evening, and thank you again for having
20 the public hearing. I unfortunately am disappointed
21 that we did not have any local publicity from our local
22 representatives.

23 But with regards to the LAX expansion
24 Alternative D, I think that we need to keep in mind, as
25 you heard many people tonight say, that jobs is

1 everything. And progress is everything. And I would
2 encourage you to think that with that concept comes a
3 certain amount of quality of life for those of us who
4 live near the airport that they simply choose to
5 disregard. Our quality of life should not be sacrificed
6 so that someone can have an occasional part-time
7 short-term job. The benefit for those traveling to and
8 from other destinations should not be the sole burden of
9 those of us who live near LAX.

10 Both the SCAG, the COG and everyone else in
11 this country seems to understand that putting all of
12 your eggs in one basket is not a good idea, but the
13 regionalization should in fact be the plan that we
14 pursue. And by encouraging more and more traffic to
15 come to LAX is a direct decrease of suggesting people to
16 go to other locations, whether it's Ontario, Palmdale or
17 El Toro. The quality of life for the people that live
18 near this airport should be considered.

19 As often some people say, "You knew the
20 airport was there." None of us purchased cell phones.
21 And I assure you, very few people in 1950 bought stock
22 in cell phones. And if they did, they are not in this
23 room tonight. They are living somewhere else very far
24 away from any of this discussion.

25 To say that everything is about progress is

1 tantamount in telling me that greed for some is more
2 important than the need for all. My quality of life and
3 the quality of life due to benzene, carcinogens, traffic
4 congestion, and simple noise pollution should not be the
5 very thing that makes someone else who doesn't endure
6 those things rich. Anyone who wants to get rich off of
7 all those issues should try living in my community.

8 Mitigation has not been addressed to a degree
9 that is sufficient for the members of this area of the
10 region. We should not, as I said before, bear the
11 burden so that everyone else has convenience. Those who
12 are elected are elected to serve the people and not
13 simply those who can pay off campaign contributions. We
14 the people of this area deserve equal and appropriate
15 environmental justice. And it is unfortunate that the
16 entity who put this plan and program together chose to
17 do it on a limited scope and not make the written
18 documents available to the masses who they will affect.

19 MR. WALL: Thank you, Ms. Sambrano. Do we have any
20 other speaker cards at this time? Seeing none being
21 brought forward, we will recess again until we have
22 additional speaker cards.

23 Ms. Michele Grumet, please. And, ma'am, are
24 you familiar with the process? All right. If you'll
25 state your name and address, please, for the court

1 reporters, then I'll start the time.

2 MS. GRUMET: Okay. Michele Grumet, 2036 West 77th
3 Street, Los Angeles, 90047.

4 My objection is that many people in the
5 affected communities, and particularly seniors, are not
6 computer literate and cannot afford the high prices of
7 the documents such as \$330 for the Supplement EIR, 140
8 for the appendices, \$755 for the technical reports to
9 the Supplement, and the Draft and Master Plan addendum
10 \$340, \$50 for the disk. You would think that a
11 \$9-billion-dollar project could afford to provide the
12 public with free access to those documents.

13 Now, talking about the cost of the EIR, I feel
14 that the cost of the EIR, which should be free to the
15 public, has impeded the public's ability to participate
16 in the EIR process by limiting access to the EIR and
17 violating CEQA. And I guess that a project of this
18 cost, the lead agencies can just not afford to provide
19 the affected parties with documents for free.

20 I, myself, have worked on several such
21 documents; EIRs in the past. And always people who
22 requested the documents were given the documents. And I
23 think it's very difficult for many people to go to
24 libraries because there is only, for instance, in South
25 L.A. where I live, that particular area, there are only

1 two public libraries. So people would have to stand in
2 line to wait because you're not allowed to check out the
3 EIR. So I think this violates the CEQA process.

4 Thank you.

5 MR. WALL: Thank you, ma'am, for your comments.
6 Next we'll call Ms. Cecil Carpio.

7 MS. CARPIO: Thank you. Cecil Carpio, 407 Exten
8 Avenue, Inglewood.

9 This isn't technical at all. I guess it's
10 about as technical as crying for jobs, jobs, jobs. But,
11 you know, LAX Master Planning didn't address terrorism
12 the first time around. Alternatives A, B and C, why?

13 During the late '60s and the early '70s
14 high-jacking was in the forefront of international news.
15 Presidential committees studied airport safety and
16 security. Los Angeles Department of Airports has been
17 running an unsecure, unsafe airport all these years. If
18 everyone -- if anyone is serious about safety and
19 security, the push would be for decentralization.
20 Los Angeles World Airports would not allow itself to
21 grow. L.A. Mayor James Hahn wants El Toro. Why? To
22 pull another Palmdale. El Toro should be forced to
23 become a part of the Southern California system.

24 The Manchester Square Voluntary Program is a
25 heartless process of acquiring property for LAX

1 expansion. And it's not voluntary. This hearing must
2 not really be that important either because I'd like to
3 note that at, what, 8:30 I have not seen the members of
4 Inglewood City Council including Mayor Dorn. I haven't
5 seen the city administrator. I haven't seen members of
6 the Inglewood Aviation Commission, except for me. I
7 haven't seen the board members of the Inglewood Unified
8 School District, you know, not to mention the Planning
9 Commission of the City of Inglewood. So why are we all
10 here?

11 MR. WALL: Thank you, ma'am, for your comments.
12 Next Ms. Patt Sanders. Welcome, Ms. Sanders.

13 MS. SANDERS: Thank you. Good evening. My name is
14 Patt Sanders. I reside at 8716 South 3rd Avenue.

15 I carry many hats. I'm a library
16 commissioner. And on top of that I'm the elected member
17 of the 51st Assembly District for the Los Angeles County
18 Central Committee.

19 Previous speaker, the one before me, ditto, I
20 won't go over all of the other comments regarding the
21 EIR not making it available to people.

22 My parents, my father is 81 years old and
23 lives in Inglewood. There was some other comment made
24 previously of why don't we move. Why should we when we
25 have worked for our homes? I'm a 28-year retiree from

1 the City of Los Angeles. I reside in Inglewood. I
2 cannot hear myself think with all these planes flying
3 over.

4 My issue now, I look at this EIR and I'm
5 totally disgusted by this. One of the things, why would
6 you put -- if we're so concerned about terrorism and
7 safety and security, why in the hell do you put it in
8 our neighborhood? You know, I mean, don't we count?
9 And the mere fact that, okay, we're having this hearing
10 now when the mayor, Los Angeles mayor is off on
11 vacation, some of our own citizens are off on vacation.
12 I mean, it's like the previous plan. It's like going
13 from bad to worse. That's what it is. There is no
14 consideration about us as citizens.

15 And I'm a union member. So I'm not going to
16 talk against my union brothers. I was vice president of
17 the Engineers and Architects Association for many years
18 until my retirement, but how many of those union members
19 actually reside in this flight path and are affected by
20 this plan? That's what I want to know. And I'm not mad
21 at them. I know they are looking out for their members
22 and they are looking out for money and everybody wants a
23 piece of the pie. Bottom line is, it's the citizens.

24 And another thing. Where are the damn --
25 where the hell are the health declarations? My father

1 lost his hearing and we can look back. My family lives
2 a long time. There is no nobody that has had any
3 hearing problems except when they moved to Inglewood in
4 Carlton Square and have been living there. He's the
5 only one out of ten children that has a hearing problem.
6 We have other health declarations. I saw them when they
7 were submitted. Where are they and why aren't they
8 addressed? What, are you waiting for the people just to
9 die off so you could just go ahead with your plan? It's
10 really disgusting that we're really, you know, dealing
11 with this now in this day and time.

12 And then, look, I'm not a mathematical genius,
13 but I can count. On your plan you don't take into
14 account the homes that you're going to have to move.
15 The people, where are they going to go? You're just
16 going to rollover them and that's not counted in the
17 plan? There is no financial planning? The figures
18 don't add up.

19 So I'm just going to leave you with that. I
20 think it's disgusting that, you know, you're doing this
21 to citizens, to people. My father served this country.
22 He's a declared veteran. I'm a grand-daughter of a
23 Native-American. Why am I being treated like this?

24 MR. WALL: Thank you for your comments, Ms. Sanders.

25 Is there anyone else who would like to submit

1 a speaker card at this time? Seeing no one, we'll
2 recess the public hearing.

3 (Recess was taken.)

4 MR. WALL: Ladies and gentlemen, we're going to
5 reconvene the public hearing.

6 MR. KESSLER: Is there anyone else that has not had
7 an opportunity to speak concerning the information in
8 the Supplement to the Draft EIS/EIR?

9 Not seeing anyone else, I'll remind you that
10 if you feel that you're uncomfortable about providing
11 comments verbally, you can provide them in writing using
12 a comment sheet.

13 At this time we'll still be accepting
14 comments, written comments, until 5:00 p.m. Pacific
15 Daylight Time, on Monday, August 25th, 2003. You can
16 mail your comments either to me at the FAA or to Jim
17 Ritchie at LAWA. The mailing addresses are listed on
18 the cover of the Supplement to the Draft EIS/EIR. I
19 would like to thank everyone for your comments today.

20 This public hearing for the Supplement to the
21 Draft EIS/EIR on the Los Angeles International Airport
22 Master Plan is now closed. Thank you.

23 (Whereupon the proceeding adjourned
24 at 9:00 o'clock p.m.)

25 ---oOo---

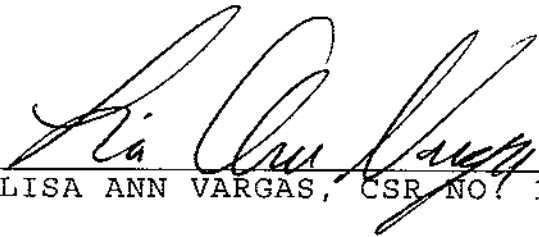
1 STATE OF CALIFORNIA)
2 COUNTY OF RIVERSIDE) ss.

3
4 I, LISA ANN VARGAS, certified shorthand reporter,
5 License No. 12049, do hereby certify:

6 That the proceedings contained herein were taken
7 before me at the time and place herein set forth and was
8 taken by me in shorthand and thereafter transcribed into
9 typewriting by me, and I hereby certify that the said
10 proceedings are a full, true and correct transcript of
11 my shorthand notes so taken.

12 I further certify that I am not interested in the
13 event of the action.

14
15 WITNESS my hand this 8th day of September 2003.

16
17 
18 LISA ANN VARGAS, CSR NO. 12049

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25

ERRATA SHEET

I declare under penalty of perjury that I have read the foregoing _____ pages
of my deposition testimony, taken on _____ at
_____, California,
and that the same is a true record of the testimony given by me at the time and place hereinabove
set forth, with the following exceptions:

Page Line Should read:

Date: _____

Signature of the Witness

Name Typed or Printed

As your former airport commissioner, you told me, "We need a \$3 FLYAWAY to LAX just like what the Valley has!"

You^{also} asked, "Why doesn't the GREEN LINE go to LAX?" ^{make it} It would be so easy to get to work.

NOW the FLYAWAY IS REALLY GOING TO HAPPEN!But, how about the Green Line?

Instead of Alternative D, extend the GREEN LINE north 2.5 miles up Aviation, turning left on 98th St., ^{then} and it goes right to LAX at Sepulveda. Combine this change with ^a the north runway extension over Pershing Drive, not only is their more land space available for LAX passenger dispersion, but the 2 mile perimeter for shoulder firing missiles is also extended out over the ocean for shared protection by the Coast Guard. Construction on the runways should start NOW, not 2014.

~~Thus~~, Contrary to Alternative D, the plane & traffic noise levels and the congestion will be considerably less for the 105, 405, Sepulveda and Inglewood communities. There would be no need for a people mover; no disruption of Century Blvd. Manchester Squares would become a beautiful park for not only the tourists to enjoy, ^{but} also the community.

Seeing that there is to be a Green Line station, ^{planned} on Aviation, between 98th & Century, one could visualize the Retail/Recreation Center at this stop where tourists could enjoy a 6 hour layover. LAX could become the most tourist- friendly airport in the world, benefiting all Angelenos.

The GREEN LINE has the Right-of-Way to go north on Sepulveda Blvd., hooking up with Slauson for a **GREEN LINE LAX EXPRESS** to downtown Los Angeles Union Station. However, the community won't like the Green Line going through downtown Westchester & I certainly don't want it to go down MY street! THEN when I focus in on 20 years later, ^{I realize} I'll be almost 90. With just a short walk, I could go ANYWHERE. And best of all, our grandchildren will enjoy the positive environmental impact on our city.

~~Just as for the butterflies, there are inconveniences for EVERYONE.~~

Submitted by Former Airport Commission Mahala Walter 8/18/2003

**Official Hearing Transcript
Airtel Hotel Plaza
Van Nuys, California
Tuesday, August 19, 2003**

Following this page is the transcript of the oral testimony taken at the above hearing. Each speaker at the hearing has been assigned a unique identification number. The numbers assigned to each speaker for this hearing are:

Number	Speaker	Affiliation
SPHA00001	Shandor Winger	None Provided
SPHA00002	Robert Rodine	Polaris Group
SPHA00003	Steven Leffert	None Provided
SPHA00004	Don Schultz	Van Nuys Homeowner's Association
SPHA00005	Bart Reed	Transit Coalition
SPHA00006	John Spaulding	Operating Engineers
SPHA00007	Pete Gerber	Tile Marble Layers Local Union 18
SPHA00008	Charles Brink	None Provided
SPHA00009	Sergio Ramos	Laborers Local 300
SPHA00010	James Stewart	None Provided
SPHA00011	Mike Ayre	None Provided
SPHA00012	Dennis O'Sullivan	None Provided
SPHA00013	Mahala Walter	None Provided
SPHA00014	Charles Brink	None Provided

Any exhibits attached to this hearing transcript have been previously reproduced in this Final EIS/EIR as individual public comment letters.

ORIGINAL

ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION AND
LOS ANGELES WORLD AIRPORTS, THE SIXTH PUBLIC HEARING
ON THE SUPPLEMENT TO THE DRAFT EIS/EIR
FOR THE PROPOSED MASTER PLAN AT LAX

REPORTER'S TRANSCRIPT OF
PUBLIC TESTIMONY

TAKEN ON
TUESDAY, AUGUST 19, 2003

HELD AT THE AIRTEL PLAZA HOTEL

7277 Valjean Avenue
Van Nuys, California

REPORTED BY:

LISA ANN VARGAS, C.S.R. NO. 12049

NORMAN SCHALL & ASSOCIATES
Certified SHORTHAND REPORTERS

1055 Wilshire Blvd. Suite 1503
Los Angeles, CA 90017
(800) 734-8838
(213) 481-3636 Fax
e-mail: SchallDepo@aol.com
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1 **APPEARANCES OF FACILITATORS:**

2 SHAUNA BAIN SMITH, Public Affairs Director for the
3 Lee Andrews Group

4 DAVID KESSLER, Airport Planner for the Federal Aviation
5 Administration

6 JIM RITCHIE, Deputy Executive Director for the
7 Los Angeles World Airports

7 **APPEARANCES OF PUBLIC SPEAKERS:**

8 1. SHANDOR WINGER, Commissioner for the North Valley
9 Planning Commission,
 Representing Himself

10 2. ROBERT L. RODINE, Representing Himself

11 3. STEVEN LEFFERT, Representing Himself

12 4. DONALD SCHULTZ, Representing Himself as a Community
13 Activist in the San Fernando Valley

14 5. BART REED, Executive Director of the Transit
15 Coalition, San Fernando Valley

16 6. JOHN SPAULDING, Representing Operating Engineers
 Local 12

17 7. PETE GERBER, Representing Tile & Marble Layers
 Local Union 18

18 8. CHARLES BRINK, Representing Himself

19 9. SERGIO RAMOS, Representing Laborer's Local 300

20 10. JAMES STEWART, Vice Chair of the Van Nuys Airport
21 Citizen's Advisory Council
 Representing Himself

22 11. MIKE AYRE, Representing Himself

23 12. DENNIS O'SULLIVAN, Representing Himself

24 13. MAHALA WALTER, Representing Herself

25 14. CHARLES BRINK, Representing Himself
 (Speaking a Second Time.)

1 VAN NUYS, CALIFORNIA, TUESDAY, AUGUST 19, 2003

2 ---oOo---

3
4 MS. SMITH: Good evening, ladies and gentlemen. On
5 behalf of the Federal Aviation Administration and
6 Los Angeles World Airports, I would like to welcome you
7 to one in a series of public hearings that we're holding
8 to receive your testimony on the Los Angeles Airport
9 Master Plan and Environmental Impact Statement and
10 Environmental Impact Report.

11 My name is Shauna Bain Smith, and I will be
12 your facilitator. The two gentlemen to my right will be
13 receiving your testimony this evening. They have a few
14 introductory remarks before we start your testimony.

15 I'll start with Mr. David Kessler here from
16 the Federal Aviation Administration.

17 Mr. Kessler.

18 MR. KESSLER: Thank you. Good evening, ladies and
19 gentlemen. My name is David Kessler. I'm the
20 Environmental Protection Specialist for the Airports
21 Division of the Federal Aviation Administration,
22 Western-Pacific region.

23 I would like to welcome you to the sixth of a
24 series of public hearings the FAA and Los Angeles World
25 Airports are conducting on the Supplement to the Draft

1 Environmental Impact Statement/Environmental Impact
2 Report, or EIS/EIR, for the proposed Master Plan at
3 Los Angeles International Airport.

4 The Supplement to the Draft EIS/EIR addresses
5 an additional Alternative, Alternative D, the Enhanced
6 Safety and Security Plan that was added in the fall of
7 2001. This new alternative was added as a result of
8 comments submitted on the 2001 Draft EIS/EIR and the
9 terrorist attacks that occurred on September 11th, 2001.

10 The Notice of Availability of the Supplement
11 to the Draft EIS/EIR was published in various local
12 newspapers and in the Federal Register on Friday, July
13 11, 2003. The FAA and LAVA are the authors of the
14 Supplement. The Federal Highway Administration is also
15 a cooperating agency in the preparation of the Draft
16 EIS/EIR that was published in January 2001.

17 The purpose of these hearings is to collect
18 comments from the general public on the adequacy of the
19 information disclosed in the Supplement to the Draft
20 EIS/EIR on the proposed Alternative D.

21 I would like to take this opportunity to make
22 sure that everyone understands that no decision will be
23 made today regarding the proposed project. Today's
24 hearing is not a question-and-answer type of forum. Our
25 job is to listen to what you have to say about the

1 adequacy of the information in the Supplement to the
2 Draft EIS/EIR. In other words, it's your turn to talk
3 to us. Since we are here to listen, we are not going to
4 respond to questions about the pros and cons of the
5 proposed project.

6 Since 6:00 this evening we have held a public
7 workshop just outside of this room for anyone to ask
8 questions about the Master Plan, the environmental
9 process and the various proposed projects.

10 Following publication of the Supplement to the
11 Draft EIS/EIR for review and comment, the next step in
12 the joint Federal and State environmental disclosure
13 process is holding this and the other public hearings
14 beginning last week and continuing through this week.

15 I would like to take the opportunity to recap
16 the environmental disclosure process for this project.
17 The environmental evaluation for the LAX Master Plan
18 began in 1997 with the publication of a Notice of Intent
19 to prepare the joint EIS/EIR in the Federal Register.
20 In July 1997 we held a series of meetings with members
21 of the public and governmental agencies to receive
22 comments on the scope of the Draft EIS/EIR. Following
23 those meetings, the Draft EIS/EIR was published in
24 January 2001.

25 Both the 2001 Draft EIS/EIR and the 2003

1 Supplement have been prepared pursuant the National
2 Environmental Policy Act of 1969, or NEPA, the Council
3 on Environmental Quality Regulations, which are the
4 implementing regulations for NEPA, the California
5 Environmental Quality Act of 1970, or CEQA, and the
6 Airport and Airway Improvement Act of 1982, as amended.

7 Following today's hearings and the close of
8 the comment period, we will then correct and revise the
9 EIS/EIR, as necessary, based on the comments received.
10 We will also prepare responses to the comments we
11 receive and include those responses along with those
12 that were submitted to the FAA and LAWA on the 2001
13 Draft EIS/EIR into the Final EIS/EIR. The information
14 contained in the Supplement will also be combined with
15 the information in the 2001 Draft EIS/EIR into the Final
16 EIS/EIR.

17 Before we begin receiving verbal comments, we
18 would like to let you know the ground rules of this
19 hearing. First, as I said earlier, we are not here to
20 respond to questions about this project. We are here
21 only to listen to your comments and take notes. We
22 also have a court reporter present to ensure that we
23 have an accurate transcript of this hearing.

24 For anyone who would like to speak, we ask
25 that you fill out a speaker card, like this one, that

1 are available and give it to one of the people at the
2 sign-in desk. The cards will then be brought up here to
3 our facilitator who will call the names of each speaker
4 so we can proceed in an orderly fashion.

5 So that everyone gets an opportunity to
6 provide verbal comments, everyone will get three minutes
7 to speak. To be fair to everyone, we are not going to
8 allow people to transfer their allotted time to someone
9 else. I ask that when you speak, you give us your name
10 and address for the record. We also have a Spanish
11 language translator for anyone wishing to provide
12 comments in Spanish.

13 If there is anyone who is uncomfortable
14 speaking in front of a group or if you need more than
15 three minutes to provide your comments, we ask that you
16 provide your comments in writing. We have comment
17 sheets, like this one, available for your use at the
18 sign-in desk. You can leave your comments at the
19 sign-in desk or you can mail your written comments using
20 the comment sheet or a letter to either address listed
21 on the cover of the EIS/EIR.

22 I would like you to understand that a verbal
23 comment is just as important as a written comment. So
24 please feel free to provide any comments on the document
25 you may have either to us verbally today or in writing.

1 On August 1, 2003, LAWA asked the FAA to
2 extend the public comment period to a total of 120 days.
3 FAA has agreed to LAWA's request. FAA has also asked
4 the U.S. Environmental Protection Agency to publish a
5 notice announcing the extension to the public comment
6 period in the Federal Register. FAA and LAWA will also
7 publish a notice of the extension in the local
8 newspapers of general circulation. Therefore, comments
9 on the Supplement to the Draft EIS/EIR are now due by
10 5:00 p.m., Pacific Standard Time, on Friday,
11 November 7, 2003.

12 Lastly, I would like everyone to know that
13 even though we have this hearing scheduled until 10:00
14 tonight, we will stay here as long as necessary for
15 everyone to get a chance to provide verbal comments on
16 the Supplement to the Draft EIS/EIR. As I said earlier,
17 our job here today is to listen to your comments.

18 At this time I would ask that everyone take a
19 moment and turn off your cell phones and pagers to be
20 courteous to those people making verbal comments at
21 tonight's hearing.

22 Now I will return our hearing back to our
23 facilitator who will introduce Mr. Jim Ritchie, who will
24 provide some introductory comments from LAWA. Following
25 Mr. Ritchie's comments, we will collect the speaker

1 cards and call the name of the first speaker.

2 Thank you.

3 MS. SMITH: Thank you, Mr. Kessler. Next, I would
4 now like to introduce Mr. Jim Ritchie, Deputy Executive
5 Director of Los Angeles World Airports.

6 Mr. Ritchie.

7 MR. RITCHIE: Thank you, Shauna. Good evening and
8 welcome to the Airtel Hotel for the purposes of this
9 evening's public hearing continuing a series of 12
10 public hearings. For the purposes of consistency, I'll
11 read a prepared introductory comment, as we will do at
12 the 12 public hearings as part of this alternative.

13 You may recall the public hearing process in
14 2001 while we were examining other alternatives for the
15 modernization of the LAX.

16 The tragic events of 2001 and the leadership
17 of Mayor Jim Hahn have reshaped our environmental
18 process. The Mayor's pressing concerns for safety and
19 security have provided new guidance along with the
20 public comments received during that public comment
21 period in 2001 that ran from January through November.

22 You are here tonight to comment, primarily to
23 provide on that new Alternative referred to as
24 Alternative D. This is a Supplement to the existing
25 environmental process, and it has undergone a rigorous

1 environmental review.

2 We are here tonight to receive your comments
3 on this new Safety and Security Plan and its impacts, as
4 disclosed in the Draft Environmental Impact
5 Statement/Environmental Impact Report we had released.

6 So with that, Shauna, let's go to work.

7 MS. SMITH: Thank you, Mr. Ritchie. Again, my name
8 is Shauna Bain Smith. As your facilitator, I'm only
9 here to ensure that you're able to make your comments in
10 a timely and orderly fashion. I'm your friend. And
11 this clock will be our best friend.

12 Everyone will get three minutes to speak. As
13 Mr. Kessler mentioned, if you filled out one of these
14 speaker cards and turned them into the sign-in table, it
15 will be given to me in the order in which you turned it
16 in. I will call out about three people at a time just
17 so you know when to expect your time to come up.

18 When you see the green light come on, your
19 three minutes will start. It will only start when you
20 give your name and address for the record. If you could
21 spell your last name for us, that would be helpful. And
22 if you could speak as slowly and clearly as possible,
23 that would help our court reporters as well.

24 When I start the clock, when you're down to
25 30 seconds, you'll see a yellow light appear on the

1 clock. At that time I suggest you start wrapping up
2 your remarks. When your time has expired, the red light
3 will go off and you'll hear a beep tone. At that time
4 I'll have to ask you to stop speaking.

5 If it looks like we have time, we would love
6 for you to be able to get all of your comments in. As
7 Mr. Kessler mentioned, you could also enter your
8 comments in writing, which they hold the same weight as
9 if you verbally comment.

10 But if there is time, we definitely want you
11 to be able to fill out another speaker card if you feel
12 the three minutes was not enough and are able to bring
13 it back up. Once everybody has had a chance to speak at
14 least once, we will call your name again.

15 With that said and everyone understands the
16 ground rules, I will call the first three speakers.
17 Mr. Shandor Winger. After Mr. Winger we'll have Robert
18 Rodine and then Margie Oldenkamp.

19 Mr. Winger.

20 MR. WINGER: Good evening.

21 MS. SMITH: Good evening.

22 MR. WINGER: My name is Shandor Winger. I'm here as
23 a citizen of San Fernando Valley tonight. I'm very
24 pleased to speak before you.

25 Los Angeles Master Plan is a combination of

1 many years of study in that it's been looked at in every
2 which way you could possibly think of. It has now been
3 fine-tuned to a level that can be readily accepted by
4 many. Readily accepted in the fashion because it now
5 meets the criteria, I think, of satisfying the needs of
6 the citizens and of the community and the security
7 needs.

8 In that, speaking to the Master Plan, the EIR
9 and the security item, I will address it in a nature of
10 the security in the nature of the Alternative -- I know
11 it's D.

12 I will firstly say that when it comes to the
13 EIR, which is really a portion of the Master Plan
14 itself, the EIR after reading it now meets the criteria
15 for supporting a full Master Plan.

16 The Alternative D is an item that has been
17 brought forth to us and pushed not only by the staff of
18 the Los Angeles World Airport, but pushed by the Mayor
19 himself.

20 The only thing I will say to that is it's time
21 for everyone to get together and support staff, support
22 the Mayor and push this thing through and get it done,
23 and get it done as presented tonight with Alternative D.
24 Thank you.

25 MS. SMITH: Thank you. Robert Rodine.

1 MR. RODINE: Before I begin, Mrs. Oldenkamp has
2 asked me to advise you that she won't be speaking
3 tonight.

4 MS. SMITH: Thank you.

5 Mr. Kessler, Mr. Ritchie, thank you for
6 allowing me to speak here tonight. My name is Robert
7 Rodine. My firm is the Polaris Group, and I live in
8 Sherman Oaks, California.

9 LAX medium growth demand embodied in the SCAG
10 Regional Transportation fund is driven by fundamental
11 regional demographics at 2020, it's 94.2 million annual
12 passengers and 4.2 million tons of cargo annually.

13 This is 59.8 percent of the forecasted
14 regional load of 157.4 MAP. Under Alternative D
15 emphasized to be part of a regional plan. The loads
16 planned for LAX are 78.9 MAP and 3.1 million annual tons
17 of cargo. This reduction in the LAX portion of the
18 regional volumes is 15.3 MAP and 1.1 million annual tons
19 of cargo. If this reduction in volume is retained
20 within the region through diversion to other regional
21 airports, there would be no net negative impact. If,
22 however, it is not, the negative impact is the loss of
23 approximately \$33 billion dollars of turnover annually
24 and some 220,000 jobs inclusive of the effects of the
25 induced economies.

1 If we were to avoid the above losses, it seems
2 that specific arrangements for diversion wouldn't
3 necessarily be in place before leaping off on a
4 \$9-billion-dollar public works project. However, the
5 EIR seems to be mute on this aspect of the plan.

6 What, if any, specific arrangements have been
7 made -- have been formalized to ensure that the proposed
8 diversion of traffic does not result in any negative
9 economic impacts of the region?

10 Absent of pre-arranged plan with specific
11 agreements to accommodate the displaced LAX passengers
12 within the region, I am abjectly opposed to such a plan
13 based on the supposition of such large phantom back-up
14 element.

15 I am also vitally concerned about security of
16 LAX for both passengers and employees. Using a very
17 simple blast radius analysis, it is clear that the
18 proposed CTA has a much higher concentration of
19 passengers on an hourly basis than does the current
20 dispersed terminal arrangement. Quantify the current
21 terminal arrangement results in a blast exposure factor
22 of approximately 1,509 passengers per hour while the
23 proposed passenger facility will result in an exposure
24 factor of 7,425 passengers per hour. I think that
25 increase in risk renders the proposed plan unacceptable

1 as defined. Thank you very much.

2 MS. SMITH: Steven Leffert, Don Schultz and Bart
3 Reed, please.

4 MR. LEFFERT: Good evening. My name is Steven
5 Leffert. I am a citizen, resident of Van Nuys. I live
6 approximately a half a mile of the other side of the
7 airport, of Van Nuys Airport.

8 I have been a frequent user and strong
9 supporter for the flyaway bus. I notice that that is
10 becoming an integral part of the plan. However, I have
11 not seen anything in the plan which does anything to
12 mitigate what will be the increased normal traffic on
13 the 405 from the San Fernando Valley to the airport.

14 Traffic gets worse every year. So even if
15 you're riding on a flyaway bus to the airport, it's
16 going to take longer and longer to get there. There
17 needs to be something in the part of the plan that will
18 mitigate some of that traffic on the 405 such as a
19 light-rail line, a monorail or completing the
20 carpool-buspool bus lane. Instead of having it end at
21 Wilshire Boulevard and creating monumental traffic jams
22 that back up into the Valley, complete that at least all
23 the way down to the airport. That's an issue that needs
24 to be addressed.

25 I also noticed in the plan it said something

1 about a clean burning fuel for the flyaway buses for 45
2 percent approximately. I think they should all be no
3 more diesels and all clean burning fuels for the buses
4 that are going to be used for the flyaway program.

5 Something that I couldn't get a clear answer
6 to here by going through all the charts, and all, had to
7 do with the safety issue and the checking in of the
8 luggage. I heard years ago that they were planning on
9 having the luggage check-in at the flyaway terminals and
10 putting it on secure buses, trucks, or whatever, to take
11 it to the airport, to separate the luggage from the
12 passengers at an earlier point.

13 That's not in the plan. Apparently what's in
14 the plan is just delivering the flyaway buses into the
15 CTA, or Central Terminal Area, with their suitcases
16 which would not have been screened prior, at least from
17 what I could tell in all the charts and graphs out
18 there.

19 So for the security issue I would like to see
20 something done with screening and checking the baggage
21 before you get on the bus.

22 And my other questions were answered by going
23 through the chart. Thank you.

24 MS. SMITH: Thank you.

25 Mr. Schultz, and then Mr. Reed. I would ask

1 you, Mr. Schultz, to spell your last name when you state
2 it, please. Thank you.

3 MR. SCHULTZ: Good evening, Don Schultz,
4 S-c-h-u-l-t-z, president of Van Nuys Homeowner's
5 Association, PO Box 3528 Van Nuys, 91407.

6 I would like to make it clear that I am
7 speaking for myself tonight as a community activist of
8 the San Fernando Valley.

9 Even though I am not a frequent LAX traveler
10 or visitor, I certainly understand Mayor Hahn's desire
11 to enhance safety and security needs for LAX.

12 Since 9-11, security for every major airport
13 in the U.S. must be emphasized. The Mayor needs support
14 and constructive input from all of us to ensure that
15 local airports are not easy prey for those cowardly
16 terrorists that are obsessed with destroying us.

17 That's all I have to say. Thank you.

18 MS. SMITH: Thank you.

19 Mr. Reed.

20 MR. REED: I'm Bart Reed, Executive Director of the
21 Transit Coalition, San Fernando Valley, Sylmar,
22 California. I'm going to pertain my remarks to traffic
23 and environmental mitigation issues.

24 One of the issues I do want to address, of
25 course, is the flyaway bus and the lack of connectivity

1 to public transportation in the San Fernando Valley.
2 Even though the flyaway bus exits the 405 Freeway at
3 Sherman Way, one, for example, from Sylmar would have to
4 take a bus for about two hours and four different buses.
5 However, buses don't run except for during 8:00 to 5:00
6 on the business day on Whitley, so you can't really get
7 there. That doesn't work. We need to do reworking of
8 the flyaway bus there. And in the future if you do any
9 flyaway terminal like in Sylmar, consult with the
10 community before you bring the plans out.

11 Also pertaining to the Green Line, I want to
12 suggest that the Green Line extension be north along
13 Aviation Boulevard, that it be included in the Final EIR
14 as an integral part of the locally preferred alternative
15 for real rail and traffic access to LAX.

16 We need intermodal solutions to traffic, not
17 just more freeway exits, not just more roadways. We
18 need to have a balance. By providing rail, we will
19 provide more of a balance and less of a need for some
20 amount of parking. I believe the airport has somewhere
21 around 58,000 employees that go. We need the mitigation
22 for the employees getting to the airport.

23 We would like to ask the FAA, Caltrans, the
24 LADOT and MTA to work together to approve in writing and
25 resolve all the issues on the Green Line route past the

1 airport.

2 We also urge that LAWA allocate enough funding
3 under the mitigation for preliminary design and
4 engineering to work on the Green Line alignment.

5 We'd also like to recommend that LAWA should
6 construct as part of its mitigation, including FAA
7 approval and oversight, the trench for the future Green
8 Line projected to be dedicated for the future of the
9 Green Line expansion along Aviation.

10 Also, while we're not exactly aware of the
11 exact security arrangements of the Intermodal
12 Transportation Center at Aviation and Imperial, if those
13 security arrangements are as good as those at the Ground
14 Transportation Center, we recommend that the Ground
15 Transportation Center be at the site that the Green Line
16 be extended to rather than constructing the people mover
17 from the Green Line Terminal to the Ground
18 Transportation Center.

19 And just to conclude. For cost-saving
20 purposes and true traffic pollution and environmental
21 mitigation, we recommend the Green Line continue all the
22 way to the Ground Transportation Center, which would
23 obviate the need for a separate and unnecessary
24 Intermodal Transit Center. Certainly a people mover can
25 be maintained on the east side of Aviation Boulevard

1 from the parking lots to the Ground Transportation
2 Center separate from the Green Line, and that we ask
3 that LAWA maintain --

4 (The timer beeped.)

5 MR. REED: -- well, LAWA may maintain that the
6 people mover could provide round-the-clock connections
7 from the Green Line to the central airport terminals via
8 an Intermodal Transit Center. We also mentioned the
9 rail service is available from 4:00 a.m. in the morning
10 and it concludes at 2:00 a.m. So we have a lot of rail
11 service. So we don't necessarily have to do the people
12 mover between the Green Line and the Ground
13 Transportation Center. Thank you.

14 MS. SMITH: Thank you, Mr. Reed.

15 John Spaulding. Pete Gerber after
16 Mr. Spaulding and then Mr. Brink.

17 MR. SPAULDING: My name is John Spaulding. That's
18 S-p-a-u-l-d-i-n-g. And I'm here on behalf of the
19 Operating Engineers. Our address is 150 East Corson,
20 C-o-r-s-o-n, Street, Pasadena, 91103. I'm also a
21 resident of Pasadena. But that's all right. I don't
22 think you need that address.

23 I'm here representing the Operating Engineers.
24 The Operating Engineers in Southern California represent
25 23,000 members. We are very supportive of Alternative

1 D. We are very appreciative of Mayor Hahn's position on
2 safety and security issues in Alternative D.

3 Our members want the assurance of LAX
4 continuing to be the most advanced and efficient airport
5 in this country. And, of course, the prospects of the
6 49,000 construction jobs is important. So is the
7 preservation of the 59,000 jobs that exist today at LAX.

8 The economic contributions to our economy is
9 enormous, so it behooves us to protect and expand our
10 position in the overall economics of our county.
11 Transportation in and around the airport are carefully
12 thought out and will solve a lot of the present problems
13 that exist.

14 In closing, the Operating Engineers are
15 supportive of Alternative D. Let's move forward.

16 Thank you.

17 MS. SMITH: Thank you.

18 Mr. Gerber. Did I pronounce that correctly?

19 MR. GERBER: That's correct. Good evening. My name
20 is Pete Gerber. I live at 2614 Greenleaf Court in
21 Simi Valley, California. I represent the Tile, Marble
22 Layers Local Union 18. And I'm here to show support for
23 our members and the progress of the expansion of the
24 airport.

25 Recently a trip that I made to LAX, the need

1 for safety and security right now is very important.
2 The people are walking up and down the curbs with the
3 traffic going by is a very dangerous situation and. I
4 believe there is the need for more safety. And I do
5 support LAWA's, along with the members, expansion of
6 this project and I'm looking forward to have it go
7 forward. Thank you.

8 MS. SMITH: Thank you.

9 Mr. Brink.

10 MR. BRINK: Charles Brink from Northridge,
11 California.

12 I have a problem with the design, basically,
13 because it creates a very threat-rich environment. By
14 concentrating all the people in one area, it creates a
15 horrendous biological threat problem because a small
16 amount of biological poison dispersed in the area to the
17 unchecked luggage arriving via the flyaway or the module
18 transportation areas could kill millions of people.

19 What needs to be done is expanding operations
20 like Van Nuys and providing security for the luggage and
21 security for the people and bring the material in in a
22 secured form already. This could reduce both traffic
23 congestion on the freeway and it would highly increase
24 safety because it would eliminate a threat-rich
25 environment where thousands and thousands of people are

1 exposed to unsecured material.

2 Even in the case of a monumental bus bomb,
3 we'll call that for lack of a better term, that could
4 even arrive within the clear area as a bus disguised.
5 Let's say a terrorist could sneak it in. They would
6 only damage one small terminal area. What you're
7 designing is an area for a maximum-kill area for people.
8 It's a bad design and should be immediately stopped.

9 I fully support the concept of extending the
10 Green Line into the point where people can arrive
11 because it is stupid not to bring it to the airport in
12 the first place. It was another monumental Los Angeles
13 failure in design.

14 But, again, I would urge you not to
15 concentrate the people in one place because that is a
16 disaster pending. And I would also urge you, even
17 though it's difficult, to add luggage check-in and
18 security to areas like Van Nuys flyaway and replicate
19 these all over the area. This way it would eliminate
20 the traffic on the freeway. It would eliminate the
21 parking around the airport, and it would substantially
22 eliminate the ability for a terrorist to bring a bomb or
23 a chemical weapon into the facilities that have been
24 through prescreening and check-in at that point.

25 I'm afraid that Mr. Hahn's idea to get this

1 working by providing this one monstrous place for people
2 to enter a killing field is one of the dumbest ideas I
3 have ever heard. Thank you.

4 MS. SMITH: Thank you.

5 Sergio Ramos. James Stewart after Mr. Ramos.

6 MR. RAMOS: Good evening. My name is Sergio Ramos.
7 And I'm a union representative of the laborers. I'm
8 here on behalf of my business manager of Laborer's Local
9 300. I'm here in support to make LAX safer.

10 Our 7,000 members that live here in the L.A.
11 area fly in and out of LAX. And it will create jobs for
12 our members and many other construction trade members.
13 And we're in support of the LAX Master Plan project.
14 Thank you.

15 MS. SMITH: Mr. Stewart.

16 MR. STEWART: Good evening. My name is James
17 Stewart. I live in Panorama City, and I'm vice chair of
18 the Van Nuys Airport Citizen's Advisory Council and
19 speaking only for myself tonight.

20 I agree with a lot of what is said. I think
21 this plan has some major flaws in the way it sits. The
22 safety issue of concentrating people, the many -- I
23 think the Green Line and also any other future mass
24 transit systems should go directly into the passenger
25 facility if you're going to have one.

1 And the passenger facility seems to me to be a
2 maximum inconvenience. You take your luggage out of
3 your car. You take it into the facility, put it on a
4 trolley. You take it on the train, take it off the
5 train, take it to check-in. It is a maximum
6 inconvenience, particularly for those who are elderly or
7 for the infirm, those that can't handle their own
8 luggage very well. This is a ridiculous idea. If we're
9 going to have a central terminal facility for passengers
10 to check in here, why don't we have a true remote
11 check-in at the GTC? So once you get to the GTC, you
12 dump your luggage and you're done with it.

13 The thing I'm most concerned about, however,
14 is the 78.9 annual passengers. This is part of a
15 regional plan. Well, not really because we don't have
16 any regional plan nor do we have any power to enforce a
17 regional plan if we had one. We have no ability to
18 force other airports to take more flights and we have no
19 ability to open new airports either in Orange County or
20 anywhere else around here. And we are going to have
21 some serious economic impact on this lack of activity at
22 LAX.

23 This facility should be designed for 100
24 million annual passengers, not 78.9. We should make
25 this a central facility on the West Coast. If that

1 means we have to do a lot more mitigation in the
2 communities, let's do it.

3 I grew up in Inglewood. I went to
4 Morningside High School. I lived with this airport for
5 the first 23 years of my life. It's a major economic
6 benefit, and we need to maximize it. Thank you.

7 MS. SMITH: Thank you.

8 Mr. Mike Ayre, Dennis O'Sullivan. And Mahala
9 Walter after that.

10 MR. AYRE: This is going to be short. My name is
11 Mike Ayre spelled A-y-r-e. I'm a resident of Van Nuys.

12 In short, I'm in full support of the Master
13 Plan Alternative D for the modernization of LAX. Thank
14 you.

15 MS. SMITH: Thank you. Dennis O'Sullivan, please.

16 MR. O'SULLIVAN: Good evening. Dennis O'Sullivan,
17 O, apostrophe, S-u, double L, i-v-a-n, Sherman Oaks,
18 California.

19 I want to speak in support of the
20 Alternative D. I, along with some of the other people
21 here who live in the Valley and have been spoiled by
22 flyaway for years, would suggest on mitigation of the
23 traffic, which we know grows worse daily on the 405,
24 would be to study the regional transportation that goes
25 into LAX, determine what ZIP Codes, what areas could

1 benefit from flyaway and create four or five additional
2 flyaways spread throughout the county. Those of us who
3 use it swear by it. It's the's easiest way to get into
4 the airport. And whether the baggage is scanned at the
5 flyaway or whether it's scanned at the preliminary
6 terminal, I think that we would mitigate some of the
7 safety concerns by doing it that way. Because to get
8 into a terminal where you have everybody coming in from
9 the flyaway from their car drop-offs, from the rental
10 car drop-offs, into one place does create an attractive
11 target.

12 But 9-11 has forced us to come up with this
13 plan versus A, B and C. And I think plan D meets the
14 needs. We want a world-class city and we're living in
15 an old-world infrastructure.

16 I fly, and I fly into airports and
17 transportation systems that really make us look like an
18 antique. The people movers work very well in Newark.
19 When you're going into there, it ties directly in with
20 port authority transportation. Yes, there is a lot of
21 people, but they seem to be able to deliver people to
22 the three airports there very effortlessly by tieing
23 together the public transportation and the people
24 movers.

25 So, again, I support Alternative D. Thank

1 you.

2 MS. SMITH: Thanks.

3 Mahala Walter. Did I pronounce it right at
4 that time?

5 MS. WALTER: Yes.

6 MS. SMITH: I'm so proud of myself.

7 MS. WALTER: Good evening. My name is Mahala
8 Walter, 7015 Sepulveda Boulevard, Westchester.

9 In reviewing the material for Alternative D,
10 the security improvements aren't nearly as substantial
11 as claimed by the proponents. Basically, it relocates
12 one spot to another.

13 If you were a terrorist wanting to shut down
14 Southern California's economy, what better target could
15 you be provided with than to change the airlines
16 passenger load, which is currently distributed around
17 nine different terminals. Change it to one site where
18 everyone for all flights are congregated for checking in
19 and dropping off at Manchester Square located one and a
20 half miles away from LAX, a huge facility called GTC, or
21 the Ground Transportation Center, adjacent to the 405
22 near the 105 exchange.

23 Passengers who do not use sky cap services may
24 carry their baggage on the automatic people mover to the
25 CTA, the Central Terminal Area, where screening is done

1 by the appropriate airline. Imagine spending all those
2 billions and have the luggage and the cargo arrive at
3 LAX without screening.

4 Last year I warned a couple of congressional
5 representatives that our own crazies could put timers on
6 the bombs in the luggage and send them through to the
7 CTA. Now, who would want to work there? This
8 underground luggage tunnel is due to start construction
9 in 2005. But the safety measures recommended by the FAA
10 for the runway and taxiways safety are not scheduled for
11 completion until 2015.

12 At the CTA the second level passengers'
13 security screening occurs. It is letting not only the
14 travelers, but meeters and greeters through to the CTA
15 without security screening. This is even less secure
16 than at LAX now where the meeters and greeters are not
17 allowed in secured areas.

18 Sounds like a Disneyland attraction to use the
19 people mover to funnel and increase the amount of people
20 into 200 additional businesses proposed by the Mayor
21 shifting money from existing businesses for the benefit
22 of increasing airport revenues. Thank you.

23 MS. SMITH: Thank you. At this time we don't have
24 any speaker cards filled out. We want to remind you,
25 we're here until 10:00 p.m. or longer, if necessary.

1 Please, if you have any comments you would like to make
2 orally, turn them in at the sign-in desk and we'll be
3 here to hear your testimony.

4 At this point we will take a ten-minute recess
5 and we will reconvene at 8:00 p.m.

6 (Recess was taken.)

7 MS. SMITH: We are about to reconvene this segment
8 of the public hearing. We have one speaker card in our
9 hands. If I could find that one speaker. Here he
10 comes. Give us a few seconds we're getting everybody
11 back up on the stage. I'm glad to hear you're back
12 here.

13 Our next speaker will be Mr. Charles Brink.

14 MR. BRINK: Again, I'm still from Northridge. My
15 comments now are relating to cargo jets, particularly
16 all cargo. I think they are an item that should be
17 pulled out of the LAX environment --

18 MS. SMITH: Excuse me, Mr. Brink. If I could ask
19 that the people in the back of the room hold their
20 conversation down. We're receiving public testimony
21 now. Excuse me, we're receiving public testimony right
22 now -- I'm going to allow you to start over Mr. Brink.
23 Thank you. I apologize.

24 MR. BRINK: No problem. Again, what I was saying is
25 to move the all-cargo aircraft operations to an airport

1 like Palmdale, for example. You'll be in Palmdale
2 tomorrow night. I'm sure you'll see lots of people
3 suggesting they could use a lot more traffic, and noise
4 isn't a problem for them.

5 But the cargo aircraft have no reason to land
6 in Inglewood, no reason to land in the west side because
7 cargo as it comes off the airplanes isn't used in the
8 area. It, for example, would fit better into an airport
9 like Palmdale or even San Bernardino or outlying points.
10 The cargo jets are the late night jets that tend to be
11 the noisiest. By moving that cargo aircraft out to the
12 area would have minimum impact, would still keep the
13 dollars in the L.A. County area and it would allow an
14 area that has an infinite room to expand to use its
15 airport.

16 Now, it seems the city does not want to expand
17 Palmdale because they claim there is no need for it.
18 But from my house in Northridge, I could get to Palmdale
19 any time of the day faster than I could get to LAX.
20 That's another issue.

21 I would like to encourage you to think cargo,
22 the big cargo planes, is to take them to Palmdale into
23 an area that they are not bothering the environment.
24 Their trucks aren't producing congestion. Their cargo
25 isn't a risk for, again, passengers because that cargo

1 even next to the cargo areas could contaminate cargo
2 loading into the passenger aircraft. Those are
3 bioterrorism issues.

4 So separate the cargo by loading it into a
5 safe place like Palmdale. It would be a solution to
6 reduce traffic and reduce terrorism issues, and it would
7 provide increased capacity for LAX because by removing
8 all the cargo-only aircraft from the facility, it could
9 add more traffic to the airport. Thank you.

10 MS. SMITH: Thank you. Are there any other audience
11 members wishing to speak?

12 At this time we don't have any completed
13 speaking cards in our possession, but we would like to
14 remind you that our workshop is still open. Please
15 visit the workshop and take the opportunity to speak
16 with our consultants if you have some questions that can
17 be answered before you fill out your speaking card.
18 Take the opportunity to do. So we will be here until
19 10:00 p.m., and we are here to take your testimony. We
20 will take another break until 8:15. Thank you.

21 (Recess was taken.)

22 MS. SMITH: Good evening, we still don't have any
23 speaker cards filled out. And we're until 10:00 p.m.
24 awaiting your speaker cards please take advantage of
25 this opportunity. We'll continue our recess and

1 reconvene at 8:45.

2 (Recess was taken.)

3 MS. SMITH: We're still in recess. We're waiting
4 for sign-in cards to be completed. We're here until
5 10:00 p.m. And until we get a sign-in card, we'll
6 remain in recess.

7 (Recess was taken.)

8 MR. KESSLER: Is there anyone else who has not had
9 an opportunity to speak concerning the information in
10 the Draft Environmental Impact Statement/Environmental
11 Impact Report?

12 Not seeing anyone else, I will remind you that
13 if you feel you are unable to provide us with verbal
14 comments today, we will be accepting written comments
15 now at 5:00 p.m. Pacific Standard Time, Friday, November
16 7th, 2003. You could mail your comments either to me at
17 the FAA or to Jim Ritchie with LAWA. The mailing
18 addresses are listed on the cover of the EIS/EIR.

19 I want to thank everyone for your comments
20 today. This public hearing for the Supplement to the
21 Draft EIS/EIR on the Los Angeles Airport Master Plan is
22 now closed. Thank you.

23 (Whereupon the proceeding adjourned
24 at 10:00 o'clock p.m.)

25 ---oOo---

1 STATE OF CALIFORNIA)
2 COUNTY OF RIVERSIDE) ss.

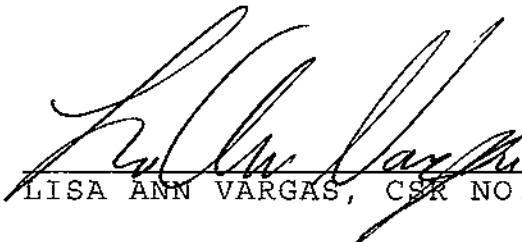
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I, LISA ANN VARGAS, certified shorthand reporter,
License No. 12049, do hereby certify:

That the proceedings contained herein were taken
before me at the time and place herein set forth and was
taken by me in shorthand and thereafter transcribed into
typewriting by me, and I hereby certify that the said
proceedings are a full, true and correct transcript of
my shorthand notes so taken.

I further certify that I am not interested in the
event of the action.

WITNESS my hand this 9th day of September 2003.


LISA ANN VARGAS, CSR NO. 12049

ERRATA SHEET

I declare under penalty of perjury that I have read the foregoing _____ pages
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and that the same is a true record of the testimony given by me at the time and place hereinabove
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Date: _____

Signature of the Witness

Name Typed or Printed

**Official Hearing Transcript
Joslyn Community Center
Manhattan Beach, California
Wednesday, August 20, 2003**

Following this page is the transcript of the oral testimony taken at the above hearing. Each speaker at the hearing has been assigned a unique identification number. The numbers assigned to each speaker for this hearing are:

Number	Speaker	Affiliation
SPHM00001	Jim Aldinger	City of Manhattan Beach
SPHM00002	Mike Bonin	Congresswoman Jane Harman's Office
SPHM00003	Fred Steiner	P.I.P.E.
SPHM00004	Barry Kurtz	County of Los Angeles, Department of Public Works
SPHM00005	Steve Morris	None Provided
SPHM00006	E. E. Wang	None Provided
SPHM00007	Roy Hefner	None Provided
SPHM00008	Pete Makoni	None Provided
SPHM00009	Joe Scavo	None Provided
SPHM00010	Jose Espinoza	None Provided
SPHM00011	Freddy Correa	None Provided
SPHM00012	Chris Miller	None Provided
SPHM00013	John Ruiz	TW Local 564
SPHM00014	John Barriage	California Ground Passenger Carrier's Association
SPHM00015	Cleveland Brown	None Provided
SPHM00016	Cecil Carpio	None Provided
SPHM00017	Mike Gordon	City of El Segundo
SPHM00018	Richard Slawson	LA/O Counties Building & Construction Trades Council
SPHM00019	Bill Spilman	None Provided
SPHM00020	Piedmont Brown	Ironworkers Local 433
SPHM00021	Jim Ferguson	None Provided
SPHM00022	Randall Hartman	None Provided
SPHM00023	Terry Martin	Local Union 250
SPHM00024	Elizabeth Kunkee	None Provided
SPHM00025	Jonathan Walright	None Provided
SPHM00026	Bob Kropp	None Provided
SPHM00027	Diane Sambrano	None Provided
SPHM00028	Eric Jackson	None Provided
SPHM00029	Jack Kenton	None Provided
SPHM00030	Roy Hefner	None Provided
SPHM00031	Bobby Blanks	Congressmember Maxine Waters' Office

Number	Speaker	Affiliation
SPHM00032	Bobby Blanks	Congressmember Maxine Waters' Office
SPHM00033	Brian Weis	None Provided
SPHM00034	Brian Weis	None Provided

Any exhibits attached to this hearing transcript have been previously reproduced in this Final EIS/EIR as individual public comment letters.

ORIGINAL

ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION AND
LOS ANGELES WORLD AIRPORTS, THE SEVENTH PUBLIC HEARING
ON THE SUPPLEMENT TO THE DRAFT EIS/EIR
FOR THE PROPOSED MASTER PLAN AT LAX

REPORTER'S TRANSCRIPT OF
PUBLIC TESTIMONY

TAKEN ON
WEDNESDAY, AUGUST 20, 2003

HELD AT THE JOSLYN COMMUNITY CENTER

1601 Valley Drive
Manhattan Beach, California

REPORTED BY:

LISA ANN VARGAS, C.S.R. NO. 12049

NORMAN SCHALL & ASSOCIATES
Certified SHORTHAND REPORTERS

1055 Wilshire Blvd. Suite 1503
Los Angeles, CA 90017
(800) 734-8838
(213) 481-3636 Fax
e-mail: SchallDepo@aol.com
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1 **APPEARANCES OF FACILITATORS:**

2 SHAUNA BAIN SMITH, Public Affairs Director for the
3 Lee Andrews Group

4 DAVID KESSLER, Airport Planner for the Federal Aviation
5 Administration

6 JIM RITCHIE, Deputy Executive Director for the
7 Los Angeles World Airports

8 **APPEARANCES OF PUBLIC SPEAKERS:**

- 9 1. MAYOR JIM ALDINGER, Mayor of the City of
10 Manhattan Beach
- 11 2. MIKE BONIN, Deputy Chief of Office Staff to
12 Congresswoman Jane Harman
- 13 3. FRED STEINER, Representing P.I.P.E.
- 14 4. BARRY KURTZ, Representing the County of Los Angeles
- 15 5. STEVE MORRIS, Representing Himself
- 16 6. E.E. WANG, Representing Herself
- 17 7. ROY HEFNER, Resident of L.A. Representing Himself
- 18 8. PETE MAKONI, Representing Himself
- 19 9. JOE SCAVO, Representing Pipe Fitters in the Community
- 20 10. JOSE LUIS ESPINOZA, Representing Himself
- 21 11. FREDDY CORREA, Representing Pipe Fitters Local 250
- 22 12. MS. CHRIS MILLER, El Segundo Resident
23 Representing Herself
- 24 13. JOHN RUIZ, American Airlines Aircraft Maintenance
25 Technician Representing Air Transport Local 564
14. JOHN BARRIAGE, General Counsel for Ground Passenger
Carrier's Association
15. CLEVELAND BROWN, With Inglewood Democratic Club,
Representing Himself

1 **APPEARANCES OF PUBLIC SPEAKERS CONTINUED:**

- 2 16. CECIL CARPIO, Resident of Inglewood
3 Representing Herself
- 4 17. MAYOR MIKE GORDON, Mayor of the City of El Segundo
- 5 18. RICHARD SLAWSON, Representing L.A. and Orange County
6 Building & Construction Trades Council
- 7 19. WILLIAM SPILMAN, Representing Himself
- 8 20. PIEDMONT BROWN, Representing Union Ironworkers of
9 Local 433
- 10 21. JAMES FERGUSON, Representing the Sands Complex
- 11 22. RANDALL HARTMAN, Quality Assurance Inspector for
12 American Airlines
- 13 23. TERRY MARTIN, Representing Local 250 Steamfitters
- 14 24. ELIZABETH KUNKEE, Representing Herself
- 15 25. JONATHAN WALRIGHT, Inglewood Resident
16 Representing Himself
- 17 26. ROBERT KROPP, Manhattan Beach Resident
18 Representing Himself
- 19 27. DIANE SAMBRANO, Resident of Inglewood
20 Representing Herself
- 21 28. ERIC JACKSON, Representing Himself
- 22 29. JACK KENTON, With LAXAAC Representing Himself
- 23 30. ROY HEFNER, Resident of L.A. Representing Himself
24 (Speaking a second time.)
- 25 31. BOBBY BLANKS, Office of Congresswoman Maxine Waters
- 26 32. BOBBY BLANKS, Office of Congresswoman Maxine Waters
27 (Speaking a second time.)
- 28 33. BRIAN WEIS, Resident of L.A. Representing Himself
- 29 34. BRIAN WEIS, Resident of L.A. Representing Himself
30 (Speaking a second time.)

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STATEMENTS SUBMITTED FOR THE RECORD

<u>STATEMENT NUMBER</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1	Document Submitted by Barry Kurtz	20
2	Statement Submitted by Mayor of El Segundo, Mike Gordon	43
3	Statement Submitted by Bobby Blanks on Behalf of Congresswoman Maxine Waters	73

1 MANHATTAN BEACH, CALIFORNIA, WEDNESDAY, AUGUST 20, 2003

2 6:00 O'CLOCK P.M.

3 ---oOo---

4
5 MS. SMITH: Good evening, ladies and gentlemen. On
6 behalf of the Federal Aviation Administration and
7 the Los Angeles World Airports, I would like to welcome
8 you to the seventh in a series of public hearings that
9 we're holding to receive your testimony on the
10 Los Angeles Airport Master Plan, Environmental Impact
11 Statement and Environmental Report.

12 My name is Shauna Bain Smith. I will be your
13 facilitator this evening. These two gentlemen to my
14 right will be receiving your testimony. And before we
15 begin the formal process, they have a few introductory
16 remarks.

17 I will start with Mr. David Kessler. He's
18 here from the Federal Aviation Administration.

19 Mr. Kessler.

20 MR. KESSLER: Thank you. Good evening, ladies and
21 gentlemen. My name is David Kessler. I'm the
22 Environmental Protection Specialist for the Airports
23 Division of the Federal Aviation Administration,
24 Western-Pacific Region.

25 I would like to welcome you to the seventh of

1 a series of public hearings the FAA and Los Angeles
2 World Airports, or LAWA, are conducting on the
3 Supplement to the Draft Environmental Impact
4 Statement/Environmental Impact Report, or EIS/EIR, for
5 the proposed Master Plan at Los Angeles International
6 Airport.

7 The Supplement to the Draft EIS/EIR addresses
8 an additional Alternative, Alternative D, the Enhanced
9 Safety and Security Plan that was added in the fall of
10 2001. This new alternative was added as a result of
11 comments submitted on the 2001 Draft EIS/EIR and the
12 terrorist attacks that occurred on September 11th, 2001.

13 The Notice of Availability of the Supplement
14 to the Draft EIS/EIR was published in various local
15 newspapers and in the Federal Register on Friday, July
16 11, 2003. The FAA and LAWA are the authors of the
17 Supplement. The Federal Highway Administration is also
18 a cooperating agency in the preparation of the Draft
19 EIS/EIR that was published in January 2001.

20 The purpose of these hearings is to collect
21 comments from the general public concerning the adequacy
22 of the information disclosed in the Supplement to the
23 Draft EIS/EIR on the proposed Alternative D.

24 I would like to take this opportunity to make
25 sure that everyone understands that no decision will be

1 made today regarding the proposed project. Today's
2 hearing is not a question-and-answer type of forum. Our
3 job is to listen to what you have to say about the
4 adequacy of the information in the Supplement to the
5 Draft EIS/EIR. In other words, it's your turn to talk
6 to us. Since we are here to listen, we are not going to
7 respond to questions about the pros and cons of the
8 proposed project.

9 Since 5:00 this afternoon we have held a
10 public workshop down the hall outside of this room for
11 anyone to ask questions about the Master Plan, the
12 environmental process and the various proposed projects.

13 Following publication of the Supplement to the
14 Draft EIS/EIR for review and comment, the next step in
15 the joint Federal and State environmental disclosure
16 process is holding this and the other public hearings
17 beginning last week and continuing through this week.

18 I would like to take the opportunity to recap
19 the environmental disclosure process for this project.
20 The environmental evaluation for the LAX Master Plan
21 began in 1997 with the publication of a Notice of Intent
22 to prepare the joint EIS/EIR in the Federal Register.
23 In July of 1997 we held a series of meetings with
24 members of the public and governmental agencies to
25 receive comments on the scope of the Draft EIS/EIR.

1 Following those meetings, the Draft EIS/EIR was
2 published in January 2001.

3 Both the 2001 Draft EIS/EIR and the 2003
4 Supplement have been prepared pursuant the National
5 Environmental Policy Act of 1969, or NEPA, the Council
6 on Environmental Quality Regulations, which are the
7 implementing regulations for NEPA, the California
8 Environmental Quality Act of 1970, or CEQA, and the
9 Airport and Airway Improvement Act of 1982, as amended.

10 Following today's hearings and the close of
11 the comment period, we will then correct and revise the
12 EIS/EIR, as necessary, based on the comments received.
13 We will also prepare responses to the comments we
14 receive and include those responses along with those
15 that were submitted to the FAA and LAWA on the 2001
16 Draft EIS/EIR into the Final EIS/EIR. The information
17 contained in the Supplement will also be combined with
18 the information in the 2001 Draft EIS/EIR into the Final
19 EIS/EIR.

20 Before we begin receiving verbal comments, we
21 would like to let you know the ground rules of this
22 hearing. First, as I said earlier, we are not here to
23 respond to questions about this project. We are here
24 only to listen to your comments and take notes. We
25 also have a court reporter here to ensure that we have

1 an accurate transcript of this hearing.

2 For anyone who would like to speak, we ask
3 that you fill out a speaker card, like this one that is
4 available, and give it to one of the people at the
5 sign-in desk. The card will then be brought up here to
6 our facilitator who will call the names of each speaker
7 so we can proceed in an orderly fashion.

8 So that everyone has an opportunity to provide
9 verbal comments, everyone will get three minutes to
10 speak. To be fair to everyone, we are not going to
11 allow people to transfer their allotted time to someone
12 else. I ask that when you speak, you give us your name
13 and address for the record. We also have a Spanish
14 language translator available for anyone wishing to
15 provide comments in Spanish.

16 If there is anyone who is uncomfortable
17 speaking in front of a group or if you need more than
18 three minutes to provide your verbal comments, we ask
19 that you provide your comments in writing. We have
20 comment sheets available for your use at the sign-in
21 desk. You can leave your comments at the sign-in desk
22 or you can mail your written comments using the comment
23 sheet or a letter to either address listed on the cover
24 of the EIS/EIR.

25 I would like you to understand that a verbal

1 comment is just as important as a written comment. So
2 please feel free to provide any comments on the document
3 you may have to us either verbally today or in writing.

4 On August 1, 2003, LAWA asked the FAA to
5 extend the public comment period to a total of 120 days.
6 FAA has agreed to LAWA's request. FAA has asked the
7 U.S. Environmental Protection Agency to publish a notice
8 announcing the extension to the public comment period in
9 the Federal Register. FAA and LAWA will also publish a
10 notice of the extension in the local newspapers of
11 general circulation. Therefore, comments on the
12 Supplement to the Draft EIS/EIR are now due by
13 5:00 p.m. Pacific Standard Time, on Friday, November 7,
14 2003.

15 Lastly, I would like everyone to understand
16 that even though we have this hearing scheduled until
17 9:00 this evening, we will stay here as long as
18 necessary for everyone to get a chance to provide verbal
19 comments on the Supplement to the Draft EIS/EIR. As I
20 said earlier, our job here today is to listen to your
21 comments.

22 At this time I will ask that everyone in the
23 room take a moment and turn off your cell phones and
24 pagers to be courteous to those people making verbal
25 comments at tonight's hearing.

1 Now I will return the hearing back to our
2 facilitator who will introduce Mr. Jim Ritchie, who will
3 provide some introductory comments from LAWA. Following
4 Mr. Ritchie's comments, we will collect the speaker
5 cards and call the name of the first speaker.

6 Thank you.

7 MS. SMITH: Thank you, Mr. Kessler. Our next
8 speaker is Mr. Ritchie who is Deputy Executive Director
9 of Los Angeles World Airports.

10 Mr. Ritchie.

11 MR. RITCHIE: Thank you, Ms. Smith. I'm Jim Ritchie
12 from L.A. World Airports. And we welcome you here
13 tonight to Manhattan Beach for the purpose of this
14 public hearing. This is number 7 in a series of 12 and
15 for the purposes of consistency, I'll read my brief
16 comments into the record.

17 You may recall the public hearing process that
18 we were in in 2001 while we were re-examining other
19 alternatives for the modernization for LAX at that time.
20 The tragic events of 2001 and the leadership of Mayor
21 Jim Hahn have reshaped our environmental process. The
22 mayor's pressing concerns for safety and security have
23 provided new guidance along with the public comments
24 that we received during that time frame from January to
25 November of 2001.

1 You are here tonight primarily to provide
2 comments on that new Alternative referred to as
3 Alternative D. This is a supplement to the existing
4 environmental process, and it has undergone the same
5 rigorous environmental analysis as the others.

6 We are here tonight to receive your comments
7 on the new safety and security plan and its impact as
8 disclosed in the Draft EIS/EIR.

9 So with that, welcome again. And Shauna,
10 let's go to work.

11 MS. SMITH: Again, my name is Shauna Bain Smith. I
12 will be your facilitator this evening. As I'm battling
13 a cold, I'm going to need your help to do this. My
14 reflexes are kind of slow tonight.

15 We do have a time clock up here. And this is
16 going to help us to make sure that everyone gets to
17 enter their comments in a timely and orderly fashion.
18 While these two gentlemen will be receiving your
19 testimony, I'm just here to man the clock and make sure
20 everyone gets their comments in the same amount of time.

21 When you see the green light turn on, that's
22 when your three minutes will begin. It will not begin
23 until after I receive your name and address. So I ask
24 when you approach the mic after I called your name, you
25 give your name and address, if you wish, and you spell

1 your last name so the court reporters can have it
2 clearly in the record, and speak as slowly and clearly
3 as possible.

4 For those that are going to be using our
5 Spanish interpreter today, you will get six minutes
6 instead of the three, or as long as it takes for our
7 interpreter to interpret into English your comments to
8 us. I wanted to let everyone know that in case you
9 wonder why there is extra time on the clock.

10 When you see the yellow light blink, that
11 means you have 30 seconds left of your three minutes, or
12 six minutes. At that time I suggest you start wrapping
13 up your remarks. When the red light blinks, you'll also
14 hear a beep tone. At that time we're going to have to
15 ask you to close your remarks out. We won't be rude
16 about it, but at that time we'll need you to stop. I'll
17 call on three names at a time just so you know when to
18 start preparing. With that, we can begin.

19 Our first speakers will be Jim Aldinger, Mayor
20 Aldinger. Did I pronounce that correctly?

21 MR. ALDINGER: "Aldinger."

22 MS. SMITH: "Aldinger." And after Mayor Aldinger,
23 we'll have mayor Mike Gordon and David Fein.

24 MAYOR ALDINGER: Yes. Thank you. Welcome to
25 Manhattan Beach. I am the Mayor of Manhattan Beach.

1 Thank you guys for coming down here.

2 I have several concerns about the plan. The
3 first would be that I don't think there is enough
4 options on the table. I think there needs to be other
5 options. I think security, I think you guys are trying
6 address a security issue, but I don't think there is
7 enough options. I think with the normal EIR process
8 there would be three or four options. And some of those
9 would address security. And some would address other
10 things. But, obviously, security is a big issue.

11 My other question is, are other airports -- I
12 know I'm not supposed to ask questions, but are other
13 airports in the country doing this kind of thing, JFK,
14 other airports? Is the Federal Government involved with
15 this? Is the Homeland Security Department involved with
16 this? Have we consulted with them? Is this the right
17 thing to do? I know Harman's people have come out and
18 commissioned the report with RAND. And they've said
19 there was definitely problems with this as far as
20 security goes. So I think that definitely needs to be
21 addressed.

22 The issue of cost. For me \$9 billion dollars
23 and growing is a driver that we need to address. There
24 are a lot of other things we need to do around here as
25 far as with money. I think \$9 billion dollars is a

1 significant amount of money to be spending. There are
2 definitely traffic improvements we can do around the
3 airport as far as running the Green Line in there, doing
4 freeway interchanges, those kinds of things. I'm not
5 opposed to that kind of thing. I think those are good
6 things that we should be doing. But whether we need to
7 tear down three terminals is a big, big driver to me.

8 And then I think as far as the issue of
9 expansion and whether this will be expanding the airport
10 and increasing the capacity, I think ultimately it will
11 expand. I think you're doing some things that make it
12 easier to expand the airport. I think putting in the
13 bigger planes and separating the runways for bigger
14 planes is a concern that I know we have here in
15 Manhattan Beach as far -- because it generates so much
16 traffic and generates such an impact to our community.

17 And I think we had the same issues with the
18 traffic impacts and the fact that you guys didn't go far
19 enough south with your traffic. I mean, you guys have
20 not picked up Rosecrans. You guys have not picked up
21 several streets in our area on the 405 interchanges
22 further to the south that I think a lot of people come
23 up from Orange County. And if the impact -- if the
24 airport expands -- I know the mayor said it won't, but I
25 think we need to continue to look at that.

1 Overall, I think there needs to be more
2 options and more input from other people on security.
3 Thank you.

4 MS. SMITH: Thank you. Mayor Mike Gordon. David
5 Fein. Mr. Fein. Mike Bonin or "Bonin?"

6 MR. BONIN: "Bonin."

7 MS. SMITH: "Bonin."

8 MR. BONIN: Good evening. I'm Mike Bonin,
9 B-o-n-i-n. I'm Deputy Chief of Staff to Congresswoman
10 Harman. Do you need her office address? 2321 East
11 Rosecrans, El Segundo, 90245.

12 First of all, on behalf of the Congresswoman,
13 welcome the 36th District. We're glad to see you here
14 throughout the district. And congratulations to
15 everyone here from the various communities in the South
16 Bay who turned out tonight to give their voices to the
17 public process. We really appreciate that.

18 Just to be clear, I want to state from the
19 very beginning that Congresswoman Harman is very much in
20 favor, as many of the T-shirts say here, of fixing
21 Los Angeles International Airport. But she's very
22 determined that it be fixed right. That's as equally
23 important a factor as fixing it now. And Congresswoman
24 Harman applauds Mayor Hahn and applauds Los Angeles
25 World Airports for the intent of Alternative D, which is

1 to make Los Angeles International Airport safer and more
2 secure for the passengers, for the many people that work
3 there and for all the people that live in the South Bay
4 area.

5 Where she finds fault, however, is with the
6 execution of Alternative D. As most people know, she
7 commissioned the RAND report a few months ago, which
8 raised very serious concerns about the configuration
9 outlined in Alternative D. We'll submit a letter later.
10 And I'm sure you're quite familiar with the RAND report.
11 It's deeply concerned with the centralized features of
12 Alternative D and with what effectively we're afraid
13 puts a big red X on Los Angeles International Airport
14 and says to Al-Quida, "Attack here."

15 The RAND study, some of the concerns raised by
16 the RAND study, have been raised again by the concern of
17 the County Board of Supervisors, the study of the County
18 Board of Supervisors had before them earlier this week,
19 which we'll see again on Saturday, the study is by A.C.
20 Lazzaretto and Associates which that the security
21 proposals in Alternative D are short in detail and often
22 contradictory.

23 And I must say that Congresswoman Harman and
24 many of her constituents were alarmed by some of the
25 reports we saw this week in the press, the Daily News

1 story by Rick Orlove which indicated that many of the
2 security features key to Alternative D aren't in place
3 yet.

4 Congresswoman Harman is the member of the
5 Select Committee on the Intelligence in the House. As
6 in that capacity, she's very well aware of the various
7 threats to our national security. For her fixing LAX in
8 a way that we are not subject to attacks, and the safety
9 and security and the economic engine of Los Angeles and
10 Southern California are not in constant jeopardy, there
11 has got to be a number one priority. She is committed
12 to working with anybody in working on getting a plan
13 that does that. She's very concerned that so far
14 Alternative D is not that plan. Thank you.

15 MS. SMITH: Thank you. Mr. Fred Steiner. And after
16 that Andrew Shaddock, please.

17 MR. STEINER: Good evening. My name is Fred
18 Steiner, S-t-e-i-n-e-r. My address is 9778 Summer Hill
19 Road, Rancho Cucamonga, California. I'm the Assistant
20 Executive Director of P-i-p-e. Pipe is a labor -- Labor
21 Management Cooperative Committee who represents over
22 14,000 members, union members, and over 600 union
23 contractors in Southern California.

24 I'm here tonight in support of Alternative D,
25 improvements of LAX. The Pipe Trades of Southern

1 California would enjoy the benefits in taking part of
2 the work in the jobs that are projected with the 49,000
3 construction jobs for the expansion. But I would like
4 tonight to speak about -- speak from the perspective of
5 a consumer.

6 My family, my friends and myself and just
7 about everyone I know would rather take a beating right
8 now than to fly out of LAX. I know people, friends of
9 mine that would drive 50 miles plus, do two layovers to
10 fly back east than to fly out of LAX. And I think this
11 is indicative of what's happening right now. The major
12 concern of the people that I know are security,
13 especially since 9-11. I have reviewed the Alternative
14 D proposals, and I believe these issues are driving
15 customers away from LAX. And they would be addressed by
16 the completion of this project.

17 Also, again, I applaud Mayor Hahn and the
18 people from the World Airports for bringing forth these
19 proposals. And we are in favor of it. Contractors and
20 members of the Southern California Pipe Trade are in
21 favor of Alternative D. Thank you very much.

22 MS. SMITH: Thank you. Andrew Shaddock, please.
23 Barry Kurtz. Steve Morris. My batting average is not
24 doing well tonight.

25 MR. KURTZ: Good evening. I'm Barry Kurtz

1 representing the City of Los Angeles tonight. I work
2 for the County Department of Public Works, 900 South
3 Fremont, Alhambra, 91803.

4 Thank you for the opportunity of providing
5 input into the LAX Master Plan improvements. I've
6 submitted three copies of preliminary comments from A.C.
7 Lazzaretto & Associates. They are the consultant for
8 the County. Attachment I is Mr. Lazzaretto's comments,
9 and Attachment II are comments by the County Department
10 of Public Works.

11 (The document submitted for the
12 record was marked as Statement 1
13 and is attached hereto.)

14 MR. KURTZ: The Board of Supervisors has approved
15 these comments to be addressed to LAWA and FAA. For
16 brevity, I'll summarize these comments. The first set
17 of these comments are from A.C. Lazzaretto.

18 First, the proposed Master Plan Alternative D
19 may not constrain growth at LAX.

20 The second, airport security may not be fully
21 achieved by Alternative D. Environmental justice may
22 not be well-served by Alternative D. The baseline year
23 of 1996 is not adequate for 2003 assessment. The
24 no-project alternative does not offer a consistent
25 yardstick for measuring project impacts. Traffic, noise

1 and air quality impacts have been shifted eastward.
2 Major changes in the project may call for the
3 preparation of a comprehensive revised EIR/EIS.

4 And, finally, growth inducing impacts may be
5 significantly greater than stated.

6 The next two comments came from the County
7 Department of Public Works. First one; a new
8 interchange for the 405 Freeway at Lennox Boulevard is
9 recommended as a mitigation measure if Alternative D is
10 chosen. Additional traffic improvements may be needed
11 to fully mitigate the impact of Alternative D. There
12 may be some intersections that we believe should be
13 covered that weren't.

14 The county will formally submit these comments
15 by mail. And that concludes my presentation.

16 MS. SMITH: Thank you. Steve Morris, please.

17 MR. MORRIS: Steve Morris, M-o-r-r-i-s, 95 Crest
18 Drive, Manhattan Beach, 90266.

19 As a resident of South Bay and a frequent user
20 of LAX, I think we all remember pre-9-11 and the
21 congestion and the delays in the ability to get home to
22 our family back in the South Bay and also to depart. We
23 want to make sure those things don't happen again. As
24 we take the opportunity now to provide better efficiency
25 in a secured environment as a post 9-11, I think this is

1 a great opportunity.

2 I'm in support of the Alternative D. I think
3 it helps provide efficiency in an existing constrained
4 airport. It provides transportation, release for the
5 traffic jams that are now that provide access off the
6 105 and the 405. It spreads out. The access to the
7 airport through the people mover, which I think every
8 airport in the world has become more modernized with the
9 people mover, and it is time that LAX does that as well.

10 As well as the Green Line, mass transit, which
11 is a new concept, especially for the west side of L.A.
12 I think the opportunity to get on the Green Line on
13 Rosecrans and be able to get into the airport without
14 getting into a car I think is great for pollution and
15 traffic. I think those are opportunities that we need
16 to take right now.

17 And as traffic does come back, as post-9-11,
18 and the economy recovers, I think it's an opportunity we
19 should take right now to provide those services not only
20 to the South Bay, but to the whole economy of
21 Los Angeles. Again, I support Alternative D.

22 MS. SMITH: Thank you. E.E. Wang, Roy Hefner and
23 then Pete Makoni.

24 MS. WANG: Hi. My name is E.E. Wang. It's spelled
25 W-a-n-g. I live at 1821 Pacific Coast Highway, Number

1 47, Hermosa Beach, California 90254.

2 I am not totally in support of Alternative D.
3 I think that it is difficult for me to support it
4 because there is lack of alternatives that are
5 comparable to it at this point. It is basically being
6 compared to proposals that were made several years back.
7 And there has been no -- there has been nothing else
8 that has been put on the board. I think there are good
9 elements to it, but I am also concerned about several
10 factors that are being proposed. One is the cost. It
11 is going to cost us \$9 billion dollars to basically
12 achieve very little capacity gain, I mean, 200,000 more
13 passengers that we will be able to process a year
14 compared to if we did nothing.

15 The centralized design, which is deemed as
16 enhanced safety and security I think is unproven. As
17 far as I know, there is nothing out there that this has
18 been compared to where we could see there is really some
19 added benefit other than making my commute into the
20 airport probably about 30 minutes longer.

21 And, finally, I actually was walking around.
22 In the exhibits you have I noticed you put up a nice
23 board saying how it was going to be funded. I notice
24 one big word that put a red flag up for me was "Bonds."
25 I know that bonds don't come out of the sky. They come

1 from taxpayers voting on them.

2 I think before we proceed with Alternative D,
3 we need to look at what other options are out there that
4 are comparable to Alternative D and whether they are
5 more cost-effective, especially in an economy where the
6 airline industry is in financial crisis. If we want
7 them to pick up the tab, we better make sure it is
8 affordable for them. Thank you.

9 MS. SMITH: Thank you. Roy Hefner.

10 MR. HEFNER: Roy Hefner, H-e-f-n-e-r, 6548 West 80th
11 Place, Los Angeles 90045.

12 I spoke to the group Monday evening at
13 Inglewood and emphasized at that time the safety aspect
14 of the relocation of the runways. Tonight I have a
15 couple of other items. I'm not dealing with the total
16 picture. I'm dealing with certain individual activities
17 and information that is in the EIR.

18 Number one, I think you're aware for the first
19 time since the Berkeley decision that now we're talking
20 about single event noise as having an impact, and that
21 could also be used for the purpose of noise sound
22 insulation of various areas surrounding LAX even though
23 they may not be in the 65 CNEL contour.

24 One of the things that disturbs me about the
25 single event noise level is that they are talking about

1 94 DB as the outside factor that's going to wake
2 somebody up. According to your own particular diagram,
3 a 94 DB would be the same as being three feet away from
4 a gas lawn mower. I think you could indicate or you
5 will indicate that that certainly is going to be less
6 than is necessary to wake somebody up. The interior
7 noise was going to be 81. That's with the -- with the
8 windows open.

9 I would encourage you whether or not
10 Alternative D is accepted or not accepted you look very
11 seriously into the noise mitigation situation as far as
12 noise insulation is concerned.

13 Another specific item, it talks about the
14 various improvements that were made in facilities from
15 1997 to 2000. We happen to know that there were
16 improvements made from 1988 to 1997 because in 1986 that
17 was the end of the first EIR of 40 million annual
18 passengers. And then you started off with the -- with
19 the new EIR process, which took many side roads. But
20 you have seven listed there. I would like for you to
21 include in your EIR all the other improvements that were
22 made at LAX which assisted in allowing LAX to go from
23 40 million annual passengers to 67 and a half million
24 annual passengers.

25 Very important. We have remote gates set up.

1 This is one of the positive features of Alternative D.
2 You go from 163 to 153 as far as gates are concerned.
3 I'm not going to deal with that as such, but I want to
4 go ahead and point out that we have nothing in there
5 that deals with cargo planes, the elimination of cargo.
6 However, we plan on increasing the amount of cargo over
7 the period of time by 50 percent. So we want to be
8 alert to that.

9 I mentioned Monday night at the very end and
10 at the very end now. Phase I of your particular
11 program, you're going to construct the Ground
12 Transportation Center. You don't own it. How are you
13 going to do all of those things without owning and
14 building at Manchester Square? Thank you.

15 MS. SMITH: Thank you. Pete Makoni.

16 MR. MAKONI: Pete Makoni. Last name M-a-k-o-n-i,
17 4345 Rosecrans Avenue, Hawthorne. I live in this
18 community close to the airport.

19 First security, safety, security and economic
20 for the neighborhood, for L.A. It's not only for
21 construction workers, but for all people. Everybody
22 want to come to L.A. They want to come to the City of
23 Angel. That's why they want to come down. From Japan,
24 Korea, they all want to hit L.A. L.A. is the place
25 where everybody want to come into.

1 We hear the tragedy, people coming from
2 overseas. They try to get here, you know, on the cargo
3 plane, try to stow away to get here. That's not the
4 point. We need to expand LAX.

5 The runway is not big enough for all the
6 airplanes to take off and to land in it. Also, LAX we
7 need to expand. People can get a job. All the
8 community have a job for all race. They want to work in
9 there. They have a job. A lot of people, everybody to
10 work in LAX. Also, we need to fix LAX right now. Thank
11 you.

12 MS. SMITH: Thank you. Joe Scavo. And after
13 Mr. Scavo we're going to have Jose Luis Espinoza.

14 MR. SPEAKER: Good evening. My name is Joe Scavo.
15 The last name is spelled S-c-a-v-o. I'm one of the
16 business reps with the pipe fitters here in Los Angeles.
17 And I'm speaking on behalf of hundreds of pipe fitters
18 who live in and around this community. I'm taking the
19 microphone tonight to speak in favor of the LAX Master
20 Plan Alternative D for several reasons.

21 Number one, it's needed. I used LAX twice
22 last week. And anything they do to improve it, I'm
23 going to be 100 percent behind, anything. The
24 Alternative D is a vast improvement of what we have
25 there now.

1 Also, I strolled around outside and read some
2 of the brochures and I read other things before coming
3 here tonight. And I could see that safety and security
4 are one of the number one issues that is repeated time
5 and time again. And I believe it. Due to 9-11, I think
6 it's a no-brainer. LAX needs to be revised regarding
7 security and safety.

8 Also, one of the posters outside, a speaker
9 before me mentioned had to do with funding. There is
10 also something else on that poster that I saw that
11 looked promising to me. It said it's going to all be
12 done without general fund money. I think that's an
13 important note. So I support it for that reason, too.

14 Also, this facility, Alternative D has a lot
15 less congestion in mind. There is a fellow kind of
16 pointing out the charts out there giving an outline of
17 what they have in mind. I really support it.
18 Everything I saw takes what is there now and takes
19 congestion out of it. The idea of putting the parking
20 away from the airport and hooking up these monorails, I
21 think that's fantastic. We need modern things like that
22 in Los Angeles. Like this one gentlemen said, everybody
23 in the world wants to come here. I was in Detroit last
24 week. They've got those monorails in their airport. I
25 think L.A. needs those, too.

1 Also, efficiency. I think it's an important
2 point. Alternative D offers a lot more efficiency, a
3 much more efficient facility. Not just congestion for
4 people, cars, but for the smog levels. What I
5 understand, you take Alternative D versus what we have
6 now, the same amount of planes, the same amount of
7 traffic. With Alternative D you're going to end up with
8 less smog. And I support that.

9 Well, go read the papers that I read, and then
10 whatever you want to get up and say when it's your turn,
11 ma'am.

12 Lastly, I'm also up here to support
13 Alternative D and this whole LAX Master Plan because of
14 the 49,000 construction jobs that have been reported.
15 Since 9-11 the economy for pipe fitters in Los Angeles
16 has gone very bad. We need the work. We need the jobs.
17 We live in this community. We pay our taxes in this
18 community. We pay the bonds in this community. We
19 dreadfully need these construction jobs. And I
20 wholeheartedly support this Master Plan, Alternative D.
21 Thank you.

22 MS. SMITH: Thank you. Before we have our next
23 speaker come up, I wanted to mention a couple of things.
24 First of all, if you're reading from prepared remarks,
25 if you could turn those into our court reporters or you

1 could bring them up to me. I would appreciate it
2 because it would help us get those remarks on the
3 record. Or if you referenced some brochures or
4 something you were referencing when you were speaking,
5 if you could turn those in to me or the court reporters,
6 I would appreciate that as well so we could add that in
7 the record.

8 Also, when others are speaking, I would
9 appreciate it if we refrained from talking over them or
10 speaking. We want everyone to have a fair opportunity
11 to get their comments in. And, also, I wanted to remind
12 you to keep your pagers and cell phones off.

13 Mr. Espinoza, please.

14 (Mr. Espinoza's testimony is being translated
15 through the use of an interpreter.)

16 MR. ESPINOZA: Good afternoon. My name is Jose
17 Espinoza. I live at 10310 South Grevillea Avenue. My
18 point of view is the reason that I am here. We live
19 close to the airport, about five minutes away. I want
20 to expose my complaint.

21 I live exactly right on the flight path where
22 the airplanes land. The airplanes make too much noise
23 all day long and part of the evening. My wife is now
24 suffering from insomnia and she can't sleep. I am also
25 a person that works at the airport and I support my

1 family through that work. I am not in favor or against
2 the airport. I'm a neutral person because I work there.
3 The only thing I ask is that you look out for the people
4 that live close to the airport and protect them. And,
5 also, the airplanes leave a real bad odor in the
6 evening. So please do it for the people and the future
7 of all of our children. Thank you.

8 MS. SMITH: Glasius, Mr. Espinoza.

9 Freddy Correa. And after Mr. Correa, we'll
10 have Chris Miller.

11 MR. CORREA: Freddy Correa, 1840 west Pacific Coast
12 Highway, Long Beach California 90810. I'm speaking on
13 behalf of -- I'm a member of the Local 250, Pipe Fitters
14 Union.

15 I'm for the project. I think it would be good
16 for the economy. It is critical time that we are facing
17 in the region. And I am just talking on behalf of my
18 union. It would put L.A. on the world map.

19 MS. SMITH: Thank you. Mr. Chris Miller, or is it
20 Ms. Chris Miller. I apologize.

21 MS. MILLER: That's okay. My name is -- Miller is
22 M-i-l-l-e-r. And I am an El Segundo resident, and I
23 live somewhat off the flight path of the runway.

24 My concern as a resident is by moving the
25 runway 50 feet closer to my house, that I have some

1 reassurances that the planes will actually stay on
2 course. Routinely, daily, sometimes hourly at 3:00 in
3 the morning these planes take off and take off directly
4 over my house. And that's not the course that they are
5 supposed to stay on. And I understand that by
6 relocating the runway 50 feet and doing all this will
7 actually make it a safer runway. They won't have to
8 take measures to fly over my house.

9 I'm also concerned that the future of
10 Los Angeles is dependent on an interconnected
11 transportation system, not just at the airport without
12 an outreaching -- no one is going to utilize these
13 things. They are still going to be in their cars. They
14 are still going to try to get on the 405 to get to the
15 airport, and that doesn't change anything.

16 Another thing that seems to have gotten pushed
17 way way back. If you're going to spend \$9 billion
18 dollars, I would like to see Palmdale put back on the
19 map because I don't understand. I know this isn't about
20 Palmdale, but somewhere out there in our past we created
21 this alternative. If we're spending this much money, I
22 would like to see that as an alternative and see what
23 that would cost and where we might be able to create a
24 high-speed rail from Palmdale to downtown.

25 The other concern I have is the cost of paying

1 for this. And I know that one of the people paying for
2 this would be the airlines. The last time I checked the
3 financial conditions of the airlines, they are asking us
4 for that money. When it comes down to it,
5 \$9 billion dollars is a lot of money. If the
6 consideration of impacting our community, our
7 neighborhoods continually -- you know, that was another
8 concern I had. So thank you.

9 MS. SMITH: Thank you. John Ruiz. And after
10 Mr. Ruiz we'll have John Barriage.

11 MR. RUIZ: Hi. My name is John Ruiz. I'm a Redondo
12 Beach resident and I'm an American Airlines aircraft
13 maintenance technician based in Los Angeles.

14 Before you begin the timer, I think we have a
15 solution to the individuals' problems here. We could
16 put a hush kit on the engines. The problem with the
17 airline industry today is there is no money to purchase
18 that, but that's something to consider.

19 I'm also here in the capacity as a union
20 officer. I'm a vice chairman representing TW Local 564.

21 My concerns regarding what I've seen out there
22 is, American Airlines currently has three maintenance
23 hangars. And in the plan to expand, and I don't know if
24 it is economic reasons or what have you, but to expand
25 the International Airport runs directly in line of where

1 these three hangars are. I don't see anywhere in there
2 where these hangars existed.

3 American Airlines currently employs in those
4 hangars in excess of 600 people. And I'm glad to see
5 that there are other trade unions here that are -- that
6 may benefit from this. But as far as American Airlines,
7 I don't even need to mention the effects 9-11 has had.
8 I think this is more of an issue of trying to maintain
9 employment.

10 We have 400 people that are out on the street
11 trying to get back in. That's just in aircraft
12 maintenance. We're also dealing with pay cuts. I'm
13 making 30 percent less and I'm not any less a person.
14 I'm working just as hard. But I think these factors
15 need to be taken.

16 There are people that live away from the
17 airport for the sole fact they can't afford to live
18 around the South Bay cities. And anything we can do to
19 accommodate that, I would definitely like to see -- I
20 hear acronyms every day. I'm not sure -- you did
21 mention the EIS/EIR. I'm not sure. If this is about
22 the environment, we do have existing hangars that can be
23 refurbished and possibly look into that as opposed to
24 demolishing them and possibly relocating work and moving
25 work. I've heard everything from moving work to

1 maintenance work up to Palmdale, which would require
2 ferrying aircraft, which would require city taxes and
3 landing fees. We do have the facilities there to
4 accommodate the work.

5 And as American Airlines is trying to get back
6 on their feet, we're not in the capacity right now to go
7 out and demolish hangars and come up with money to
8 refurbish them. I would hope that -- I know I can't get
9 answers today, but I would hope that consideration would
10 be given to look into that matter. Thank you.

11 MS. SMITH: Thank you.

12 Mr. Barriage. Am I pronouncing that
13 correctly?

14 MR. BARRIAGE: The French pronunciation. You could
15 do it by "Barrage."

16 John Barriage, attorney at law, San Diego,
17 California. I'm general counsel for the California
18 Ground Passenger Carrier's Association, which is a new
19 association of members consisting of shuttle and livery
20 carriers operating from Southern California airports.

21 The membership of the organization supports
22 the proposed reduction of gates from 163 to 153. The
23 association agrees with the assessment that the
24 reduction of aircraft gates will divert passenger
25 traffic to other Southern California airports. And we

1 believe there would be a substantial benefit to both the
2 shuttle and livery operator companies as well as their
3 passengers by reducing congestion, which is obvious at
4 LAX, as well as reducing unnecessary travel time.

5 So we would support the reduction of the gates
6 from 163 to 153. Thank you.

7 MS. SMITH: Thank you. Cleveland Brown, please.

8 MR. BROWN: Yes. My name is Cleveland Brown. And I
9 live in the city of Inglewood.

10 As I have sat here this evening and listened
11 to my coworkers, I am a union man also and I'm a bit
12 concerned about the flight -- I mean, about this job
13 situation we are concerned about. But most of my
14 friends live in Orange County.

15 So my concern is that I live in the flight
16 path. And these planes fly overnight. They are flying
17 day and night, morning. It doesn't matter. They are
18 even taking off going east, which is directly over my
19 house. Now, I'm real concerned about that.

20 I know we need jobs. I know the airport needs
21 expansion. But we were turned down in Orange County by
22 John Wayne Airport, El Toro. And, yet, the voters out
23 there told them if they did, they would not be elected
24 again. We come here and we want to force this on the
25 City of Inglewood -- not only Inglewood, but L.A., which

1 is adjacent to Inglewood. And we are talking about more
2 cargo, more flights. And, yet, we don't have a solution
3 to the problem. So I'm real concerned.

4 They said they will soundproof our homes. You
5 know, they told me my home, it would probably be 2020
6 before they could get to it. You know I'm concerned.
7 They would do one home within an X-amount of square
8 miles per you might say six months to a year. That's a
9 real concern of mine. I'm not just here to say that the
10 job market is what we're looking for. We need the work,
11 but we do not need to exploit the citizens that live
12 there.

13 Now, I'm really disappointed in the union.
14 We're concerned of public safety, which is the airline
15 situation, yet, we're not concerned about the health of
16 the citizens living in that area. Also, we're concerned
17 about where they come from as far as Japan, wherever
18 they come from. We are not saying that they shouldn't
19 arrive here in California, but they can do it somewhere
20 else with less cargo and less traffic. I'm really
21 concerned about that. Thank you very much.

22 MS. SMITH: Thank you. Our next speaker is Cecil
23 Carpio. And after that I'd like to call Mayor Mike
24 Gordon again and David Fein, if they are available.

25 MS. CARPIO: Well, I'm glad you're going to call

1 Mike Gordon again. I didn't hear him the first time.
2 I'd like to hear what he has to say.

3 But in the meantime, yes, you know, LAX needs
4 to be revised as someone said. It needs to respect the
5 surrounding communities. It needs to enforce penalties
6 for overflights and nighttime operations. LAX needs to
7 follow procedures and agreements that it has agreed to
8 perform for the Noise Variance Contract with the
9 Department of Transportation.

10 It's telling the union members to not -- don't
11 support those speakers who speak about quality of life.
12 Where is the applause there? We're supposed to be
13 addressing the environmental reports tonight. Do these
14 union workers understand that homes, businesses and
15 schools will be adversely affected by expanded
16 operations? We lose our sleep. We breathe toxic fumes
17 from the jets. Why aren't they supporting Mayor Hahn's
18 plan for El Toro? I haven't heard one of them speak
19 about that tonight.

20 The other thing just for fun. I think it is
21 reprehensible that the elderly in Manchester Square,
22 that transportation center, that -- that processing
23 center are being terrorized into giving up their homes.
24 And, you know, I'm even further disgusted that the City
25 of L.A. decided they are going to place the name

1 Manchester Square on a community south of Inglewood --
2 excuse me, east of Inglewood. That's ridiculous.

3 According to a memorandum from the Association
4 of Governments of Southern California, is the proposed
5 project, Alternative D, consistent with facility
6 capacity constraints adopted for LAX in our 2001 RTP
7 Aviation Plan which limits its service to 78 million
8 annual passengers and 3 million tons of cargo?

9 From a system-wide standpoint, does the
10 proposed project promote a decentralized aviation
11 system? And may I say decentralized is the only way to
12 go. This expansion stuff is ridiculous. Anybody who
13 would think it through with terrorism in their mind
14 would know you do not expand an airport to have safety
15 and security. Please. Get a job at El Toro.

16 Does the proposed project have action steps
17 designed to promote the use of other LAWA-owned airports
18 as part of the decentralized aviation strategy including
19 the support of stakeholders from the aviation community?
20 Oh, yes, perhaps it does, but there is no support from
21 the City of Los Angeles to do that very thing.

22 There was a SCRA, for the people who
23 understand that little whatever it is, SCRA -- ha ha ha.
24 It's about the regional airports getting together and
25 talking about, okay, we're going to put this together

1 and we're going to have a regional system of airports.
2 The only problem was L.A. City never showed up at that.
3 So the sucker probably -- just basically dies.

4 Does the proposed project discuss potential
5 relationships with non LAWA-owned airports designed to
6 encourage decentralization? Well, maybe it does, but
7 the fact L.A. City doesn't show up at the Aviation Task
8 Force to discuss this stuff. So what happens, all of
9 this decentralization stuff is a bunch of BS.

10 MS. SMITH: Thank you. Mayor Mike Gordon.

11 MR. GORDON: Gosh, usually I'm the guy that's the
12 most worked up at these meetings. So it's great to
13 always follow Cecil.

14 Good evening. I am Mayor Mike Gordon
15 representing the City of El Segundo. Given the length
16 and complexity of the Master Plan and environmental
17 documents, our full comments on technical issues will
18 not be ready for some time, therefore, the City's
19 comments tonight are preliminary.

20 The City of El Segundo continues to oppose the
21 LAX Master Plan Alternatives A, B and C for the many
22 reasons the City expressed orally and in writing during
23 the public review and comment period for the initial
24 Draft EIS/EIR in 2002.

25 While we feel the stated objectives of the new

1 plan supports a regional aviation approach -- an issue
2 Mayor Hahn and I continue to work side by side on -- the
3 City of El Segundo has not yet taken the official
4 position on Alternative D, nor have I.

5 Specifically the City supports a regional
6 approach alternative that makes proper use of Inland
7 Empire airports.

8 The City supports an alternative with fewer
9 environmental impacts. We would like to see the adverse
10 impacts of the airport minimized and mitigated to the
11 greatest extent feasible. The City of El Segundo
12 supports enhanced safety and security at LAX.

13 And the City supports an alternative that by
14 design will accommodate passenger and cargo levels no
15 greater than the physical capacity of the airport as it
16 exists today, approximately 78 million annual
17 passengers.

18 Limiting LAX capacity to its current capacity
19 has always been our number one goal. We believe
20 limiting LAX's capacity will allow other airports in the
21 region to develop and handle a fair share of future
22 regional aviation demand. This approach will result in
23 fewer environmental impacts and will improve safety and
24 security at the airport.

25 However, the City is greatly concerned about

1 the impacts of the proposed south side airfield changes
2 that moves the southernmost runway 50 feet closer to
3 El Segundo. LAWA has stated that it believes these
4 changes are necessary to improve runway safety.

5 However, we are currently studying the impacts
6 of a reconfiguration and other options for the southern
7 runway complex. In particular, we urge a full public
8 consideration of end-around taxiways as an alternative
9 that could provide greater safety sooner, at lower cost
10 and with fewer new burdens on local communities.

11 Safety at LAX must be a priority for all of
12 us. The city is prepared to support measures necessary
13 to enhance safety, even if those measures increase our
14 burden, but only if we are assured through an
15 independent expert that our other alternatives are not
16 equally effective.

17 In conclusion, we are grateful for Mayor
18 Hahn's responsive leadership and his pledge to constrain
19 growth at LAX and foster the regional approach to
20 meeting future aviation demand. It is our hope that the
21 ultimate outcome of this Master Plan will be a regional
22 airport approach that ensures that LAX does not exceed
23 its current capacity. Thank you.

24 MS. SMITH: Thank you, Mayor. Mayor, are these
25 comments that you referred to -- may we have them?

1 Thank you very much.

2 (The statement submitted for the
3 record was marked as Statement 2
4 and is attached hereto.)

5 MS. SMITH: David Fein. Andrew Shaddock, Richard
6 Slawson. Mr. Slawson. Okay.

7 MR. SLAWSON: Good evening. My name is Richard
8 Slawson. I'm the Executive Secretary of the Los Angeles
9 and Orange County Building and Construction Trades
10 Council. I've given testimony at the other hearings,
11 but I wanted to comment on some of the things that we've
12 seen and reviewed in the Environmental Impact Reports as
13 well as some of the commentary that we've heard at the
14 various hearings that have been held throughout the
15 greater Los Angeles area.

16 I might add that the people that are here
17 tonight also attended the hearings in Ontario, downtown
18 Los Angeles and all of the other areas where they've had
19 an opportunity to speak as well as many others.

20 The members that are here tonight of the
21 various unions also live in each community. We have
22 members that live in every community along the beach and
23 surrounding LAX. We have members in Inglewood,
24 El Segundo, Westchester, all of those areas that are
25 impacted.

1 My home address, by the way, is 4634 Deelane
2 Street in Torrance. I am not affected by the noise
3 there. But as many in the South Bay, we perceive that
4 part of the problem of LAX has been traffic.

5 I know what the reports say and I know that a
6 very minimal amount of the impact of traffic comes from
7 the airport in most of the South Bay cities. For sure
8 in El Segundo, Westchester and Inglewood there is some
9 impact from airport traffic arriving and leaving.

10 But we believe that can be mitigated by the
11 design of Alternative D. We have an alternative that
12 includes a stop at the airport for the Green Line, which
13 people from all over the region will be able to utilize
14 and should assist in reducing overall traffic impacts on
15 all of our cities and especially in those cities
16 surrounding the airport.

17 Also I wanted to address the issue of the
18 regional plan. From the onset, and it's been going on
19 for over four years now, we have been studying,
20 discussing and reviewing all of the alternatives that
21 have been offered at the airport. We always supported a
22 regional plan. We believe in the trades that El Toro
23 should have taken its load.

24 In fact, our members that live in Orange
25 County and many from Los Angeles County participated in

1 the debate in Orange County, supported the issue
2 wholeheartedly. And I'm sorry to say, many in Orange
3 County, as many that live around this airport, do not
4 want to see any airport in their area. I also believe
5 that many of the speakers would like to see LAX leave
6 and go to some other area totally. They forget about
7 not only the construction jobs, but the permanent jobs
8 and how these cities were built up over the years.

9 In fact, one of the supervisors in Orange
10 County lost their job as a supervisor by supporting the
11 El Toro idea of building an airport at El Toro Air Base.

12 So these are very concerned people that are
13 here tonight. We've been involved in all of the issues.
14 We do support a regional plan. We want to see Palmdale
15 eventually built. It is going to take some time for the
16 powers that be in this area, SCAG and the cities in the
17 area to come up with a final plan for that as well.
18 Meanwhile, LAX does need to be fixed. Without a plan,
19 we will continue to grow here with all of the problems
20 that we see now. And we want it fixed now. We want
21 Alternative D. Thank you very much.

22 MS. SMITH: Thank you. Next is William Spilman.

23 MR. SPILMAN: Good evening. My name is Bill
24 Spilman. I live in Manhattan Beach. I'm a businessman,
25 a frequent traveler. And like thousands in the

1 Los Angeles area, I depend on affordable and convenient
2 travel to do my -- to conduct my business.

3 First, I support the modernization of LAX,
4 however, I oppose this specific plan. My first point is
5 I think the economic forecasts in here are not
6 realistic. I believe there will be a negative L.A.
7 economy due to reduced air capacity and higher fares.
8 This will occur by reduced tourism. It will occur by
9 reduction in businesses both that are located here and
10 that are not located here, but try to operate here. And
11 it will occur by the inability to grow our economy with
12 the growth of both the country and the world economy.

13 Thirdly, I think that the fare and capacities,
14 the fair will increase and the capacity will not be able
15 to meet demand because of a couple of reasons. One is,
16 you're putting the financial burden of the project on
17 the airlines. The airlines cannot afford this any way
18 you put it. This burden will be placed on the traveling
19 consumer or the airlines will simply choose they cannot
20 operate certain markets at that expense. So what that
21 will do is it will decrease capacity, and that will
22 increase fares. All of the people understand the
23 economics of fares. For every price a dollar goes up,
24 people do not travel. And I would be one of those in
25 the business I'm in.

1 The second point is, you're talking about
2 capacity controlling Los Angeles Airport. We need to
3 look at those airports around the country that do have
4 capacity controls. Let's compare O'Hare to Midway,
5 LaGuardia to JFK and Newark. Let's compare Orange
6 County to LAX, the fair structure, the service
7 availability at those airports compared to the other
8 airports.

9 Now, fortunately those metro areas have other
10 airport options. We talk about the other airport
11 options in L.A., but air travel is going to grow at four
12 percent a year irrespective of the economy. In Long
13 Beach, Burbank and Orange County simply cannot even keep
14 up with the growth of that. The fourth point -- that is
15 the fourth point I would like to make.

16 The fifth point I would like to make is there
17 is going to be a much greater demand placed on putting
18 people in cars. You're going to see a carrier like
19 Southwest simply decide they cannot do business at LAX.
20 People will be driving to Las Vegas, Phoenix, Sacramento
21 and San Francisco. They will be doing so because you'll
22 be adding them hours to travel time. It simply will be
23 more convenient to travel.

24 I don't believe the impact to vehicle travel
25 has been properly analyzed in this study. I thank you

1 for your time and I hope you have a good evening.

2 MS. SMITH: Thank you.

3 Mr. Brown.

4 MR. BROWN: My name is Piedmont Brown. I live at
5 7019 North Britton Drive, Long Beach, California. I
6 represent the Union Ironworkers of Local 433 in Los
7 Angeles. We are in support of Alternative D.

8 I'd like to lay this aside and talk to you as
9 a private citizen, which I am, and I live over the
10 airport, which is in Long Beach. I live right over the
11 flight pattern. And I understand what these people are
12 talking about, but it was my choice to live there. I
13 liked it. I put up with the noise. The planes come
14 over my house. That was my choice to live there.

15 The other issues are, we have serious issues
16 and we need serious people to take care of these issues.
17 We need to stop talking about them and we need to move
18 forward and pursue these issues before something does
19 happen like 9-11. And then everybody goes, "What
20 happened? We didn't do anything. We just sat in these
21 rooms and we talked about it."

22 The other issue I want to talk to you about is
23 family. My family is back east. I've been here since
24 1979. My parents are elderly. They can't drive now and
25 they are afraid to fly. So I look at my parent's

1 situation, and I'm sure there hundreds and thousands of
2 parents the same way that their children have relocated
3 and want to fly here, which would boost our economy.

4 The other issue I want to talk about is
5 location. Who wants to fly to Palmdale? I worked out
6 there years ago. I don't choose to live there. I
7 choose to live over here. LAX is where I choose to fly
8 in and out of, not Long Beach, but LAX because it has
9 more frequent flyers out there and more flight times
10 that fit my schedule and the people that I need to fly
11 here to see me.

12 The fifth thing I would like to talk about is
13 they say that LAX is going to grow. Well, if the
14 economy of Los Angeles needs to grow, it is going grow.
15 The airport needs to grow, and we need this growth and
16 expansion.

17 And the last thing I would like to talk about
18 is talk about the cost. The cost in our life to live
19 for the freedom that we freely use comes with a price.
20 And everyone in this room understands it. And this is
21 the price that we have to pay to be the great nation we
22 are. And with that I would like to close my statement.
23 Thank you.

24 MS. SMITH: Thank you.

25 James Ferguson. And after Mr. Ferguson we'll

1 have Randall Hartman.

2 MR. FERGUSON: My name is Jim Ferguson. I live at
3 770 West Imperial. I live in a 100-unit complex there,
4 Pacific Sands.

5 Now, you don't know me and you don't care, but
6 we have put up with 30 years of being modified. I am 82
7 years old. You come up now and offer a plan which, as
8 far as I can find out, if we talk only about Alternative
9 D, since I assume even though these other gentlemen
10 talked about B, have taken precedent because of your
11 great sales job on safety. It was marvelous. Whoever
12 brings all that really should get a raise.

13 Now, as far as that goes, if you look at the
14 problem we're talking about now is 18 years worth of
15 work, more or less, to do this. With people saying no
16 cost to the government, to county, federal. Baloney.
17 All the traffic modifications ought to be paid for, not
18 from airport funds. Look it up. That is true.

19 Number two. I don't know how you're going to
20 sell this to the legal beavers. In fact, you probably
21 tried it 12 years ago when the airport had a surplus of
22 funds. And some brilliant politician in the L.A. City
23 said, "Oh, we'll just transfer that to the government
24 general fund." And, of course, I understand it was
25 stopped. But this program shines brightly as to what

1 the same thing is happening.

2 The other point is, I went to the reading room
3 over at the airport, Imperial Airport. I asked, "How do
4 I get answers to a question?" Well, I'd like anybody to
5 answer that.

6 I've asked people, "How do you get answers to
7 the present traffic and the expected 2008 traffic?"
8 There isn't any. There is none. It is separated. It
9 is in 14 different places. There is no comparison a lay
10 person can go to.

11 You get the problems of noise. They talk
12 about average noise. Who cares about average noise. If
13 I'm kept awake at 2:00 a.m. by a cargo plane landing, I
14 don't want it. I'm sorry.

15 MS. SMITH: Thank you, Mr. Ferguson.

16 Randall Hartman, please. And after Randall
17 Hartman we'll have Terry Martin.

18 MR. HARTMAN: Yeah, I'm Randall Hartman. I live in
19 Torrance, California. I work at LAX. I'm a quality
20 assurance inspector for American Airlines, and I've
21 worked at LAX for the last 20 years.

22 I looked at Hahn's plan. When I looked at it,
23 I thought this is utter lunacy. I can't believe they
24 are even considering this. The only thing that makes
25 sense is for construction workers on this job. That is

1 the only thing that can possibly make sense.

2 They talk about safety. How is this going to
3 improve safety? Just go out there at the ocean and
4 watch. Every 20 seconds a plane takes off. That's
5 where the safety problem is. There is too much traffic.
6 This is not going to do anything to relieve traffic.
7 They are not adding a runway. They are separating the
8 runways. That has nothing to do with traffic. The only
9 way to make this place safer is to put more of the
10 traffic at the regional airports.

11 Most of the people I work with live out at
12 these areas. Some people drive two hours to work. They
13 would love to have jobs out there. Construction workers
14 would love to have jobs out there. I mean, it just
15 doesn't make sense. First they want to put all the --
16 just imagine all the people at LAX checking in at one
17 location and being transported to the terminal. I mean,
18 this is a terrorist's dream to put everybody in one
19 place where they could just easily do a terrorist
20 attack. I just -- and it's just going to cause a
21 nightmare.

22 How many years of it, 11 years of
23 construction. What are they going to do in the meantime
24 when they are doing all this? They are going to have
25 half of the terminal just moved, all the gates moved

1 over. It's just going to be utter chaos for the next
2 ten years. It's going to hurt the airlines. It's going
3 to cost the airlines.

4 I work for American. We were, you know, the
5 number one airline in the world. Now we're on the verge
6 of bankruptcy. Now they are going to hit it with this.
7 This whole plan is utter lunacy. We should just -- how
8 come we don't hear anything about San Bernardino
9 Airport? It's an international airport. It's not even
10 mentioned. We should open up Ontario. There is plenty
11 of other places. We don't have to go to Palmdale. I
12 mean, just common sense. I've been going to these
13 hearings on all kinds of things. It's just a charade.
14 I mean, 90 percent of the people will be against the
15 project, and you'll still put it through because of
16 politics. I mean, come on. Get a clue people.

17 MS. SMITH: Thank you. Terry Martin.

18 MR. MARTIN: Terry Martin. I'm one of those
19 individuals from Orange County. I live in Anaheim,
20 M-a-r-t-i-n. I'm a union representative Local 250
21 Steamfitters.

22 I know it seems like with all the fitters
23 speaking in attendance at all the meetings, we would
24 have so much work. But we have a small percentage of
25 the work. I know this isn't a question-and-answer

1 session either, but the lady who is so concerned, and
2 rightfully so, I respect that. I respect everybody's
3 opinion. And you have to respect -- and I respect you
4 probably won't clap for me.

5 But living in Orange County and sitting on the
6 Orange County Central Labor Council as Vice President,
7 we did all we could to get El Toro going. And if you're
8 familiar with Measure V or Measure W, the great park,
9 which we called the great plank -- or prank, it turns
10 out the great park is really a bunch of homes being
11 developed by developers, you know. It's a lot of work
12 like that. I don't see a lot of -- there is a golf
13 course that's already existing that they'll update.

14 But I'd like to compliment Mayor Hahn on this
15 Alternative D. I'm in full support of it. I know he
16 made every attempt to agree to expand and, of course, to
17 register. And, well, the developers made sure that that
18 didn't happen.

19 I will again support Alternative D. I do
20 support unions. Unions do care about the community. We
21 do so much to help. It's not just work. It's not just
22 about jobs. We give back. We've got Harbor Interface
23 Shelter. We've got Children's Institute International
24 over here, the Eli home. We do our fair share in
25 helping, which we need to do. We've been doing that

1 since 1947.

2 Again, I'm in support. I live in Orange
3 County, but we have 5,000 members. 600 of them live
4 within a ten-mile radius of this building here. And I
5 do respect your concerns. I got a little troubled there
6 at San Pedro.

7 I did apologize to the Palos Verdes Estate
8 residents who had the same problem you had. And I
9 brought up that commercial. And I didn't mean to be
10 smart-alec about it, but it's true. That guy, the
11 father and son sitting on the porch saying, "You make
12 sure you get a good real estate agent." About that time
13 the plane flies over and that piece of the plane falls
14 off. And he says, "Trust me." Well, I didn't get any
15 claps for that neither, but I did talk to them
16 afterwards. And believe me, we're on good terms. And I
17 do, again, want to say I respect you, and you don't have
18 to clap for me. Thank you.

19 MS. SMITH: Thank you, Mr. Martin.

20 Elizabeth Kunkee. And after Elizabeth Kunkee
21 we'll have Jonathan Walright, please.

22 MS. KUNKEE: Good evening. My name is Elizabeth
23 Kunkee. And I'm a resident of Manhattan Beach. I
24 appreciate the opportunity to come talk. I'm also here
25 with my son John and daughter Lea.

1 I'm simply an interested citizen. And I'd
2 like to tell you my impressions of what I've been
3 reading in the newspaper and hearing about.

4 What I see is that a very expensive -- a very
5 expensive plan is being put before the citizenship. And
6 I see very little of value that we're going to get from
7 it. I don't believe that it's going to be any safer.
8 RAND Corporation has said they don't think it's going to
9 be safer. I haven't seen airline security experts
10 consulted. I don't believe it's going to be any more
11 convenient.

12 I was back in the -- in the room talking with
13 an engineer. And ground transportation when I added up,
14 well, it would probably take at least 20 minutes longer
15 than it currently does to drop someone off and pick
16 someone up. Remember when it used to be 60 minutes
17 before your flight left when you checked in? Do you
18 remember that? Wouldn't it be nice to get to that.
19 Could we get to that with this airport renovation
20 instead of moving to 90 or 120 minutes?

21 I believe I would like to see the money that's
22 saved by not pouring it into LAX, putting it to our
23 other regional airports. I think there is a better
24 solution. I'm not opposed to expansion of the
25 Los Angeles International, but I'd like part of the

1 burden and the pride of our air travel to be spread
2 around. Thank you for your attention.

3 MS. SMITH: Thank you. Mr. Walright, please.

4 MR. WALRIGHT: Good evening. Jonathan Walright,
5 American citizen. Nobody cares where I live. Suddenly
6 LAX doesn't. Los Angeles International Airport
7 directors, officials, have engaged in domestic,
8 emotional terrorism. They have turned a deaf ear to the
9 complaints, to the prayers and to the petitions of the
10 citizens of Inglewood to have a peaceful and quiet night
11 of sleep and rest. I have three minutes. That's a
12 limited amount of time.

13 The airlines were grounded for three days and
14 three nights. The airlines have demonstrated that they
15 have no moral courage to do what is right for the people
16 of Inglewood. It is morally wrong to build and expand
17 an airport inside the boundaries of any American city.
18 The evidence is clear that it pollutes the air, it has
19 an adverse impact upon the learning of children.
20 Studies conducted at Cornell University and in Germany
21 verifies that conclusion. Whatever is morally right
22 should be politically right.

23 It is morally wrong to expand an airport
24 inside the boundaries of a heavily populated residential
25 community. Since it is morally wrong, it should be

1 politically wrong. Repeat those words, will you please,
2 often. The American Airlines, the industry as a whole
3 was pushed on September 11th. Many families suffered
4 great loss. I only have 18 more seconds. I can't say
5 everything that I want to say here, but I would
6 encourage those who have any faith to make decisions to
7 protect the water, the air and the people on the ground.

8 MS. SMITH: Thank you.

9 Next we'll have Robert Kropp, Diane Sambrano.
10 I apologize. She is after Mr. Kropp.

11 MR. KROPP: Good evening. I'm Bob Kropp and I've
12 been a resident of Manhattan Beach since 1956. I also
13 was an airline employee for 36 years. The airline is no
14 longer in business, but one of the airlines took us
15 over. So I guess it's okay.

16 I would like to comment on one thing about
17 that with the present check-in system, which everyone
18 likes to believe it's a big, safe situation. I can fly
19 free. And I refuse to go out to the airport and fly
20 anywhere because of the hassle. It is a big hassle.
21 Now, if the people here or in your travels believe that
22 it isn't, wait until the day that they get the entry
23 built over two miles away and you have to go through
24 your check-in there, get on a tram, go over to the
25 airport, check in. It's going to take two, two and a

1 half, three hours to board an airplane.

2 Also, there will be parking problems. And
3 with that situation going on, you're chasing the
4 traveler who would fly between here and a short
5 distance, Phoenix, San Diego, San Francisco, Seattle,
6 are going to get in their car and they are going to
7 drive rather than to fly. The airlines can't afford to
8 go to outlying airports if they can't fill the airplane.
9 The thought that we can force people to go out there,
10 people will travel by another mode. And what you're
11 doing is penalizing an industry known as the airline
12 industry.

13 The airport, the airport at the present time,
14 I could have drawn the picture six years ago when they
15 decided to build a bigger airplane than the Boeing 747.
16 The truth being is that they are tearing the runways up,
17 moving them, spreading them further apart because you
18 can't land the airplane being built by the French on
19 this airport and get it into position and park it at a
20 gate. So, therefore, we are going to tear down three
21 buildings so we can make room to put in these airplanes
22 that fly non-stop from Singapore, Australia, from
23 London, from Paris and the likes. We're going to make
24 room for that. So what we're going to have is basically
25 strictly an international airport. The people who live

1 here will hear the noise.

2 I don't complain about the noise. I don't
3 hear the noise. And I'm not deaf. But I would like to
4 say that I've got friends here who complain about the
5 noise and the same noise I don't hear. I guess I've
6 gotten used to it and I accept it. Back in the prop
7 days we had the same noise over the top of Manhattan
8 Beach.

9 The building of the new airport, I'm for
10 advancement. I think it's a great idea. I think having
11 the method that they are going to use two miles away to
12 get people to the airport is ridiculous. The reason we
13 don't have the Green Line going to the airport today is
14 because they envisioned putting this thing out at the
15 end of the runway and having to transport the people in.
16 That's why they never finished the Green Line. Okay.
17 Thank you very much.

18 MS. SMITH: Thank you. Diane Sambrano.

19 MS. SAMBRANO: Good evening. My name is Diane
20 Sambrano. I'm one of those pesky people who lives in
21 Inglewood. I see LAWA made that wonderful agreement
22 with my community for, what was it, sound insulation
23 that was suspended.

24 So we have that understanding that safety and
25 security really means expansion. We've been there, done

1 that before, misrepresentational terms. But to us
2 safety and security by any other name is simply
3 expansion, not only in the amount of land which is
4 acquired, meaning, what was it, 2,568 homes. We call
5 them homes. I think you all call them dwelling units.
6 We actually have families that live there as opposed to
7 simply entities that dwell. You've already wiped out
8 several of our schools. Our children tolerate
9 pollution, the planes fly over their heads.

10 Now, I know one of the greatest supporters
11 earlier this evening was one of the pipe fitters who
12 said everyone would rather drive farther than to have to
13 wait in those lines. And you know what, I support that
14 concept. If he really believes it, let's leave the
15 airport just as it is, and we'll have our regional
16 solution, won't we. No one will want to, as he says,
17 wait in line. But if in fact we believe that we are
18 about a regional solution, then we have to take into
19 account the concept of air quality. It isn't just
20 employees who are entitled to breathe comfortably and
21 safely and have long lives. Homeowners and children
22 should have that opportunity as well.

23 As I looked at many of the documents, and of
24 course 8,000 pages is a little tough to read in 45 days,
25 it seems the only concern we had was about that auto

1 bomb, explosives loaded into a car. And that's the only
2 thing we seem to be addressing. And I'll bet you there
3 is a terrorist out there who could think of two or three
4 other ways. Gosh, that you all had to move that little
5 sign that said, "You can't go under Sepulveda" because
6 some of us brought that up at a public hearing. By the
7 way, it's still not far enough away. You can't really
8 do that if you're in the wrong lane.

9 Someone said we want LAX to leave. No, we
10 didn't, but we certainly should not bear all of the
11 burdens so that a few people could have some benefits of
12 having quiet time.

13 There was a comment made about that
14 commercial. And I bet people thought it was funny. But
15 in my neighborhood, all kinds of stuff spills out of the
16 air. And it usually is not from flying birds. They are
17 engine parts, wing parts, not to mention that
18 unmentionable liquid.

19 It seems some people want to say I want what I
20 want now. Anything worth having is worth studying and
21 waiting for. And we'd like to have a quality of life.
22 Ours has been destroyed for many years by LAWA.

23 MS. SMITH: Thank you. Again, I would like to call
24 David Fein. Is David Fein available? Andrew Shaddock.
25 Mr. Shaddock and Mr. Jackson. I believe it's

1 Eric Jackson. Are you available, Mr. Jackson? Coming
2 up to the podium now.

3 MR. JACKSON: Good evening. Eric Jackson of
4 Los Angeles/Orange County, and most of all an American
5 citizen. This is America. We have to continue to move
6 forward. We have to stop the corporate greed.

7 And I wasn't going to speak on this matter
8 tonight because I spoke earlier -- earlier this week.
9 But the previous speaker mentioned the French aircraft.
10 That's why we have to increase the airport runways.
11 This is necessary to increase the airport runways if we
12 continue to buy these French aircrafts. And that's the
13 price you pay when you don't want to put Americans to
14 work. I never believed NAFTA. I believe in used to.
15 The United States of America and our citizens need to be
16 put to work. When you pay \$45 for a shirt, if you wear
17 it between medium, large and extra large, if you wear
18 2X, 3X and have to go to Rochester and pay \$90 for a
19 shirt that's made in Indonesia, something is wrong.

20 There is no way possible somebody can tell me
21 they are going to drive six hours to San Francisco,
22 Phoenix, Oakland, 17 hours to Seattle or more and they
23 can fly for \$39. That's ludicrous.

24 I am in favor of proposition D, plan D, not
25 because I'm a pipe fitter, because I'm an American

1 citizen. We can't afford to stop the progress. The
2 environment is important. If we could afford to stop
3 progress, why are our boys in Iraq today?

4 MS. SMITH: Thank you. At this time I don't have
5 any other speaker cards filled out. We will take a
6 15-minute recess. We encourage you to please visit the
7 sign-in desk and fill out speaker cards if you wish to
8 register your comments today. If you don't want to
9 speak out loud, you're welcome to fill out a written
10 form. They are just as valuable to us as oral comments.
11 We will reconvene at 7:50. Thank you.

12 (Recess was taken.)

13 MS. SMITH: Again, my name is Shauna Bain Smith.
14 I'll be your facilitator this evening. I don't see many
15 new faces in the house, so we probably don't have to go
16 over our introductory remarks. But I want to introduce
17 you to Mr. David Kessler. He's representing the Federal
18 Aviation Administration and Mr. Jim Ritchie to my
19 farthest right, who is to the Deputy Executive Director
20 of Los Angeles World Airports. And they will be taking
21 your testimony this evening along with our court
22 reporters.

23 I'd like to call Jack Kenton. And after
24 Mr. Kenton we'll have Roy Hefner again. Thank you. And
25 can you spell your name, your last name for the court

1 reporters, please.

2 MR. KENTON: Yes. It's K-e-n-t-o-n. I'm at 835
3 Dune Street in El Segundo.

4 I've commented previously about the idea of
5 having a midway -- midfield taxiway between runways on
6 the north and south sides of the runway. And I still
7 would like to make my point that I feel that the expense
8 of creating extra runways and taxiways is not necessary
9 based on the safety issue, that the safety issue can be
10 handled by having a taxiway off the ends of the runway
11 going around the inboard runway should that truly be
12 such a problem. And I also disagree with it because I
13 feel it facilitates movement of a greater number of
14 aircraft in and out of LAX, and the frequency that the
15 noise goes over the houses are part of the things that
16 makes it hard to live close to the airport.

17 Also, I would like to have someone convince me
18 that moving all the check-in points away from the
19 airport is truly beneficial simply because the idea is
20 that we're going to eliminate the terrorist threat at
21 the Central Terminal Area by moving all the vehicles
22 away. However, there will still be vehicles at the
23 other check-in points, which to me could be just as much
24 a hazard. It won't be a hazard to the terminal and the
25 aircraft parked at the terminal, but it would still be a

1 hazard to the people. And it's -- you start just
2 looking at it and wondering whether there is really
3 cost-effectiveness in producing all this extra
4 construction.

5 Now, I like the idea of having a link to the
6 Green Line to facilitate people getting into the
7 airport. That alone is a point that's well worth
8 constructing, but I'm not sure about all these other
9 items that we've planned to build. Thank you.

10 MS. SMITH: Thank you.

11 Mr. Hefner, please.

12 MR. HEFNER: Roy Hefner, H-e-f-n-e-r, 6548 West 80th
13 Place, L.A., 90045.

14 I just hated to see you people close up
15 without somebody going ahead and talking. So I thought
16 I would come up for a second round. What I'm attempting
17 to do is I'm not dealing with the overall Alternative D
18 plus or minus. I'm trying to take certain things in
19 that alternative and bring it to your attention.

20 Number one, I talked earlier tonight about the
21 single event noise and how one of the mitigation
22 measures that they plan to incorporate as far as schools
23 were concerned is they wanted to conduct a survey and a
24 test to go ahead and determine whether or not noise does
25 have an impact upon the education program. And they are

1 referring primarily to the area of Lennox.

2 And my question is, how are you going to have
3 a test of the students in Lennox about noise and no
4 noise when they always have airplanes flying over?
5 There is never a time that they don't. So you cannot
6 make a comparison on that particular basis.

7 Another thing is in the EIR itself on the --
8 on the summary comparisons, you make excellent summary
9 comparisons of Alternative A, B, C and D, but you do not
10 make the comparisons on those charts in the executive
11 summary of the no-action, no-project. However, during
12 the -- in the written aspect of your particular report,
13 while you do go ahead and invariably, so far what I've
14 read, without exception the Alternative D in your
15 unbiased opinion is always superior to the no-action,
16 no-project, which leads me to believe that there is
17 something that is lacking there.

18 You also include in Phase I the building of a
19 tunnel, but yet all -- for baggage, for luggage. But in
20 all of your other aspects, that building of a tunnel is
21 not included and I think probably has been eliminated as
22 a possibility. And the only place I know of that you
23 might be tunneling is from Bradley to the new west
24 terminal.

25 The disruption that will take place with the

1 development of the runways. As you know, there will be
2 three runways eventually developed in one way or another
3 either by moving and/or by extending, both to the east
4 and/or to the west. I don't think there is adequate
5 coverage left in the EIR to express the amount of
6 disruption and the shifting of noise during that
7 particular process. When you have to close down a
8 runway, that means that there is three runways that are
9 going to handle what normally four runways are going to
10 do. So we have to be concerned about that.

11 As far as the Green Line is concerned, I
12 remember when the Green Line before it was ever
13 constructed, it was really going to be a big boon for
14 carrying people to the airport. It has carried a lot of
15 employees to the airport, but very few travelers utilize
16 the Green Line as such. And maybe they will go ahead
17 and expand that.

18 One point, though. The Green Line must
19 provide some type of space for luggage to be
20 transported. Thank you.

21 MS. SMITH: Thank you. Bobby Blanks. Bobby Blanks,
22 come on up.

23 MR. BLANKS: First of all, let me say good evening
24 to everyone. My name is Bobby Blanks, field
25 representative to Congressman Maxine Waters. And I

1 have a statement she'd like me to read this evening.

2 Thank you for the opportunity to speak and
3 submit a statement regarding the Draft Environmental
4 Impact Statement/Environmental Impact Report for
5 Alternative D Enhanced Safety and Security.

6 "As a member of Congress for the 35th
7 Congressional District, I represent over 638,000
8 constituents who live in the cities and communities of
9 Inglewood, Westchester, Playa del Rey, Gardena,
10 Hawthorne, Lawndale and portions of South Los Angeles.
11 Since the release of the prior Master Plan in January
12 2001 and the release of the new Supplement to the Master
13 Plan, Alternative D, the views and concerns of my
14 constituents have not changed.

15 Thousands of residents are still heavily
16 impacted by airplane noise on a constant basis.
17 Thousands of residents are still impacted by pollutants
18 and toxins from aircraft emissions that fly overhead.
19 Thousands of residents have suffered the consequences of
20 increased traffic congestion in their neighborhoods.
21 Thousands of residents are still suffering from hearing
22 loss, sleep deprivation, hypertension, respiratory
23 ailments, anxiety and stress. Residents should not have
24 to live under such conditions.

25 With the release of Alternative D, new issues

1 of concern have arisen. I have talked to many residents
2 and elected officials regarding Alternative D. The
3 primary focus of the plan is enhanced safety and
4 security imposed as a result of the possible threat of
5 terrorism in the aftermath of the September 11th
6 attacks.

7 Although I am highly in favor of ensuring all
8 passengers and employees at LAX and other airports are
9 as safe as possible, there are evident flaws in
10 Alternative D. Specifically my objections to the
11 proposed plan hinge on the following:

12 One, the new alternative increases the
13 passenger cap from 78 million annual passengers to
14 78.9 MAP, as illustrated in the Table ES-1 of the
15 Executive Summary, Supplement to the Draft EIS/EIR
16 Volume 1. This is a clear deviation and violation of
17 the Mayor's promise and pledge to constrain passenger
18 capacity within LAX to the existing facilities which he
19 signed on March 26, 2001.

20 On July 16, 2002, I introduced The Careful
21 Airport Planning for Southern California Act,
22 H.R. 5144. This legislation would cap LAX traffic at
23 78 million annual passengers a year and prevent LAX from
24 expanding beyond its current capacity. The County Board
25 of Supervisors and the Los Angeles City Council has

1 supported this legislation which is currently pending.

2 Two, Alternative D sounds more like expansion
3 than safety and security given the fact that part of the
4 plan is to utilize Manchester Square as the Ground
5 Transportation Center. If LAWA is relocating residents
6 out of the Manchester Square area and clearing the land
7 over 568 properties to build this new center, I would
8 definitely call that expansion. This site has been
9 opposed by the community, elected officials. And there
10 is no substantive proof that it will make the airport
11 more secure.

12 Three, based on a recent analysis completed
13 earlier this year by the RAND Corporation, to simply
14 reconfigure the airport does not mean the airport is
15 safer than before. It would actually make the airport
16 less safe in certain instances. The RAND analysis
17 states that, "The great risks are in high density areas
18 such as lines for ticketing, baggage claim and the
19 security check points. These risks are not likely to be
20 reduced by Alternative D, which simply moves these
21 targets of opportunity to the Ground Transportation
22 Center and the people mover."

23 Four, during tough economic times, it is not
24 prudent to increase passenger facilities charges and to
25 use any surplus funds on untested ideas. We must take a

1 lesson from the State of California not to allow
2 ourselves to create a deficit in the billions of dollars
3 on plans and ideas of uncertainty.

4 There are major airlines who are also opposing
5 Alternative D due to the current decline in air travel
6 and the increased costs that will be incurred such as
7 landing fees to pay for much of the project.

8 Alternative D is simply a ploy and a
9 continuation of former Mayor Richard Riordan's plan to
10 expand the airport in the name of safety and security.
11 In addition, Alternative D provides Los Angeles World
12 Airport Commission President Ted Stein and Mayor Hahn an
13 opportunity to assist their fat cat developer friends in
14 securing large city contracts in return for re-election
15 campaign contributions. I am opposed to Alternative D.
16 I believe that now is the time to seriously look at --

17 MS. SMITH: I'm sorry, can you submit the rest of
18 that into the record because -- we'll take the written
19 comments. I have to ask you to stop. I apologize.
20 Thank you very much.

21 MR. BLANKS: I have a copy of the statement.

22 MS. SMITH: Perfect. If you could take those to our
23 court reporters. We'll submit all of that into the
24 record. Thank you.

25 ////

1 (The statement submitted for the
2 record was marked as Statement 3
3 and is attached hereto.)

4 MS. SMITH: Again, I'll call Andrew Shaddock. He
5 disappeared. Mr. Shaddock and David Fein.

6 At this time I don't have any other speaker
7 cards in my possession. If you'd like to go to the
8 sign-in desk, please, we encourage you to fill out a
9 speaker card. We're here until 9:00 p.m. and we're here
10 to hear your testimony.

11 In the meantime we'll take another recess
12 until 8:20. Thank you.

13 (Recess was taken.)

14 MR. KESSLER: We will reconvene. We have another
15 speaker to present some more information. So I've asked
16 everyone that is still interested to please take a seat.
17 We'll restart in just a moment. I've asked Mr. Blanks
18 to finish out the last portion of his letter. He had
19 another paragraph to read and I've asked him to complete
20 that.

21 MR. BLANKS: Thank you very much. The last thing I
22 would just like to mention in the congressman's
23 statement, it goes on to say that I am opposed to
24 Alternative D. I believe that now is the time to
25 seriously look at developing a more regional approach to

1 air travel so that airports such as Ontario
2 International and Palmdale Regional can begin to accept
3 their fair share of air traffic.

4 I am asking all constituents of the 35th
5 Congressional District and the South Bay communities to
6 oppose Alternative D. Thank you.

7 MS. SMITH: Thank you, Mr. Blanks.

8 MR. KESSLER: Thank you, Mr. Blanks.

9 MS. SMITH: At this time do we have any other
10 speaker cards, gentlemen? Again, we don't have any
11 other completed speaker cards awaiting acceptance. So
12 if we could take another recess, we will reconvene at
13 8:40. Thank you.

14 (Recess was taken.)

15 MS. SMITH: We encourage you to go to the sign-in
16 desk and fill out a speaker card. We'll be here until
17 9:00 p.m. Until then we will stay in recess. Thank
18 you.

19 (Recess was taken).

20 MS. SMITH: I want everyone to take their seats.

21 MR. RITCHIE: Let me say one quick thing. I have to
22 thank everybody for -- I was trying to keep my birthday
23 a secret, but certain people in the audience took
24 advantage of that. So, nonetheless, I appreciate -- it
25 is kind of unique to have a public hearing and have some

1 sort of celebration tied to it. So thank you for your
2 kindness and your thoughtfulness. I'm not supposed to
3 talk. I'm only supposed to listen. Thanks.

4 MS. SMITH: Thank you, Mr. Ritchie.

5 We're going to reconvene. And Mr. Weis,
6 Brian Weis.

7 MR. WEIS: Yes.

8 MS. SMITH: If you could spell your name for the
9 court reporters, please, and state your address.

10 MR. WEIS: Brian, B-r-i-a-n, last name Weis,
11 W-e-i-s. And I live at 8836 Croydon Avenue in
12 Westchester, California.

13 It seems that the major focus recently has
14 been on converting the expansion plan to now a need for
15 better security at LAX. And oftentimes when there is
16 projects that are being planned or developed, the
17 planners try to take advantage of possible angles to
18 help sell their ideas. And the 9-11 tragedy has really
19 served the purpose for LAX to really try to make that
20 their cornerstone with Mayor Hahn's new plan.

21 Unfortunately, LAX has some very interesting
22 security problems that no other airports in the world
23 seem to have. One is the fact that it's -- it's so
24 geographically limited in all the -- all the traffic and
25 planes, and access is just jammed in on top of each

1 other. There is very little security that is afforded
2 by geographic space.

3 Security, by definition, comes from having
4 limited access. I mean, it's just -- it's -- it's kind
5 of inconceivable to -- to considering you have a secure
6 area and then you have access that anybody can get to,
7 as in the case of the runways in the Sepulveda tunnel.
8 Basically, anybody that gets in this concrete can be
9 within 15 feet of the runway by virtually driving down
10 the state highway, or whatever that is, Sepulveda
11 Boulevard.

12 I understand this is a long-standing, you
13 know, problem that LAX has always had this tunnel since
14 the last big remodel job, but it doesn't -- it doesn't
15 really -- just because somebody, you know, made the
16 tunnel a project before doesn't mean that it shouldn't
17 be addressed in a security environment that we have
18 today.

19 If you -- if you want to take all the airport
20 designers of the world or maybe the top 100 and said to
21 them, "Here is my blank sheet of paper, LAX 3,500 acres,
22 or whatever it is, "design me an airport," there isn't a
23 one of them that would advocate running a highway under
24 the middle of those runways.

25 Now, I know that people think that just

1 because that concrete is thick and there is a lot of
2 steel in it, that it could possibly withstand a large --
3 a large truck-type bomb like was used by either in the
4 Oklahoma City Bombing or in the World Trade Center back
5 in '92. But both of those truck bombs, I don't think
6 they were all that large from what I heard on the news,
7 not in comparison to what could potentially happen. And
8 I just don't see -- I don't see any point in trying to
9 build a \$12-billion-dollar remodel job when it doesn't
10 address the very biggest security problem that LAX could
11 possibly have.

12 You know, there isn't -- virtually every
13 airport in the world has the same sort of layout as LAX.
14 You've got roads that run around, and people get out of
15 the cars and they walk into the terminal with their
16 bags. I don't see that every other airport in the world
17 is jumping to do some remodel job to make it some remote
18 check-in facility. I think the real issue ought to be
19 addressed so that we don't spend ten years and
20 \$10 billion dollars or \$12 billion dollars, or however
21 many billion dollars, only to end up with the potential
22 of still having a major terrorist problem that blows up
23 the tunnel, and then you lose half of your runway
24 capacity and 85 percent roughly, according to my rough
25 guesstimate of where all the cargo facilities are

1 located. Pretty much everybody seems to be east of the
2 tunnel. And, you know, all that will be cut off. There
3 won't be an avenue for these people to -- all these
4 businesses to be able to operate cargo, and half the
5 runways will be gone.

6 MS. SMITH: Thank you, Mr. Weis. Thank you.

7 Are there any other speakers that are ready to
8 speak that have filled out a speaker card? We are here
9 for at least another ten minutes. We will take a short
10 recess.

11 (Recess was taken.)

12 MS. SMITH: At this time we'll reconvene. Mr. Weis
13 would like to continue his comments. You have three
14 minutes, Mr. Weis.

15 MR. WEIS: One of the questions I have is how the
16 funding would be guaranteed to not get tied into the
17 city as revenue. I mean, we've got a \$38-billion-dollar
18 deficit in the State of California. And people think
19 that's a huge burden, but it's spread out over
20 35 million people. It's a big problem. What's going to
21 happen with a 12 billion or 10 billion dollar project
22 that's going to be funded by partially, I guess,
23 bondholders? And if there is some sort of a disaster,
24 either some air-type disaster like 9-11, that will have
25 a bad fallout on airline traffic, or if there is, God

1 forbid, some terrible disaster at LAX and we're in a
2 middle of a 12 billion dollar program, the airlines can
3 hardly afford to fund it now. How is that going to
4 get -- how is that going to get paid for?

5 Myself, as a taxpayer, I hope somehow it's not
6 going to backfire so I have to pay for this. How is
7 this project going to be guaranteed to be paid for out
8 of somebody else's money other than my tax money.

9 And if it is like service by bonds, how is
10 that going to be guaranteed that that's not going to
11 come back to get LAWA or the City of Los Angeles. I
12 understand that United Airlines is having problems where
13 they are not making payments on their bonds to the
14 bondholders right now at either LAX or San Francisco
15 because of the Chapter 11 situation. And it seems to me
16 that the City of Los Angeles should be guaranteed that
17 no matter what, it's not going to be a problem that the
18 bondholders -- or that the city taxpayers are going to
19 have to pay. Orange County had a project where they
20 built the massive freeway and it was going to be paid by
21 bondholders who are going to be paid back by tolls on
22 the toll road. That project went belly-up and Caltrans
23 is bailing them out. How is it that the people that
24 live in Los Angeles are going to be protected from
25 having to foot the bill from this if there is some sort

1 of a problem?

2 The other comment I have relates to just
3 having all the eggs in one basket at LAX. I mean, it's
4 unfortunate that there hasn't been better utilization of
5 regional airlines. But, you know, I think that the
6 overwhelming security problem with trying to fix the
7 tunnel, which I see is a real security problem just
8 because of the nature of how it is constructed and how
9 there is no prevention of large truck bombs or whatever
10 from going into there.

11 The utilization of the other airports, there
12 just isn't -- there isn't any way they could immediately
13 take up the capacity that would be reduced by something
14 that happened to that tunnel. And it seems to me that
15 it's LAWA's responsibility to help ensure that there is
16 a safe operating airport system for people of the
17 greater Los Angeles and Southern California area and to
18 not have provisions for that and to continually put all
19 the eggs in one basket when there is a real weak spot,
20 in my opinion, in the bottom corner of that basket.
21 It's a gross negligence on the part of LAWA.

22 MS. SMITH: Thank you, Mr. Weis.

23 Are there any other members of our audience
24 who care to speak this evening? Any other speaker cards
25 filled out? Do we have any other speaker cards, Evelyn?

1 MR. KESSLER: Is there anyone else who has not had
2 an opportunity to speak concerning the information in
3 the Supplement to the Draft EIS/EIR?

4 Not seeing anyone else, I will remind everyone
5 that if you feel you are unable to provide us comments
6 verbally today, we will be accepting written comments
7 now until 5:00 p.m. Pacific Standard Time, Friday,
8 November 7th, 2003. You could mail your comments either
9 to me at the FAA or to Jim Ritchie at LAWA. The mailing
10 addresses are listed on the cover of the Supplement to
11 the Draft EIS/EIR.

12 I want to thank everyone for your comments
13 today. This public hearing to the Supplement to the
14 Draft EIS/EIR on the Los Angeles International Airport
15 Master Plan is now closed. Thank you.

16 MS. SMITH: Thank you.

17 (Whereupon the proceeding adjourned
18 at 9:00 o'clock p.m.)

19 ---oOo---

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24

25

1 STATE OF CALIFORNIA)
) ss.
2 COUNTY OF RIVERSIDE)
3

4 I, LISA ANN VARGAS, certified shorthand reporter,
5 License No. 12049, do hereby certify:

6 That the proceedings contained herein were taken
7 before me at the time and place herein set forth and was
8 taken by me in shorthand and thereafter transcribed into
9 typewriting by me, and I hereby certify that the said
10 proceedings are a full, true and correct transcript of
11 my shorthand notes so taken.

12 I further certify that I am not interested in the
13 event of the action.
14

15 WITNESS my hand this 9th day of September 2003.

16
17 
18 _____
LISA ANN VARGAS, CSR NO. 12049

19
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24
25

ERRATA SHEET

I declare under penalty of perjury that I have read the foregoing _____ pages
of my deposition testimony, taken on _____ at
_____, _____, California,
and that the same is a true record of the testimony given by me at the time and place hereinabove
set forth, with the following exceptions:

Page Line Should read:

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Date: _____

Signature of the Witness

Name Typed or Printed

A Preliminary Review of Issues Associated with the LAX Master Plan Supplement to the Draft EIS/EIR

*Prepared for the Los Angeles County Board of Supervisors
by A.C. Lazzaretto and Associates
August 2003*

INTRODUCTION

The Federal Aviation Administration (FAA) and Los Angeles World Airports (LAWA) made available for public comment in early 2001 a Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) addressing three build alternatives, a no-build alternative, and the existing setting for the Los Angeles International Airport (LAX) Master Plan. In response to considerable public comment and the terrorist attacks that occurred on September 11, 2001, a fourth alternative -- Alternative D, the Enhanced Safety and Security Plan -- has been added to the LAX Master Plan. A Supplement to the Draft EIS/EIR was made available for public comment in July of 2003 to update information presented in the Draft EIS/EIR and to integrate Alternative D into the environmental review process.

Alternative D includes a number of airfield facility modifications. Although LAX would continue to operate with 4 runways, 2 of the existing runways would be moved, two would be lengthened, and all would be further separated from one another. The existing parking structures would be relocated and replaced by new centralized passenger terminals. The existing Terminals 1 through 7 would be reconfigured, including a new north/south linear concourse at the Tom Bradley International Terminal, flanked on the west by a new satellite concourse. A new ground transportation center and intermodal transportation center to be built east of Aviation Blvd. would serve as the primary access for all passenger drop-off and pick-up and vehicle parking. Some cargo facilities would be modified, although overall square footage would be equivalent to the No Action/No Project Alternative.

A brief preliminary review has been conducted to assess changes between the original Draft EIS/EIR and the 2003 Supplement to the Draft EIS/EIR for the LAX Master Plan, as well as consistency and accuracy of information within the documents. The initial review points to several issues requiring further comment and discussion.

One of these issues was central to County comments on the earlier LAX Master Plan review, and remains an area of potential concern for the current document: although LAWA indicates that its goal is to limit growth, improvements proposed as part of Alternative D would in reality serve to reinforce LAX as the preeminent airport of the southern California region, and may undermine attempts to strengthen the role of outlying airports. In addition to this thematic concern, there are a number of additional points that merit further consideration. The preliminary findings are outlined briefly in the discussion below.

DISCUSSION

1. The Proposed Master Plan Alternative D May Not Constrain Growth at LAX

The stated goal of Alternative D is to limit growth at LAX to 78 Million Annual Passengers (MAP) and induce growth at other regional airports. The primary means to accomplish this is to limit aircraft gates to 153 which is the same number of gates that exist in the No Project Alternative (NPA). However, the NPA includes 48 remote gates that are simply aircraft parking spaces on concrete. Alternative D provides 153 fully

County comments - LAX [Attach I]

functional and high capacity gates and does not remove the concrete which will remain available for aircraft parking. The true number of gates is therefore over 200. Furthermore, the design of the new gates is a linear configuration as opposed to the existing cul-de-sac configuration. The linear configuration is more flexible and has more capacity. Also, space in the western portion of the airport will remain available for future consideration of a new west terminal, as proposed in Alternatives A, B and C. Therefore, the gate limitation is not an effective constraint on passenger levels.

Alternative D includes other improvements that would support growth beyond the 78 MAP level. In particular, the new remote terminal in the Manchester Square area provides 6.5 million square feet of terminal space -- more than 50% greater than the 4 million square feet proposed in the 98 MAP Alternatives A, B and C. Further, many of the proposed improvements to the north airfield are designed to accommodate the new generation of larger aircraft.

Orientation of new LAX facilities to the new larger aircraft could have long-term, pervasive effects. Because the new larger aircraft require many smaller connecting flights to fill its 600 seats, these improvements will strengthen the "confluence of connections" that reinforce LAX as the preeminent airport of the southern California region, and at the same time reduce the incentive for airlines to utilize other regional facilities. A true constraint on the growth of LAX would be to make it inhospitable towards the new larger aircraft, coupled with improvements to serve new larger aircraft at another regional airport, and transit links to join the two facilities.

2. Airport Security May Not be Fully Achieved by Alternative D

Preliminary review suggests that the Supplement to the Draft EIS/EIR may fall short of an adequate review of airport security issues. Although the Executive Summary to the Addendum refers the reader to Appendix I 'for a detailed assessment of the security and safety features of Alternative D,' Appendix I offers a heavily conceptual and theoretical document that falls significantly short on detail. Anomalies include contradictory content and a lack of clarity expected of a public information document.

3. Environmental Justice May Not be Well Served by Alternative D

Presidential Executive Order 12898, issued in February 1994, requires all federal agencies to analyze environmental justice impacts when proposing public projects. The analysis is intended to determine whether minority and low-income communities are unfairly burdened by project impacts, with the goal of using mitigation measures to create a level playing field. In 1999, Senate Bill 115 was passed making environmental justice a requirement of CEQA as well.

Despite the importance of this subject, the original Draft EIS/EIR was found to lack even the most elementary NEPA requirements for environmental justice. Preliminary review suggests that the Supplement to the Draft EIS/EIR has corrected some but not all of the earlier deficiencies. In particular, the Supplement to the Draft EIS/EIR again limits the area of analysis (reviewing only those census tracts surrounding LAX), improperly omits assessment of many effects due to the preparers' inability to quantify or analyze the impacts, and defers a determination of significance pending completion of the mitigation program.

The assessment does not appear to consider the trade-offs between environmental protection and environmental justice pertaining to the placement and length of LAX runways: runway extension to the west would have significant adverse impacts on biological resources (particularly the El Segundo Blue Butterfly), but would serve

County comments - LAX [Attach I]

environmental justice through a significant lessening of noise, air quality and traffic impacts on Lennox, Inglewood and other disadvantaged communities around LAX. Nor does the assessment apply rigorous standards in assessing the proportionality of impacts and mitigation measures between the wealthier northside area and communities east of LAX including Lennox and Inglewood. These relevant issues require further review as part of the Supplement to the Draft EIS/EIR.

4. The Baseline Year of 1996 is Not Adequate for a 2003 Impact Assessment

It appears that the Supplement to the Draft EIS/EIR continues to use 1996 data to establish baseline conditions for a number of topical issues. This outdated reference point was considered inadequate for the original EIS/EIR, and remains unsuitable for use in the current Supplement to the Draft EIS/EIR.

5. The No Project Alternative does not offer a Consistent Yardstick for Measuring Project Impacts

The original EIS/EIR provided an incomplete discussion of the No Project Alternative by incorporating improvements that were then only in the "planning stages" and overstating the service levels and capacity of the existing facilities. This approach made it difficult to draw meaningful comparisons with project alternatives. Preliminary review indicates that the Supplement to the Draft EIS/EIR may also provide an incomplete picture of impacts associated with the No Project Alternative. In particular, the Supplement to the Draft EIS/EIR appears to substantially overstate passenger and cargo handling capacity under the no-build scenario, while understating both for the build scenarios.

Additionally, the No Project Alternative has not represented passenger capacity in a consistent manner. In the original 1997 Notice of Preparation, the No Project Alternative was linked to a range of 68-72 MAP whereas the 2001 and 2003 EIS/EIR documents increased this estimate to 71.2-78.7 MAP. Based on communications provided by LAWA at the Environmental Justice Workshop held in Inglewood, the increase between 1997 and 2001 reflected actual increases in passenger demand during that period. However, there was no equivalent adjustment for the period from 2001-2003, when passenger demand has fallen by almost one-third.

The Supplement to the Draft EIS/EIR states that the No Project Alternative is provided as a benchmark for comparison of the four build alternatives. However, use of a higher baseline passenger number minimizes the extent of the difference between existing and future conditions at LAX, which in turn affects comparative impact assessments throughout the EIS/EIR. Use of a *worst-case scenario*, in which the baseline was based on a low estimate of existing passenger demand, would have better served the goals of CEQA and NEPA, and given a more realistic picture of the changes between current and future conditions at LAX. The County believes that LAWA should revisit key impact findings in light of actual 2003 passenger demand, instead of the estimates developed for 2001.

6. Traffic, Noise and Air Quality Impacts have been Shifted Eastward

The revised Master Plan represents a major shift of improvements away from neighboring areas north and south of LAX and toward communities to the east. The unincorporated community of Lennox and the City of Inglewood now appear to bear the brunt of added traffic, while Manchester will be the primary location for passenger processing. This shift heightens the need for close scrutiny of the proposed mitigation plan and the analysis of Environmental Justice.

County comments - LAX [Attach I]

7. **Major Changes in the Project Call for Preparation of a Comprehensive Revised Draft EIS/EIR**

CEQA Guidelines require that a Subsequent EIR for a project must be completed if the Lead Agency determines that changes in a project will require major revisions to a previous EIR; a Supplement to an EIR may be prepared if changes in the project are not considered major (§15162(a)). Both Subsequent and Supplemental EIRs are subject to the same notice and public review requirements as the original EIR, but Subsequent EIRs must make available all the information in the environmental evaluation, whereas Supplemental EIRs only need circulate new or revised information. Discussion provided in the CEQA Guidelines indicates that both types of review are intended for use in connection with *previously certified or approved* environmental documents.

In the present case, there is no previously certified or approved document. Furthermore, preliminary review of the Supplement to the Draft EIS/EIR indicates that changes to the proposed project are major. Thus, even an adaptation of the Guidelines (i.e., to encompass a document that has not been previously certified or approved) would indicate the project should have been addressed through preparation of a comprehensive revised Draft EIS/EIR, in which the full record of information was consolidated in an effort to facilitate public review.

Public review and lead agency decision-making would also have been better served by providing copies of the comment letters submitted during public review of the original EIS/EIR. Instead, the Supplement to the Draft EIS/EIR makes no effort to present or even summarize the earlier comment letters. This approach creates a process that is confusing and cumbersome for reviewing agencies and organizations, and thwarts an opportunity to advance public participation.

8. **Growth-Inducing Impacts May Be Significantly Greater than Stated**

The Supplement to the Draft EIS/EIR bases its analysis of growth inducement on projected cargo and passenger activity. It concludes that by 2015, Alternative D would yield a direct economic output of \$63.7 billion and 350,500 jobs, plus an indirect economic output of \$93.8 billion and 629,000 jobs through a multiplier effect of 1.5. The EIS/EIR assumes that all of the jobs would be within the 5-County SCAG region, 78% of the jobs would be within a 20-mile radius, and 40% within a 10-mile radius of LAX. Finally, it concludes that Alternative D would be similar in terms of job formation to the No Action/No Project Alternative, differing by an increase of about 1%. With respect to collateral development, the EIS/EIR finds Alternative D impacts equivalent to the No Project Alternative for LAX Northside¹, Westchester Southside and Belford, and less than the No Project Alternative for Continental City and Manchester South.

In taking this approach, the document ignores the cumulative synergistic effects that would result if LAX Northside is constructed in tandem with the LAX improvements. The increase in cargo will create corresponding increases in off-airport services and place extraordinary pressures on commercial and residential land uses in the immediate neighborhood. The Growth-Inducing Impact Analysis does not appear to address these more localized impacts at all, even though the past history of LAX shows them to be potentially significant.

¹ LAX Northside is approximately 330-acres of land located on the north side of LAX (bisected by Westchester Parkway) and owned by LAWA. Tentative Map #34836, approved for this site during the mid-1980s, would allow development of about 4.5 million square feet of office, hotel, restaurant, retail, research and airport-related land uses.

ATTACHMENT II

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

**LAX MASTER PLAN DRAFT EIS/EIR
COMMENTS FOR ON-AIRPORT AND OFF-AIRPORT SURFACE TRANSPORTATION
JULY 2003**

The supplement to the Draft EIS/EIR serves to integrate Alternative D into the existing environmental review process for the LAX Master Plan, providing a level of analysis comparable to that which was previously prepared for the other alternatives addressed in the January 2001 Draft EIS/EIR.

Under the new plan, the projected passenger activity in the planning year of 2015 is 78.9 million annual passengers (MAP), which is reduced from the previous alternatives. The 78.9 MAP would be substantially the same as the No Action/No Project alternative and the passenger ground access trips would also be similar to the No Action/No Project alternative.

Alternative D, also known as "The Enhanced Safety and Security Plan," is in response to public comments received during the review period for the Draft EIS/EIR in January 2001. Its lower MAP aims to encourage a long-term regional approach to serving air traffic demand in the Los Angeles basin. The lowered MAP is designed to encourage other airports to accommodate future air travel demand in the region. The report indicates Alternative D would enhance security by limiting access by private vehicles to the main airport infrastructure to reduce the risk to airport users.

Alternative D significantly changes surface transportation access to LAX. Vehicular access is planned on the east and south sides of airport property via La Cienega Boulevard and the I-105 Freeway/Imperial Highway, respectively. Public Works staff conceived and advanced a proposal for new interchange for the I-405 Freeway at Lennox Boulevard and install a cul-de-sac on Lennox Boulevard just east of the freeway. The interchange would provide direct access between the I-405 Freeway and LAX. It would help mitigate the traffic impact at several intersections in the unincorporated Lennox community, reduce the amount of airport-related traffic in the Lennox community, and significantly reduce the travel time for airport-related traffic. Public Works coordinated the proposal with Supervisorial Districts 2 and 4 and presented it to the Lennox Coordinating Council. The Board offices and the Lennox Coordinating Council strongly support the new interchange for the I-405 Freeway at Lennox Boulevard should Alternative D be chosen for LAX.

LAX Master Plan Draft EIS/EIR
July 24, 2003
Page 2

The following comments are generic and apply to various mitigation measures recommended in the Draft EIS/EIR:

The document indicated mitigation measures may include fair-share contributions to certain projects, such as the Marina Expressway (SR 90) Connector Road to Admiralty Way project. The document should indicate which transportation projects have committed funds programmed and which projects, such as the SR 90 project, have not yet completed the EIR process and have not been funded.

The document should indicate that if a transportation project does not get approved and constructed, mitigation may not be feasible and the LAX Master Plan would have to be approved by overriding considerations.

The document should indicate that the Lincoln Corridor Task Force (LCTF) is studying transportation enhancements and aesthetic improvements along the Lincoln Boulevard corridor from the Santa Monica Freeway to Manchester Boulevard. It should indicate that the LAX project should pay its fair share of traffic mitigation measures recommended by the LCTF in order to mitigate project impacts that are not otherwise able to be mitigated.

A traffic impact analysis was not conducted per the Caltrans Guide for the Preparation for the Traffic Impact Studies. The Guide indicates that a traffic impact study should be performed when a project adds one or more vehicle trips during the peak hour for a freeway segment that is operating at level of service (LOS) E or F.

The following comments pertain to specific information pertaining to traffic and transportation in the Draft EIS/EIR:

Executive Summary

4-282 At the intersection of Lincoln Boulevard/Washington Boulevard, Improvements for 2015 indicates mitigation is performed in 2008. The County's Marina Expressway (SR 90) Connector Road to Admiralty Way project is targeted for completion in 2011, pending approval by all jurisdictions and funds (\$15 million) are in place. A footnote should be placed by this and all other transportation projects specified as mitigation not approved and funded.

4-288 The document states "Y Lennox Boulevard will terminate east of I-405 at Redfern Avenue, resulting in the elimination of access to Lennox Boulevard from La Cienega Boulevard." It should state that pedestrian access between Lennox Boulevard and La Cienega Boulevard will be maintained and sufficient right of way will be made available for community needs in the vicinity.

4-290 The document indicates signal synchronization (ATSAC, ATCS, or equivalent) for segments of La Cienega Boulevard in the County's jurisdiction is recommended as

LAX Master Plan Draft EIS/EIR
 July 24, 2003
 Page 3

a mitigation. Since the County does not participate in the City of Los Angeles= ATSAC program, the possible traffic signal synchronization improvements should be to integrate the intersections into the County Traffic Control System (TCS) as part of the Traffic Management Center (TMC).

- 4-293 We agree with the statement "Along the northbound side of I-405 near Lennox Boulevard, elevated roadways would extend from the I-405 interchange to Lennox Boulevard. These roadways would run adjacent to two local schools and along residences. Sound walls would need to be placed along these stretches of the roadway to reduce the amount of noise impact to the schools and residences."

Technical Report S-2a: On-Airport Surface Transportation

- 11 The capacity for main access roads (Century Boulevard and Sepulveda Boulevard) assumed in the study of 1,500 to 1,700 vehicles per hour per lane (vphpl) appears to be high. HCM 2000 (page 10-10) suggests around 1,140 for these types of roadways which are classified as Class I Urban Streets. For transitions from main access roads to curb approaches, a capacity of approximately 850 vphpl is suggested in HCM 2000. The capacities for other road types appear to be on the high side as well. Justifications for these capacity assumptions should be provided or reduced to a more realistic capacities suggested in HCM 2000.

Technical Report 2b: Off-Airport Surface Transportation

- 4 Figure S1 shows the study area and key study locations. Figure S4 shows increase in traffic due to the airport expansion project along Lincoln Boulevard and La Cienega Boulevard, north of the I-405. Also, traffic in the Lincoln Boulevard corridor uses Admiralty Way as an alternate to Lincoln Boulevard. Approximately 35 to 40 percent of traffic on Admiralty Way is bypass traffic, some of which is from Lincoln Boulevard. Therefore, the traffic analysis should include all the intersections along Admiralty Way and the Washington Boulevard/Via Marina intersection. In addition, the following intersections in the unincorporated Baldwin Hills area should be analyzed:

- La Cienega Boulevard at Stocker Street
- La Cienega Boulevard at Slauson Avenue ramps
- Stocker Street at La Brea Avenue
- Slauson Avenue at La Brea Avenue

- 30 Figure S3, Differences in LAX Passenger Trips B 2015 PM Peak Hour B Alternative D B Adjusted Environmental Baseline, shows decrease in traffic along Pershing Drive with the project. This does not make sense since employee parking structure for 12,400 stalls is proposed east of Pershing Drive north of Imperial Hwy. There should be an increase in airport traffic due to the proposed parking structure.

LAX Master Plan Draft EIS/EIR
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Page 4

- 35 Additional Fly-Away sites are proposed and assumed in the traffic impact analysis. Specific locations should be identified and some level of commitment must be made to ensure these additional sites will be implemented. It should also state that a separate environmental impact analysis will be conducted for any additional sites.
- 36 Sufficient capacity should be provided for the intersection of the ITC and GTC connector road and the new access road proposed with the Lennox Boulevard/I-405 interchange. Free right-turn lanes should be provided to ensure sufficient turning movement capacity. The level of service should be conducted to ensure that adequate capacity exists.
- 47 Project fair share estimates for the impacted Congestion Management Program (CMP) routes and intersections are based on the growth between 1996 (Environmental Baseline) and 2015. This seems inconsistent with the impact analysis since the project impact was evaluated based on comparing to the 2015 Adjusted Environmental Baseline.
- 62 The haul and detour routes for any airport construction near the unincorporated areas should also be submitted to the County of Los Angeles Department of Public Works for review.

Mayor Mike Gordon
City of El Segundo
Comments on the
LAX Master Plan Draft EIS/EIR Supplement
August 20, 2003

- **Good Evening. I am Mayor Mike Gordon, representing the City of El Segundo.**
- **Given the length and complexity of the Master Plan and environmental documents, our full comments on technical issues will not be ready for some time, therefore the City's comments tonight are preliminary.**
- **The City of El Segundo continues to oppose LAX Master Plan Alternatives A, B, and C for the many reasons the City expressed orally and in writing during the public review and comment period for the initial Draft EIS/EIR in 2002.**
- **While we feel the stated objectives of the new plan supports a regional aviation approach — an issue that Mayor Hahn and I continue to work side by side on—the City of El Segundo has not yet taken an official position on Alternative D, nor have I.**
- **Specifically, the City supports a regional approach alternative that makes proper use of Inland Empire airports.**
- **The City supports an alternative with fewer environmental impacts. We would like to see the adverse impacts of the airport minimized and mitigated to the greatest extent feasible.**
- **The City of El Segundo supports enhanced safety and security at LAX.**
- **And the City supports an alternative that by design will accommodate passenger and cargo levels no greater than the physical capacity of the airport as it exists today, approximately 78 million annual passengers.**
- **Limiting LAX's capacity to its current capacity has always been our number one goal. We believe limiting LAX's capacity will allow other**

airports in the region to develop and handle a fair share of future regional aviation demand.

- . This approach will result in fewer environmental impacts,**
- . and will improve safety and security at the airport.**
- . However, the City is greatly concerned about the impacts of proposed southside airfield changes that move the southernmost runway 50 feet closer to El Segundo.**
- . LAWA has stated that it believes these changes are necessary to improve runway safety.**
- . However, we are currently studying the impacts of the reconfiguration, and other options for the southern runway complex.**
- . In particular, we urge a full public consideration of end-around taxiways as an alternative that could provide greater safety sooner, at lower cost and with fewer new burdens on local communities.**
- . Safety at LAX must be a priority for all of us.**
- . The City is prepared to support measures necessary to enhance safety, even if those measures increase our burden, but only if we are assured, through an independent expert, that other alternatives are not equally effective.**
- . In conclusion, we are grateful for Mayor Hahn's responsive leadership and his pledge to constrain growth at LAX and foster a regional approach to meeting future aviation demand.**
- . It is our hope that the ultimate outcome of this Master Plan process will be a regional airport approach that ensures that LAX does not exceed its current capacity.**
- . Thank you.**

MAXINE WATERS

MEMBER OF CONGRESS
35TH DISTRICT, CALIFORNIA

CHIEF DEPUTY WHIP

COMMITTEES:

FINANCIAL SERVICES

SUBCOMMITTEE ON HOUSING AND
COMMUNITY OPPORTUNITY
RANKING MEMBER

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SUITE 1
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Statement of
Congresswoman Maxine Waters
August 20, 2003

Public hearing held by Los Angeles World Airports and the Federal Aviation Administration

Joslyn Community Center Auditorium
1601 Valley Drive
Manhattan Beach, CA

Thank you for the opportunity to speak and submit a statement regarding the Draft Environmental Impact Statement/Environmental Impact Report for Alternative D Enhanced Safety and Security.

As the Member of Congress for the 35th Congressional District, I represent over 638,000 constituents who live in the cities and communities of Inglewood, Westchester, Playa del Rey, Gardena, Hawthorne, Lawndale and portions of South Los Angeles. Since the release of the prior Master Plan in January 2001 and the release of the new Supplement to the Master Plan Alternative D, the views and concerns of my constituents have not changed.

Thousands of residents are still heavily impacted by airplane noise on a constant basis. Thousands of residents are still impacted by pollutants and toxins from aircraft emissions that fly overhead. Thousands of residents have suffered the consequences of increased traffic congestion in their neighborhoods. Thousands of residents are still suffering from hearing loss, sleep deprivation, hypertension, respiratory ailments, anxiety and stress. Residents should not have to live under such conditions.

With the release of Alternative D, new issues of concern have arisen. I have talked to many residents and elected officials regarding Alternative D. The primary focus of the plan is enhanced safety and security imposed as a result of the possible threat of terrorism in the aftermath of the September 11th attacks.

Although I am highly in favor of ensuring all passengers and employees at LAX and other airports are as safe as possible, there are evident flaws in Alternative D. Specifically, my objections to the proposed plan hinge on the following:

1) The new alternative increases the passenger cap from 78 million annual passengers (MAP) to 78.9 MAP as illustrated in the Table ES-1 of the Executive Summary, Supplement to the Draft EIS/EIR Volume 1. This is a clear deviation and violation of the Mayor's promise and pledge to constrain passenger capacity within LAX to the existing facilities which he signed on March 26, 2001.

On July 16, 2002, I introduced The Careful Airport Planning (CAP) for Southern California Act (H.R. 5144). This legislation would cap LAX traffic at 78 million passengers a year and prevent LAX from expanding beyond its current capacity. The County Board of Supervisors and the Los Angeles City Council has supported this legislation which is currently pending.

2) Alternative D sounds more like expansion than safety and security given the fact part of the plan is to utilize the Manchester Square area as a Ground Transportation Center (GTC). If LAWA is relocating residents out of the Manchester Square area and clearing the land of over 568 properties to build this new Center, I would definitely call that expansion. This site has been opposed by the community, elected officials and there is no substantive proof that it will make the airport more secure.

3) Based on a recent analysis completed earlier this year by the RAND Corporation, to simply reconfigure the airport does not mean the airport is safer than before. It would actually make the airport less safe in certain instances. The RAND analysis states that "The greatest risks are in high density areas such as lines for ticketing, baggage claim and the security check points. These risks are not likely to be reduced by Alternative D, which simply moves these targets of opportunity to the Ground Transportation Center (Manchester Square) and the people mover."

4) During these tough economic times, it is not prudent to increase passenger facilities charges and to use any surplus funds on untested ideas. We must take a lesson from the State of California and not allow ourselves to create a deficit in the billions of dollars on plans and ideas of uncertainty.

There are major airlines who are also opposing Alternative D due to the current decline in air travel and the increased costs that would be incurred such as landing fees, to pay for much of the project.

Alternative D is simply a ploy and continuation of former Mayor Richard Riordan's plan to expand the airport under the name of safety and security. In addition, Alternative D provides Los Angeles World Airport (LAWA) Commission President Ted Stein and Mayor Hahn an opportunity to assist their fat cat developer friends in securing large city contracts in return for re-election campaign contributions.

I am opposed to Alternative D. I believe that now is the time to seriously look at developing a more regional approach to air travel so that airports such as Ontario International and Palmdale Regional can begin to accept their fair share of air traffic.

I am asking all constituents of the 35th Congressional District and the South Bay communities to oppose Alternative D.

**Official Hearing Transcript
Palmdale Regional Airport Terminal
Palmdale, California
Thursday, August 21, 2003**

Following this page is the transcript of the oral testimony taken at the above hearing. Each speaker at the hearing has been assigned a unique identification number. The numbers assigned to each speaker for this hearing are:

Number	Speaker	Affiliation
SPHPD00001	Allen Baumann	None Provided
SPHPD00002	Bob Schack	None Provided
SPHPD00003	Kathleen Burr	Los Angeles County Farm Bureau
SPHPD00004	Norm Hickling	Supervisor Mike Antonovich's Office
SPHPD00005	D. C. Snyder	None Provided
SPHPD00006	Garry Cope	Oldtown Homeowners Group, Inc.
SPHPD00007	Doug Williams	Ironworkers Local 433
SPHPD00008	Paul Valdovinos	Laborers Local 300
SPHPD00009	Sam Hawkins	Ironworkers Local 433
SPHPD00010	Rick Norris	City of Palmdale
SPHPD00011	Ramon Gomez	Laborers Local 300
SPHPD00012	Jeff Schaefer	None Provided
SPHPD00013	Juan Blanco	None Provided
SPHPD00014	Raymond Hill	None Provided
SPHPD00015	Juan Blanco	None Provided
SPHPD00016	Lewis Trout	Palmdale Regional Airport

Any exhibits attached to this hearing transcript have been previously reproduced in this Final EIS/EIR as individual public comment letters.

ORIGINAL

ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION AND
LOS ANGELES WORLD AIRPORTS, THE EIGHTH PUBLIC HEARING
ON THE SUPPLEMENT TO THE DRAFT EIS/EIR
FOR THE PROPOSED MASTER PLAN AT LAX

REPORTER'S TRANSCRIPT OF
PUBLIC TESTIMONY

TAKEN ON
THURSDAY, AUGUST 21, 2003

HELD AT PALMDALE REGIONAL AIRPORT TERMINAL

41000 20th Street East
Palmdale, California

REPORTED BY:

LISA ANN VARGAS, C.S.R. NO. 12049

NORMAN SCHALL & ASSOCIATES
Certified Shorthand Reporters

1055 Wilshire Blvd. Suite 1503
Los Angeles, CA 90017
(800) 734-8838
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e-mail: SchallDepo@aol.com
www: SchallCourtReporters.com

1 **APPEARANCES OF FACILITATORS:**

- 2
3 TOM WALL, Senior Project Manager
4 DAVID KESSLER, Airport Planner for the Federal Aviation
5 Administration
6 JIM RITCHIE, Deputy Executive Director for the
7 Los Angeles World Airports

8 **APPEARANCES OF PUBLIC SPEAKERS:**

- 9 1. ALLEN BAUMANN, On the Palmdale Aviation Aerospace
10 Commission, Representing Himself
11 2. BOB SCHACK, Palmdale Resident Representing Himself
12 3. KATHLEEN BURR, Executive Director of Los Angeles
13 County Farm Bureau
14 4. NORM HICKLING, Representing the Office of Supervisor
15 Michael Antonovich
16 5. D.C. SNYDER, Palmdale Resident Representing Himself
17 6. GEORGE GARRY COPE, With Old Town Homeowner's Group
18 Representing Himself
19 7. DOUG WILLIAMS, Representing Local Ironworkers
20 Local 433
21 8. PAUL VALDOVINOS, Representing Laborer's Local 300
22 9. SAM HAWKINS, Representing Ironworkers Local 433
23 10. RICK NORRIS, Palmdale City Councilmember
24 Representing Himself and the Community
25 11. RAMON GOMEZ, Representing Laborer's Local 300
26 12. JEFF SCHAEFER, Lancaster Resident Representing
27 Himself
28 13. JUAN BLANCO, Palmdale Resident Representing Himself
29 14. RAYMOND HILL, Palmdale Resident Representing Himself

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APPEARANCES OF PUBLIC SPEAKERS CONTINUED:

25. JUAN BLANCO, Palmdale Resident Representing Himself
(Speaking a second time.)

26. LEWIS TROUT, Representing Employees of Palmdale
Regional Airport

1 PALMDALE, CALIFORNIA, THURSDAY, AUGUST 21, 2003

2 6:00 O'CLOCK P.M.

3 ---oOo---

4
5 MR. WALL: Thank you for coming this evening and
6 welcome you to the public hearing on the Los Angeles
7 World Airport LAX Master Plan and Environmental Impact
8 Report and Environmental Impact Statement.

9 Let me begin by introducing the gentlemen to
10 my right who will make brief statements. The first is
11 David Kessler from the Federal Aviation Administration.

12 Mr. Kessler.

13 MR. KESSLER: Good evening, ladies and gentlemen.
14 My name is David Kessler. I'm an Environmental
15 Protection Specialist for the Airports Division of the
16 Federal Aviation Administration, Western-Pacific Region.

17 I would like to welcome you to the eighth of a
18 series of public hearings the FAA and the Los Angeles
19 World Airports, or LAWA, are conducting on the
20 Supplement to the Draft Environmental Impact
21 Statement/Environmental Impact Report, or EIS/EIR, for
22 the proposed Master Plan at Los Angeles International
23 Airport.

24 The Supplement to the Draft EIS/EIR addresses
25 an additional Alternative, Alternative D, the Enhanced

1 Safety and Security Plan that was added in the fall of
2 2001. This new Alternative was added as a result of
3 comments submitted on the 2001 Draft EIS/EIR and the
4 terrorist attacks that occurred on September 11th, 2001.

5 The Notice of Availability of the Supplement
6 to the Draft EIS/EIR was published in various local
7 newspapers and in the Federal Register on Friday, July
8 11, 2003. The FAA and LAWA are the authors of the
9 Supplement. The Federal Highway Administration is also
10 a cooperating agency in the preparation of the Draft
11 EIS/EIR that was published in January of 2001.

12 The purpose of these hearings is to collect
13 the comments from the general public concerning the
14 adequacy of the information disclosed in the Supplement
15 to the Draft EIS/EIR on the proposed Alternative D.

16 I would like to take this opportunity to make
17 sure that everyone understands that no decision will be
18 made today regarding the proposed project. Today's
19 hearing is not a question-and-answer type of forum. Our
20 job is to listen to what you have to say about the
21 adequacy of the information in the Supplement to the
22 Draft EIS/EIR. In other words, it's your turn to talk
23 to us. Since we are here to listen, we are not going to
24 respond to questions about the pros and cons of the
25 proposed project.

1 Since 5:00 this afternoon we have held a
2 public workshop in this room for anyone to ask questions
3 about the Master Plan, the environmental process and the
4 various proposed projects.

5 Following publication of the Supplement to the
6 Draft EIS/EIR for review and comment, the next step in
7 the joint Federal and State environmental disclosure
8 process is holding this and the other public hearings
9 beginning last week and continuing through this week.

10 I would like to take the opportunity to recap
11 the environmental disclosure process for this project.
12 The environmental evaluation for the LAX Master Plan
13 began in 1997 with the publication of a Notice of Intent
14 to prepare the joint EIS/EIR in the Federal Register.
15 In July 1997 we held a series of meetings with members
16 of the public and governmental agencies to receive
17 comments on the scope of the Draft EIS/EIR. Following
18 those meetings, the Draft EIS/EIR was published in
19 January 2001.

20 Both the 2001 Draft EIS/EIR and the 2003
21 Supplement have been prepared pursuant the National
22 Environmental Policy Act of 1969, or NEPA, the Council
23 on Environmental Quality Regulations, which are the
24 implementing regulations for NEPA, the California
25 Environmental Quality Act of 1970, or CEQA, and the

1 Airport and Airway Improvement Act of 1982, as amended.

2 Following today's hearings and the close of
3 the comment period, we will then correct and revise the
4 EIS/EIR, as necessary, based on the comments received.
5 We will also prepare responses to the comments that we
6 receive and include those responses along with those
7 that were submitted to the FAA and LAWA on the 2001
8 Draft EIS/EIR into the Final EIS/EIR. The information
9 contained in the Supplement will also be combined with
10 the information in the 2001 Draft into the Final
11 EIS/EIR.

12 Before we begin receiving verbal comments, we
13 would like to let you know the ground rules of this
14 hearing. First, as I said earlier, we are not here to
15 respond to questions about this project. We are only
16 here to listen and take notes. We have a court reporter
17 behind me here to ensure that we have an accurate
18 transcript of this hearing.

19 For anyone who would like to speak, we ask
20 that you fill out a speaker card, like this one, which
21 is available at the sign-in desk. The cards after they
22 are filled out will then be brought up here to our
23 facilitator who will call the names of each speaker so
24 we can proceed in an orderly fashion.

25 So that everyone gets an opportunity to

1 provide verbal comments, everyone will be given three
2 minutes to speak. To be fair to everyone, we are not
3 going to allow people to transfer their allotted time to
4 someone else. I ask that when you speak, you give us
5 your name and address for the record. We also have a
6 Spanish language translator for anyone wishing to
7 provide their comments in Spanish.

8 If there is anyone who is uncomfortable
9 speaking in front of a group or if you need more than
10 three minutes to provide your comments, we ask that you
11 provide your comments in writing. We have comment
12 sheets, like this one, also available for your use at
13 the sign-in desk. You can leave your comments at the
14 sign-in desk or you may mail your written comments using
15 either the comment sheet or a letter to either address
16 listed on the cover of the Supplement to the Draft
17 EIS/EIR.

18 I would like you to understand that a verbal
19 comment is just as important as a written comment. So
20 please feel free to provide any comments on the document
21 you may have either to us verbally today or in writing.

22 On August 1st, 2003, LAWA asked the FAA to
23 extend the public comment period to a total of 120 days.
24 FAA has agreed to LAWA's request. The FAA has asked the
25 U.S. Environmental Protection Agency to publish a notice

1 announcing the extension to the public comment period in
2 the Federal Register. FAA and LAWA will also publish a
3 notice of the extension in the local newspapers of
4 general circulation. Therefore, comments on the
5 Supplement to the Draft EIS/EIR are now due by
6 5:00 p.m. Pacific Standard Time, on Friday,
7 November 7, 2003.

8 Lastly, I would like everyone to know that
9 even though we have this hearing scheduled until 9:00
10 this evening, we will stay here as long as necessary for
11 everyone to get a chance to provide verbal comments on
12 the Supplement to the Draft EIS/EIR. As I said earlier,
13 our job here today is to listen to your comments.

14 At this time I will ask everyone in the room
15 to take a moment and turn off your cell phones and
16 pagers to be courteous to those people making verbal
17 comments at tonight's hearing.

18 Now I will return our hearing back to our
19 facilitator who will introduce Mr. Jim Ritchie, who will
20 provide some introductory comments from LAWA. Following
21 Mr. Ritchie's comments, we will then collect the speaker
22 cards and call the name of the first speaker.

23 Thank you.

24 MR. WALL: Thank you, Mr. Kessler. Also receiving
25 testimony tonight is Mr. Jim Ritchie, who is the

1 Los Angeles World Airports Deputy Executive Director for
2 long-range planning.

3 Mr. Ritchie.

4 MR. RITCHIE: Thank you, Tom. I appreciate the
5 interest tonight. On behalf of Los Angeles World
6 Airports, we certainly welcome you tonight to this great
7 airport to take a look at the LAX Master Plan and to
8 receive your comments.

9 I should make a comment, however, I see, of
10 course, the strong interest in the Palmdale Regional
11 Airport. And I will tell as tonight we will take your
12 comments on the LAX Master Plan, it is not going to be
13 too far of distance in time that we will be back here
14 for the Palmdale Master Plan. That is an effort
15 underway. It is in its formative stages. We have some
16 of our consultants here that many of you talked with
17 tonight. So thank you for your interest.

18 Thank you for your representatives in the form
19 of Councilman Rick Norris, your Aerospace Commission.
20 It's a strong signal to us as we form a tight bond as we
21 not only develop the airports of LAX and Ontario, but
22 Palmdale together.

23 So with that, welcome again. And for the
24 consistency of this public hearing process I will read
25 into the record my introductory comments as we go

1 through a total of these 12 public comment periods.

2 You may recall the public hearing process in
3 2001 while we were examining other alternatives toward
4 the modernization of LAX. The tragic events of 2001 and
5 the leadership of Mayor Jim Hahn have reshaped our
6 environmental process. The Mayor's pressing concerns
7 for safety and security have provided new guidance along
8 with the public comments received during that period
9 from January to November of 2001 when we were going
10 through the similar process.

11 You are here tonight primarily to provide
12 comments on that new Alternative referred to as
13 Alternative D. This is a supplement to the existing
14 environmental process. And the Alternative, as you have
15 seen on the boards in the back of the room, has
16 undergone the same strict, rigorous environmental
17 analysis.

18 We are here tonight to receive your comments
19 on this new safety and security plan and its impacts as
20 disclosed tonight.

21 With that, again, welcome. And Mr. Wall, if
22 you could proceed.

23 MR. WALL: Thank you, Mr. Ritchie. We want everyone
24 to be comfortable this evening when making their
25 comments. So I will explain the process for you.

1 I will call three names, and those three
2 people will be the first three speakers. We would like
3 you to come up to the podium. The microphone is on. We
4 would like you to state again your name and address and
5 spell your name and state your address clearly so that
6 Kim and Lisa, the court reporters behind me, could get
7 your complete and accurate testimony.

8 I ask that you speak slowly and clearly so we
9 get every word in the record.

10 I have in front of me a time clock. I'll show
11 you how the clock works. When I hit the play button,
12 the green light illuminates and you have three minutes
13 counting down to zero. When it get to 30 seconds, the
14 orange light will illuminate, and that gives you 30
15 seconds to close. When it gets down to the bottom of
16 the three-minute timing, the red light goes off and a
17 horn sounds. So let's be careful and not be surprised
18 when that happens this evening.

19 I'll stop the clock now and I'll ask the first
20 three speakers to come forward. First, Mr. Allen
21 Baumann followed by Mr. Bob Schack followed by
22 Ms. Kathleen Burr.

23 Mr. Baumann, welcome.

24 MR. BAUMANN: Good evening everyone here.

25 Regarding --

1 MR. WALL: Sir, may I ask you to state your name and
2 address.

3 MR. BAUMANN: Oh, yeah, you're right. Allen A.
4 Baumann, B-a-u-m-a-n-n, 36435 Ironhorse Drive, Palmdale,
5 93550.

6 Regarding Alternative D, it seems to me that a
7 better approach than the approach, which is being
8 envisioned at this time, would be a diffusion of the
9 density of the population for security reasons.

10 The 405 and the 105 are easy targets for
11 terrorist activities. And we all know the glut of
12 activity of passengers that are transporting themselves
13 down to LAX.

14 LAX itself sees or understands the problem of
15 a lot of people being in one area at one time. That's
16 why the security, if I'm correct, is envisioned to be
17 offset and then brought to the various terminals.

18 The airlines, I'm reading in current doctrine,
19 are looking at regional airport concepts. They no
20 longer are looking at the large aircraft carrying 300,
21 400 people. They are now looking at what they call the
22 regional airplane itself. The 7E7 is being specifically
23 built for that.

24 The airlines doubled the number of smaller
25 aircraft that they put in their fleet last year. This

1 year they are planning to triple it. That gives us, at
2 least in my opinion, the impression that the airlines
3 are planning not to have all this going into one large
4 area, but a diffusion across the countryside.

5 It would seem to me that a better plan, a
6 better alternative would be to look at utilizing three
7 regional area concepts, LAX, Ontario and Palmdale. That
8 would diffuse not only the people, but it would diffuse
9 the cargo and it would also give us the opportunity to
10 provide better security. That's the essence of what I
11 have to say about Alternative D.

12 I would like to make a comment that I'm on the
13 Palmdale Aviation Aerospace Commission. We meet the
14 first and third Tuesdays of every month. We very much
15 would like to see the public at these meetings because
16 currently it is five of us trying to drive forward
17 conceptually what is going to be given to the City
18 Council. We would appreciate very much the public
19 coming to our meetings and giving us the opportunity to
20 hear their input and give us a better perspective. And
21 I thank you all very much.

22 MR. WALL: Thank you, sir.

23 Next, Mr. Bob Shack.

24 MR. SCHACK: Good evening, Bob Schack, S-c-h-a-c-k,
25 38647 25th Street East, Apartment Number 2, Palmdale,

1 California.

2 I've been a resident of the Palmdale area
3 since 1965. I've served on many committees in support
4 of the Palmdale Airport. I was interested in what the
5 gentleman had to say about coming to Palmdale in the
6 near future to talk about our Palmdale Airport here; is
7 that correct?

8 MR. RITCHIE: (Nods head.)

9 MR. SCHACK: So we are looking forward to that
10 meeting. I'll keep my remarks very short, then, because
11 we'll be looking forward to talking to you again soon.

12 We would like to see that some of the air
13 travel and some of the luggage and some of the cargo
14 being shipped to Palmdale -- or transferred up to
15 Palmdale and also transferred to Ontario and taking the
16 pressure off of LAX. Relieving the pressure that's
17 being put on the folks down there, you need this
18 \$9 billion dollars to expand the airport. And through
19 that, even through the construction, you're going to do
20 your remodeling down there, through the construction
21 period transferring some of that up here to Palmdale and
22 to Ontario. And that would relieve a lot.

23 Thank you very much for your time. And,
24 again, we will look forward to talking to you.

25 MR. WALL: Thank you, sir.

1 MR. RITCHIE: Excuse me, Tom, I'm not supposed to
2 talk, but I can't resist. I will tell you, we will be
3 in Allen's commission in about 30 days. So make sure
4 you support Allen.

5 MR. WALL: Next will be Ms. Kathleen Burr followed
6 by Mr. Norm Hickling and Mr. D.C. Snyder.

7 MS. BURR: My name is Kathleen Burr. I'm the
8 Executive Director of the Los Angeles County Farm
9 Bureau, 1006 West Lancaster Boulevard, Lancaster.

10 Mr. Ritchie and staff, thank you for the
11 opportunity to again stand here. It's been a couple of
12 years. And I realize that agriculture is not a top
13 priority of the LAWA, but as an interim land use here up
14 in Palmdale, I think it should be one of the top
15 priorities.

16 Currently I've identified 2,080 acres that has
17 the potential of being an ag-land. This is located
18 between 40th and east of 80th. When we get closer to
19 90th, we're encroaching on the SCA that has been
20 designated for the LAWA property.

21 The revenue for the first year on this 2,080
22 acres at \$25 an acre would be about \$52,000. That's for
23 soil preparation and everything. Currently after that
24 if we're leasing this land to the vegetable growers,
25 we're looking at approximately \$250,000 in income per

1 year. That's not including the sod which generates \$200
2 an acre. Both of our large carrot groves up here are
3 each looking for an additional 5,000 acres each to put
4 into carrot-potato production.

5 At that land, that would be an additional 1.2
6 million in revenue for the airport with that 10,000
7 acres. That's not even including DM Camp from
8 Bakersfield and the current lessees on the airport
9 property.

10 We're going to take all this and we're going
11 to add the Mohave Desert ground squirrel to this issue.
12 And currently the Sanitation District has finished their
13 EIR of their section. I believe it was 15, no ground
14 squirrels were found. This is going to be put into
15 alfalfa production.

16 What's going to happen if the Mohave Desert
17 ground squirrel gets federally listed? LAWA is going to
18 be up a creek without a paddle. And now we're going to
19 throw Fish and Game into this, which I know Fish and
20 Game is already on the scene. One other way to remedy
21 this is to do the EIR and let ag come in as an interim
22 use.

23 Mitigation, what is that going to be from Fish
24 and Game, two to one or seven to one? Seven to one
25 dollars is going to run in the billions to LAWA. And I

1 don't think that's going to be a sound science in
2 business.

3 Adjudication of water rights, there is another
4 issue we have out here. If you have ag come in, they
5 are going to pump a lot more ground water out. It is
6 going to be re-used. They can recharge the ground water
7 with some of it, but adjudication rights on the airport
8 and the water rights are going to increase.

9 So with the added issue of the Mohave Desert
10 ground squirrel and Fish and Game, I would like to talk
11 to someone and find out why there has been a large
12 holdup in using this land as interim lease for ag.

13 We're looking over the next 10 to 15 years
14 with this additional ag land leases, \$12 million dollars
15 in revenue. And I'm not sure why LAWA is turning down
16 \$12 million dollars in revenue from our farmers.

17 Thank you very much.

18 MR. WALL: Thank you, ma'am.

19 Next Mr. Norm Hickling.

20 MR. HICKLING. Norm Hickling. It's H-i-c-k-l-i-n-g.
21 Address is 1113 M-4, Palmdale, California. And it's a
22 pleasure to be here on behalf of Supervisor Mike
23 Antonovich.

24 And Supervisor Antonovich has a great deal of
25 concern with this current plan. He finds fault in the

1 current LAX Master Plan for its failure to adequately
2 address Southern California's future air transit needs.

3 Supervisor Antonovich feels it is vital for
4 the future of air transit needs of our County that we
5 adopt a regional approach that includes the full
6 utilization of both Palmdale and Ontario Airports.

7 Additionally, he is concerned that the
8 proposed Master Plan does not really limit the growth of
9 LAX to 78 million annual passengers, nor does it provide
10 adequate security in light of all the recent events
11 after 9-11, nor does it adequately address environmental
12 concerns or of the shifting traffic, noise and air
13 quality impacts that will go eastward, especially
14 affecting the communities of Lennox and the City of
15 Inglewood, does not use up-to-date data for the
16 Supplemental EIS or EIR. The data is from 1996. Nor
17 does it include a rail component on how to move
18 passengers between regional airports. Also, it doesn't
19 deal with the fact that growth-inducing impacts may be
20 significantly greater than stated in the current plan.

21 As we all know, LAX currently serves about
22 56 million annual passengers and about 2 million annual
23 tons of cargo. The region, as it's been purported to
24 say, it will need to accommodate up to 98 million annual
25 passengers and 4.2 million annual tons of cargo by the

1 year 2015. We can do that if we start utilizing
2 Palmdale today.

3 LAX annual economic impact to the region is
4 estimated at \$60 billion dollars. An estimate of 59,000
5 jobs are directly attributed to LAX at or near the
6 airport with 408,000 jobs throughout -- 408,000 jobs
7 spread throughout Southern California.

8 40 years ago Los Angeles City fathers
9 envisioned the regional airport system instead of
10 reliance on one single airport. The City of Los Angeles
11 bought more than 17,000 acres here in Palmdale and still
12 sits here empty today. This could alleviate the future
13 overcrowding of LAX.

14 We have a current contract with the air force
15 at Plant 42 to use the terminal and use the runways.
16 And today we could take up to 50 flights starting right
17 away. And Supervisor urges the regional transport
18 method is the solution to the problems and not the plan
19 that we have before us. Thank you.

20 MR. WALL: Thank you, sir.

21 Next will be Mr. Snyder, followed by
22 Mr. George Cope followed by Mr. Norman Jacobson,
23 followed by Mr. Doug Williams.

24 Welcome sir.

25 MR. SNYDER: Thank you. D.C. Snyder, D, period, C,

1 period, S-n-y-d-e-r, 3125 Lantana Court, Palmdale,
2 93551.

3 I've been a resident since 1981. I'm in favor
4 of the regional plan for airports. I'm against the
5 development of LAX and all the resources thereof.

6 Ever since I've moved to this region, there
7 has been continual talk and meetings and on and on about
8 the development and possibility of the Palmdale Regional
9 Airport. And it basically has been just that, talk.
10 I'm here in support of a regional plan. Thank you.

11 MR. WALL: Thank you, sir. Mr. George Cope.

12 MR. COPE: My name is Garry Cope, C-o-p-e. My legal
13 name is George, but I go by Garry. I am representing
14 Old Town Homeowner's Group.

15 I also favor the regional approach, but I'm
16 glad somebody mentioned that you have the U.S.
17 Transportation Department in on this, that we need to
18 work with them and the state. If you come out to
19 Palmdale to widen the 14 Freeway, you're going to
20 strangle any efforts of using a regional concept out
21 here by the couple of few lanes that we have for the 14
22 Freeway to accommodate traffic coming into the area from
23 outside to relieve LAX and the San Fernando Valley areas
24 of -- for making use of an airport.

25 We need the jobs. We need the industries that

1 such a regional airport would bring to Palmdale, but we
2 also need to be cautionary on the environmental impacts
3 it will have. One of the community -- local community
4 environmentalists in the community is worried that with
5 50 flights a day might fill up the valley with a lot of
6 pollution. And even though we do get
7 a lot of wind not only from our politicians, but from
8 nature, we may not be able to fully be blown out when
9 the airplanes start flying here in Palmdale.

10 So that is a major concern that I have myself
11 because -- especially with my concern of being on the
12 Environmental Restoration Advisory Board of Plant 42,
13 we're worried that you will really need -- and the part
14 we don't have any control of are looking into, there are
15 still sites of contamination that may be out there that
16 nobody is aware of yet that will need to be cleaned up
17 so the people using this airport will not be getting
18 sick just coming to Palmdale.

19 We don't want that on our heads, "Come to
20 Palmdale and get sick." We want it to be a place to
21 call home and we need the industry also. Thank you.

22 MR. WALL: Thank you, sir.

23 Next Mr. Norman Jacobson. Mr. Jacobson. Are
24 you here? I don't see anyone approaching.

25 Mr. Doug Williams. Mr. Williams will be

1 followed by Mr. Paul Valdovinos and Mr. Sam Hawkins.

2 Welcome, sir.

3 MR. WILLIAMS: My name is Doug Williams,
4 W-i-l-l-i-a-m-s. I live at 42437 West 56th Street in
5 Lancaster.

6 I'm a business agent for Ironworkers Local
7 433. And we represent 4,200 union members in the
8 general area.

9 We would love to see Plan D go through, me
10 personally because I'm a frequent flyer and I fly
11 overseas. That airport, LAX, is not rated for the big
12 jumbo jets. And they are only going to get bigger for
13 the oversea traffic.

14 We also support the security plan. I think it
15 is masterfully done. Unfortunately, with our current
16 world structure of our politics, we need it. I do think
17 it is the thing to do. As ironworkers, we would benefit
18 naturally from jobs. That is a hell of an engine for
19 the L.A. area. A lot of our people up here work down in
20 that area. It would need -- it would be the boost that
21 California needs right now in the work picture. We also
22 support this being a regional airport as soon as we
23 could get that. We would like to see that.

24 I miss the old terminal. I used to use it
25 quite a bit. With that I'll end my speech. Thank you.

1 MR. WALL: Thank you, sir. Mr. Paul Valdovinos.

2 MR. VALDOVINOS: Good evening. My name is Paul
3 Valdovinos. It's V-a-l-d-o-v-i-n-o-s. I'm a resident
4 1210 East Avenue Q-10. I'm a member of our Laborer's
5 Local 300. We're here to support the Master Plan
6 Alternative Plan D. We're also here to support the
7 proposed expansion of the Palmdale Regional Airport.
8 And, also, we represent our Laborer's Local 300.
9 Thank you.

10 MR. WALL: Thank you, sir.

11 Next is Mr. Sam Hawkins and then
12 Mr. Rick Norris.

13 MR. HAWKINS: Hi. My name is Sam Hawkins,
14 H-a-w-k-i-n-s. I live at 37744 Birch Tree Lane. That's
15 Palmdale.

16 I'm a member of Ironworkers Local 433. I'm
17 here in support of Plan D and also of the security plan.
18 As also someone that has lived here for 20-plus years, I
19 support the Palmdale Regional Airport also. And that's
20 it.

21 MR. WALL: Thank you, sir. Mr. Norris, I have two
22 cards for Mr. Norris. Did you fill out two cards?

23 MR. NORRIS: No, but I'll only take three minutes.

24 MR. WALL: All right, sir. Thank you.

25 MR. NORRIS: Rick Norris, Palmdale City

1 Councilmember, 383 100 Sierra Highway, Palmdale, 93550.

2 First thing I want to do is, Mr. Ritchie is
3 well aware of my efforts to bring an airline to
4 Palmdale. And the message that we want to send is the
5 Council is together.

6 Palmdale is the regional solution to the L.A.
7 congestion. In fact, we're part of the congestion that
8 you're suffering at L.A., at Burbank and Ontario in that
9 we have to travel the freeway in our efforts to get to
10 the other places and utilize those airlines that we so
11 desperately need here in the City of Palmdale.

12 Also, a part of the regional solution for
13 homeland security, in the event there is an event in
14 Southern California, LAX will be shutdown. Ontario will
15 be shutdown. Burbank will be shutdown. And we have a
16 mountain range that separates us from it. And we become
17 the metropolitan and bypass for all of Southern
18 California. That's critical in our future needs of this
19 country, the future needs of Palmdale and the future
20 needs in the event there is an event.

21 We feel and felt relatively secure that had
22 9-11 not occurred, that we were getting close to getting
23 an airline. It was financially devastating to the
24 airlines. And as a result, many of those airliners that
25 we could be using are parked at Mohave in dry storage.

1 The other thing that I wanted to point out is
2 if something happens in Southern California, we have
3 been to Long Beach. Long Beach cannot have any
4 additional flights. American was there. American left
5 there. JetBlue became very successful. Now American is
6 suing to get back into Long Beach. And I went to the
7 City Council in Long Beach. And they voted nine to zero
8 to support Palmdale Regional Airport.

9 So what we are is the true regional solution,
10 the economic engine of an airline operating out of
11 Palmdale in addition to the numbers that Norm indicated
12 from Supervisor Antonovich's office is that it means
13 about \$70 million dollars to us. It means thousands of
14 jobs. And we're sitting here in one of the few
15 communities in the United States that is saying, "Bring
16 us an airline." We are ready, willing and able. We
17 have a terminal in place, and we're in a position to be
18 able to start flights tomorrow with the assistance of
19 LAWA and the assistance of not having additional gates
20 at LAX and Ontario. If there is no additional gates
21 down at those airports, they will come to Palmdale
22 because we are the only viable alternative.

23 So I just wanted to make a couple of points.
24 Then what I want to also point out is that LAWA controls
25 thousands of acres out here. Thousands of acres close

1 to this airport with an airline, there will be
2 industrial development just outside the borders of this
3 airport. We need those additional jobs. So we're going
4 to continue to fight for it and deliver an airline to
5 the City of Palmdale. Thank you very much.

6 MR. WALL: Thank you, sir.

7 Next is Mr. Ramon Gomez. And that's the last
8 speaker card that I have.

9 Is there anyone else in the audience that
10 would like to submit a speaker card and make your
11 comments? If so, if you would please report to the
12 registration table and fill out a card.

13 Yes, sir, welcome.

14 MR. GOMEZ: Yes, good evening. My name is Ramon
15 Gomez of Laborer's Local 300. I'm the union rep and I
16 am also a resident of Palmdale. I would like to ask the
17 membership of this area to stand up at this moment.

18 (A group of people stands up in the audience.)

19 MR. GOMEZ: Okay. Also, we as union members and as
20 residents, we also are in support of Alternative D. We
21 would like this to happen. We believe not only for
22 national security but also for job and creation in this
23 area that we also need this, not only in L.A. but in
24 Palmdale. So hopefully this passes, and thank you.

25 MR. WALL: Thank you, sir, for your comments.

1 Ladies and gentlemen, do we have any other
2 speaker cards coming forward? I see that we do.

3 If there is anyone else who would like to make
4 comments this evening, if you could report to the
5 registration desk and submit your card, we'd be happy to
6 hear your testimony.

7 Mr. Jeff Schaefer, welcome.

8 MR. SCHAEFER: Thank you. I'm Jeff Schaefer,
9 S-c-h-a-e-f-e-r, 40653 158th Street East, Lancaster,
10 95395.

11 I just want to state as a resident out here, I
12 have previously commuted to Van Nuys and recently began
13 working here at Plant 42. I do want to say that the
14 regional solution is that, a solution. The residents up
15 here, the economics up here need to have this solution
16 in place. The LAX area is too congested to allow the
17 new generation of long hull aircraft. And by developing
18 this site in a master-planned environment, we can
19 provide that solution for all of Southern California.

20 And I just want to say that I'm in support of
21 the regional plan and that maybe that money from Plan D
22 or any of those other efforts should concentrate up here
23 in Palmdale rather than in L.A. They've had the funds
24 down there. They've had the opportunities down there
25 long enough. And the people here in Palmdale are tired

1 of commuting and tired of taxing the state funds to
2 improve that freeway. It's time to have it here.
3 Thank you.

4 MR. WALL: Thank you, sir.

5 Mr. Juan Blanco.

6 MR. BLANCO: Good evening my name is Juan Blanco.
7 I'm a resident of Palmdale, 38256 Hillcrest Drive.

8 I just viewed the video a few moments ago.
9 The terminal looks really nice, but I'm kind of
10 wondering and reading the statement about the security
11 checks. Apparently that video doesn't deal with rush
12 hour traffic. So it's kind of light traffic, and I
13 don't see how the relevance is at 8:00 a.m. being a
14 traveler and all.

15 But I'm just kind wondering, the funding for
16 that terminal, is it developed out of any of county
17 moneys? Can some of this money be diverted to a rail
18 connection from Palmdale Regional and LAX to lighten
19 that burden because it doesn't seem that we're taking
20 into consideration the alternatives? I appreciate
21 security. But building this massive transportation
22 center or modal center at LAX doesn't seem to be the
23 answer to the solution, or the solution to the answer I
24 should say. We really need to build out towards
25 Palmdale Regional.

1 Now, funding seems to be quite important. And
2 there is going to be a lot of money spent on this new
3 improvement, and a lot of relocation of people's homes
4 and of people. I appreciate the fact that work will be
5 developed from this, but can we share this fountain of
6 wealth with Palmdale and the Antelope Valley?

7 Thank you.

8 MR. WALL: Thank you, sir. Is there anyone else in
9 the audience who would like to speak this evening?

10 Seeing no speaker cards coming forward, we'll
11 take a recess at this time.

12 (Recess was taken.)

13 MR. KESSLER: Could I have your attention for just a
14 moment? If there is anyone that would like to make
15 verbal comments tonight, we will be here until 9:00 p.m.
16 tonight. So please feel free to fill out a speaker card
17 like this one. We have them available at the sign-in
18 desk.

19 If you would like to provide written comments,
20 you're welcome to do that as well. We also have sign-in
21 sheets available for your use. You could leave a
22 comment here tonight or you could mail them to us at
23 either address listed on the cover of the Supplement to
24 the Draft EIS/EIR. We will be accepting comments until
25 5:00 p.m. Pacific Standard Time, November 7th, 2003.

1 Again, if anyone would like to make verbal
2 comments tonight, we will be here until 9:00 and just
3 ask that you please fill out a speaker card. We'll be
4 here to accept any comments you might have. Thank you.

5 (Recess was taken.)

6 MR. WALL: Ladies and gentlemen, we will reconvene
7 the public hearing. We have a speaker I'd like to
8 invite to the podium, Mr. Raymond Hill.

9 Mr. Hill, if you would come forward, sir. And
10 you can stand right at the microphone. Are you familiar
11 with the timer?

12 MR. HILL: No, I'm not.

13 MR. WALL: All right, sir. You'll have three
14 minutes, and I'll start the timer. You'll see a green
15 light. The green light will progress. With 30 seconds
16 left, the yellow light will come on, and then the red
17 light at the end of the three minutes. If you state for
18 the record, please, your name and address before you
19 begin.

20 MR. HILL: My name is Raymond Hill. My address is
21 38539 36th Street East, City of Palmdale.

22 MR. WALL: Thank you, sir.

23 MR. HILL: Sure. My question is, I have heard in
24 the past that Palmdale was trying to get an airport up
25 here in the area. And a few years back I'm quite sure

1 we all know that the economy kind of fell down.
2 Everybody was kind of anticipating on that, the Palmdale
3 Airport would come into existence.

4 My question is this. How positive at this
5 point in time is -- you know, is all this going to occur
6 or is it still under negotiation? I'm kind of foggy in
7 that area.

8 Also, like I said, I'm new in the area. I
9 just purchased a home here in the Palmdale area, and I'm
10 kind of close to it. So I'm kind of concerned about the
11 neighborhood that I just bought a home in and how it's
12 going to affect me as far as a new homeowner. That's
13 the only question I wanted to ask.

14 MR. WALL: Thank you, sir. We appreciate your
15 comments tonight.

16 Do we have any other speaker cards at this
17 time? I see we have one more card coming up.

18 The next speaker will be Mr. Juan Blanco.

19 MR. BLANCO: Good evening. Again, Juan Blanco,
20 38256 Hillcrest Drive. I would like to just add to my
21 earlier comment concerning the project on Item D.

22 As speaking earlier this evening, I mentioned
23 that I'm a New York City -- ex New York City commuter.
24 So I have some personal experience with crowd and
25 traffic and people controlling people movement. And

1 looking at the video again, I see the design is a
2 beautiful design, but it doesn't seem to be -- I guess
3 this comment is directly to Mayor Hahn because this
4 project is not focused on moving people as it is. It is
5 going to congest. It is going to bottleneck. It is
6 going to create more of a havoc than it will eliminate
7 havoc.

8 All we're doing is replacing the bus system
9 with the rail system. If the rail system is automated,
10 what security do we have on the automation? So are we
11 really moving in a positive fashion or are we taking a
12 step backwards for the sake of spending cash on, I
13 guess, an attractive proposal.

14 Moving people, especially on rush hour in LAX
15 is problematic, to say the least. That proposal -- or
16 according to that film if this is what it is intending
17 to do, take people out of their vehicles what used to be
18 parking lot C, shuttle them into a people moving rail
19 system whereas they have to now go through security
20 check. You have a bottleneck number one.

21 Number two, in any given day between Monday
22 through Friday between 6:00 a.m. and 9:00 a.m. you have
23 hundreds and thousands of people, commuters, business
24 people who are in a rush trying to get to their
25 destinations. This I do not see as extra added. What

1 they probably would want to do then is push the Southern
2 California Regional Rail System for a bullet train
3 because it will have less security.

4 But in looking at this I don't see that it's
5 going to aid the commuter. I don't see it aiding in
6 security because you're going to bottleneck through
7 these points. You put them on a rail that if automated,
8 can be subject to electrical problems, mechanical
9 problems. And then you still have a bulk of travelers
10 that you may think that you're eliminating, but you
11 really are not. They are still going to be there. You
12 have to move them to that terminal in and out.

13 To eliminate the vehicle, that will work if
14 you don't want vehicles within the terminal. As far as
15 moving people, I don't see this as a viable solution.
16 It doesn't look like it is a viable solution and it was
17 designed according to the video to handle traffic
18 between midnight and 4:00 a.m. That's what I see the
19 video portraying. I do not see it portraying the actual
20 traffic from 6:00 a.m. to 9:00 a.m. or from 2:00 p.m. to
21 7:00 p.m. when traffic is heavy, especially during the
22 holidays. Thank you very much.

23 MR. WALL: Thank you, Mr. Blanco.

24 Do we have any other speakers at this time?
25 Seeing none, we will recess the hearing.

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(Recess was taken.)

MR. TROUT: I live at my name is Lewis L-e-w-i-s, Trout, T-r-o-u-t. I live at 930 Crescent Drive in the City of Barstow.

On behalf of the employees of Palmdale Regional Airport, I would like to say, we greatly appreciate the opportunity you've extended to the citizens of Palmdale and the Antelope Valley to provide input into the process. And we appreciate you having stayed here until 9:00 o'clock this evening to provide that opportunity to the community. Thank you.

MR. WALL: Thank you, Mr. Trout.

MR. KESSLER: Is there anyone else who has not had an opportunity to speak concerning the information in the Supplement to the Draft EIS/EIR? Not seeing anyone else, I will remind everyone that if you feel you are unable to provide us with verbal comments today, we will be accepting written comments until 5:00 p.m. Pacific Standard Time, Friday, November 7, 2003. You can mail your comments either to me at the FAA or to Jim Ritchie with LAWA. The mailing addresses are listed on the cover of the Supplement to the Draft EIS/EIR.

I want to thank everyone for your comments today. This public hearing for the Supplement to the Draft EIS/EIR on the Los Angeles International Airport

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Master Plan is now closed. Thank you.

(Whereupon the proceeding adjourned

at 9:00 o'clock p.m.)

---oOo---

1 STATE OF CALIFORNIA)
2 COUNTY OF RIVERSIDE) ss.

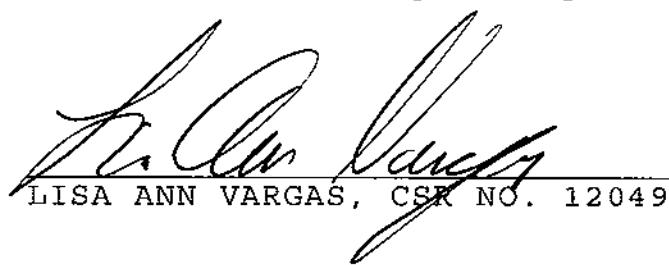
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I, LISA ANN VARGAS, certified shorthand reporter,
License No. 12049, do hereby certify:

That the proceedings contained herein were taken
before me at the time and place herein set forth and was
taken by me in shorthand and thereafter transcribed into
typewriting by me, and I hereby certify that the said
proceedings are a full, true and correct transcript of
my shorthand notes so taken.

I further certify that I am not interested in the
event of the action.

WITNESS my hand this 9th day of September 2003.


LISA ANN VARGAS, CSR NO. 12049

**Official Hearing Transcript
Furama Hotel
Los Angeles, California
Saturday, August 23, 2003**

Following this page is the transcript of the oral testimony taken at the above hearing. Each speaker at the hearing has been assigned a unique identification number. The numbers assigned to each speaker for this hearing are:

Number	Speaker	Affiliation
SPHF00001	Maxine Waters	U.S. House of Representatives
SPHF00002	Cindy Miscikowski	City of Los Angeles
SPHF00003	Yvonne Burke	County of Los Angeles, Board of Supervisors
SPHF00004	Don Knabe	County of Los Angeles, Board of Supervisors
SPHF00005	Miguel Contreras	AFLCIO
SPHF00006	Kelly McDowell	City of El Segundo
SPHF00007	John McTaggart	None Provided
SPHF00008	John Miller	City of Los Angeles, Police Department
SPHF00009	Jim Aldinger	City of Manhattan Beach
SPHF00010	Sandra Bauer	County of Los Angeles, Board of Supervisors
SPHF00011	David Voss	Westchester LAX Marina del Rey Chamber of Commerce
SPHF00012	Eric Bass	None Provided
SPHF00013	Sid Stolper	Southern California Pipe Trades
SPHF00014	Shu Kwan Woo	None Provided
SPHF00015	Andrew Stefanski	None Provided
SPHF00016	Erney Bowdre	None Provided
SPHF00017	Charley Woo	None Provided
SPHF00018	Art Guzman	United Association, Local 250
SPHF00019	Freddy Correa	United Association, Local 250
SPHF00020	Peter Barrera	None Provided
SPHF00021	Jerry Moret	None Provided
SPHF00022	James Donaldson	None Provided
SPHF00023	Tom Moxley	Ironworkers Local 433
SPHF00024	D.A. Curt Curtis	None Provided
SPHF00025	Carlos Porras	Communities for a Better Environment
SPHF00026	Walter Moore	None Provided
SPHF00027	Morty Kay	None Provided
SPHF00028	Denny Schneider	Alliance for Regional Solution to Airport Congestion
SPHF00029	Eddie Barnes	United Association, Local 250
SPHF00030	Tom Brands	None Provided
SPHF00031	Jose Acosta	None Provided
SPHF00032	Emma Worthington	None Provided
SPHF00033	Thom Davis	IATSE

Number	Speaker	Affiliation
SPHF00034	Liz Garnholz	None Provided
SPHF00035	Victor Crawford	United Association, Local 250
SPHF00036	Marvin Kropke	IBEW Local 11
SPHF00037	Kevin Norton	IBEW Local 11
SPHF00038	Jack Kenton	None Provided
SPHF00039	Robert Watkins	None Provided
SPHF00040	Maria Verduzco-Smith	Lennox Coordinating Council
SPHF00041	Mel Pereira	None Provided
SPHF00042	Richard Slawson	LA/O Counties Building & Construction Trades Council
SPHF00043	Marvin Walter	None Provided
SPHF00044	Romeo Gonzalez	IBEW Local 11
SPHF00045	Homer Anderson	None Provided
SPHF00046	Harry Rose	OSAGE Neighbors Association
SPHF00047	Carole Hossan	None Provided
SPHF00048	Malcolm Joseph	None Provided
SPHF00049	Joseph Geben	Rogers, Geben and Christensen
SPHF00050	John Ferruccio	None Provided
SPHF00051	Tony Kom	None Provided
SPHF00052	Joe Garcia	None Provided
SPHF00053	Andrea Davis	None Provided
SPHF00054	Danna Cope	None Provided
SPHF00055	Jim McCutcheon	Republican Central Committee
SPHF00056	Roy Hefner	None Provided
SPHF00057	Linda Peterson	None Provided
SPHF00058	Sparky Carpio	None Provided
SPHF00059	Clarence Daniels	Concessions Management Services
SPHF00060	Gordon Mego	None Provided
SPHF00061	Sergio Rascon	Laborers Local 300
SPHF00062	Bill Eisen	None Provided
SPHF00063	Patricia Hamilton	None Provided
SPHF00064	Cresia Davis	None Provided
SPHF00065	Cecil Carpio	None Provided
SPHF00066	Nancy-Gene Morrison	None Provided
SPHF00067	C. L. Parrish	None Provided
SPHF00068	Diane Sambrano	None Provided

Any exhibits attached to this hearing transcript have been previously reproduced in this Final EIS/EIR as individual public comment letters.

ORIGINAL

ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION AND
LOS ANGELES WORLD AIRPORTS, THE NINTH PUBLIC HEARING
ON THE SUPPLEMENT TO THE DRAFT EIS/EIR
FOR THE PROPOSED MASTER PLAN AT LAX

REPORTER'S TRANSCRIPT OF
PUBLIC TESTIMONY

TAKEN ON
SATURDAY, AUGUST 23, 2003

HELD AT THE FURAMA HOTEL

8601 Lincoln Boulevard
Los Angeles, California

REPORTED BY:

LISA ANN VARGAS, C.S.R. NO. 12049

NORMAN SCHALL & ASSOCIATES
Certified Shorthand Reporters

1055 Wilshire Blvd. Suite 1503
Los Angeles, CA 90017
(800) 734-8838
(213) 481-3636 Fax
e-mail: SchallDepo@aol.com
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1 **APPEARANCES OF FACILITATORS:**

2 TOM WALL, Senior Project Manager

3 DAVID KESSLER, Airport Planner for the Federal Aviation
4 Administration

5 JIM RITCHIE, Deputy Executive Director for the
6 Los Angeles World Airports

7 **APPEARANCES OF PUBLIC SPEAKERS:**

8 1. CONGRESSWOMAN MAXINE WATERS, From the 35th
9 Congressional District

10 2. COUNCILWOMAN CINDY MISCIKOWSKI, Councilwoman for the
 Eleventh District

11 3. YVONNE BURKE, Chair, Board of Supervisors for the
12 County of Los Angeles

13 4. DON KNABE, Supervisor for the Fourth District which
 Represents LAX

14 5. MIGUEL CONTRERAS, Sits as Airport Commissioner and is
15 also with AFLCIO

16 6. COUNCILMAN KELLY MCDOWELL, Representing the City of
 El Segundo

17 7. COUNCILMAN JOHN MCTAGGART, Representing Himself

18 8. JOHN MILLER, Representing the LAPD

19 9. MAYOR JIM ALDINGER, Mayor of the City of
20 Manhattan Beach

21 10. SANDRA BAUER, Present in Association with AC Lazzaro
 on Behalf of Los Angeles County

22 11. DAVID VOSS, President of the Westchester/LAX-
23 Marina del Rey Chamber of Commerce

24 12. ERIC BASS, Business Owner Representing Himself

25 13. SID STOLPER, Financial Secretary & Treasurer of
 the Southern California Pipe Trades

1 APPEARANCES OF PUBLIC SPEAKERS CONTINUED:

- 2
3 14. SHU KWAN WOO, Los Angeles Resident Representing
Himself
- 4 15. ANDREW STEFANSKI, Representing Himself
- 5 16. ERNEY BOWDRE, Representing Himself
- 6 17. CHARLES WOO, Business Owner in L.A. Representing
Himself
- 7
8 18. ARTHUR GUZMAN, Representing United Association
Local 250
- 9 19. FREDDY CORREA, Representing United Association
Local 250
- 10
11 20. PETER BARRERA, Representing Himself
- 12 21. GERALD MORET, Representing Himself
- 13 22. JAMES DONALDSON, With the North Westdale
Neighborhood Association Representing Himself
- 14 23. TOM MOXLEY, Representing Ironworkers Local 433
- 15 24. D.A. CURT CURTIS, Representing Himself
- 16 25. CARLOS PORRAS, Representing Communities for a Better
Environment
- 17
18 26. WALTER MOORE, Representing Himself
- 19 27. MORTY KAY, Representing Himself
- 20 28. DENNY SCHNEIDER, Vice President of ARSAC, Alliance
for Regional Solution of Airport Congestion
- 21 29. EDDIE BARNES, Representing United Association of
Steam/Refrigeration/Pipe Fitters
- 22
23 30. THOMAS BRANDS, Representing Himself
- 24 31. JOSE LUIS ACOSTA, Representing Himself
- 25 32. EMMA WORTHINGTON, Airport Employee
Representing Herself

1 **APPEARANCES OF PUBLIC SPEAKERS CONTINUED:**

2 33. THOM DAVIS, Representing IATSE

3 34. LIZ GARNHOLZ, Representing Herself

4 35. VICTOR CRAWFORD, Representing UA Local 250

5 36. MARVIN CROPKE, Representing IBEW Local 11

6 37. KEVIN NORTON, Representing IBEW Local 11

7 38. JACK KENTON, On the LAX Airport Advisory Committe
8 Representing Himself

9 39. ROBERT WATKINS, Representing UA Local 250

10 40. MARIA VERDUZCO-SMITH, Lennox Coordinating Council

11 41. MEL PEREIRA, Representing Himself

12 42. RICHARD SLAWSON, Executive Secretary of the L.A. and
13 Orange County Building and Construction Trades Council

14 43. MARVIN WALTER, Representing Himself

15 44. ROMEO GONZALEZ, Representing IBEW Local 11

16 45. HOMER ANDERSON, Representing UA Local 250

17 46. HARRY ROSE, Representing Osage Neighbor's
 Association

18 47. CAROLE HOSSAN, Representing Herself

19 48. MALCOMB JOSEPH, Representing UA Local 250

20 49. JOSEPH GEBEN, Representing Rogers, Geben &
 Christensen

21 50. JOHN FERRUCCIO, Union Pipe Trades Organizer
22 Representing Himself

23 51. TONY KOM, Representing Himself

24 52. JOE GARCIA, From the Solis Group, Construction
25 Management Consulting

1 APPEARANCES OF PUBLIC SPEAKERS CONTINUED:

- 2
3 53. ANDREA DAVIS, Representing Herself
4
5 54. DANA COPE, Representing Herself
6
7 55. JAMES McCUTCHEON, Chairman of the Republican Central
8 Committee
9
10 56. ROY HEFNER, Representing Himself
11
12 57. LINDA PETERSON, Representing Herself
13
14 58. SPARKY CARPIO, Representing Herself
15
16 59. CLARENCE DANIELS, Representing GLAACC & AMAC
17
18 60. GORDON MICHAEL MEGO, Representing Himself
19
20 61. SERGIO RASCON, Representing Laborers Local 300
21
22 62. BILL EISEN, Representing Himself
23
24 63. PATRICIA HAMILTON, Representing Herself
25
26 64. CRESIA DAVIS, Representing Herself
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28 65. CECIL CARPIO, Representing Herself
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30 66. NANCY-GENE MORRISON, Representing Herself
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32 67. CL. PARRISH, Resident of Manchester Square
33 Representing Herself
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35 68. DIANE SAMBRANO, Representing Herself

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1 LOS ANGELES, CALIFORNIA, SATURDAY, AUGUST 23, 2003

2 10:00 O'CLOCK A.M.

3 ---oOo---

4
5 MR. WALL: Good morning, ladies and gentlemen. On
6 behalf of the Federal Aviation Administration of the
7 Los Angeles World Airports and the City of Los Angeles,
8 I want to welcome you to the ninth public hearing to
9 hear public testimony on the Los Angeles Airport
10 Supplemental Environmental Impact Report and
11 Environmental Impact Statement.

12 Let me begin by introducing the two gentlemen
13 to my right who will receive your testimony today.

14 First, representing the Federal Aviation
15 Administration, Mr. David Kessler.

16 MR. KESSLER: Thank you. Good morning, ladies and
17 gentlemen. My name is David Kessler. I'm the Airport
18 Environmental Protection Specialist for the Airports
19 Division of the Federal Aviation Administration,
20 Western-Pacific Region.

21 I would like to welcome you to the ninth of a
22 series of public hearings the FAA and the Los Angeles
23 World Airports, or LAWA, are conducting on the
24 Supplement to the Draft Environmental Impact
25 Statement/Environmental Impact Report, or EIS/EIR, for

1 the proposed Master Plan at Los Angeles International
2 Airport.

3 The Supplement to the Draft EIS/EIR addresses
4 an additional alternative, Alternative D, the Enhanced
5 Safety and Security Plan that was added in the fall of
6 2001. This new alternative was added as a result of
7 comments submitted on the 2001 Draft EIS/EIR and the
8 terrorist attacks that occurred on September 11th, 2001.

9 The Notice of Availability of the Supplement
10 to the Draft EIS/EIR was published in various local
11 newspapers and in the Federal Register on Friday, July
12 11, 2003. The FAA and LAWA are the authors of the
13 Supplement. The Federal Highway Administration is also
14 a cooperating agency in the preparation of the Draft
15 EIS/EIR that was published in January 2001.

16 The purpose of these hearings is to collect
17 the comments from the general public concerning the
18 adequacy of the information disclosed in the Supplement
19 to the Draft EIS/EIR on the proposed Alternative D.

20 I would like to take this opportunity to make
21 sure that everyone understands that no decision will be
22 made today regarding the proposed project. Today's
23 hearing is not a question-and-answer type of forum. Our
24 job is to listen to what you have to say about the
25 adequacy of the information in the Supplement to the

1 Draft EIS/EIR. In other words, it's your turn to talk
2 to us. Since we are here to listen, we are not going to
3 respond to questions about the pros and cons of the
4 proposed project.

5 Since 9:00 o'clock this morning, we have held
6 a public workshop just outside of this room for anyone
7 to ask questions about the Master Plan and the
8 environmental process and the various proposed projects.

9 Following publication of the Supplement to the
10 Draft EIS/EIR for review and comment, the next step in
11 the joint Federal and State environmental disclosure
12 process is holding this and the other public hearings
13 beginning last week and continuing through this week.

14 I would like to take this opportunity to recap
15 the environmental disclosure process for this project.
16 The environmental evaluation of the LAX Master Plan
17 began in 1997 with the publication of a Notice of Intent
18 to prepare the joint EIS/EIR in the Federal Register.

19 In July of 1997, we held a series of meetings
20 with members of the public and governmental agencies to
21 receive comments on the scope of the Draft EIS/EIR.
22 Following those meetings, the Draft EIS/EIR was
23 published in January 2001.

24 Both the 2001 Draft EIS/EIR and the 2003
25 Supplement have been prepared pursuant to the National

1 Environmental Policy Act of 1969 or NEPA, the California
2 Environmental Quality Act of 1970 or CEQA, and the
3 Airport and Airway Improvement Act of 1982, as amended.

4 Following today's hearings and the close of
5 the comment period, we will then correct and revise the
6 EIS/EIR as necessary, based on the comments received.
7 We will also prepare responses to comments we receive
8 and include those responses along with those that were
9 submitted to the FAA and LAWA on the 2001 Draft EIS/EIR
10 in the Final EIS/EIR. The information contained in the
11 Supplement will also be combined with the information in
12 the 2001 Draft EIS/EIR into the Final EIS/EIR.

13 Before we begin receiving verbal comments, we
14 would like to let you know the ground rules of this
15 hearing. First, as I said earlier, we are not here to
16 respond to questions about this project. We are here
17 only to listen and take notes. We also have a court
18 reporter here present to ensure that we have an accurate
19 transcript of this hearing.

20 For anyone wishing to speak, we ask that you
21 fill out a speaker card, like this one, and give it to
22 one of the people at the sign-in desk. These cards will
23 then be brought up here to our facilitator, who will
24 call the names of each speaker so we can proceed in an
25 orderly fashion.

1 So that everyone gets an opportunity to
2 provide verbal comments, everyone will be given three
3 minutes to speak. To be fair to everyone, we are not
4 going to allow people to transfer their allotted time to
5 someone else. I ask that when you speak, you give us
6 your name and address for the record. We also have a
7 Spanish language translator here available for anyone
8 wishing to provide their comments in Spanish.

9 If there is anyone who is uncomfortable
10 speaking in front of a group or if you need more than
11 three minutes to provide your comments, we ask that you
12 provide your comments in writing. We have comment
13 sheets, like this one, also available for your use at
14 the sign-in desk. You can leave your comments at the
15 sign-in desk or you may mail your comments either using
16 the comment sheet or a letter to either address listed
17 on the cover of the Supplement to the Draft EIS/EIR.

18 I would like you to understand that a verbal
19 comment is just as important as a written comment. So
20 please feel free to provide any comments on the
21 information in the document you may have to us either
22 verbally today or in writing.

23 On August 1, 2003, LAWA asked the FAA to
24 extend the public comment period to a total of 120 days.
25 FAA has agreed to LAWA's request. FAA has asked the

1 U.S. Environmental Protection Agency to publish a notice
2 announcing the extension to the public comment period in
3 the Federal Register. FAA and LAWA will also publish a
4 notice of the extension in the local newspapers of
5 general circulation. Therefore, comments on the
6 Supplement to the Draft EIS/EIR are now due by
7 5:00 p.m. Pacific Standard Time, on Friday,
8 November 7, 2003.

9 Lastly, I would like everyone to know that
10 even though we have this hearing scheduled until
11 one o'clock this afternoon, we will stay here as long as
12 necessary for everyone to get a chance to provide verbal
13 comments on the Supplement to the Draft EIS/EIR. As I
14 said earlier, our job here today is to listen to your
15 comments.

16 At this time I would ask that everyone in the
17 room take just a moment and turn off your cell phones
18 and pagers to be courteous to those people making verbal
19 comments at today's hearing.

20 Now, I will return the hearing back to our
21 facilitator who will introduce Mr. Jim Ritchie, who will
22 provide some introductory comments from LAWA. Following
23 Mr. Ritchie's comments, we will then collect the speaker
24 cards and call the name of the first speaker.

25 Thank you.

1 MR. WALL: Thank you, Mr. Kessler.

2 Representing Los Angeles World Airports today
3 is the Deputy Executive Director for long-range
4 planning, Mr. Jim Ritchie.

5 MR. RITCHIE: Good morning, ladies and gentlemen.

6 THE AUDIENCE: Good morning.

7 MR. RITCHIE: Hope you could hear me in the back.

8 On behalf of the City of Los Angeles and
9 Los Angeles World Airports, welcome to the Furama Hotel
10 for this public hearing. This is the ninth in a series
11 of twelve that we will continue through that time frame
12 that Mr. Kessler has described that will end on November
13 the 7th.

14 You may recall the public hearing process in
15 2001 while we were examining the expansion alternatives
16 referred to as A, B and C for the modernization of LAX.
17 During that time frame in this forum or this type of
18 forum, we listened to your comments, we went back to the
19 drawing board.

20 Also during that time frame, you will recall,
21 we had a new mayor. He pledged to constrain the growth
22 of LAX, and he stuck to his pledge and sent us back to
23 the drawing board.

24 Third, the tragic events of September the 11th
25 and the leadership of Mayor Jim Hahn has reshaped the

1 environmental process, sent us back yet again to the
2 drawing board and to address security issues. The
3 Mayor's pressing concerns for safety and security have
4 provided new guidance along with your comments that we
5 received during that time frame from January to November
6 of 2001.

7 You're here today primarily to comment on that
8 alternative referred to as Alternative D. This is a
9 supplement to the existing environmental process. It
10 has undergone the same rigorous environmental analysis
11 that Alternatives A, B and C have undergone.

12 We are here today to receive your comments on
13 the new Safety and Security Plan and its impacts as
14 disclosed in the Supplement to Draft Environment Impact
15 Report/Draft Environmental Impact Statement.

16 So thank you again very much for your
17 attendance. And Tom, let's go to work.

18 MR. WALL: Thank you, Mr. Ritchie.

19 To describe the process today, I have
20 approximately 70 speaker cards at this time. That means
21 that we will be able to have about 17 speakers per hour.
22 We'll go for one hour, take a ten-minute break, and then
23 resume for an hour, take a ten-minute break until we're
24 completed today.

25 I have in front of me an electronic clock.

1 Each speaker will have three minutes to speak. I'll
2 demonstrate how it works. When I hit the play button,
3 it starts counting down from three minutes to zero.
4 When it gets to 30 seconds, the amber light will light
5 on the top of the clock indicating 30 seconds remaining.
6 When it gets to zero, the red light comes on and a horn
7 sounds, and that will be the end of the three-minute
8 period. I can pause the clock, if I need to, and
9 restart. It's a very simple process and so far it has
10 worked very well.

11 We have a court reporter here today. Both
12 Lisa and Kim will be recording your comments. I ask
13 that when you come to the microphone, please state and
14 spell your name and your address for the record.

15 When you've done that, then I will start the
16 timer. Please speak slowly and clearly so that we could
17 get an accurate and complete record of your testimony.

18 The first speaker today will be Congresswoman
19 Maxine Waters, followed by Councilwoman Cindy
20 Miscikowski, followed by Supervisor Yvonne Burke.

21 Ladies, if you would come to either microphone
22 at your convenience.

23 MS. WATERS: Thank you very much. And good morning
24 to everyone.

25 THE AUDIENCE: Good morning.

1 MS. WATERS: Thank you very much and good morning to
2 everyone. Welcome to the 35th Congressional District.
3 I'm delighted you're here, and I'm delighted that I have
4 the opportunity this morning to testify before you. I'm
5 going to try and do this in three minutes.

6 Let me just say that I thought this was an
7 issue that we had put behind us, expansion of LAX. When
8 the mayor was running to be elected mayor of this city,
9 he signed an agreement that said we would seek a
10 regional solution, that we would indeed not try and
11 expand to LAX. Little did we know that there would be
12 an attempt to expand to LAX under another name and under
13 another banner. And I think this is what this is all
14 about.

15 I'm opposed to Alternative D because I do not
16 think it is needed. It is costly. It is unnecessary
17 and it is disruptive. I represent an area that's had to
18 suffer the noise and pollution of these flights over the
19 homes of this community for many years.

20 In this community, we have the cities of
21 Inglewood and Hawthorne and Gardena, and we have
22 Westchester and we have Lawndale. And we have many
23 people who have not only suffered noise, pollution and
24 congestion, we have promises that have not been kept.

25 We have had retrofitting that was promised to

1 be done, people's homes have cracks in their windows.
2 Their doors are not fitting. They have walls that are
3 cracked. This retrofitting that has been promised has
4 not been carried through. We've been through enough
5 here. We don't need this additional disruption. To
6 remove all of these homes in Manchester Square is a sin
7 and a shame when we have a housing crisis. We need the
8 housing.

9 I'm absolutely concerned about this
10 9-billion-dollar expenditure. We have a
11 38-billion-dollar deficit in the State of California.
12 We need to save money for a rainy day. The airport is
13 not secured. We have not secured it yet. There are
14 many things that we should be doing now.

15 I was just there in the cargo sections, and I
16 have a whole list of things that should be done and they
17 don't cost 9 billion dollars, and you don't have to
18 clean out Manchester Square to do it.

19 We do not want this plan. We do not want this
20 congestion. We're asking that consideration be given to
21 the residents of the area. All of the elected officials
22 of the area are opposed to this plan. We believe,
23 again, it's too costly. It's too disruptive. It's
24 unneeded. Let's do the things that can be done now to
25 help make the airport more secure, not launch into a

1 plan where we think only the fat cat developers and
2 contractors are going to benefit from.

3 For those people who are here today, all my
4 friends in labor, I respect you. I've worked with you
5 for many years. I've given you much support. We have
6 got a lot that we need to be doing about compensation
7 and benefits and better working conditions. Let's
8 concentrate on that. Let's not get tricked into fattening
9 the pockets of the big developers in the name of elected
10 Hahn again.

11 MR. WALL: Thank you, Councilwoman Waters.

12 Councilwoman Cindy Miscikowski. Ma'am, if
13 you'd state your name and address, please, for the
14 record.

15 MS. MISCIKOWSKI: Cindy Miscikowski, 200 North
16 Spring Street, Los Angeles, City Hall. And I am the
17 councilmember for this area and pleased to represent
18 this -- pleased to represent this community.

19 Although the statement was that there is no
20 decision that could be made today, there can be a
21 conclusion reached that additional environmental
22 analysis and an alternative draft with a real cap of 78
23 million airline passengers needs to be done. I have
24 turned into LAWA a multi-page letter critiquing the EIR,
25 which is what this hearing is about. I will try to

1 summarize very quickly the details of that letter which
2 goes into detailed analysis.

3 There are six major things that are flawed, I
4 believe, in the EIR. First, the issue dealing with
5 transportation. The mitigation measures that are
6 proposed in the EIR are unfunded, uncertain and
7 under-evaluated. The whole thrust of this plan is that
8 traffic is going to be reduced as a consequence of
9 focusing it all in one area, in one area that is going
10 to be dealt with by one access to the 405.

11 Today we know there are three access points to
12 LAX, at least, from the 405. To say you're going to
13 concentrate it on one and deal with the traffic is not
14 adequate, particularly when that is put forward as a
15 mitigation measure and, yet, acknowledge that the full
16 funding is not available.

17 So the whole environmental analysis is based
18 on the fact that a traffic system can work, but it's a
19 traffic system that the project itself cannot support,
20 cannot pay for and is going to be dependent on state and
21 federal funds. And we all know what the situation the
22 State and the Federal Government are in today. So the
23 whole process of the transportation is flawed.

24 The issue of security is the second issue that
25 I've addressed, particularly since this is called the

1 "Enhanced Safety and Security Analysis." It is also
2 based on technologies that don't exist, on processes
3 that are not clear and, in fact, are going to be
4 duplicative and problematic for people going through the
5 systems. In fact, it may make, as we've learned from
6 RAND, easier target of a mass of people at one location,
7 and is something I think has not been addressed fairly
8 and frankly.

9 It is also further noted that the current
10 environmental documents which put forward these
11 suggestions do not fully elaborate that the technology
12 and construction are not yet available. They are
13 dependent on future technology that don't exist today.

14 My third concern, as itemized in detail, is
15 the concern over the growth potential. This has been
16 put forward as a Master Plan that has a cap. But, in
17 fact, if you look at the Ground Transportation Center,
18 the corps of this, the capacity of that Ground
19 Transportation Center is huge, is huge, over 78 million
20 airline passengers. That growth could occur afterwards
21 and be seriously problematic and not a growth plan at
22 all.

23 I will skip to the end of this since my time
24 is running out, and just say that the Supplemental Draft
25 EIR is fatally flawed in that it does not offer a true

1 mitigation plan for a 78-million-airline-passenger
2 alternative within the existing LAX framework. We need
3 to see an environmentally sound, economically viable and
4 current security capability alternative in this
5 environmental process. Without that alternative, this
6 environmental document is -- is, as I say, fatally
7 flawed, and I think would be challengeable. So we need
8 to really come up with a new alternative that works
9 within the existing system, that can deal with some of
10 these measures and not disrupt the community.

11 MR. WALL: Thank you, Councilwoman. My assumption
12 is, ma'am, that you -- did you submit those -- did you
13 submit your comments in writing?

14 MS. MISCIKOWSKI: Yes.

15 MR. WALL: Thank you.

16 (The statement submitted for the
17 record was marked as Statement 1
18 and attached hereto.)

19 MR. WALL: For anyone who feels the need to provide
20 comments that would be in excess of three minutes,
21 please submit them in writing as well, and those will be
22 entered into the record.

23 Our next speaker will be supervisor Yvonne
24 Burke representing the County of Los Angeles.

25 MS. BURKE: I'm Yvonne Burke, Chair of the

1 Los Angeles County Board of Supervisors. My position is
2 one that is the official position of the County of
3 Los Angeles Board of Supervisors. We have serious
4 concerns about this plan as it is presented, and the
5 proposed Master Plan has inadequacies in the Supplement
6 to the Draft. We recognize everyone has worked hard,
7 but there is some specific things.

8 Number one, traffic, noise and air quality
9 impacts have been shifted eastward. What has happened
10 is that the unincorporated communities Lennox, the City
11 of Inglewood will now bear the brunt of additional
12 traffic. The community adjacent to Manchester will now
13 face a host of impacts as a result of the new passenger
14 processing facility.

15 Compared with the Alternative C, this places a
16 heavier burden on the communities to the north and the
17 east. The City of Inglewood and incorporated
18 communities of Lennox will continue to be the most
19 impacted.

20 We understood that this was going to be an
21 attempt to constrain passenger growth to 78.9 million.

22 The proposal sets up a possibility in
23 Alternative D with a footprint larger than the prior
24 alternatives. This footprint, along with the new air
25 terminal layout, provides the opportunity for future

1 expansion beyond the 78.9.

2 The residents of these communities are already
3 impacted, and as a result, we're going to see
4 intolerable air quality, noise, traffic and safety
5 impacts.

6 I would like to say that our position is for
7 regional airports. We thought that was going to be the
8 emphasis in this new plan. Rather it's minimized. We
9 wanted to see Ontario and Palmdale as the alternatives
10 to increase their use within the entire regional plan.

11 One of the things, though, of greatest concern
12 to me, environmental justice may not be well served by
13 this EIS/EIR evaluation. This is a requirement that's
14 been in the law for ten years. Signed in 1994, the
15 original draft, which was in 2001 seven years later,
16 lacked an elementary analysis of environmental justice.

17 Alternative D appears to shift the burden of
18 improvement away from wealthier communities toward the
19 most economically disadvantaged communities east and
20 northwest of LAX.

21 I believe that the EIS/EIR will not be
22 adequate until it provides an honest assessment of the
23 trade-offs. Now, they say they'll make the
24 environmental justice assessments later. This should be
25 part of the present EIR.

1 I'm a real environmentalist. But I have to
2 tell you, in designing runway extensions and facilities
3 to the east, this appears to protect biological
4 resources, the El Segundo blue butterfly at the expense
5 of residents, children and families in the communities
6 Lennox, Inglewood and Manchester.

7 Can you justify such an assessment? What we
8 have to do is to have an analysis of environmental
9 justice prior to the time that this is presented. We
10 want to know what's actually going to be done. We want
11 to be sure that this processing facility compared with
12 the previous Alternative C does not impact those
13 communities to the north and the east.

14 It is important to us that there be additional
15 hearings here in this community. These are the
16 communities that will suffer. And these are the
17 communities that must be considered in terms of enhanced
18 mitigation.

19 Noise has not been mitigated. Today the
20 airport is providing more noise on those communities
21 than it did before. What this plan will propose is
22 beyond any level, the amount of noise and impact and
23 traffic that may result. Thank you very much.

24 (The statement submitted for the
25 record was marked as Statement 2

1 and is attached hereto) .

2 MR. WALL: Thank you, Supervisor Burke.

3 Next will be Supervisor Don Knabe, followed by
4 Commissioner Miguel Contreras, followed by Councilman
5 Kelly McDowell.

6 MR. KNABE: Good morning. I'm Don Knabe,
7 Los Angeles County Board of Supervisors, Kenneth Hahn
8 Hall of Administration.

9 I appreciate Supervisor Burke's comments and
10 support her concerns about the environmental justice
11 issues. I'd like to begin by saying that I agree with
12 Mayor Hahn that something must be done to make LAX more
13 secure, more efficient in handling passengers while
14 balancing the concerns of the local community and
15 obviously the need to create additional jobs.

16 Alternative D indicates it is designed to
17 accommodate a passenger activity level of 78.9 million
18 by reducing the number of existing gates and by
19 foregoing the creation of new terminal facilities and
20 runway extensions.

21 I support the Mayor's stated goal of providing
22 for more manageable limits on the passenger volumes at
23 LAX given the well-documented impacts that the airport
24 has had on surrounding communities and the surrounding
25 infrastructure.

1 The County of Los Angeles is in the process of
2 ongoing review of the LAX Master Plan and your new
3 ideas, and just how the Mayor intends to assure the
4 region that the 78.9 MAP will not be exceeded once
5 Alternative D is implemented.

6 In May of this year, our County Council
7 provided us with their opinion that the City and
8 Los Angeles World Airports could legally place deed
9 restrictions on the LAX property restricting the future
10 development of the airport in order to benefit nearby
11 properties owned by the public near public entities and
12 private parties.

13 I believe limiting development is a way to
14 keep a passenger cap in place. I have submitted a
15 motion yesterday for consideration by my colleagues to
16 call on the City of Los Angeles and LAWA to deed
17 restrict the land until 2020 to ensure LAX does not
18 exceed the 78.9 MAP.

19 I encourage Mayor Hahn and LAWA to follow
20 through on the efforts to limit the growth to a
21 manageable level to the greatest extent possible through
22 a commitment to place deed restrictions on certain
23 portions of LAX property, to prevent those portions from
24 being used to expand facilities to serve passenger
25 volumes beyond the 78.9.

1 Specifically, it would be appropriate for LAWA
2 and the City to commit that portion of LAX generally
3 located on the west side of the airport easterly of
4 Pershing Drive, between the north and south pairs of
5 runways, and westerly of the proposed redevelopment
6 Central Terminal Area, Area 1, and the portion generally
7 located on the northeast corner quadrant of the LAX
8 property currently used for parking lot and rental car
9 purposes, and depicted as the site of the proposed
10 consolidated rental car facility in the Area 2. Those
11 two areas would be deed restricted through 2020.

12 These deed restrictions should provide that
13 those two areas will not be developed with airport
14 passenger terminal, airport runways, or other
15 improvements intended to increase airport passenger
16 capacities beyond the Mayor Hahn's 78.9 million target
17 levels.

18 Such a firm commitment may be crucial in
19 obtaining the support of Mayor Hahn's Alternative D from
20 at least some of the significant interested agencies and
21 groups who will be so directly affected by the
22 development of LAX.

23 And while I have spoken this morning about
24 limiting growth, I do want to say that the security
25 aspect of this plan, it continues to be a major concern

1 of mine. While the County is reviewing the security
2 aspects of this plan -- and we will comment in written
3 form as part of your official record -- I still have
4 very strong security concerns with the Manchester Square
5 passenger check-in facility. I want to make sure that
6 we give the same safety concerns to the passengers and
7 consideration to the passengers as we do the
8 infrastructure of the airport.

9 Again, thank you for the opportunity to speak
10 with you today, and I hope that we could move forward in
11 a very productive way at achieving our common goals for
12 the redevelopment of LAX; limiting growth and protecting
13 people through viable safety enhancements. Thank you.

14 (The statement submitted for the
15 record was marked as Statement 3
16 and is attached hereto.

17 MR. WALL: The next speaker will be Commissioner
18 Miguel Contreras.

19 MR. CONTREAS: Good morning.

20 MR. WALL: Good morning, sir.

21 MR. CONTRERAS: Miguel Contreras at 2130 James Woods
22 Boulevard, Los Angeles, California.

23 I wear a series of hats today. One is I sit
24 as the airport commissioner for LAWA, but also serve
25 as -- I'm here in the capacity of the executive

1 secretary of treasurer of the Los Angeles County
2 Federation Laborer, AFLCIO, that we're here today.

3 I want to start off thanking the hundreds of
4 men and women here from the trade union movement to show
5 their concern and the interest in this Master Plan, who
6 gave up their Saturday morning to be here and have their
7 comments heard by the hearing panel.

8 I'm pleased today that Mayor Hahn has
9 announced over the last few weeks that he will pledge to
10 do everything in his power to move forward the Master
11 Plan and begin construction at LAX utilizing the
12 existing project labor agreement between LAWA and the
13 various labor unions, some of who are represented in
14 this room, including the AFLCIO, the building and
15 construction trades, the -- the Building Trades Council
16 of California and the -- and the L.A. Orange County
17 Building Construction Trades Council here in L.A.

18 The purpose of the project labor agreement at
19 LAX is to establish labor practices and standards for
20 modernization for years to come at LAX. It's been near
21 20 years -- it's been nearly 20 years since the last
22 measure construction program was completed here at LAX.
23 We are very well aware that LAX needs modernization
24 immediately for safety reasons, for security reasons and
25 for economic reasons.

1 On economic reasons, the idea of having 40,000
2 new jobs that will be involved in the building of the
3 improvements at LAX over 11 years is quite significant
4 for the economy here in this region. 49,000 jobs
5 provides billions of dollars into the economy here in
6 Southern California. It will generate many economic
7 activities for the L.A. County alone.

8 But not just on the building construction
9 jobs, we're also -- we also have a big interest in the
10 service jobs that will come after this is built,
11 thousands of new service jobs for workers in the service
12 industry, many of them who live in Inglewood and Lennox
13 and the surrounding communities. You know, so we want
14 to make sure that those jobs are good jobs, make sure
15 that those jobs are living wage jobs and people can
16 afford to raise a family on them.

17 While the jobs and economic benefits are
18 important, it's just as important to the labor union
19 movement to take care of the affected communities
20 adjacent to the airports. These benefits should include
21 environmental mitigation, education improvements and
22 enhancements to local schools such as Inglewood and
23 Lennox, service improvements to the noise and traffic
24 pollution in the area and do serious community
25 development to the impacted areas.

1 So these community benefits coupled with the
2 large scale job creations make this plan the right
3 approach for Los Angeles and the region.

4 Our City and the entire Southern California
5 should get behind this Master Plan. And our last words
6 is, let's get to work.

7 MR. WALL: Thank you, Mr. Contreras.

8 Our next speaker -- ladies and gentlemen,
9 please. Ladies and gentlemen. Our next speaker -- our
10 next speaker will be Councilman Kelly McDowell. Ladies
11 and gentlemen, please.

12 In respect to other speakers, ladies and
13 gentlemen, we have a long day and we want everyone to
14 have a chance to speak today.

15 After Mr. Councilman Kelly McDowell, will be
16 Councilman John McTaggart followed by Mr. John Miller.

17 Councilman McDowell.

18 COUNCILMAN MCDOWELL: Good morning. I'm Councilman
19 Kelly McDowell representing the City of El Segundo, 350
20 Main Street, El Segundo.

21 Given the length and complexity of the Master
22 Plan and its environmental documents, our full comments
23 on technical issues won't be ready for some time and my
24 city's comments today are preliminary.

25 El Segundo continues to oppose Alternatives A,

1 -B and C for the many reasons we expressed during the
2 review process in 2002.

3 El Segundo has not endorsed Alternative D, but
4 we feel that its stated objectives are consistent with a
5 regional aviation approach.

6 Specifically, we support a regional approach
7 alternative that makes proper use of Inland Empire
8 airports.

9 We support an alternative with fewer
10 environmental impacts, and we'd like to see the adverse
11 impacts of the airport minimized and mitigated to the
12 greatest extent possible.

13 El Segundo supports enhanced safety and
14 security at LAX. But limiting LAX to its current
15 capacity has always been our number one goal, and we
16 believe that limiting LAX's capacity will allow other
17 airports in the region to develop and handle a fair
18 share of future regional aviation demands, result in
19 fewer environmental impacts and improve safety and
20 security at the airport.

21 But my city is greatly concerned about the
22 impacts of proposed south side airfield changes that
23 would move the southernmost runway 50 feet closer to
24 El Segundo.

25 LAWA has stated that it believes these changes

1 are necessary to improve runway safety. However, we are
2 currently studying the impacts of the proposed
3 reconfiguration and the options for the southern runway
4 complex.

5 In particular, we urge full public
6 consideration of end-around taxiways as an alternative
7 that could provide greater safety at lower cost and with
8 fewer added burdens on nearby communities such as mine.

9 Clearly, safety at LAX must be a priority for
10 all of us. El Segundo is prepared to support measures
11 necessary to enhance safety, even if those measures
12 increase our burden, but only if we are assured by an
13 independent expert that other alternatives would not be
14 equally effective.

15 In conclusion, we're grateful for Mayor Hahn's
16 responsive leadership and continuing pledge to constrain
17 growth at LAX and to foster a regional approach to meet
18 future aviation demand.

19 And it is our hope that the ultimate outcome
20 of this Master Plan process will be a truly regional
21 airport approach that ensures that LAX does not exceed
22 its current capacity. Thank you.

23 (The statement submitted for the
24 record was marked as Statement 4
25 and is attached hereto) .

1 MR. WALL: Thank you, Councilman McDowell.

2 The next speaker will be Councilman John
3 McTaggart.

4 MR. MCTAGGART: Thank you for holding this hearing.
5 I do have -- my name is John McTaggart, M-c,
6 capital T, a-g-g-a-r-t. And I'm here not representing
7 the South Bay coop where I'm the aviation subcommittee
8 chair or the LAX roundtable on noise. I'm here
9 representing myself as a person in the trenches that was
10 set on the FAA Task Force --

11 MR. WALL: Your address, please.

12 MR. MCTAGGART: Okay. My address I don't have to
13 give. I gave it on the sheet. Rancho Palos Verdes.

14 First, I'd like to say that parking at this
15 facility is totally inadequate, although I'm happy
16 you're having the hearing.

17 My comments are based on what's not in this --
18 in this document and what is in this document. And I
19 think our comments today are supposed to be to the
20 document. I'm not going to make a political speech.
21 I'm here to say that the peninsula in the South Bay was
22 left out of this supplement. Any changes in routing are
23 going to affect us. And we'd like to know what they
24 might be. They are not addressed in this document.

25 I'd like to also speak to gates and how they

1 constrain 78.9 MAP, million annual passengers. Freight
2 does not need gates. So what we're talking about is how
3 much more than 78 million point 9 would generate with
4 all the freight traffic.

5 I have long supported the regional solution as
6 previous speakers have mentioned. I think it's the
7 answer. I think it would create more jobs than this
8 thing.

9 The threshold of significance in this document
10 need to be defined to a single event noise level that is
11 meaningful. It's set way too high. We're happy it's in
12 there, but it's not where it ought to be.

13 The people who live under the flight paths --
14 and I mean all the flight paths, when the heavy laden
15 jets take off after midnight and fly to the east, they
16 wake up thousands and thousands of people, and -- and
17 this has not been addressed. We're hopeful that
18 Part 161 will have some affect on that. You know,
19 that's still a figment.

20 At no place can we find in this document the
21 term "will" or "shall." It says "should." And that
22 doesn't mean that it will. So we'd like to have the
23 document say meaningful things that mean something to
24 the people who have to live with this airport.

25 Traffic is another thing that I won't get

1 into. I will make extended comments at a later time. I
2 don't want to take your time. But, frankly, I think
3 that we do need to improve the security of the airport,
4 and we can do that on site without all the changes that
5 are being proposed. Thank you.

6 MR. WALL: Thank you, sir, for your comments.

7 Ladies and gentlemen, I want to remind you
8 that there are empty seats if you'd like to sit. Those
9 standing in the back, we have seats throughout the
10 auditorium. Please make yourself comfortable.

11 Our next speaker will be Mr. John Miller,
12 followed by Mr. Jim Aldinger, followed by Ms. Sandra
13 Bauer.

14 Mr. Miller.

15 MR. MILLER: Thank you, Mr. Kessler, Mr. Ritchie. I
16 appreciate your having me here and giving me this time.

17 I'm John Miller, Chief of the Counter
18 Terrorism Bureau of the Los Angeles Police Department.
19 At the request of -- that would be 150 North Los Angeles
20 Street, Los Angeles, California.

21 At the request of Councilman Smith and the
22 Mayor's office and Commissioner Ted Stein of the
23 airport, we were asked to review Alternative Plan D for
24 a security consideration.

25 So I want to preface my comment by saying, the

1 Los Angeles Police Department takes no position on the
2 expansion, its costs or any other aspect of this plan
3 pro or con in any way, other than to discuss our review
4 of this particular plan, vis-a-vis, its enhancement of
5 airport security against potential acts of terrorism.

6 What we found in reviewing Alternate Plan D
7 was that in four major ways, and a large number of
8 smaller ways, it improves security vastly over the
9 current plan at LAX. It increases screening by 100
10 percent by adding a passenger and luggage screening area
11 that screens people before they get to the people movers
12 that take them into the terminal areas on the interior
13 of the airport.

14 What we know is screening works. There have
15 been critics who have talked about the lack of ability
16 to pick up the possible chemical or biological agents
17 that could be introduced by using this type of
18 screening. But what we found worldwide, particularly in
19 the recent incidents in Gatwick Airport where explosives
20 were found hidden inside an electronic back massager,
21 looking where they are supposed to be looking at can be
22 very effective, doubling that from one screening area
23 before the boarding area to two screening areas. One
24 before you actually enter the airport complex is
25 significant because currently screening is now

1 constituted in most airports. And LAX as it is now is
2 designed to prevent people with dangerous items or
3 weapons from getting onto aircraft as opposed to getting
4 into the airport complex itself.

5 We know since 1980 there have been
6 approximately 75 attacks on airports worldwide that
7 involved guns and explosives in the prescreening areas.

8 The second part of the plan we find attractive
9 from a security standpoint is that it introduces a plan
10 that makes LAX essentially a careless airport, meaning
11 that cars are parked at a central facility, rent-a-cars
12 are taken to another central facility, and people are
13 moved through the airport by the people mover and other
14 modes of public transportation. That gives us two
15 things in terms of security.

16 One, it removes the random introduction by any
17 vehicle allowed into the airport of explosives
18 contained in a vehicle-borne bomb, a large vehicle bomb.
19 Trucks -- and this is the third point -- are screened
20 before they come into the airport. This would be trucks
21 making deliveries and servicing the commercial entities
22 there. We have suggested that they add to that, a
23 screening of the actual truck drivers. So there will be
24 a series of drivers who are actually airport certified
25 to make those deliveries.

1 MR. WALL: Mr. Miller, I'm sorry to interrupt, but
2 the three-minute time frame is up. Do you have your
3 comments in writing that you can submit or --

4 MR. MILLER: I do not at this time, although, I
5 would be happy to prepare some if you thought it would
6 be helpful.

7 MR. WALL: Yes, sir.

8 MR. MILLER: But those are eventually the four
9 points we found that are an improvement on this
10 particular plan. We have not seen any other plan or
11 reviewed any other plan, but we are in favor of these
12 improvements. Thank you.

13 MR. WALL: Thank you, sir.

14 Our next speaker will be Mayor Jim Aldinger.
15 Mayor Aldinger.

16 MR. ALDINGER: Yes. Thank you. Again, my name is
17 Jim Aldinger. I'm the mayor of Manhattan Beach. And I
18 have a few comments here.

19 First, I'd like to say that I think this EIR
20 is fatally flawed from the beginning. I think the
21 number of options we have here, trying to add one more
22 option on top of three other options that we've looked
23 at before and had many problems with before is not a
24 good path to go down.

25 And the main reason for that is because of the

1 security issues. I think what I would like to see is
2 three -- if we're going to do options, let's do three
3 options. Let's look at the options on security. Let's
4 look at three options and see what those three options
5 are as far as security goes.

6 And, you know, having cars in the Central
7 Terminal Area, is that a big deal? There is many, many
8 other airports in this country that have the same
9 situation. We are talking about spending \$10 billion
10 dollars to do this. I think a lot more time and effort
11 needs to be put into it.

12 Jane Harman with her RAND study basically said
13 the same thing. And I think we need to take a step
14 back, look at the -- we all think that security is a big
15 issue, obviously, at LAX. But how we go about solving
16 that problem is something that I think needs a lot more
17 input.

18 The cost issue, again --

19 MR. WALL: Sir, let me pause for a second. Your
20 microphone is not working now. There we go. All right,
21 sir.

22 MR. ALDINGER: Okay. Do I get my ten seconds back?

23 MR. WALL: Yes, sir. I paused it. You're okay.

24 MR. ALDINGER: As far as the cost goes, \$10 billion
25 dollars is a lot of money to spend, and there are so

1 many other things that need to be done in this town and
2 around here. I'm not opposed. If we could find the
3 \$10 billion dollars, that's a big question for me as
4 well. But I'm not opposed to spending \$10 billion
5 dollars on infrastructure needs. We have a lot of
6 infrastructure needs, and those should be spent.

7 All the people from labor that are here, you
8 know, if we could expand Palmdale, do the work at other
9 places, that seems to be -- it seems to be a much better
10 way to spend our money than it does to spend it here on
11 LAX.

12 The improvements, traffic improvements in the
13 area and the impacts in the area are huge, too. Doing
14 something like this, the neighborhoods around Manchester
15 Square, they definitely need to be listened to. I don't
16 think they are being listened to with this report.

17 And as far as Manhattan Beach goes further
18 south, there are impacts on the 405. The impacts in the
19 original EIR and this EIR stop, do not include
20 Rosecrans, do not include other intersections on the 405
21 further south. And the number of people that come up
22 from Orange County will continue to grow.

23 And I'll say -- and the last thing, you know,
24 tying the 78 MAP, which I think is a great idea. I
25 think if we can do that, that's great. But something

1 needs to be done to come up with a way to tie it to the
2 deeds. But I think it needs to be tied to expansion at
3 Palmdale.

4 I think, you know, 78 MAP is great, but they
5 need to expand Palmdale, and they need to expand other
6 airports, Orange County especially as well. So thank
7 you.

8 MR. WALL: Thank you, Mayor Aldinger.

9 Our next speaker will be Ms. Sandra Bauer,
10 followed by Mr. David Voss, followed by Mr. Eric Bass.

11 Ms. Bauer.

12 MS. BAUER: Sandra Bauer. And I am here in
13 Association with A.C. Lazzarretto and speaking on behalf
14 of Los Angeles County. I wanted to speak briefly about
15 the use of a supplement, the baseline data and the
16 security analysis.

17 A CEQA guideline states that a supplement is
18 the appropriate type of document where you have a
19 project that does not have significant changes, where
20 major revisions occur in a project. The proper type of
21 CEQA document is a subsequent EIR that presents all the
22 information in new, not just the changed information.

23 Both types of review, by the way, are
24 typically used in conjunction with certified or approved
25 documents. In the present case, there is no certified

1 or approved EIR and, in fact, we do have major changes.
2 We have an entirely new alternative that's being
3 presented as the preferred project.

4 Even an adaptation of CEQA to include a
5 document that has not yet been certified would suggest
6 that we should have, in fact, a document that is
7 providing a comprehensive revised Draft EIR.

8 We have a second serious concern with respect
9 to the process used. In 2001, the County of Los Angeles
10 devoted a great deal of time and effort to the
11 preparation of detailed comments on the Draft EIR that
12 was released. I'm sure that that statement would apply
13 to many people who are here in this room today.

14 There is no question that if you had prepared
15 responses to those comments, to all of the comments
16 received, it would have advanced the public discourse,
17 it would have facilitated the current review that we're
18 preparing. It would have strengthened the environmental
19 protection, and it would have also provided us with
20 important insight into the thinking of decision makers
21 with respect to key issues.

22 So we do ask why you didn't take the
23 opportunity to present or even summarize the comments
24 that had been presented back in 2001.

25 With respect to the baseline data, the 2003

1 Supplement makes widespread use of 1996 baseline data.
2 That was also the case in the 2001 document. And the
3 data was outdated even then in 2001. And, yet, what we
4 don't see in the current document is an analysis of the
5 significant baseline shift that occurred following 9-11,
6 and how that shift changed the operations at the airport
7 and the benchmark for understanding project impacts.

8 Given that conditions at LAX have changed so
9 dramatically since 2000 and given that LAWA developed an
10 entirely new Alternative D, why did LAWA not consider it
11 worthwhile to provide the public and its own decision
12 makers with a baseline reflecting conditions at LAX as
13 it exists today.

14 Finally, with respect to security, we do have
15 significant concerns. I can see that my time is out.
16 I'll just point out that we believe that the security
17 plan is emphasizing the Gateway elements at the expense
18 of some of the backside elements, and we do look forward
19 to providing more detailed review of that as the review
20 goes forward.

21 I thank you for the opportunity to speak.

22 MR. WALL: And thank you for coming today.

23 (The statement submitted for the
24 record was marked as Statement 5
25 and is attached hereto.)

1 MR. WALL: We'll take three more speakers before our
2 first break. They'll be David Voss, Eric Bass and Sid
3 Stolper.

4 First, Mr. David Voss. Mr. Voss.

5 MR. VOSS: Good morning. My name is David Voss.
6 I'm the President of the Westchester/LAX Marina del Rey
7 Chamber of Commerce. I'm a resident here and live in
8 this community in Playa Del Rey.

9 Our Chamber of Commerce represents the
10 communities both greatly impacted both positively and
11 negatively by Los Angeles International Airport. On
12 Thursday the Board of Directors of the Chamber of
13 Commerce voted to support Mayor Hahn's Alternative D.

14 The significance -- the significance of this
15 vote is that, unlike any other group that will probably
16 come before you through this process, our chamber is on
17 record in opposition the last time around. We opposed
18 Alternatives A, B and C that were previously submitted
19 by Mayor Riordon.

20 And I hear today a comparison to Alternative C
21 suggesting that we should maybe still be looking at that
22 and remind everyone that that amounted to growth to 89
23 million annual passengers at the same time as saying
24 that we want to have less growth that the chamber is in
25 favor of.

1 It is not acceptable to grow without planning
2 and mitigation of impacts. We have to do something or
3 gridlock will be the constraint. Alternative D presents
4 a framework for modernization that moves us in the right
5 direction, that balances modernization with community
6 concerns and it provides jobs.

7 The chamber did not take lightly its reversal
8 of position. Prior to reaching our conclusions, we
9 participated in the Blue Ribbon Commission, Councilwoman
10 Miscikowski's workshops. We have read the over 5,000
11 pages of new information. We have met both of the
12 authors of the RAND study and the SAIC study and had
13 them at chamber meetings at the same time to confront
14 each other.

15 It's important to remember that the comments
16 here are on the Draft EIR/EIS, yet few of the people
17 that are actually making comments have so thoroughly
18 studied the proposal and actually read the document they
19 are commenting on. These plans, the Riordon plans would
20 have brought the wrecking ball to the Westchester
21 business district and driven traffic through Westchester
22 and Playa del Rey.

23 The plan that the Mayor now presents by
24 contrast solves those problems and constrains growth
25 permanently by moving that north runway further south

1 and using up real estate that would otherwise be
2 occupied by gates in the future.

3 It's a question of where you want the
4 bottleneck. Do you want it on the airfield or do you
5 want it in your communities with traffic?

6 On security, and hearing from RAND and SAIC,
7 and we did have them in the room at the same time, the
8 bottom line is that we heard the RAND author state
9 unequivocally that he did not disagree with any of the
10 conclusions in the SAIC study.

11 Those studies show that a simple car bomb in
12 the current Central Terminal Area would shut down LAX.
13 And I asked Jack Kaiser the other day, an economist that
14 would know what the cost of that would be. The cost
15 would be over a billion dollars a day. If you don't
16 spend \$9 billion and it happens, heaven forbid, a
17 billion dollars a day is the cost.

18 The Mayor's office should be commended for
19 listening and adapting his design to our concerns and to
20 remember that Alternative D is the only plan that can
21 handle security when we're at a red level condition when
22 we most need it.

23 The RAND study was based on a green level
24 condition. Remember, LAX has never been at red level,
25 and only Alternative D can solve those problems. Thank

1 you.

2 MR. WALL: Thank you, Mr. Voss.

3 Our next speaker will be Mr. Eric Bass.

4 Mr. Bass. Mr. Eric Bass. Either microphone,
5 sir.

6 MR. BASS: My name is Eric Bass, 4840 York Boulevard
7 in Los Angeles.

8 We're a certified small business here in the
9 City of Los Angeles. We work with the Mayor's office of
10 small business. We work -- we're working with the
11 Department of Water and Power and the L.A. Housing
12 Authority.

13 What our company does is we specialize in
14 green buildings sustainable fixtures. One of our
15 products is called chroma, which originated in
16 Australia. It is a dual flush technology for water
17 closets and urinals. It utilizes 50 percent less water
18 than what the conventional water fixtures use.

19 So we're in favor of the airport. We feel
20 that it would be good for local business. We also want
21 to minimize the traffic flow. That is a challenge now
22 for us, and it appears that in the overall overview that
23 I just got, that the plan would facilitate that.

24 So as a small local business, it certainly
25 would facilitate more work for us, and we could

1 contribute also to the diminishing of the use of water,
2 which is not a renewable resource. And that's something
3 we specialize in is ecological-type fixtures for these
4 kinds of facilities.

5 I just want to say, I appreciate the
6 opportunity, and I know it's an area where many people
7 are impacted. I live in Burbank. And so I'm not in
8 favor of the expansion that's been going on there. But
9 it appears that we're -- L.A. is growing, and it's going
10 to continue to grow. And if we don't make any plans to
11 accommodate the continued growth, then the traffic
12 levels within our city are going to get worse than they
13 already are.

14 So I feel we need to do something to address
15 that. And I'm sensitive to the people that live in the
16 area, but we have to do something to accommodate the
17 growth that's coming into our county. Thank you very
18 much.

19 MR. WALL: Thank you for your comments, sir.

20 Our next speaker and the final speaker before
21 our break will be Mr. Sid Stolper.

22 MR. STOLPER: Good morning. My name is Sid Stolper.
23 I live at 7822 Stewart Street, about six blocks from
24 here.

25 Actually, I have been a long-term resident of

1 the area. I went to El Segundo High School. For most
2 of my adult life I have lived on one side or the other
3 side of the airport.

4 I am the business manager financial secretary
5 and treasurer of the Southern California Pipe Trades
6 here representing about 15,000 members in Southern
7 California. We rise to support the plan for
8 Alternative D. We believe that the Mayor has done a
9 great job in putting together a plan that's long overdue
10 in being executed.

11 I am also a very frequent flyer. Last year I
12 logged 132,000 miles on three different carriers, all
13 originating out of LAX. I chose the proximity of my
14 base to be able to make frequent airport trips. As a
15 resident and as a frequent flyer, I think the first
16 thing we need to think about here is the need for
17 national security.

18 I was unfortunately last week a part of a
19 blackout. I was in Detroit when the lights went down.
20 And I will tell you, I don't know if anyone else in the
21 room was affected by that. But these are real things,
22 people. These are not things that just pass by and we
23 can sweep under the carpet as being things we don't need
24 to pay attention to.

25 The upgrade modernization of this airport is

1 way overdue. I have hundreds and hundreds of tickets
2 that I paid a surcharge on to look for a modernization
3 of the LAX to execute better passenger participation and
4 free flow of the traffic to be able to come in and out
5 of the airport. It's important that we look at this
6 with the safeguards to all of our community and all of
7 the passengers, and what it would do economically to
8 this area if this airport is down.

9 For the 29 hours that the airport was out of
10 commission in the east coast last week of which I was a
11 part of, it actually cost about 7 billion dollars for 28
12 hours of being down. Now, that's a reality. Now, we
13 heard that from a previous speaker here today. I lived
14 it last week, unfortunately.

15 We in -- one part of that airport where I was
16 at in Detroit, half the airport is renewed, the north
17 west terminal is renewed. Unfortunately, I don't
18 frequent that particular airline.

19 But in the other half, it is an old airport.
20 It's antiquated, just like this is. While we keep
21 putting facelifts on this airport, we have done little
22 or nothing to really increase the ability to contend
23 with -- first of all, any kind of problems as far as
24 terrorist problems, ingress and egress to the airport or
25 the problem with smog and air mitigation measures.

1 And right now, today, security is probably the
2 most important thing that we ought to be all looking at.
3 If we delay this any longer, we are number one on the
4 list of being the most probable site for the next strike
5 if it's possible for them to attack us. Los Angeles
6 cannot afford to sit here and not be prepared. Thank
7 you.

8 MR. WALL: Thank you, Mr. Stolper. Thank you, sir.

9 Ladies and gentlemen, we are now going to take
10 a ten-minute break. The first three speakers after the
11 break will be Mr. Shu Kwan Woo, Mr. Andrew Stefanski and
12 Mr. Erney Bowdre. We'll return in ten minutes.

13 (Recess was taken.)

14 MR. WALL: We want to remind everyone that in order
15 to speak today, you must complete a speaker card at the
16 registration table on this floor. If there were those
17 who thought they were registering downstairs, that was
18 not the registration table that allowed you to complete
19 a speaker card. I need to make certain that everyone
20 who wants to speak completed a speaker card.

21 Again, if you are uncomfortable speaking in
22 public or you have comments that would extend past three
23 minutes, we would encourage you to write those comments
24 down and submit them. Public verbal comments are just
25 as important as written comments. We accept both, and

1 they will both be considered equally in the deliberation
2 of this alternative and environmental impact process.

3 I would like to call now our first three
4 speakers. The first will be Mr. Shu Kwan Woo, followed
5 by Mr. Andrew Stefanski, followed by Mr. Erney Bowdre.

6 Mr. Woo. Mr. Woo.

7 MR. WOO: Hi. Good morning. My name is Shu Kwan
8 Woo. I'm a resident of Mar Vista neighborhood and the
9 adjacent area for the past 30 years. My son Christopher
10 Woo, he went to Westchester neighborhood school right
11 here for the past nine years since kindergarten. So
12 between the two airports, I know how it is to live
13 around airports.

14 I'm speaking here today in support of it. As
15 far as I can see, the Mayor's plan, Alternative D is the
16 most neighborhood-friendly plan I have seen so far for
17 the following reason.

18 That -- that is a safety, security and
19 efficiency plan, other than an expansion plan. The
20 airport the way it is now with different terminals, with
21 duplicated functions, some of them are very crowded.
22 And when one of them is crowded, it create a bottleneck
23 and just jam up the whole airport in the surrounding
24 area. The new plan will spread things out.

25 People say it will concentrate some operation,

1 but actually it's quite opposite. It does centralize
2 some area. But since it's spread over a wider area,
3 things flow through. Now, the problem we have now is
4 congestion. The solution is to make it not congested.
5 But when you do that, you increase efficiency. And that
6 is a good solution to the problem, but then some people
7 accuse that of being -- when you find solution, you're
8 being accused of creating a problem, but it's not.

9 So since you spread things out so not one
10 single area is crowded at certain times, things keep on
11 flowing through even though you can handle the same
12 amount of passengers, but it's less of a target for any
13 terrorist activities.

14 The whole plan, the whole idea is to keep
15 passenger moving, keep planes moving. You don't want to
16 wait a whole hour when you arrive -- when you are
17 approaching L.A., you don't want to spend a whole hour
18 cueing up in the sky or taxiing on the runway before you
19 can get out of the airport. And you don't want to spend
20 two hours just trying to get through the airport.

21 If that is the case, passenger or visitor in
22 the future might skip L.A. and go to Las Vegas and go to
23 San Diego or San Francisco, and Los Angeles will miss
24 greatly.

25 So for this reason, I strongly support the

1 expansion plan, and I think it is very important for the
2 future of Los Angeles, particularly for all the
3 different diverse multicultural groups and the residents
4 because we are connected to the world. And the airport
5 is a very important infrastructure to do that. Thank
6 you very much.

7 MR. WALL: Thank you, Mr. Woo.

8 Next will be Mr. Andrew Stefanski. Welcome,
9 sir.

10 MR. STEFANSKI: Andrew Stefanski, 7296 West 85th
11 Street, 90045, Westchester.

12 The State of California does not have a
13 comprehensive air transportation master plan that would
14 reach for some 30 or 50 years ahead. The volume of
15 passengers is projected to 150 million passengers,
16 annual passengers by year 2025. And, also, we're going
17 to have substantial increase in the cargo.

18 Where do they go? Nobody knows. Some people
19 say put as much as possible into this airport. Some
20 people say cap it, put it somewhere else. But we don't
21 know where and what.

22 I am opposing to the present plan as written.
23 I realize that the airport needs modernization, needs
24 security, needs everything, but the present plan is too
25 expensive and provides too little of the increased

1 capacity. It is not cost-effective. Two of the
2 prominent members of the L.A. City Council made the same
3 points that they would spend too many money for
4 increasing the capacity of the airport just little.

5 Consider building -- consider taking a little
6 lot with a little house and making a little addition to
7 it at a tremendous cost of \$1,000, \$2,000 per square
8 foot. It would not be cost-effective. It would provide
9 job, it would provide expenditure, but it would not be
10 cost-effective and should be avoided.

11 Trying to expand the present airport is a bad
12 deal because it provides hardly any extra passenger
13 capacity at a tremendous cost. Common sense says we
14 should modernize the present airport, but the bulk of
15 the money in the area where you can get big increase in
16 the passengers, that's the Palmdale, the
17 \$9-billion-dollar expenditure.

18 Well, whoever is familiar with the government
19 project realizes this is not the final figure. Probably
20 is the down payment because the cost go up and up and
21 up.

22 If you want to spend the money, spend it
23 wisely because you will end up where California is in a
24 big deficit. And, finally, all the costs are coming
25 from the taxpayer's pocket no matter what the name of

1 the source is.

2 So my final recommendation is, yes, modernize
3 this airport, restrict the cost and put all the labor
4 and all the money into Palmdale when you could have a
5 big increase in the capacity of the passengers and the
6 cargo at this small cost. That's what the reasonable
7 thing is.

8 MR. WALL: Thank you very much for your comments,
9 sir.

10 Our next speaker will be Mr. Erney Bowdre,
11 followed by Mr. Charles Woo and Mr. Arthur Guzman.

12 Mr. Bowdre.

13 MR. BOWDRE: My name is Erney Bowdre. I live at 627
14 West Acacia in El Segundo. I have been at that address
15 for 50 years. I have seen Los Angeles Airport from when
16 it was mines field.

17 I live one block off of Imperial Avenue. I
18 have a very, very close unhappy physical relationship
19 with LAX. These people are getting ready to put the
20 runway, which is closest to El Segundo, 50 feet closer
21 to El Segundo.

22 Now, I'm not going to say that the guys who
23 fly the airplanes don't know how to fly. I'm sure they
24 do or they wouldn't be up there, but they sure don't
25 know how to steer them. If they did, they wouldn't be

1 flying over El Segundo all the time. I could spend two
2 hours a day talking to the line at LAWA about flight
3 incursions over El Segundo, but it really doesn't do any
4 good because it still keeps happening.

5 I have a stack of probably 150 squawks that I
6 have made over the past three to four years, and it
7 doesn't make any difference. It just keeps happening.
8 I don't know if that's LAWA or if that's FAA or both.
9 But for God's sake, let's do something. We're going to
10 have an accident one day. And I'm going to tell you, if
11 you think it's going to be very, very nice to see a 747
12 pancake over an area which is increasing in population
13 all the time, and I don't think for once that we should
14 be making corrections after we have a tragedy like we're
15 trying to do after 9-11. Let's get it right beforehand.

16 A couple of little things that I noticed on
17 your plan here, you're going to have -- there is an
18 employee parking lot which is planned on the back end on
19 the southwest corner of the airport. You've got 12,400
20 spaces. That's an awful lot of people. I don't see any
21 increases in the size of the highways that are going to
22 get those employees there either on the north side or on
23 the south side. I think it's something that should
24 probably be looked at.

25 And I do have to scratch my head about the

1 fact that the so-called the Environmental Report is
2 nothing more than just a continuation of what happened
3 when we first started this thing, and times have
4 changed. Things have changed. And I would certainly
5 strongly recommend that the FAA look very, very hard at
6 making sure that that Environmental Report still is as
7 it should be. Thank you.

8 MR. WALL: Thank you, Mr. Bowdre.

9 Mr. Charles Woo. Welcome, Mr. Woo.

10 MR. WOO: Good morning. My name is Charley Woo.
11 I'm a business owner in Los Angeles for the last 35
12 years and resident and business together. I love this
13 city because of its opportunity provides for citizen. I
14 think of all the positive thing you could say about a
15 city because it is really the hub of the Pacific rim.

16 It's a very important capital of the -- of the
17 future global economy. And the reason it has that
18 advantage is because of access such as the airport. And
19 if you ask traveler of the world one of the most
20 recognizable symbol of Los Angeles, they are probably
21 going to tell you the circular building with arches
22 supporting it. I think that's more recognizable as
23 anything else.

24 The reason it is important is because we pride
25 ourself on diversity, a place where east meets the west,

1 north meets the south. A place like the airport is
2 important. It really represents a city, and is
3 something that is well worth investment.

4 Of course, it's important for the local
5 economy because of the goods flowing through. I'm not
6 talking about just any goods. This is goods that
7 require expensive transportation. Timing is important,
8 which means it create high-paying jobs, high value
9 goods, and is very important to our economy.

10 And we need an airport that is efficient, that
11 is friendly, that give people a positive impression when
12 they use it, and most important of all in this era,
13 people have a sense of safe and security. I think
14 that's is very, very important.

15 And when you talk about the money invested,
16 the amount of money invested, yes, it is a lot of money.
17 But this is money that is not wasted. It is going to
18 the economy. It create jobs. It creates work. It has
19 indirect impacts to people's income, to the tax revenue
20 of the region.

21 And then if you divide the number of people
22 flowing through the next 20, 30 years by the amount of
23 money we invest, we are talking about a few dollar a
24 passenger. And I think when you look at that and when
25 we look at the plan, that it include all the other

1 considerations and balance of all the interest, I think
2 it's well worth to spend a few dollar per passenger.

3 I think as a use of the airport, I'm glad its
4 willing to spend that because it gave me a sense of
5 efficiency, again, security and safe and friendly. And
6 for that reason, I think it's important for the City.
7 It's important for our rich culture, our diverse culture
8 as well as the economy that I think not doing something,
9 not supporting the Master Plan would be a really big
10 mistake. For that reason I wholeheartedly support it.
11 Thank you very much.

12 MR. WALL: Thank you, Mr. Woo. Next will be
13 Mr. Arthur Guzman.

14 MR. GUZMAN: Art Guzman, 17111 Steven Street,
15 S-t-e-v-e-n, in Gardena, California 90247.

16 I'm a member and a business rep out of Local
17 250. It's an air conditioning and refrigeration
18 pipe fitters local and we're approximately 5,000 strong.
19 We have many of our members who live in the impacted
20 areas.

21 But I'm not going to speak to you as a union
22 rep. I'm going to speak to you as a concerned citizen,
23 and as a concerned father who lives in the impacted
24 communities and is happily married with three children.

25 These concerns that have been voiced here this

1 morning are also my concerns, traffic congestion, air
2 pollution and excessive noise. But isn't that why
3 technology is a wonderful and beautiful thing, because
4 it enhances the quality of life for all of us, be it
5 through communication, be it through education, be it
6 through creating a cleaner environment, and even through
7 the progress as in the advancements in medicine which
8 prolongs the life of all of us.

9 The new technology will meet the challenges of
10 traffic congestion, air pollution and excessive noise.
11 That being said, let me make a statement as I stand
12 before you here and now. If LAX does not go through
13 with this project and does not incorporate the advances
14 of the new technology into its operation, then within
15 ten years, LAX and the surrounding communities will
16 become our next ghettos.

17 There will be an increase in crime, an
18 increase in welfare lines, an increase in illegal drug
19 sales, and those things that come with property;
20 therefore, LAX must approve this project.

21 In addition, we must stimulate the economy
22 because in Los Angeles the state of the economy is in a
23 downward slump. You don't do it by giving tax relief to
24 a few people or a few groups that don't need it. You do
25 it by giving it to organizations that are going to

1 stimulate economic development and growth; therefore, we
2 must proceed forward with this project. If not, we are
3 going to suffer all the negative consequences because of
4 it.

5 MR. WALL: Thank you, Mr. Guzman.

6 Our next speaker will be Mr. Saeed Argon,
7 followed by Mr. Freddy Correa, followed by Mr. Peter
8 Barrera.

9 Mr. Saeed Argon. Are you here, sir?

10 Mr. Freddy Correa. He'll be followed by
11 Mr. Peter Barrera, I believe it is. I'm having
12 difficulty reading your handwriting, sir.

13 MR. BARRERA: It's Barrera.

14 MR. WALL: Barrera, yes, sir. And he'll be followed
15 by Mr. Gerald Moret.

16 Mr. Correa.

17 MR. CORREA: Good morning. Thank you for letting me
18 speak.

19 MR. WALL: And your name and address, sir?

20 MR. CORREA: My name is Freddy Correa, spelled
21 C-o-r-r-e-a, 1840 West Pacific Coast Highway, Long
22 Beach, California 90810.

23 I'm a mechanical engineer, and I'm also a
24 member of the Local 250, the Steamfitters Local. My
25 point of view is I approve Alternative D. I feel that

1 it's imperative that LAX be renovated due to all the
2 gridlock and congestion and unnecessary problems that
3 this airport is affected.

4 Also, it would stimulate these stagnant local
5 economy, and it will put -- it will put LAX on the top
6 airport in the world. Thank you.

7 (The statement submitted for the
8 record was marked as Statement 6
9 and is attached hereto.)

10 MR. WALL: Thank you, sir, for your comments today.

11 Mr. Peter Barrera, followed by Mr. Gerald
12 Moret, followed by Mr. Will Herada.

13 Welcome, sir.

14 MR. BARRERA: Good morning. My name is Peter
15 Barrera. Know you had Correa cards. Just put a B.
16 It's Barrera.

17 MR. WALL: Sorry about that, sir.

18 MR. BARRERA: No problem. I live in the city of
19 Redondo Beach at 1908 Belmont Lanes. ZIP Code is 90278.
20 I lived in the South Bay all my life. As a matter of
21 fact, my family has been in California for over 150
22 years.

23 We had discussed the new airport design and
24 listened to area residents complaints for over six
25 years. I want to see the LAX Master Plan move ahead.

1 The reassignment of the entire airport has addressed the
2 security and needs of the airline passengers and the
3 general public and the area residents and the design to
4 include the ground transportation system and the people
5 movers and trans, like most of new airports around the
6 world, around the country, too.

7 The LAX Alternate D design will do that, bring
8 the ground transportation system of LAX into the 21st
9 Century. Every major airport in the world has rail
10 access, lines with trans and people mover.

11 I heard people talking about Palmdale and
12 Ontario. I've been hearing that since 1970. People
13 around here are not going to travel right now to
14 Palmdale or Ontario. They are going to LAX. It's
15 close. Let's make it security safe.

16 But as the population of L.A. grows, I mean,
17 I've been here all my life and I see it growing more and
18 more. I saw the smog come and now it's going away, like
19 you see the mountains in the morning when I was a kid.
20 We got to approve the Alternative D plan to see LAX move
21 into the 21st Century. Thank you very much.

22 MR. WALL: Thank you, sir, for your comment.

23 Mr. Gerald Moret.

24 MR. MORET: Good morning. My name is Jerry Moret,
25 and I just thank you for the time to speak. I only have

1 a few points I would like to make.

2 Number one, I support very much the idea of
3 regional airports, which in Southern California already
4 have the ability and the capacity to support heavy jet
5 traffic, and those would be Palmdale, Ontario, Long
6 Beach, San Bernardino International, Oxnard, Camarillo,
7 El Toro, Point Magoo, Burbank, Van Nuys. There are
8 other airports that could handle smaller regional
9 aircraft.

10 I think the idea of putting large crowds of
11 people into one small location is not in our best
12 interest. I think we're looking for safety. I think
13 that is what makes the perfect opportunity for
14 terrorists that we're trying to protect ourselves from.

15 Also the idea of moving runways to separate
16 them a little bit, all this really does is allow air
17 traffic controllers to authorize more approaches at the
18 same time, simultaneous approaches, which in effect
19 could increase the number of aircraft landing as much as
20 double.

21 From my own point of view, from my own
22 personal feeling, the things that have affected me,
23 Plan D has not yet been approved, but it has begun
24 implementation.

25 In the guise of security and safety, my rental

1 car company, which operates a seven-passenger minivan,
2 is denied access to the airport because of safety,
3 denied access to the airport because of traffic. My one
4 seven-passenger minivan that has served this airport
5 since 1963. I thank you very much.

6 MR. WALL: Thank you, sir.

7 Mr. Will Herada. Mr. Herada will be followed
8 by Mr. James Donaldson and Mr. Tom Moxley.

9 Mr. Herada, are you here, sir?

10 Mr. James Donaldson.

11 MR. DONALDSON: My name is James Donaldson. I would
12 like to say that I go along with what Jerry said just
13 before me. I live in the approach to Santa Monica
14 Airport.

15 When I first came to these meetings, I think
16 four years ago, the people sitting up here that said
17 that they were going to do everything in their power to
18 discourage the small business jets from coming to LAX.
19 They would have them circle around and around so they
20 could make way for the big cargo jets. That's what they
21 wanted to get here.

22 Now, since Mayor Hahn took office, he stopped
23 that plan. And one of the things that I see -- I saw
24 today in the rooms over there is that currently it had
25 one fixed based operator, which is Garrett Corporation

1 over here that worked on your small business jets. One
2 of the things I saw in the plan over there is you're
3 going to add a brand-new fixed based operator, which is
4 going to have 121,000 square feet, which is good.

5 What I would hope that maybe you could do is
6 either add a third fixed based operator to handle these
7 small business jets. You've got a lot of these
8 fractional jets so they could come to the airport.

9 What happens is if you get some of these
10 smaller jets to come in here, that's going to take the
11 time slot up from the big jet. If you don't have any
12 small business jets coming in here, what's going to
13 happen is you're going to have all of the large jets
14 coming into LAX.

15 What I would like to see is if you could maybe
16 increase the footage from 121,000, if you can't put any
17 more fixed based operators to increase it a little bit
18 bigger from 121,000.

19 Also at the same time, I don't know about
20 Garrett Corporation if you've talked to them about
21 letting them enlarge their -- where they are currently
22 at, in other words, enlarge the areas so where they
23 could service some more business jets.

24 And let me see. I've got a couple of other
25 things. Here is, from what I could see from Mayor

1 Hahn's plan is that you're not going to push any jets
2 off to the surrounding communities. I know you tried to
3 put jets over -- not you guys, but originally they were
4 going to put them in Hawthorne. They told the mayor
5 they were going to put them in here. He stopped them
6 from doing that.

7 So what I like to see is -- is if you can
8 continue not to push any of the jets off to the
9 surrounding airports. If you do, then I would like to
10 see you do an impact of what that would be to the Santa
11 Monica, City of Santa Monica and its residents and the
12 residents that I represent in West Los Angeles. I'm
13 with the North Westdale Neighborhood Association.

14 I go along with the safety. I think that's a
15 good idea to have an area off of the airport. But then
16 at the same time, I've heard some people come up here
17 and they've said some things, like Cindy Miscikowski.
18 So I go along with that. So you've got to kind of
19 listen to the -- what these people have to say because
20 they live over here. I live further north.

21 So I think that's about it. So thank you very
22 much.

23 MR. WALL: Thank you, sir, for your comments today.

24 Next, Mr. Tom Moxley. While Mr. Moxley is
25 coming up, I would remind everyone, let's turn off our

1 cell phones and pagers if they are on.

2 Mr. Moxley will be followed by Mr. Curt Curtis
3 and Mr. Carlos Porras.

4 Mr. Moxley, welcome.

5 MR. MOXLEY: Thank you. Tom Moxley, M-o-x-l-e-y,
6 2057 South Atlantic Avenue, Los Angeles, 90040.

7 I'm a business agent for Ironworkers Local 433
8 who represents -- and I represent over 4,000 members.
9 That does not include their families, their wives and
10 children and significant others. They live in every
11 community in the L.A. basin, every city, every
12 community. And I'm here to represent them in favor of
13 Plan D, Mayor Hahn's insight to modernizing LAX.

14 LAX was designed and built for 707s. It was
15 ahead of its time at that time and it has degenerated
16 backwards. We have consistently put band-aids on it,
17 and now is the time to bring it back in ahead of its
18 time to show the world what kind of place L.A. is.

19 Safety is a concern in the construction
20 industry. It's job one. It doesn't stop when we leave
21 the construction site. We implement it in our daily
22 lives. Safety is needed and moving of the runway and
23 making the bigger jets being able to negotiate around
24 the airport and come in and out.

25 Security goes with safety. Security is an

1 issue that all of us after 9-11 became very aware of. I
2 applaud the LAPD in their terrorism task force for
3 looking at this and seeing what the needs are and
4 reporting back to the Mayor.

5 And then jobs. This is not just jobs for
6 construction. Those are short-term. These are good
7 paying jobs for L.A. citizens around the community here
8 in manufacturing, hotel workers, employees, the janitor
9 and all those others.

10 I heard the comment about technology that
11 wasn't developed. And I remember when I was a young
12 man, or a young boy actually, President John F. Kennedy
13 said, "We're going to put a man on the moon." That
14 technology was not there. I remember in 1969, sitting
15 at home and watching that man step on the moon.

16 I'm disappointed that our representatives did
17 not stay around to listen to the public comment session.
18 And I applaud them and would encourage them to use
19 Ontario and Palmdale every time they travel because they
20 are frequent flyers, and see what it takes to get there.
21 They use LAX as a convenience. I use LAX as a
22 convenience for where I live. If I live next to
23 Palmdale or Ontario, I would use it. I can guarantee I
24 wouldn't drive there.

25 Don Knabe lives right by me. He comes to LAX.

1 When I see him in the neighborhood, I'm going to ask him
2 to go to Ontario when he flies out. Thank you for your
3 time.

4 MR. WALL: Thank you, sir.

5 Next will be Mr. Curt Curtis.

6 Mr. Curtis. Welcome, sir.

7 MR. CURTIS: My name is D.A. Curt Curtis. I reside
8 at 7880 Vicksburg Avenue. I've lived there for 49
9 years. I'm a former airport commissioner.

10 When I was on the commission, we had an
11 absolute limit of 40 million annual passengers. As far
12 as I know, that limit has never been changed. We still
13 have a limit of 40 million annual passengers. And so
14 much for what that 78 million annual passengers limit
15 means. I do not think that the Draft EIR adequately
16 addresses the capacity, the air capacity or the ground
17 capacity for aircraft movements.

18 Enhanced safety and security, what a misnomer.
19 There is neither enhanced security nor enhanced safety.
20 RAND's think tank study is far more believable than a
21 self-styled expert from Canada or the Mayor Hahn's
22 police department.

23 Common sense dictates that one huge target,
24 Manchester Square, is far more vulnerable for attack
25 than eight different terminals in the current central

1 terminal area. Runway incursions are practically
2 nonexistent this past year. There is really about two
3 things for this expansion.

4 One, so that the -- so the European Airbus, a
5 larger aircraft, can land. What is stated is for the
6 modern aircraft. It doesn't mention that it's the
7 European Airbus. That's why you have to move the
8 runways apart. If you didn't move them apart, you
9 wouldn't be able to have the same capacity on your
10 runways.

11 The second reason is \$10-billion-dollars worth
12 of jobs. And you can see the yellow shirts and blue
13 shirts out here. As the Chamber of Commerce made their
14 remarks, what is their name? Westchester, LAX, Marina
15 del Rey Chamber of Commerce. Is Mayor Hahn paying off
16 his fund raising obligations? A million -- a million --

17 (The audience began loudly booing.)

18 MR. WALL: Ladies and gentlemen, please.

19 MR. CURTIS: A million people living in San Fernando
20 Valley can get to Palmdale a lot easier than they could
21 get to LAX. Ditto for the Inland Empire, that they can
22 reach Ontario far easier than they could drive into LAX.
23 Thank you.

24 MR. WALL: Thank you, sir.

25 Our next speaker will be Mr. Carlos Porras,

1 followed by Mr. Walter Moore, followed by Mr. Morty Kay.

2 Sir, before you begin, ladies and gentlemen,
3 let's please be respectful of the speakers. We may
4 disagree with them, but let's give them their full three
5 minutes. Thank you.

6 Go ahead, sir.

7 MR. PORRAS: Good morning. My name is Carlos
8 Porras. I am executive director of a non-profit
9 organization in the State of California, communities for
10 a better environment. My office is based in Huntington
11 Park, California, 5610 Pacific Boulevard, 90255.

12 I am here to speak on the issue of the
13 environmental justice, the mission and purpose and goal
14 of my organization, and to talk a little bit about the
15 history.

16 The patterns and the trends in Southern
17 California, in particular in the Los Angeles region, a
18 pattern of racism and a pattern of disproportionately
19 burdening people of color, working class people, low
20 income people with the health burdens of progress.

21 Working class people who are struggling and
22 fighting for a right to collective bargaining, low
23 income people who are struggling and fighting for the
24 decency of a living wage, people of color struggling and
25 fighting for equal opportunity.

1 While progress, development and projects
2 quickly quantify benefits. The burdens and the costs
3 are those that are not so readily quantifiable in EIR
4 and EIS. This is a pattern of impacts that must be
5 taken into consideration.

6 I want to note that while the EIR/EIS and the
7 supplemental point to incremental increases of the
8 baseline, the baseline is unjust. The cancer burden is
9 unjust. The cancer, respiratory, asthma, all of these
10 health effects, at the baseline is unjust. The
11 marginalized education of our people and the
12 developmental problems at the baseline is unjust. And,
13 yes, the baseline is racist.

14 People who live in the impacted community
15 demand a voice. We demand equal access, full disclosure
16 and a full and meaningful decision-making role.

17 Environmental justice is for all. Where we play,
18 where we go to school, where we worship. I implore that
19 this agency include the voice of the people who will
20 live with the project. Thank you.

21 MR. WALL: Thank you, sir, for your comments.

22 Our next speaker is Mr. Walter Moore, followed
23 by Mr. Morty Kay, followed by Ms. Mary Hollifield.

24 Welcome, sir.

25 MR. MOORE: Thank you. My name is Walter Moore. I

1 live and work in Westchester. My mailing address is
2 Post Office Box 45705.

3 I studied public policy at Princeton, and this
4 proposal is such bad public policy. I'm not just going
5 to talk out against it today. I'm going to replace the
6 Mayor who is pushing for it. I filed the papers with
7 the City Ethics Commission to run for mayor. I've set
8 up a committee, and I've formed a website,
9 mayorforyou.com.

10 Let me tell you why this proposal is the worst
11 idea in security since the French built the Maginot
12 Line. The Maginot Line, you may recall, was a series of
13 tunnels, or as we call them now, people movers. The
14 idea was they were going to stop the Germans from
15 invading by building these tunnels. Well, guess what?
16 Invaders aren't stupid. Terrorists aren't stupid.

17 If you move the parking a mile away, they are
18 going to attack a mile away. You're not going to make
19 anyone safer. Read the RAND Corporation study and
20 you'll see.

21 Let's assume it does make the airport safer.
22 Let's assume that they don't sneak a bomb into a truck
23 going to the main terminal. Does that make any of us
24 safer? No, because the next time the terrorists will go
25 to the Third Street Promenade and they'll machine gun

1 everybody there, or they'll park a truck bomb by a
2 skyscraper downtown. It doesn't make anyone safer.

3 I see the people here with the yellow T-shirts
4 and the red T-shirts. I know you want jobs. I know
5 you'd like a cut of the \$9 billion. But you know what,
6 there are other things you could build. I myself have
7 not written any checks for \$9 billion dollars, so I had
8 to think about how much money that is.

9 With \$9 billion dollars, you could buy 26,000
10 houses at the median price in this town. You could buy
11 450,000 Toyotas at \$20,000 each. Or if you're really
12 concerned about security and you want to hire police
13 officers at \$85,000 a year, do you know how many police
14 officers we could add? Ten thousand every year for ten
15 years. You want security, spend \$9 billion on that
16 instead of moving a parking lot down the hall.

17 The RAND Corporation study also shows that in
18 the past 23 years, you know how many people have been
19 killed by bombs at airports? Four. That's a slow night
20 in South Central. Why don't we apply some troops where
21 people are dying in droves every day? Why don't we send
22 some police there with our \$9 billion?

23 I'm here to tell you the emperor has no
24 clothes, and he has no suit of armor. This security is
25 not enhanced, and I want you after the meeting to come

1 up and talk with me. I'll give you my card because when
2 this meeting ends, our battle begins. Thank you.

3 MR. WALL: Thank you, Mr. Moore.

4 Mr. Morty Kay, followed by Mr. -- I'm sorry,
5 it looks like Ms. Mary Hollifield, and then Mr. Denny
6 Schneider.

7 Welcome, sir.

8 MR. KAY: Thank you gentlemen. My name is Morty
9 Kay. I live here in Westchester.

10 The implementation of Proposal D and the other
11 airport proposals are realistically about two things:
12 Political power and making money. The incomplete cost
13 estimate of Alternative D is \$9 billion dollars. The
14 realistic cost estimate is between \$11- and \$15 billion
15 dollars. Who is going to pay for the majority of this?
16 Where is the money going to come from? Don't we have
17 anything better to do with this money?

18 There are basically two groups of people here.
19 One group is comprised of people who wish to maintain
20 their homes, their health and the quality of life. They
21 are against added pollution from increased air and road
22 traffic and increased congestion. The other group
23 generally is comprised of persons who one way or another
24 will make money from this expensive and poorly conceived
25 airport plan.

1 Seventy-eight million passenger cap, will
2 anyone here as a private citizen stand up, raise their
3 hand and guarantee to me as a private citizen that the
4 passenger load at LAX will not at any time in the future
5 exceed 78 million passenger cap? I don't see anybody
6 standing.

7 MR. WALL: Thank you, sir.

8 Ms. Mary Hollifield? Ms. Hollifield?

9 Mr. Denny Schneider, followed by Mr. Eddie
10 Barnes and Mr. Thomas Brands.

11 MR. SCHNEIDER: I'm Denny Schneider, 7929 Breen,
12 Westchester. I thank you for the opportunity to speak
13 again today. I come before you as the vice president
14 for ARSAC, Alliance for Regional Solution of Airport
15 Congestion, and as an active participant in numerous
16 community oriented organizations here in Southern
17 California, including our neighborhood council as Osage
18 Neighborhoods Association, Intermodal Planning, all
19 kinds of environmental planning, et cetera.

20 I want to first state that every one of the
21 four alternatives the Mayor's plan has done is an
22 expansion, and he has not met his pledge. And that is
23 what we were told and all of the 10,000 people who voted
24 for him when he made that pledge.

25 I oppose Alternative D on several different

1 levels. And it's not that it's -- and I just want to
2 make sure that everybody understands that it's certainly
3 not as onerous as A, B and C, but it still isn't good
4 enough. It's very expensive. What it costs, we really
5 don't know because the way Alternative D is set up, it
6 has a whole lot of options for every facet of
7 Alternative D.

8 And so we don't know which one of those facets
9 is going to be chosen. So it could be \$9 billion. It
10 could be \$25 billion. And that does not include all of
11 the other organizations such as Caltrans, DOT, Federal
12 Highways, et cetera, that also have projects that have
13 to support this.

14 This continues to perpetuate the concentration
15 of all air commerce at LAX as opposed to -- or the
16 majority of it, I should say, instead of spreading it
17 out around the entire region.

18 If anything happens to LAX, this economy is
19 going to tank, even according to the EIR figures that
20 are presented to us here. It says that one out of every
21 20 people in this Southern California area is tied to
22 the business of LAX. So think about what that's going
23 to do to all of us.

24 In terms of jobs, every one of us is concerned
25 about jobs. And if we were to take the same building

1 that we're doing now or attempting to do at LAX, and
2 it's not to say that there isn't something that needs to
3 be done at LAX, but the majority of it could be done at
4 the other airports such as Ontario, Palmdale and many of
5 the other airports. And this will help not only us as a
6 community at large, but it actually adds better jobs for
7 the unions. They are going to have more infrastructure.
8 And that's where the growth we're being told from the
9 census is occurring. So let's get on with it.

10 Now, this plan also adds many more
11 environmental impacts locally. And that is another
12 issue.

13 MR. WALL: Thank you, Mr. Schneider. I appreciate
14 your comments today. Thank you.

15 Mr. Eddie Barnes, followed by Mr. Thomas
16 Brands, followed by Mr. Jose Acosta.

17 MR. BARNES: Still morning. Good morning.

18 MR. WALL: Good morning, sir.

19 MR. BARNES: My name is Eddie Barnes. I'm the
20 business manager of Steam/Refrigeration/Air Conditioning
21 and Pipe Fitters and Welders and Apprentices of the
22 United Association of the Piping Industry. We're
23 located at 18355 South Figueroa Street, Gardena, 90248.

24 I'm here speaking on behalf of 5,000 members
25 that I represent, Pipe Fitters Local Union in

1 Los Angeles inside the area with borders of Manchester
2 and Firestone to north of the 710 Freeway to the east
3 Imperial Highway to the south of Pacific Coast Highway
4 to the west, which includes the following ZIP Codes,
5 9001, 9002, 3, 44, 45, 47, 59, 61, 301, 304, 305. There
6 is over 640 members in the flight path in a ten-mile
7 radius.

8 This time I'd like the UA members that are
9 here today to support Alternative D to please stand up.
10 I would also like to discuss with the speaker, if you'll
11 notice, our color is neutral. We're very diversified,
12 and we have no discrimination against anybody. Thank
13 you brothers and sisters.

14 We believe it is important to maintain and
15 support Alternative D. It's a 78 million limit that
16 they proposed. It is maintained. We believe that
17 creating 351,000 jobs by 2015 is essential for the
18 future of Los Angeles and its people. We believe that
19 the 49,000 construction jobs are essential for the
20 future of the people of Los Angeles.

21 It will create \$64 billion dollars to the
22 regional areas. It will create \$22 billion dollars to
23 the City of Los Angeles. It will create 102 direct --
24 or indirect jobs. The total construction-related output
25 for Los Angeles County will be \$11.3 billion dollars.

1 I don't know if anybody's been watching lately
2 for the last few years, but the stock markets are down,
3 the infrastructure is going south. It's not up to par.
4 The jobs and the people, there is more on welfare and
5 there is more on unemployment. These jobs are needed
6 for Los Angeles.

7 And I'm speaking just at this point to jobs
8 simply because we need the health and welfare. Nobody
9 has mentioned that. If anybody has looked at the rising
10 cost of health and welfare today, you can't afford it.
11 The unions today have been able to do that as well as
12 the commerce that's here today have been able to give
13 health and welfare for our women, children and our
14 families. And that to us is important.

15 The concern that we have today on the regional
16 plan is the 9-11 and safety. I was in the blackout in
17 Michigan. It took me three days to get home on a
18 flight. We had people passing out in the airport
19 because the air conditioning didn't work. It was
20 terrible.

21 We believe, as members -- and I represent
22 Local 250 as well as a citizen of Los Angeles, that
23 Alternative D, through the past five years we've been
24 trying to get somewhere, is the only way to give a
25 chance to our working families in the service as well as

1 the construction industry an opportunity to survive for
2 their health and welfare. Thank you.

3 MR. WALL: Thank you, sir.

4 Our next speaker will be Mr. Thomas Brands.
5 Mr. Brands will be followed by Mr. Jose Acosta, and
6 Ms. Emma Worthington. Those will be the last three
7 speakers before our next break.

8 Mr. Brands. Mr. Thomas Brands first.
9 Welcome, Sir.

10 MR. BRANDS: My name is Tom Brands. I've lived in
11 Westchester for 40 years at 6739 West 87th Place, which
12 is just a couple of blocks north of the north runway.

13 The new plan for LAX upgrading is still faulty
14 for much the same reasons as the old one is. Even
15 though safety has required a new dimension since
16 September 11th, 2001, the safety hazards that existed
17 prior to that time have yet to be addressed.

18 The air space around LAX is already
19 oversaturated, witnessed the Cerritos accident a few
20 years ago and various near misses of midair collisions
21 over the Los Angeles area.

22 LAX should be limited to the traffic for which
23 it was designed, about 48 MAP, not the 78 MAP that
24 currently exists and is being used for the security
25 plan, even though these numbers are a roll back from the

1 98 MAP that was proposed previously.

2 Development of the Palmdale facility would
3 alleviate the currently existing safety hazard. The
4 safety problem is not just a LAX problem. It's an L.A.
5 and vicinity problem. Airplane crashes are equal
6 opportunity killers, both for passengers and those on
7 the ground regardless of which part of town gets
8 devastated. These have nothing to do with terrorism,
9 could be just as devastating.

10 Now, the existing ground transportation
11 congestion has a potential for real gridlock. I've
12 recently been driving to Claremont from Westchester
13 about once per week in the early morning. And each time
14 I see the traffic crawling west of the I-105 and I-210,
15 I'm thankful I'm headed east.

16 Expansion of various venues around LAX such as
17 Playa Vista can only make these traffic jams worse all
18 over town, not just in the vicinity of LAX and not just
19 on those particular freeways. The proposed traffic
20 mitigation plans do not address these situations.

21 Now, how many businesses will get displaced by
22 LAX acquiring additional real estate for the planned
23 security improvement? That's job loss. However, as
24 Palmdale jobs are -- at Palmdale jobs are just as
25 important as they are around LAX and the potential for

1 growth is much greater.

2 A significance of the population and business
3 in Los Angeles is north of the Santa Monica mountains.
4 And recent projections show the fastest growth in the
5 near future is north of that in the Santa Clarita
6 Valley. People in these areas can get to Palmdale just
7 as easily, if not easier than to LAX. This will get
8 even more true as traffic congestion increases and
9 Palmdale access improves.

10 Now, L.A. already cannot meet Federal Air
11 Quality standards. Pollution is a problem for the
12 entire city of L.A. since the prevailing wind has
13 descended west-side pollution to other parts of town.
14 Development of Palmdale should decrease overall
15 pollution by reducing traffic congestion both on the
16 ground and in the air.

17 Now, the proposed security plan I hear is
18 estimated at about nine and a half billion. The new
19 facility of Palmdale can be designed from the ground up
20 for maximum safety and security and still save money
21 over any existing LAX upgrade proposal.

22 Besides, when we hear an estimate as high as
23 nine and a half billion dollars based on virtually all
24 previous experience, that number is just for starters.
25 But it will inevitably go up from there. How much more

1 money will then be required to alleviate the problems
2 caused by additional traffic jams and pollution?

3 MR. WALL: Thank you, sir. Please submit your
4 comments in writing as well, if you would.

5 MR. BRANDS: I did.

6 MR. WALL: Yes, sir. Thank you.

7 Our next speaker will be Mr. Jose Acosta.

8 MR. ACOSTA: Hello everyone. My name is Jose Luis
9 Acosta. 10120 Firmona Avenue, Lennox, California 90304.

10 I have lived in the area of Lennox and
11 Inglewood for 23 years in the flight path of LAX.
12 Together, my wife and I raised two children in Lennox.
13 My sons are 13 and 17 years old. I've worked in tourism
14 for 17 years as a bartender in Manhattan Beach Marriott.

15 It is not easy to live in Lennox and raise
16 children here. Our community is poor. We have traffic.
17 Our schools are crowded and noisy from the planes flying
18 overhead. But one thing that makes it worthwhile for me
19 to raise my family here is that I have a good, stable
20 job in the tourism industry.

21 Modernization will affect us in Lennox. It
22 can hurt us, or it can help us. Modernization could
23 cause more traffic, more noise, more pollution without
24 giving anything in return, or the City can do everything
25 possible to make sure modernization benefits our

1 community and provides good jobs with living wages and
2 health care.

3 If modernization can benefit our community,
4 then we are willing to support it. Thank you.

5 (The statement submitted for the
6 record was marked as Statement 7
7 and is attached hereto.)

8 MR. WALL: Thank you, sir.

9 Our next speaker is Emma Worthington.
10 Ms. Worthington.

11 And this will be our last speaker before our
12 next break.

13 Welcome, ma'am.

14 MS. WORTHINGTON: My name is Emma Worthington. It's
15 E-m-m-a, W-o-r-t-h-i-n-g-t-o-n. I live at 710 South Fir
16 Avenue, Inglewood, California 90301.

17 I live in Inglewood. I also work at the
18 airport, and I have worked there for almost 30 years.
19 Like myself, many people who work at the airport live in
20 the surrounding communities. We live in Inglewood,
21 Lennox, Hawthorne, El Segundo and Westchester.

22 We understand the connection between good
23 quality jobs and quality life. We need more jobs, but
24 we don't need minimum wage jobs. What we need is jobs
25 that provide a livable wage and affordable family health

1 coverage. The companies at the airport provide those
2 types of jobs. And that is how I as a single mom have
3 been able to raise my family and not be on welfare.

4 We need to ensure this modernization plan
5 provides good employment opportunities for our
6 communities. We encourage the mayor to include in his
7 plan a local hiring program so that others in my
8 community can also raise their family, and that our
9 youths can strive to emulate their parents.

10 When we talk about modernization, we say we
11 are bringing the airport and Los Angeles into the 21st
12 Century. Well, we the workers would like to be able to
13 bring our communities into the 21st Century along with
14 the airport and the rest of Los Angeles.

15 That is why we urge the Mayor to ensure that
16 his plan provides good paying jobs with good benefits
17 and a community package that will ensure we are all
18 along for the ride and not left behind. Thank you.

19 (The statement submitted for the
20 record was marked as Statement 8
21 and is attached hereto.)

22 MR. WALL: Thank you, ma'am.

23 Ladies and gentlemen, with those comments, we
24 will now take a short recess. The first speakers when
25 we return, the first three speakers will be Mr. Thom

1 Davis, Ms. Liz Garnholz and Mr. Victor Crawford.

2 (Recess was taken.)

3 MR. WALL: Welcome again, ladies and gentlemen. I'm
4 just going to make a few announcements. Welcome ladies
5 and gentlemen. Thanks again for coming to provide your
6 public testimony for the Supplemental Environmental
7 Impact Report and Environmental Impact Statement.

8 If we've had individuals who have just joined
9 us, please come in and find a seat. We're taking public
10 comments today. Each speaker has three minutes, as
11 recorded by the electronic time clock.

12 I want to remind everyone that we will take
13 comment cards, speaker cards, until 1:00 o'clock today.
14 After that, we will let everyone who has provided us a
15 speaker card prior to 1:00 o'clock an opportunity for
16 their three-minute presentation.

17 I also want to remind you that written
18 comments are equal in importance to verbal comments. If
19 you do not feel that three minutes is enough time for
20 you to state your position, please feel free to fill in
21 a written comment card and submit that as well with
22 additional facts as you feel comfortable.

23 Our first speaker will be Mr. Thom Davis,
24 followed by Ms. Liz Garnholz, followed by Mr. Victor
25 Crawford. And I would ask you to start moving toward

1 the lectern as soon as you see the clock winding down
2 for the previous speaker.

3 Are you ready, Mr. Davis?

4 MR. DAVIS: Yes, I am. Thank you. Thom Davis,
5 Camarillo, California, offices in Burbank, California.
6 And Thom is spelled T-h-o-m, D-a-v-i-s.

7 I represent the IATSE, which is the union that
8 represents the motion picture and television
9 technicians. And I'm here to express our support for
10 the measure. This project is important to the people I
11 represent in a number of ways. LAX and the Master Plan
12 is vital to the entertainment industry, the jobs that
13 are sustained and the further creation of future jobs.

14 This plan goes a long way in mitigating the
15 potential impacts of the various proposals. For my
16 members who live in the immediate area, there is an
17 understanding that the benefits will have a real and
18 positive impact on their neighborhoods, their community
19 and the entire region.

20 Modernization of the airport is critical not
21 only to the industries that are normally associated with
22 the airport, but also to those industries within the
23 entire region such as the entertainment industry and,
24 also, to the entire economy of the entire region.

25 So with that, thank you very much.

1 MR. WALL: Thank you very much, sir, for your
2 comments.

3 Ms. Liz Garnholz. Welcome, ma'am.

4 MS. GARNHOLZ: My name is Liz Garnholz. I live in
5 the City of El Segundo. Garnholz is G-a-r-n-h-o-l-z,
6 and my address is on my sign-up sheet. I have my
7 comments already written, and I will submit them. It
8 was ready by the August 25th date.

9 I'm here to dispel the comments made by the
10 Mayor of El Segundo, who by the way is a telemarketer
11 and running for higher office, that the City of
12 El Segundo supports Mayor Hahn's Alternative D.

13 When the Mayor, our telemarketer mayor made
14 this comment, there was no public input. There was no
15 City Council discussion. There was no City Council. He
16 was king for a day. He made the statement and many of
17 us in El Segundo are absolutely irate.

18 The Mayor on -- Mayor Gordon, our telemarketer
19 mayor, on July 9th made the following speech. It
20 consists of 32 lines. The first sentence or sentences I
21 should say, is a good morning. Sentence two, three,
22 four and five and six are your basic telemarketer
23 dribble.

24 Number 7 is very important. It says, "But
25 Mayor Jim Hahn brought a new vision and a new style of

1 leadership to Los Angeles City Hall and Los Angeles
2 airways." That's absolutely true. I agree with this
3 statement. He's a democrat. And my mayor is a
4 democrat, and he's running for the 53rd assembly seat as
5 a democrat.

6 Let me see here. As for the Hahn signing a
7 pledge, all five candidates signed a pledge, republicans
8 and democrats, equal opportunity pledge. Let me see.
9 Right here he -- the Mayor says on Sentence 12, "And I
10 am pleased to announce today that the City of
11 El Segundo, Mayor Hahn, the World Airports have reached
12 an agreement in principal" -- that means a cup with a
13 hole in it -- "and are committed to finalize a formal
14 agreement with the City of El Segundo that will
15 absolutely limit growth at LAX to the capacity that
16 exists today through the year 2020."

17 The date is July 9th and the capacity is 54 to
18 55,000. Boy, time really goes. I'm going to have to
19 sum up a bunch of stuff here.

20 The City -- the El Segundo residents are
21 against Mayor Hahn's plan. It supports a region. We
22 are for a regional approach. The residents are against
23 moving the runway further south.

24 The Airport Noise and Capacity Act of 1990
25 says an airport proprietor cannot restrict capacity.

1 Why is after spending millions of dollars, actually 55K
2 a month for consultants to protect us from LAX, why is
3 the Mayor supporting it? Very simple. He wants
4 democrat Mayor Hahn's support when he runs for assembly,
5 and he wants the union votes.

6 And I would like to remind the unions that the
7 function of an airport is airport service, not jobs.
8 Thank you very much.

9 MR. WALL: Thank you, ma'am. My next speaker is
10 Mr. Victor Crawford, followed by Mr. Marvin Kropke,
11 followed by Mr. Juan Vasquez.

12 Mr. Crawford.

13 MR. CRAWFORD: Good afternoon, ladies and gentlemen.
14 My name is Victor Crawford. I live at 416 East Regent
15 Street in the city of Inglewood, California. I'm a
16 member of Local 250. I wanted to give my support to the
17 proposal for Alternative D of the airport Master Plan.

18 Alternative D provides facilities for 78
19 million annual passengers and 3.1 million tons of cargo
20 a year. It supports the idea of regional airports. In
21 past plans, LAX was expected to handle as many as 98
22 passengers a year. And this was totally unacceptable to
23 residents of the surrounding cities.

24 Mayor Hahn has lived up to the commitment that
25 he made before he was elected, that the modernization

1 plan would limit airport usage.

2 Alternative D, according to the Environmental
3 Impact Report, will provide the best design, including
4 safety and security concerns with the less impact on
5 residents, and I support that idea. Thank you for
6 listening to my statements.

7 (The statement submitted for the
8 record was marked as Statement 9
9 and is attached hereto.)

10 MR. WALL: Thank you, sir.

11 Mr. Marvin Kropke, followed by Mr. Juan
12 Vasquez and Mr. James Hopkins.

13 Welcome, sir.

14 MR. KROPKE: Thank you. Good morning. My name is
15 Marvin Kropke. It's spelled K-r-o-p-k-e, 297 North
16 Marengo Avenue, Pasadena. I am currently executive
17 secretary of the California State Association of
18 Electrical Workers which represents 90,000 electrical
19 workers across California and privileged to be a
20 business manager of IBEW Local 11 of Los Angeles, which
21 represents 7,000 electrical workers that live in the
22 area of the airport, use the airport and work at jobs
23 like the airport.

24 We simply wish to state that we stand in
25 strong support of the mayor's enhancements for safety

1 and security. We believe it has the best possible
2 chance of addressing serious concerns with the airport
3 in those areas and believe this can help our communities
4 for the years to come. We strongly support it. Thank
5 you very much.

6 MR. WALL: Thank you, sir.

7 Mr. Juan Vasquez, followed by Mr. James
8 Hopkins.

9 Juan Vasquez.

10 Mr. James Hopkins, followed by Mr. Kevin
11 Norton.

12 Mr. Hopkins. Okay. Don't see Mr. Hopkins
13 here.

14 All right, Mr. Norton, you'll be followed by
15 Mr. Jack Kenton.

16 MR. NORTON: My name is Kevin Norton. I'm a
17 business representative with International Brotherhood
18 of Electrical Workers, 833 Airport Boulevard,
19 Los Angeles, California.

20 I came today to let you know I support
21 modernization of LAX. Mayor Hahn's design with
22 Alternative D will fulfill the concerns that many area
23 residents have had, especially in regard to the number
24 of passengers that will be able to use the airport.

25 Mayor Hahn signed a letter that he would not

1 support any airport design that allowed more than 78
2 million passengers a year to fly in and out of LAX.
3 Alternative D by design caps the number of passenger and
4 cargo as well. This will push other airport sites to
5 build airport facilities and redirect flights there.

6 A regional approach to air travel and cargo
7 handling will be required when Alternative D is
8 constructed and all other area residents will realize
9 they should provide airport sites. This is a great
10 plan, and it should move forward as soon as possible.
11 Thank you very much.

12 MR. WALL: Thank you, sir.

13 (The statement submitted for the
14 record was marked as Statement 10
15 and is attached hereto.)

16 MR. WALL: Thank you, sir.

17 Mr. Jack Kenton, followed by Mr. Robert
18 Watkins and Ms. Maria Verduzco-Smith.

19 MR. KENTON: My name is Jack Kenton. That is
20 K-e-n-t-o-n, 835 Dune Street in El Segundo, also on the
21 LAX Airport Advisory Committee.

22 El Toro was shot down pretty much because the
23 people around there were upset with noise. Today I
24 think there is no one here that isn't either looking for
25 a job or here because of noise.

1 The EIR/EIS says that my house is under a
2 single event noise impact of 94 DB. The averaged out
3 thing comes to a CNEL of only 74. With the reduced
4 number of operations since 9-11, this is actually
5 livable, but now we're talking about moving the runways
6 closer. And even now when we have one of those rush
7 hours with an airplane going off every minute or every
8 two or three minutes, it gets unbearable because you
9 never get relief from the noise.

10 When you get the runway closer, that gets just
11 that little bit more extra noise. Now, we're talking
12 about moving it so that we can put a taxiway in between.
13 Now, that's supposed to be because of safety. And, yet,
14 the incursion statistics show that those are not
15 significant, and we can get around it by going off the
16 end of the runway with a taxiway.

17 What it does do is put an infrastructure in
18 place that should we have a mayor that says, "Well,
19 Mayor Hahn's 78 MAP is not my MAP," the infrastructure
20 is going to be there and he can expand. And I disagree
21 with that concept of putting that kind of
22 infrastructure. It provides the ability for more
23 operations per hour by having that taxiway down the
24 middle.

25 Okay. So beyond spending a lot of money to

1 move a runway 50 feet and put a taxiway in and
2 everything, what do we got? Well, we've got
3 infastructure for more movement. I don't think the
4 gates will resolve that at all.

5 Moving the secured areas out further to the
6 remote parking, to the Green Line Transportation Center,
7 to the general transportation check in point, you're
8 still going to have areas where people congregate and
9 still be targets for security.

10 With all this expense and moving of
11 everything, yes, safety, security, those are magic
12 words, but will we really get the safety, security that
13 we are after with all these millions and billions of
14 dollars. I'm not sure that we will. And I'd like to be
15 more sure before I see all these dollars spent for this
16 project. Thank you.

17 MR. WALL: Thank you, sir, for your comment.

18 Mr. Robert Watkins, followed by Ms. Maria
19 Verduzco-Smith, followed by Mr. William Conlin.

20 Welcome, sir.

21 MR. WATKINS: Good morning. My name is Robert
22 Watkins. I live at 400 East 65th Street, Los Angeles,
23 California. Thank you for the opportunity to speak
24 today.

25 Well, I came to say that Mayor Hahn has

1 provided an excellent proposal for the LAX. And with
2 his commitment to cap off the airport passengers at 78
3 million a year, I think he has satisfied many of the
4 concerns of the residents who live and work in the
5 airport.

6 The idea that other areas like Palmdale and
7 Orange County will need to take some of the future
8 airline passengers burden is a good one. Mayor Hahn's
9 support for a regional approach should be commended as
10 well.

11 We absolutely need to modernize LAX, not only
12 for the economic and safety concerns that we have, but
13 also so that the area residents will find solutions to
14 their quality of life issues. I think that
15 Alternative D provides that solution. Thank you.

16 MR. WALL: Thank you, sir.

17 Ms. Maria Verduzco-Smith.

18 MS. VERDUZCO-SMITH: My name is Maria
19 Verduzco-Smith. It's V-e-r-d-u-z-c-o, Smith, S-m-i-t-h.
20 My address is 10926 Grevillea Avenue in Lennox. I serve
21 as President of the Lennox Coordinating Council.

22 The community of Lennox is severely impacted
23 by airport operations. And we feel that we are mainly
24 neglected. We have schools that jets fly directly over
25 on their approach to the airport and most homes have not

1 been soundproofed by the projected -- or protected
2 against the jet noise as part of the sound mitigation.
3 Many of our residents can feel the oil and see the soot
4 from the jets.

5 Our children lose hours of education time
6 yearly due to the interruption caused each time a plane
7 is landing. There are many things to be taken into
8 consideration when a community is located as close to
9 the airport as Lennox. There is the health of our
10 children, the quality of life for the residents and the
11 impact of the noise and traffic the airport causes.

12 If the airport is going to modernize, then it
13 is time for our community to modernize also. This plan
14 must have some real community benefit if it is in it so
15 that the future health problems can be alleviated, our
16 schools can be safer, our communities can be protected.
17 And measures are put in place to ensure that the people
18 of Lennox are treated fairly.

19 Community benefit means that our community is
20 not forgotten in the modernization program. It means
21 that with \$9 billion dollars being spent for airport
22 modernization, there is money actually being spent in
23 our community to make those infrastructure changes
24 needed to accommodate the expected increase of noise and
25 traffic. While there is a push for modernization, we

1 also want to push for increased and visible benefits in
2 our community. Thank you.

3 (The statement submitted for the
4 record was marked as Statement 11
5 and is attached hereto.)

6 MR. WALL: Thank you, ma'am for your comments.

7 Mr. William Conlin, followed by Mr. Mel
8 Pereira, followed by Mr. Wellington Poindexter.

9 Mr. Conlin.

10 Mr. Mel Pereira. He'll be followed by
11 Mr. Wellington Poindexter, Mr. Dean Lindstrom and
12 Mr. Richard Slawson. Welcome, sir.

13 MR. PEREIRA: Thank you. My name is Mel Pereira.
14 That's Pereira spelled with a P-e-r-e-i-r-a. I'm a
15 16-year resident of Westchester. And my address is 7811
16 Fordham Road, 90045.

17 I'm coming here as a resident. And I feel
18 that all my brothers in yellow shirts, the yellow shirts
19 have one letter missing, one word missing. They are
20 "Safety Security." I think we need to add the word
21 "Sanity," because what's missing in all this planning is
22 basic common sense.

23 We talked about security, safety, and I'm
24 totally in unison with Maxine Waters. And nobody said
25 it better. But I talked to -- and she's going to add it

1 to her report. They are not addressing the safety and
2 security of the tunnel. It's not fiction. It's a fact
3 that just on the eve of the millennium at Canada we
4 stopped some terrorist who had some explosives headed
5 for LAX.

6 This is a prime target, and we have an open
7 tunnel with no security. One truck bomb, one suicide
8 bomber shuts down the whole tunnel. And with the new
9 positioning of the runways, we have only one runway.
10 And that will knock off all the jobs of our friend here.
11 They will have jobs, but it will be to reconstruct LAX.
12 So I really think that we need to address the security of
13 the tunnel, even if it's forced to close the tunnel.

14 The other thing I would like to address is
15 what Mr. Schneider said. And I don't want to repeat
16 what he said, but basically we need to strengthen the
17 planning of the regional airports. That's all bologna
18 that people don't fly from other airports. We live near
19 Westchester, and all my neighbors will attest to the
20 fact that a lot of our friends park at our house when
21 they go from LAX.

22 This year the number of friends who parked at
23 our house was only two because they flew out of Long
24 Beach. They flew out of Ontario. There are some better
25 rates available. So in the planning I would suggest

1 that the government give them some aid or some -- some
2 subsidy so that the other airlines that move out from
3 other airports, they can give cheaper ride fares and
4 people will fly out of Long Beach.

5 The last thing is traffic. We can't even go
6 down the freeway from Brentwood to my office in
7 Westchester even on a Sunday. The traffic is just
8 horrendous. I don't know how you're going to handle
9 traffic. And traffic is a major, major concern. We
10 can't go down Lincoln Boulevard.

11 And all the planners that spoke at the outset
12 of meeting, none of them live in Westchester or Lennox
13 or Inglewood or El Segundo. They all live in the
14 boondocks, you know, in Pasadena or Rancho Palos Verdes.
15 They need to travel on these freeways. Even on a Sunday
16 you can't even travel on Lincoln Boulevard. Thank you.

17 (The statement submitted for the
18 record was marked as Statement 12
19 and is attached hereto.)

20 MR. WALL: Yes, sir. Thank you.

21 Mr. Wellington Poindexter, followed by
22 Mr. Dean Lindstrom, Mr. Richard Slawson.

23 Mr. Poindexter, are you here?

24 Mr. Dean Lindstrom.

25 Mr. Richard Slawson. Welcome, sir.

1 MR. SLAWSON: Thank you. Good afternoon. Is that
2 microphone any better?

3 MR. WALL: No, sir, that one works fine. Just don't
4 get too close to it.

5 MR. SLAWSON: That's different?

6 MR. WALL: Yes, sir.

7 MR. SLAWSON: My name is Richard Slawson. I'm the
8 Executive Secretary of the L.A. and Orange County
9 Building and Construction Trades Council. Our council
10 represents workers in the construction industry for the
11 various trade unions. We represent approximately
12 130,000 craft workers living and raising their families
13 in every community around the airport and other areas of
14 Los Angeles and Orange County. I live at 4634 Deelane
15 Street in Torrance, California 90503.

16 Many of the speakers here today have suggested
17 that they have a better plan. I'm here to say it isn't
18 true, including the area officials who want to start
19 over again. These speakers aren't interested in a
20 better plan. They don't want an airport at all. Taking
21 apart of the Draft Environmental Impact Report is only a
22 delay in tactic to stop the improvements at LAX. This
23 will be a disaster for our economy and for jobs.

24 These discussions have gone on for nine years,
25 and not one of those that are against the plan have come

1 up with their own plan.

2 Now, what happens if we don't move forward
3 with the Master Plan and Alternative D? You have an
4 airport with no growth restrictions. LAX unrestricted
5 could grow to 98 million annual passengers according to
6 the Southern California Association of Governments,
7 Aviation Subcommittee, which most of the area cities had
8 representatives sitting on over the last four years.
9 And that's not what any of us want.

10 Without Alternative D, we won't have an
11 upgraded security system to handle passengers and
12 baggage. We won't have an intermodal transportation
13 center to connect the Green Line. We won't have people
14 movers and trams to move people around the airport. And
15 everyone knows how difficult it is to access the
16 terminal now.

17 Without a modern and secure airport, we will
18 lose business to other areas and other airports around
19 the country, and especially to west coast cities.
20 Alternative D fulfills Mayor Hahn's commitment to the
21 residents of this area in capping annual passengers to
22 78 million.

23 With the security designs that have been
24 added, like passenger and baggage drop-off buildings, we
25 have a plan that offers more than was promised. I say

1 we move on and build an airport we can all be proud of.
2 Thank you very much.

3 MR. WALL: Thank you, sir.

4 Mr. Marvin Walter, please. Marvin Walter,
5 followed by Mr. Marcus Hough and Mr. Romeo Gonzalez.

6 Mr. Walter.

7 MR. WALTER: I'm Marvin Walter. I reside at 7015
8 Sepulveda Boulevard in Los Angeles.

9 In prior hearings such as this, in numerous
10 newspaper articles regarding Alternative D, many factors
11 as passenger caps, traffic, noise, jobs and security
12 have been raised. Yet, the major impetus behind
13 Alternative D continues to be security regardless of the
14 more recently raised slant toward modernization. So I'd
15 like to address that particular issue.

16 And, frankly, it's not easy to assess the
17 value of Alternative D in that light by reviewing the
18 EIR document. And I offer these direct quotes from
19 various sections of that document.

20 From the comparative analysis Section of D
21 Versus No Action, "Vehicular traffic in the Central
22 Terminal Area results in crowded terminal areas that
23 create attractive targets for terrorists and allows
24 baggage containing potentially significant explosive
25 devices into passenger congregation areas" and "People

1 approach all facilities with unsecured baggage until
2 they reach the TSA checks."

3 "Security screening stations at the Ground
4 Transportation Center and Intermodal Transportation
5 Center will protect the Central Terminal Area from
6 attack by persons armed with weapons."

7 By moving arrival and departure passengers
8 rapidly through the single entry point, only a small
9 number of people would be clustered as a potential
10 terrorist target.

11 From the Development and Refinement Section,
12 paragraph 2.2.8, "First level screening at the Ground
13 Transportation Center will be random baggage and
14 passenger checking and use of video surveillance and
15 sniffing dogs."

16 Same Section, 2.2.8, "The architectural design
17 intent of the GTC is to create a partially climate
18 controlled open-air structures to help diffuse potential
19 blast impacts at the curb front by eliminating glass
20 curtain walls."

21 Again, from the comparative analysis section,
22 "The people mover presents a problem as it is unsecured
23 and subject to attack, but this can be partially
24 mitigated by use of technology."

25 Again, from the Development and Refinement

1 Section, paragraph 2.2.8.1. "Passengers not using sky
2 cap services may carry baggage on the automated people
3 mover to the Central Terminal Area where screening will
4 be made by the appropriate airline."

5 So if unsecured baggage in the central
6 terminal is currently a problem, and it probably is, it
7 doesn't appear this multi-million-dollar alternative
8 solves that at all.

9 All passengers spread out through eight
10 terminals currently, and you've seen the lines all down
11 the sidewalk. Here all the passengers will be funneled
12 through this one entry point, but they are going to move
13 rapidly so as to only present a small number of a
14 potential terrorist target.

15 The six-car people mover really sounds like an
16 exciting entry to a world-class airport, baggage carts,
17 passengers rolled in and out, meeters and greeters who
18 are going to be allowed in that terminal area. Of
19 course, in case of a blast, partially climate air
20 controlled is exactly what I would want between me.
21 Security solution, no, this is a joke.

22 MR. WALL: Thank you, sir. I see you're submitting
23 your comments in writing. Thank you, sir.

24 (The statement submitted for the
25 record was marked as Statement 13

1 and is attached hereto.)

2 MR. WALL: Mr. Marcus Hough, followed by Mr. Romeo
3 Gonzalez and Ms. Patti MacJennett.

4 Mr. Hough.

5 And I would invite people to start moving up
6 as you hear your name called.

7 Mr. Hough. Oh, Mr. Hough is not here
8 apparently.

9 Romeo Gonzalez, yes, sir.

10 MR. GONZALEZ: Good afternoon. My name is Romeo
11 Gonzalez. I'm union member of the IBEW Local 11
12 District 3. I live at 712 6th Avenue, Number 1, Venice,
13 California 90291.

14 I would like to show my support for the LAX
15 Master Plan and Alternative D. After almost eight years
16 of planning and dozens of hearings and testimony, Mayor
17 Hahn has introduced a plan that takes into account of
18 all the concerns that have been raised.

19 With the heightened awareness of the
20 possibility of airport disaster, either by accident or
21 by human hands, this plan would reduce all consequences.
22 With the remote passenger and baggage handling facility,
23 the flying public should have more confidence in L.A.
24 security. This design, with the early scanning of
25 passengers, carry-ons and baggage makes the Central

1 Terminal Area and airline gates more safe.

2 I also like the use of people movers and trams
3 in the design. Moving around LAX today is very
4 difficult. The only way to get from airline to airline
5 or different terminals is to walk or wait for a bus.
6 Alternative D's transportation system saves time and
7 confusion. I hope Alternative D is adopted soon. Thank
8 you very much.

9 (The statement submitted for the
10 record was marked as Statement 14
11 and is attached hereto.)

12 MR. WALL: Thank you, sir. Next is Ms. Patti
13 MacJennett.

14 Trini Jimenez.

15 Mr. Homer Anderson. Following Mr. Anderson
16 will be Mr. Harry Rose and Ms. Carole Hossan. I want to
17 remind everyone before you start, sir, that we will be
18 accepting speaker cards until 1:00 o'clock. That's just
19 a few minutes from now. After that, we will stay here
20 until we have heard from everyone. I'm on card number
21 51. And I have 95 cards.

22 Are you ready, sir?

23 MR. ANDERSON: Yes. Good afternoon. My name is
24 Homer Anderson. I live at 15824 South Western Avenue,
25 Gardena, California 90247.

1 All of us here today use airports at some time
2 or another. And if you've ever been at LAX lately, you
3 know how difficult it can be to get through the check-in
4 procedures or even pick up someone. That's why I
5 support the new proposal for the Master Plan.

6 As it is indicated on the boards that are set
7 up outside, there will be new passenger ticketing and a
8 baggage handling building built away from the central
9 terminal and gates. With the larger area for passenger
10 drop-off and pick up and the baggage check-in facilities
11 being expanded, passengers should be processed much
12 faster.

13 Getting the people in and out of the drop-off
14 area faster will also give us a safer and more secure
15 airport. The chances that someone will be injured and
16 in a disaster will be greatly reduced with the new
17 design. Any idea that the existing security level at
18 the current airport will be more secure than the
19 expanding airport is ludicrous and damn near stupid.

20 And to the gentleman that is aspiring to
21 become a mayor, he is already 500,000 votes behind.
22 Anyone with common sense, because with all your
23 Princeton education, you have none.

24 (The statement submitted for the
25 record was marked as Statement 15

1 and is attached hereto.)

2 MR. WALL: Thank you, sir, for your comments.

3 Mr. Harry Rose, followed by Carole Hossan,
4 followed by Malcolm Joseph.

5 MR. ROSE: Good afternoon, gentlemen. Welcome to
6 Westchester. My name is Harry Rose, 7725 Hindry Avenue,
7 Westchester, 90045. I am not running for mayor.

8 I come before you today on behalf of Osage
9 Neighbors Association. We represent approximately 3,600
10 homes in East Westchester. And because it would seem
11 that none of our city officials have noticed, we would
12 like to point out that most modern airports operate on a
13 much larger footprint than LAX and are not located in
14 densely populated urban areas.

15 Denver had the vision to build a world-class
16 airport on 53 square miles in a rural area and actually
17 closed their old airport. Total cost, less than half
18 the price of Alternative D. Los Angeles, where is the
19 vision?

20 We love -- while we love a good public works
21 boondoggle just as much as anyone else, this one is
22 ill-conceived and a violation of Mayor Hahn's election
23 pledge to our community. Airport use of residential
24 property violates his pledge to operate the airport
25 within its current boundaries. And the capacity of 78.9

1 MAP stated in the EIS violates the Mayor's election
2 pledge to us by nearly 1 million annual passengers.

3 Alternative D would dramatically enhance the
4 flight field throughput and lay the groundwork for
5 vastly increased ground transportation infrastructure
6 setting the stage for future expansion of LAX
7 operations.

8 We have heard that FAA is currently studying
9 the feasibility of simultaneous landings on three
10 runways under the new configuration. Do LAWA and FAA
11 plan to visit this practice upon us in the near future?

12 Alternative D would move airport bound traffic
13 two miles to the east subjecting East Westchester,
14 Lennox and Inglewood to increased vehicular air
15 pollution and noise. How does this even begin to comply
16 with the environmental justice provisions of CEQA?

17 Alternative D locates a Ground Transportation
18 Center in a tract of land currently zoned R1. The EIS
19 clearly states that no residential property is to be
20 acquired for the project. This leads us to assume that
21 LAWA plans to use property acquired through an ongoing
22 and supposedly voluntary noise mitigation acquisition
23 program.

24 This method of residential property
25 acquisition for airport use ignores FAA guidelines in

1 Order 5100.37A, Chapter 3, Section 9 implementing the
2 Uniform Act of 1970. We would like a complete
3 explanation as to how LAWA's acquisition and conversion
4 of this property to airport use approaches any semblance
5 of legality. Thank you.

6 (The statement submitted for the
7 record was marked as Statement 16
8 and is attached hereto.)

9 MR. WALL: Thank you, Mr. Rose.

10 Ms. Carole Hossan, followed by Mr. Malcomb
11 Joseph, followed by Mr. Joseph Geben.

12 MS. HOSSAN: Carole Hossan, Westchester. And I'm
13 against Mayor Hahn's unsafe and unsecure Alternative D
14 debacle. Debacle in terms of money for what it
15 achieves, and as we've been hearing today, a debacle in
16 safety and security.

17 Again, I get so tired of saying it, but it
18 just doesn't seem to sink in. How safe and secure is it
19 for Los Angeles International Airport to be the only
20 major airport from Central California to the Mexican
21 border. Los Angeles City should be sued for planning
22 negligence because they have had Palmdale and Ontario
23 for decades.

24 What was Palmdale bought for? To wait for the
25 desert community to develop into another city of

1 Los Angeles to utilize it? Wasn't it intended to be an
2 international airport with transportation provided for
3 people to go to it? How can you have that facility
4 sitting out there unused, and then say we need to make
5 LAX accommodate more plane traffic? It doesn't make
6 sense.

7 But then it does make dollars for contractors,
8 doesn't it? I want to see the unions have jobs. I want
9 to see them have jobs out there in Palmdale. They would
10 get a time differential. They would be building
11 something that needs to be built instead of something --
12 if something happens to Los Angeles, LAX, an earthquake
13 or something, we'll lose the \$1 billion dollars a day,
14 as he said. And how would you feel, then, having no
15 alternative?

16 Now, some specific things for my neighborhood.
17 If the traffic on the 405 is backed up and traffic is
18 coming from the north and they get off on La Tierra, how
19 are they going to get to the Ground Transportation
20 Center? What routes are they going to take?

21 And what is the signage on the freeway going
22 to be? Is it going to be directing only to a certain
23 interchange, or is it going to be saying like it does
24 now, "5 Exits to LAX?" How is traffic if they get off
25 at Sepulveda going to be routed to the Ground

1 Transportation Center? Have these intersections been
2 implemented or studied?

3 I want to see results of that study. You say
4 fewer gates. Well, how many planes can these gates
5 accommodate if we're having simultaneous landings? And
6 is there amplification problem with noise with
7 simultaneous landings and takeoffs? These are things
8 that need to be addressed.

9 I don't know, there are so many things to say.
10 But I wanted to add something for a man. He says,
11 "During the construction phase, the current LAX capacity
12 will be reduced as existing runway and terminals are
13 raised."

14 What kind of safety and other problems will
15 that situation engender? Please show some sense and
16 some consideration and really plan for the region, not
17 just for the greedy city of Los Angeles. Thank you.

18 MR. WALL: Thank you, ma'am.

19 Mr. Malcolm Joseph. Mr. Joseph.

20 And Mr. Joseph Geben, followed by Mr. John
21 Ferruccio.

22 Mr. Joseph.

23 MR. JOSEPH: My name is Malcolm Joseph, and I live
24 at 1076 Raymond Avenue, Long Beach, California 90804.

25 LAX has been a very large factor in the daily

1 lives of all of us in Los Angeles County. Those who
2 live near the airport have special concerns, even though
3 the airport is an economic boom to us all. Obviously,
4 traffic and noise have to be dealt with. And I think
5 that the LAX Master Plan with Alternative D does that.

6 The traffic plan, with improvements being
7 proposed for the intersections, extra lanes on
8 La Cienega Boulevard and the improvement to the cargo
9 delivery access roads will aid the flow of traffic in
10 the airport's immediate area. But the greatest change
11 to increased traffic will be the connection to the Green
12 Line light rail transportation center.

13 Finally, a public transportation system would
14 be available from flyaway parking facilities or stations
15 where passengers will be dropped off at over 50 sites
16 throughout Los Angeles County. Alternative D is my
17 choice, and I hope the FAA and the City will approve the
18 plan. Thank you.

19 (The statement submitted for the
20 record was marked as Statement 17
21 and is attached hereto.)

22 MR. WALL: Thank you, sir.

23 Mr. Joseph Geben followed, by Mr. John
24 Ferruccio and Mr. Joe McFadden.

25 Is Mr. Geben not here?

1 Mr. Ferruccio on -- oh, I'm sorry. Take your
2 time, sir.

3 MR. GEBEN: Mr. Joseph Geben; Rogers, Geben and
4 Christensen. We're environmental community planners,
5 Westchester, 40 years worth.

6 First of all, before I even start, I
7 understand that the airport commissioners have
8 rubber-stamped voluntarily taking land. I told them a
9 year ago, two years ago they couldn't take no land
10 because there is laws in the State of California that
11 says they cannot say I'm going to take the land.

12 The airport comes after the people, after the
13 people, after the businesses. Somebody lied. And I
14 don't know where it was. I'd like to ask Mr. Stein who
15 lied. Volunteered, none of the people volunteered.
16 They had scalawags and carpet baggers run right through
17 the lawns of these people's houses, and they gave them
18 the old bologna, B.S.

19 The thing is is most of the people did not
20 really volunteer. They volunteered under duress. And
21 I'd like to -- they absolutely volunteered under duress.
22 And we have to have an investigation of the city
23 attorney who knew about it. And I told him about it
24 that they couldn't take any land.

25 So they turned around and they went underneath

1 the ceiling and said they volunteered. The people
2 didn't volunteer. They had to say they volunteered
3 because I told them they couldn't do it. It's illegal.
4 Illegal to take land from people. And I'd like you to
5 investigate it.

6 Maybe the district attorney might investigate
7 it because something happened in the commissioner's
8 office. They lied to the people. It is the people's
9 land, for the people, by the people, so help you God.
10 Patrick Henry said it. Lincoln said it. He gave up his
11 life. Franklin D. Roosevelt.

12 You see, somebody lied in the commissioner's
13 office, and I don't know whether the president or
14 anybody else. They rubber-stamped volunteer. People
15 didn't volunteer to sell the land. That's bologna. But
16 I told them almost a year ago that it was illegal to
17 take land. I want to know what's going to happen with
18 that.

19 I mean, why does Mr. Stein turn around and say
20 these people volunteered. These people didn't
21 volunteer. They volunteered under duress. It's wrong.

22 MR. WALL: Thank you, sir, for your comments today.

23 MR. GEBEN: I'm finished?

24 MR. WALL: Yes, sir.

25 MR. GEBEN: I've got more to say.

1 MR. WALL: Sir, we'd encourage you to put those in
2 writing and send those in to us.

3 Mr. John Ferruccio, followed by Mr. Joe
4 McFadden and Mrs. Cheryl Parisi.

5 MR. FERRUCCIO: Good afternoon. My name is John
6 Ferruccio. That's F-e-r-r-u-c-c-i-o. I have lived in
7 the city of Gardena for nearly 50 years.

8 LAX has provided a safe and efficient
9 transportation for me and my family to other parts of
10 the country and the world for many years. And I feel
11 that most of the people here in this room have received
12 the same service.

13 But improvements are overdue. Safety,
14 security and the threat of terrorism are the most
15 important concerns we all have in what happens at the
16 airport. However, I also believe that jobs and the
17 economy are equally important. Without a strong
18 economy, Americans would be at the mercy of foreign
19 interest and would be vulnerable to more attacks.

20 California and Los Angeles are important parts
21 of our overall economic viability. And LAX has always
22 been a large part of the regional economy. Over 300,000
23 jobs will be supported by the modernization plan for
24 LAX. And it will generate billions of dollars into the
25 regional economy and tens of thousands of dollars into

1 the City of Los Angeles economy.

2 That is why I hope the recommendations to move
3 forward on the Master Plan and Alternative D can be made
4 soon. Waiting another six years for more rounds of
5 hearings over redesign after redesign will hurt many
6 working families in this area's economy.

7 I presently serve as a union pipe trades
8 organizer, hopefully providing good working jobs for the
9 Southern California area. I feel that this project
10 would create a great opportunity for all the working
11 people of our community. Thank you for listening.

12 MR. WALL: Thank you, sir.

13 Mr. Joe McFadden. Joe McFadden?

14 Ms. Cheryl Parisi, followed by Mr. Tony Kom,
15 Mr. Joe Garcia.

16 Cheryl Parisi?

17 Tony Kom? Yes, sir. You'll be followed by
18 Mr. Joe Garcia and Mr. Mike Bonin.

19 MR. KOM: My name is Tony Kom. I'm an environmental
20 planner. I live at 3639 Roseview Avenue, Los Angeles
21 90065.

22 The LAX Master Plan spends \$9 billion dollars
23 plus to tear down airport structures that are possibly
24 not even yet paid for, concentrates airport congestion
25 in a single vulnerable location, promotes traffic

1 gridlock and provides no new rail transit access to LAX,
2 and would make LAX the most inconvenient airport in the
3 world.

4 Tokyo, Seoul Korea, Hong Kong and even
5 Washington, D.C. built new international airports far
6 out from the city and kept their old airports for
7 domestic airports only. That is a solution for
8 Los Angeles as well.

9 We could have a new secure Los Angeles
10 International Airport at Palmdale with all the built-in
11 security features that are now proposed for LAX. You
12 could have a tram from the Palmdale station into a
13 security center and onto terminals and a tram back into
14 parking areas and provide a lot of parking, 500 acres,
15 50- to 70,000 cars, 180 acres for bus and terminals and
16 car rental lots. And we already have the existing
17 Metrolink Line that goes from Los Angeles to Palmdale.

18 LAX could become the Los Angeles-Westchester
19 domestic airport at LAX. Take no homes, that should
20 reduce the number of flights. We could even have the
21 same security facilities that are proposed in the
22 current D Plan.

23 You could have a security building outside of
24 LAX near Century and Aviation and the trams going in.
25 If you're going to have inspections for vehicles, for

1 truck vehicles, why not have inspections for all cars
2 entering LAX and not have to tear down airport parking
3 garages that are probably not even yet paid for.

4 We could have transit -- rail transit to all
5 Los Angeles airports for much less money than this
6 scheme proposes. Only 15 miles of new Metrolink,
7 Metrorail would connect the Green Line to LAX all the
8 way to Burbank and to the Antelope Valley line.

9 Only 12 miles to bring the Metrorail that now
10 ends at Wilshire and Western down Crenshaw and then on
11 the MTA owned right-of-way directly to a station at
12 Aviation and Century, and then go on down and tie into
13 the Green Line. We haven't been able to get the Green
14 Line in. We shouldn't even try.

15 On the other end we could go from the end of
16 the red line two miles --

17 MR. WALL: Thank you, sir. We want to make sure you
18 submit your written comments as well, sir.

19 (The statement submitted for the
20 record was marked as Statement 18
21 and is attached hereto.)

22 MR. WALL: Mr. Joe Garcia, followed by Mr. Mike
23 Bonin and Mr. Nimrod.

24 Mr. Garcia.

25 MR. GARCIA: Good afternoon. My name is Joe Garcia.

1 I'm a consulting engineer. I live at 23445 Glenridge
2 Drive, Newhall, California.

3 I'm here as a citizen to just express my
4 support of Alternative D for the following three
5 reasons. One, it is consistent with a plan that Mayor
6 Hahn committed to and the limitations that the LAWA
7 staff had to adhere to.

8 Two, it, as indicated earlier by the
9 representatives of the police department, represents and
10 provides for significant security improvements that are
11 sorely needed here.

12 And, three, it provides an efficient movement
13 of passengers and vehicles. As a passenger in and out
14 of LAX for over 30 years and having flown, like a number
15 of speakers in the area in and out of other airports, I
16 think we can all agree that these improvements are
17 sorely needed here. It's time to stop waiting, stop
18 stalling and let's get on with improving our airport.

19 Finally, as a principal of a small local
20 minority owned consulting firm, I'm here to say to you
21 that this project is significantly needed right now as a
22 boost to our local economy and the business
23 opportunities that will result from that. Thank you
24 very much.

25 MR. WALL: Thank you, sir.

1 Mr. Mike Bonin.

2 Mr. Nimrod.

3 Ms. Elece Otten.

4 Mr. Roger Graham.

5 Ms. Andrea Davis. Yes, ma'am, if you'd come
6 forward. After Ms. Davis will be Mr. Chuck LeFever,
7 followed by Mr. Daniel Walker.

8 Welcome.

9 MS. DAVIS: Hi. My name is Andrea Davis. And my
10 husband and I are both residents and homeowners in Playa
11 del Rey.

12 I'm coming here to tell you that I believe
13 that creating jobs is a wonderful thing, and I think
14 this airport, for all of our U.S. airports, we should
15 have them as modern and maintained as possible. That's
16 certainly wonderful.

17 My husband is a heavy consumer of air travel.
18 He flies all the time. We bought the house in Playa
19 because it was at the time very convenient. I don't
20 know about the future, but I have to say that I must say
21 no emphatically to Alternative D.

22 Mayor Hahn's PR machine keeps repeating that
23 the \$9-billion-dollar plus Alternative D will be safer
24 and more secure. However, experts from the RAND
25 Corporation and a study requested by Congresswoman Jane

1 Harman disagree. After studying the plan, they found
2 the airport would, in fact, be less safe and less secure
3 than the existing LAX.

4 In fact, the study concluded, modernization
5 could be accomplished at a much lower cost than
6 Alternative D. Concentrating all the travelers into one
7 remote check-in just creates an even more attractive
8 target for any terrorist activities.

9 We, the residents that surround LAX, we the
10 travelers, we all will be put at tremendous risk if we
11 allow Mayor Hahn to create one giant bull's-eye at what
12 was once Manchester Square. It's not safer. It's not
13 more secure. It's certainly not more convenient and
14 it's unnecessarily expensive. Alternative D is not
15 community planning, Mr. Mayor, and it's not good
16 governance. Thank you.

17 (The statement submitted for the
18 record was marked as Statement
19 19 and is attached hereto.)

20 MR. WALL: Thank you, ma'am.

21 Mr. Chuck LeFever, followed by Mr. Daniel
22 Walker and Ms. Danna Cope.

23 Mr. LeFever.

24 Mr. Daniel Walker.

25 Ms. Danna Cope.

1 MS. COPE: I'm here.

2 MR. WALL: Yes, ma'am, if you'd come forward,
3 followed by Ms. Ellie Holm and Mr. Jim McCutcheon.

4 MS. COPE: Good afternoon. I'm Danna Cope,
5 D-a-n-n-a, C-o-p-e, in Westchester. I'll hand in the
6 thing with the address.

7 While Alternative D is a definite improvement
8 over Alternatives A, B and C, it does not achieve its
9 stated purpose to provide safety and security.
10 Alternative D would cost over \$9 billion dollars,
11 exacerbate the traffic and air pollution problems,
12 expand the boundaries of LAX and provide very little in
13 mitigation measures.

14 By expanding LAX into the Manchester Square
15 area, Alternative D would merely transfer the dangers
16 from the facilities in the Central Terminal Area out
17 into the community, thereby leaving the traveling public
18 and the residents still at risk.

19 Gathering a large number of people into one
20 area would create a terrorist target, and that is what a
21 Ground Transportation Center in Manchester Square would
22 be. Concrete, metal and plastic would get protection,
23 people would not.

24 Extending LAX boundaries into Manchester
25 Square sends the message that LAWA intends to just keep

1 expanding LAX, and it can handle all the Southern
2 California traffic, no regional approach is needed.
3 Other counties and communities should be taking on their
4 share of air traffic, not told they can rely on LAX.

5 There have been very few Category A runway
6 incursions at LAX, certainly not enough to warrant a
7 \$9-billion-dollar renovation which includes moving
8 runways. Adequate safety precautions could be
9 instituted with the cooperation of FAA, LAWA and the
10 airlines.

11 Air traffic has not rebounded to pre-9-11
12 levels. This gives us the luxury of taking time to
13 reexamine the assumptions previously made that air
14 traffic would return to and increase from those levels.
15 There is no reason to rush to prejudgment. There is
16 time to explore more options on bringing other airports
17 into compliance with a regional approach to air traffic.

18 As to jobs, we fully support jobs. We wish to
19 keep the union strong here, but the jobs would be
20 created at any regional airport or all regional
21 airports. We do not have to jam everything into LAX and
22 into our communities. Thank you.

23 (The statement submitted for the
24 record was marked as Statement 20
25 and is attached hereto.)

1 MR. WALL: Thank you, ma'am.

2 Ms. Ellie Holm, followed by Mr. James
3 McCutcheon and Mr. Roy Hefner.

4 Ms. Holm, are you here?

5 Mr. James McCutcheon. Yes, sir. You'll be
6 followed, sir, by Mr. Roy Hefner and Ms. Mina Bharadawa.

7 MR. MCCUTCHEON: My name is Jim McCutcheon. I'm a
8 resident of Westchester. And I am the Chairman of the
9 Republican Central Committee here, a member of the
10 Democrat Central Committee here also is in opposition to
11 this airport, a big opposing organization.

12 So we have both republicans and democrat
13 central committees in opposition to the airport. The
14 reason is that is a big boondoggle. It is not necessary
15 when we could regionalize the airports for the same
16 money and put in mass transit at the same time, or we
17 could get you at the federal level joining the state and
18 local officials to take over El Toro Air Force Base,
19 which has a 10,000-foot runway eight and a half feet
20 deep which would be ground up into concrete, sawdust or
21 whatever you want to call it, dust.

22 If -- it was built over 50 years by us
23 taxpayers to defend America. It's a good airport.
24 However, it was to be abandoned by the Navy and at that
25 time republican for civil service as an airport. And I

1 can't understand why we destroy, grind up the best
2 airport in this area, five times larger than LAX, 38
3 miles before you go into the first house going east.

4 And not like LAX where you have all of the
5 schools and the people living under the airport, the
6 noise and other pollution, because there you've got to
7 go 5,000 feet up into air and go in the wrong direction
8 before you go to the first house.

9 So that would be a perfect airport and within
10 the purview of the Federal Government who owns the
11 airport, which is giving it to Irvine who says they want
12 to turn it into a great park, which will spend billions
13 of dollars cleaning it up because of what's underneath
14 of it, which could be cleaned up over a longer period of
15 time a lot cheaper.

16 And so it's a travesty on the taxpayers and
17 it's a big boondoggle, and it's an insult to the
18 intelligence of Americans to think we have to expand
19 this airport when we can't move traffic up and down the
20 freeway now.

21 I guess last year it was 56 million
22 passengers. We're talking about going to 78. And we're
23 realistically thinking what it is, is it is going to be
24 over 100 million passengers. And you can't move them
25 now, and there is no plan for mass transit. And it

1 could all be done with the 9 million -- probably with 4
2 or 5 of the 9 billion, I mean.

3 And so what we need to do is get on with the
4 plan that's good for the taxpayers as well as everybody
5 else.

6 MR. WALL: Thank you, sir.

7 Mr. Roy Hefner, followed by Ms. Mina Bharadawa
8 and Ms. Elizabeth McKinney.

9 Mr. Hefner.

10 MR. HEFNER: Roy Hefner, H-e-f-n-e-r, 6548 West 80th
11 Place, Westchester, 90045. Gentlemen, we meet again.

12 I would like to correct the gentleman from
13 Princeton. Wearing a red shirt does not affiliate me
14 with any particular organization. The people in yellow
15 probably do not want me to belong to their organization.

16 The other item was the executive secretary who
17 from a labor union lived in Torrance indicated there has
18 been no attempt made by any other city group to try to
19 improve upon the possible EIR of the airport.

20 And we take issue with that because there is a
21 strong group of residents in Westchester and Playa del
22 Rey that composed what we call Alternative E. And it
23 was presented to the blue ribbon committee of the Mayor
24 and request they investigate that, but they chose not to
25 do so for various reasons. So I did want to clarify

1 that.

2 The other thing, the Mayor has come out and
3 has said on more than one occasion that LAX is safe.
4 The board of airport commissioners has come out and said
5 LAX is safe. However, in every single comparison in the
6 EIR that compares the no action, no project with
7 Alternative D, Alternative D is obviously superior.

8 So I assume we must be operating in an unsafe
9 neighborhood and an unsafe airport. The word "enhanced
10 security" that word "enhanced," I don't really know what
11 it means. However, it is something that can be used
12 both pro and con.

13 The A, B, C -- in fact, we have five
14 alternatives. We have the NANP, Alternative A,
15 Alternative B, Alternative C and now Alternative D. We
16 have a tendency on occasion to forget the NANP
17 particular alternative. I think most of the residents,
18 certainly not all, but most of the residents are
19 supporting the concept of Alternative NA and NP.

20 But Mr. Stein at the neighborhood council
21 meeting made a statement that he possibly regrets
22 because he said under that particular proposal we could
23 go ahead and expand the 82 and 83 million annual
24 passengers, which is certainly different from what the
25 EIR indicates and what all the publications are here,

1 Mr. Stein is the President of the Board of Airport
2 Commissioners.

3 One of the difficulties in the -- in the
4 Alternative D proposal is the use of percentages. They
5 indicate -- I'll give one example. They indicate as an
6 example that 53,000 individuals might be impacted by a
7 single event noise, but only 10 percent of them are
8 really impacted enough to wake them up.

9 Well, 10 percent comes out, as you could
10 figure out, to 5,300. I would much prefer and request
11 that the EIR include actual figures instead of
12 percentages.

13 MR. WALL: Thank you, sir, for your comments.

14 Ms. Mina Bharadawa. Ms. Bharadawa.

15 Ms. Elizabeth McKinney, followed by Ms. Linda
16 Peterson.

17 Ms. McKinney, are you here?

18 Ms. Peterson? Yes, come forward, please.

19 Linda Peterson followed by Ms. Sparky Carpio and
20 Ms. Virginia Bharadina.

21 MS. PETERSON: Good afternoon. My name is Linda
22 Peterson. I'm a resident and homeowner in Playa del
23 Rey.

24 Although I commend Mr. Hahn for making
25 improvements over the prior plans, I agree with the

1 prior comments that there has been insufficient
2 consideration of other alternatives for handling safety
3 and security. You should have more thoroughly analyzed
4 other options than just Alternative D, including
5 Alternative E. And you should have been considering
6 data more recent than 1996.

7 I also want to take issue with the person who
8 made the comment that the neighbors of the airport want
9 to see it closed down. The neighbors of the airport are
10 not totally opposed to the airport. We are not just
11 nimbus. I, in fact, like living near the airport in
12 some respects. It's very convenient. I travel a lot on
13 business.

14 But it is also very problematic in other
15 respects, the noise, the pollution, the soot on my
16 house, my car and my patio. No, what the neighbors of
17 the airport are opposed to is the expansion of the
18 airport. And Mayor Hahn has promised us it won't
19 expand, but Alternative D will enable that expansion.
20 And we are opposed to that.

21 To limit the security risks, you really need
22 to disperse air traffic throughout the region instead of
23 giving terrorists a spruced up, more compact, more
24 inviting target. I agree that a terrorist taking LAX
25 out would be devastating to the region, but it would be

1 less devastating if there were other airports that were
2 already equipped to handle that traffic.

3 To respond to those people who say Palmdale is
4 too far away for people to travel to or too far away to
5 develop, I say look at the experience of Dulles Airport.
6 When Dulles was built, there was nothing near there. In
7 fact, I wish I would have bought property in that area
8 at the time. Now, it's the center of a thriving
9 commercial district, and building it brought substantial
10 numbers of jobs to that area. So if the point -- the
11 point I want to make with Palmdale is, if you build it,
12 they will come.

13 I also have very substantial concerns about
14 the 12-year construction project that is envisioned with
15 Alternative D and the impact of that project on the
16 surrounding neighborhoods. And part of my concern comes
17 from the fact that the airport cannot even finish a
18 small landscaping project like the one they started two
19 years ago on Waterview. If they can't do that, how can
20 we expect the airport to do this job properly and on
21 time? Thank you.

22 MR. WALL: Thank you, ma'am. We will take two more
23 speakers and then we'll have another short recess. This
24 will be Ms. Sparky Carpio and Ms. Virginia Bharadina.

25 MS. CARPIO: Sparky Carpio, 407 Exten, Inglewood

1 90302. I'm quoting from the Supplement to the Draft
2 EIR/EIS.

3 "As of October 31st, 2002, progress in
4 acquiring properties under the Voluntary Residential
5 Acquisition/Relocation Program for Manchester Square and
6 Belford indicates that 62 percent of the property owners
7 (351 properties and 1130 dwelling units) have
8 volunteered to participate in Acquisition Program."

9 But what about the other 38 percent? What
10 about the people who have lived there for over 50 years
11 and don't want to move? I guess no one from Los Angeles
12 World Airports or L.A. City really cares, but then, I
13 guess, why should they?"

14 Then as I was randomly leafing through the
15 EIR/EIS, I found an interesting report on the residences
16 which will be most impacted with the plans. Guess which
17 city is impacted most? Inglewood, of course.

18 At more than 120 newly exposed residential and
19 noise sensitive uses outside of the 1992 CNEL noise
20 contour for the Alternative D and over 2,000 listed
21 under Alternative D 2015 DBA SEL noise contours listing
22 of newly exposed residential uses outside of the 1992 65
23 CNEL noise contour, we, Inglewood, are the most impacted
24 area in the community surrounding LAX.

25 But I guess that really doesn't matter. We,

1 Inglewood residents are just low income communities who
2 want to stop this modernization or is it expansion plan?
3 Also in the Supplement to the Draft EIR/EIS was that
4 wonderful interchange on Arbor Vitae Street, which our
5 beloved L.A. City -- I mean our L.A. County supervisor
6 pushed for under the title, "Model Update Information
7 Regional Roadway Improvements."

8 Our county supervisor had once mentioned that
9 Arbor Vitae Interchange has nothing to do with
10 airport-related issues. At least that is what I
11 remember. Even worse, though, LAWA staff person had
12 once said it was for our nonexistent K-Mart. I don't
13 think so. Thank you.

14 (The statement submitted for the
15 record was marked as Statement 21
16 and is attached hereto.)

17 MR. WALL: Thank you. Next will be Mr. Virginia
18 Bharadina.

19 Mr. Richard Silva.

20 Mr. Clarence Daniels. Welcome, Mr. Daniels.
21 After Mr. Daniels, we'll take a short break.

22 MR. DANIELS: Good afternoon. My name is Clarence
23 Daniels, and I'm the President and CEO of Concessions
24 Management Services. We operate food and beverage
25 concessions at LAX and for the airports throughout the

1 country.

2 I also serve as the President of the greater
3 Los Angeles African-American Chamber and as the western
4 regional representative to the Board of Directors for
5 the Airport Minority Advisory Council, which is a trade
6 association for minority and women who do business and
7 who work at airports throughout the United States.

8 And I'm here today to speak in favor of
9 Alternative D. I don't think any of us, if we were
10 planning LAX today, would choose the current location.
11 However, I think all of us would have to admit that the
12 current location is a strategic location for all of us
13 who use the airport.

14 LAX is one of the leading entry points into
15 the United States for Pacific Rim passengers as well as
16 cargo. We operate four concessions at international
17 terminal, and we know that the use of LAX is very
18 important -- the location of LAX is very important to
19 international travelers who are accessing our downtown
20 area and our other corridors of business.

21 So we think it's very important we move
22 forward with Alternative D if LAX is going to remain
23 competitive with the other airports that serve the
24 Pacific Rim nations. I can tell you from personal
25 experience that San Francisco, Seattle would love to

1 have the competitive position that LAX has. And a lot
2 of it has to do with the current location of our
3 airport.

4 I also think that although LAX is safe, I can
5 tell you of someone who has either worked there or has
6 been an employer there since 1986 that there are a
7 number of safety considerations that are addressed in
8 Alternative D that would make all of us more secure as
9 citizens here in LAX.

10 One thing I didn't mention at the beginning is
11 my offices are in Westchester. I've been in Westchester
12 since early 1990. We employ 70 people who live in the
13 Inglewood/Hawthorne area. I don't presume to speak for
14 my employees. I think their union and others have
15 spoken well on their behalf.

16 But I can tell you that all of us are in favor
17 of it. It's not simply jobs. It's that we realize the
18 importance of LAX as an economic generator for this
19 region. Besides the Harbor, there is nothing more
20 important to our economy than LAX.

21 And I think the plan that is currently
22 proposed, and I won't use the word "enhanced" since that
23 word has been negatively spoken to, but it is going to
24 improve, I think, the quality of life for all of us, and
25 it will certainly improve our economy. Thank you very

1 much.

2 MR. WALL: Thank you, sir.

3 Now, we will take a ten-minute recess.

4 (Recess was taken.)

5 MR. WALL: Gordon Michael Mego.

6 MR. MEGO: Good evening. My name is Gordon Michael
7 Mego, 4535 West 141st Street. I've been a resident
8 since October of 1952.

9 I've seen a lot of changes in the South Bay
10 area and in the Los Angeles region. And I -- you know,
11 being an aerospace engineer working at various companies
12 including here at nearby El Segundo, Rockwell
13 International during the 1980s on the B 1 program there
14 and Weapons Systems Division and, of course, also
15 mentioning that my father worked at American Airlines as
16 the senior lead mechanic and thus he was a union member.

17 There are four aspects I really want to kind
18 of touch on in that really the Hahn proposal does not
19 really satisfy those so-called goals that they are
20 trying to achieve. One is the convenience factor for
21 the passengers, airport visitors and so forth.

22 Essentially, the airport plan is not
23 user-friendly. You have the people that go from one
24 point -- you know, transportation center check-in point,
25 going in to from there to a people mover to another

1 intermediary check-in facility and finally into the
2 airport terminal and finally onto the airplane. It just
3 makes, you know, it much more difficult for people to
4 get from point A to point B. And people are already
5 getting turned off as it is. And we need to make it
6 easier, not more difficult.

7 And one other one that I really want to deal
8 with is it talks so much about the level of safety,
9 security, threat of terrorism and that the Hahn plan
10 fails to achieve that. And one thing I just want to
11 show you right here, and I'd like to show the audience.
12 I also have some smaller reproductions here of the
13 impact zones, potential fallout from detonation of
14 explosive device or devices in these areas that you see
15 in red, the current layout and even with the Hahn
16 proposal. If an explosion were to happen in the current
17 location of the airport, the fallout would be eventually
18 in the airport region only.

19 But if you add, under the Hahn proposal, the
20 area where you have a Ground Transportation Center,
21 you're not only going to impact passengers that are
22 checking in to eventually go to the main part of the
23 airport, but you're also going to be impacting the
24 residential neighborhoods of -- areas where people could
25 be killed, businesses that --

1 MR. WALL: Thank you.

2 MR. MEGO: -- where people could be killed and most
3 important is this major artery (pointing).

4 MR. WALL: Thank you. If you would, sir, submit
5 your comments in writing. I would appreciate that. We
6 appreciate your cooperation today. Thank you.

7 MR. MEGO: That's what I need to have you
8 consider --

9 MR. WALL: Mr. Sergio Rascon, please, followed by
10 Mr. David Stephan and Mr. Bill Eisen.

11 MR. RASCON: Thank you, Mr. Chairman. Good
12 afternoon. My name is Sergio Rascon. I'm the business
13 manager of Laborer's Local 300, and I represent 7,000
14 members within the L.A. County and the surroundings.

15 We strongly support the safety and security
16 Alternative D that the Mayor has put out. This is a --
17 this is long time overdue. This is -- we must do this
18 to keep up with the needs in order to better service the
19 passengers and the community, especially when it comes
20 to safety and security.

21 And, of course, perhaps as it has been
22 repeated that, you know, there is many, many jobs, not
23 only permanent -- I mean, not only temporary jobs of
24 which I represent and our other sister trades out there,
25 but permanent jobs.

1 If we want to keep our L.A. economically
2 strong, then we better think about it. With all due
3 respect to the concerns of other people, believe me, we
4 do respect their concerns. But, nevertheless, we must
5 see the future of what is upon us when it comes to L.A.
6 And, yes, we also support later on the one in Palmdale.
7 Thank you very much.

8 MR. WALL: Thank you, sir.

9 Mr. David Stephan, Mr. David Stephan, followed
10 by Mr. Bill Eisen and Mr. -- or Ms. Hamilton.

11 Mr. Stephan.

12 Mr. Bill Eisen. And he'll be followed by --
13 and I'm not sure if it's Ms. or Mrs. Hamilton. Welcome,
14 sir.

15 MR. EISEN: Welcome. Good afternoon. My name is
16 Bill Eisen. I'm a resident of Manhattan Beach. I agree
17 with a recently released county report finding that
18 Mayor Hahn's new Alternative D plan misrepresents a
19 number of gates that would be available for aircraft.

20 And according to the county report, Hahn's
21 plan would redesign the gates to allow more capacity and
22 improve the airfield to accommodate larger aircraft. It
23 doesn't take a rocket scientist to figure out that
24 Hahn's plan is laying the groundwork for a massive
25 expansion of LAX in order to accommodate twice as many

1 passengers as the airport accommodates today.

2 There are, of course, alternatives to the
3 massive expansion of LAX. For example, some of the
4 \$9 billion dollars that Hahn proposes to spend on the
5 expansion could instead be used to purchase all or a
6 portion of the El Toro Marine Air Base in order to
7 accommodate the hundreds and thousands of Orange County
8 residents that are currently using LAX.

9 Common sense tells us that a project should
10 make sense other than to provide construction jobs and a
11 doubtful increase in airport security. And common sense
12 tells us that our community is better served by a
13 regional transportation plan which enables airport
14 service to be distributed among more than one airport;
15 and, therefore, making air travel more convenient to the
16 community.

17 Moreover, expanding LAX beyond its current
18 capacity forces an unmitigated environmental disaster on
19 those of us currently living near the airport. Recent
20 studies recently conducted by the Texas Transportation
21 Institute shows that the portion of the 405 Freeway near
22 the airport is currently the busiest section of freeway
23 in the entire country.

24 Obviously, more passengers accessing LAX will
25 mean even more automobile traffic on the 405 and local

1 streets. And it will mean more air pollution and even
2 more congestion of already congested air space around
3 LAX.

4 Not long ago LAX was certified for only 40
5 million annual passengers. Since that time, the
6 surrounding streets and freeways have become even more
7 congested. There is absolutely no logical reason to
8 expand LAX beyond its current capacity, especially when
9 viable alternatives exist.

10 If Mayor Hahn thinks otherwise, I suggest that
11 he put the issue to a vote of the people. Thank you.

12 MR. WALL: Thank you, sir, for your comments today.

13 Ms. or Mrs. Hamilton, yes, ma'am, followed by
14 Cresia Davis and Cecil Carpio.

15 MS. HAMILTON: You don't have the cards that we
16 filled out?

17 MR. WALL: Yes, ma'am, I do.

18 MS. HAMILTON: Well, I wrote Patricia Hamilton on
19 there.

20 MR. WALL: I'm sorry, ma'am, I can't read your
21 writing. I apologize.

22 MS. HAMILTON: Okay. Greetings, gentlemen. The
23 topic, L.A.'s current plan for expansion.

24 MR. WALL: I'm sorry, could you give us your name
25 and address, please, for the record.

1 MS. HAMILTON: Los Angeles, 90045.

2 MR. WALL: Thank you.

3 MS. HAMILTON: Okay. Technology for the future
4 cannot be predicted at this time. So the cost involved
5 to build the new airport plan cannot be estimated today,
6 which is only a rough estimate.

7 Our life here in the United States changed on
8 9-11. Security and time is of the essence. The RAND
9 Corporation and the airlines have given some helpful
10 information for modernizing the airport.

11 Nine years and millions of dollars have
12 already been spent on non-practical plans without taking
13 into consideration the big picture, a regional solution.
14 To enlarge LAX on the small and confined acreage,
15 including off-site check-in facility in the metropolitan
16 area should not be an option.

17 For serious safety, security, efficiency,
18 convenience, the City of Los Angeles should follow the
19 lead of the major cities in the United States, Europe
20 and Asia by using larger acreages outside of the
21 metropolitan areas.

22 Los Angeles already owns larger acreages in
23 Palmdale and Ontario. These air fields should be
24 developed and enlarged with connecting Metrolink Rail
25 Transportation systems to accommodate the new jumbo jets

1 that will hold 500 passengers that are already in the
2 planning stages.

3 More people's lives could be spared in the
4 event of the type of catastrophe that has already
5 occurred on 9-11 in New York City. Thank you.

6 MR. WALL: Thank you, ma'am.

7 Cresia Davis.

8 MS. DAVIS: Good afternoon.

9 MR. WALL: Yes, ma'am, welcome.

10 MS. DAVIS: My name is Cresia Green Davis. My
11 address is 930 South 3rd Avenue, City of Inglewood. And
12 I am also a member of the Inglewood Unified School
13 District, Board of Directors, even though I'm not here
14 in the official capacity, I'm here as a community
15 resident.

16 But before I start speaking, today I just
17 happened to be breezing the Daily Breeze and it says
18 coming up tomorrow, Sunday, 100 miles north of
19 Los Angeles the airport in Mohave reflects the
20 continuing slump at LAX, and the sad state of the United
21 States airline industry in general. So maybe we should
22 read that tomorrow.

23 I am here because LAX expansion will greatly,
24 greatly impact the city of Inglewood. We have 18,000
25 students who attend our schools in Inglewood. One of

1 our schools sits right here on the slow-05 Freeway.
2 It's called Oak Street. That's one of the proposals
3 that the previous report wanted to take out and put in
4 an on-ramp for people coming down the slow-05 so they
5 could get to the airport.

6 I'm telling you, if I had known that the
7 unions were going to show up in force today -- and I do
8 appreciate unions, my dad is in a union. I have ten
9 brothers, eight of them are union guys. I would have
10 had the students from Inglewood Unified School District
11 come here in T-shirts saying, "Let us get a fair
12 education."

13 They have airplanes that are flying over their
14 heads. We are losing instructional time. For every ten
15 minutes, we are losing four minutes of instructional
16 time for our kids. That's not fair for our kids.

17 What the pros say that the most wanted jobs
18 will be needed in the future? They are airline
19 mechanics, airline pilots. They have to do with the
20 industry. Let us educate our kids. It's not fair that
21 our kids will be impacted and not get the education.
22 They are already talking about our schools -- most of
23 the employees, I dare to say, do not let their kids go
24 to school in Inglewood because they have such a negative
25 connotation to our schools, but our children graduate

1 and matriculate at colleges such as Berkeley, such as
2 Harvard, Yale, all over this United States. Give our
3 kids a chance to have a fair education.

4 I'm going say a nimbi for Inglewood Unified
5 School District. Not in our backyard. We don't want
6 the traffic. We don't want the pollution. We don't
7 want the illnesses that's going to be caused by major
8 traffic. Take it to Palmdale. Take it to Ontario.
9 Take it to El Toro. They will have jobs. They will
10 have to travel to those jobs. Let them go there. Let
11 our kids have a future.

12 Let them build some of these airports. Let
13 them work on the proposed -- on traffic that -- traffic
14 lines that you're going to be building around to make
15 sure the airports are there for the other people in the
16 community.

17 Do not hold the City of Inglewood hostage. Do
18 not hold the kids who cannot vote, who do not have a
19 job. Most of them come from single parent families.
20 Our kids qualify for free lunches because their income
21 in their family is not high. Give them a chance to
22 become something in the society. Do not impact our
23 schools. Thank you.

24 MR. WALL: Thank you, ma'am.

25 Next speaker is Cecil Carpio, followed by

1 Michele Grumet, followed by Robert Reed.

2 MS. CARPIO: Cecil Carpio from Inglewood.

3 "LAX noise variance, Number 1, 11 minutes
4 after midnight; weird landing flight path into the south
5 complex; downwind east leg of route followed by short
6 turnover the new Manchester Square."

7 Did you all know there is a new Manchester
8 Square east of Crenshaw? Pretty interesting how the
9 planes are making that short turn right over that
10 square. "Continued on a sharp downslope to south
11 complex."

12 I'm impacted by the operations of the north
13 complex. I'm on the north side of Florence about two
14 blocks away from La Brea.

15 "12:16:00" -- we're still talking midnight --
16 "Landing jet loud comes in through to the south
17 complex." I can hear operations from the south complex.
18 Okay?

19 Number 3, "Midnight 38:37 another short turn
20 over the new Manchester Square." What are you all
21 doing? "Midnight 39:12, wrap it up baby as the airline
22 pilot comes in to arrive at the north complex gunning
23 it. Must be cargo."

24 Number 5, "Midnight 41:41, another jet
25 landing. Noise not so loud, but that's because it's

1 heading to the south complex." Okay. This is after
2 midnight. When are we supposed to get our sleep? Damn
3 it.

4 Number 6, "Midnight 49:45, another jet jars my
5 peace."

6 Number 7, "So I skipped a while, like an hour
7 because I wanted to have sex and I didn't want coitus
8 interruptus. Okay. But around 2:00 o'clock in the
9 morning, I got back to it. And I hear the jet as it
10 makes a short turn over new Manchester Square to the
11 south complex."

12 So, okay, I'm logging all these things sitting
13 in my driveway. All right. And I'm watching the flight
14 path so that it's not just about me in my house hearing
15 this, but I'm watching it. I'm at an advantage in that
16 respect.

17 MR. WALL: Thank you, ma'am.

18 Michele Grumet. Michele Grumet.

19 Robert Rhee.

20 Nancy-Gene Morrison. Come forward, ma'am,
21 please, followed by Ross Moen and C.L. Parrish.

22 MS. MORRISON: Thank you, gentlemen. I'm Nancy-Gene
23 W. Morrison. I am one person and I am a woman. The
24 last time I spoke to you, I have been receiving mail
25 that's all addressed with part of my name as mister.

1 But I am here to remind everyone that at the
2 millennium, LAX was the number one target for the United
3 States and the world for terrorism. Why? Because all
4 our eggs are in one basket. We seem to have a very
5 short memory about this. We need to do something about
6 a regional approach, and not continue to put even more
7 eggs in one basket.

8 If security and TSA inspection is going to be
9 random at the site at Alternative D for the Ground
10 Transportation Center, if there is random inspection
11 there, then there is really no safety there. And,
12 again, all passengers are going to be in one area,
13 again, even more passengers and they are -- we are,
14 again, going to have all our eggs in one basket.

15 We need to work toward a regional plan, and we
16 need to -- we have the time now since the airline
17 traffic is down, as the article that's coming out in the
18 Daily Breeze tomorrow is going to state, according to
19 the teaser that was quoted earlier.

20 So please think about a regional plan and
21 overall safety and not having all our eggs in one
22 basket. Thank you.

23 MR. WALL: Thank you, ma'am.

24 Mr. Ross Moen. Mr. Moen, are you here?

25 C.L. Parrish. Come forward, please,

1 Ms. Parrish, followed by Mike Stevens and Diane
2 Sambrano.

3 Welcome, ma'am.

4 MS. PARRISH: Thank you. My name is C.L. Parrish.
5 I live at 9606 Hindry Avenue. I'm one of the last
6 survivors of the persons in Manchester Square.

7 I'm a laborer. I've held three union cards in
8 my time, but I have to tell you that my constitutional
9 rights and those of my neighbors in Manchester Square
10 are paramount to anything.

11 The mayor would have you believe that the
12 Manchester Square persons and those of Belford have
13 voluntarily left their homes. The Mayor would have you
14 believe that 9,000 people voluntarily gave up their
15 homes in order to accommodate noise from the jets.

16 Nine thousand people were willing to walk away
17 according to the Mayor. Nine thousand people were lined
18 up and stripped of their constitutional rights. Their
19 constitutional rights is that of the 5th Amendment and
20 the 14th Amendment, those who guarantee that the state
21 would not take private property for public use. The
22 Mayor had lied to you, the FAA, to the citizens of
23 Manchester Square. The community is now vaporized, and
24 to the public.

25 He said that this is a voluntarily

1 acquisition, and under that voluntary acquisition there
2 are no rights. LAX sealed the fate of Manchester Square
3 residents by having their hit man, the Board of Airport
4 Commissioners, headed by President Stein, deny those
5 same targeted 9,000 people in Manchester Square and
6 Belford areas, denied them soundproofing for what was
7 supposed to be a voluntary noise mitigation process,
8 noise mitigation by jet noise, but yet those Belford
9 people in that geographical area, Manchester Square, was
10 denied soundproofing by LAX.

11 How can this happen in the United States of
12 America when we're fighting abroad for the rights of
13 others, when the Mayor can run rough shod over the
14 citizens of Westchester, those existing, formerly
15 existing in Manchester Square. I'm the last survivor
16 and I'm here. I don't have 9,000 people behind me
17 because they are gone.

18 Our rights as citizens are paramount to any
19 Master Plan. If the Mayor can lie and say that 9,000
20 people were willing to go away, because this was not
21 part of the Master Plan. He said Manchester Square was
22 not -- Jack Graham from LAX said it; Manchester Square
23 is not part of the Master Plan. Therefore, the Mayor
24 could not say he needed this land.

25 If you look at the EIR study, Manchester

1 Square is the focal point. It is the most integral part
2 of Alternative D and the Master Plan. That was the lie
3 by the Mayor.

4 LAX knew this. Mr. Ritchie knew this. This
5 is why President Stein would laugh when the residents of
6 Manchester Square appealed to him for their rights,
7 their constitutional rights. He laughed. Now we know
8 why.

9 MR. WALL: Thank you, ma'am, for your comments
10 today.

11 Mr. Mike Stevens. Mr. Stevens, are you here?

12 Ms. Diane Sambrano.

13 MS. SAMBRANO: Good afternoon. My name is Diane
14 Sambrano. Today we heard an assortment of
15 presentations. We had the unions with their great
16 backers say "Yeah, yeah, we love jobs." And yet it
17 struck me as that young lady just sat down. Somehow I
18 don't remember the great American dream is to have a
19 job.

20 The great American dream that we promote
21 everywhere is to have a home and a house you can call
22 your own. So our unions are saying, and one of them so
23 boldly told me, "I don't give a rip about your home. I
24 want a job."

25 So I'd have to ask what profit of man to have

1 a job if he loses his home? Where is he going to go
2 home and lay his head? You heard from Ms. Carpio. She
3 gets the north runway traffic. Her pains are from
4 midnight on. I'm on the south runway. I have the same
5 kinds of logs, except mine are from 3:05, 3:15, 3:18,
6 3:29, 3:45, 4:05, 4:15, 4:19, 4:26, and on and on.

7 We get no sleep. Our quality of life has been
8 reduced to nothing. And you wonder why we're cranky.
9 Try going a couple of years without consistent sleep.
10 It will do it to you.

11 But you know, someone had a great phrase they
12 didn't get to use. So I'll take the liberty. This plan
13 is building the airport of tomorrow based on yesterday's
14 traffic. Isn't that great? How far did you think
15 Disney would go if you said there is a great big
16 beautiful tomorrow. We're just building on the plans of
17 yesterday. Safety, security, jobs, there is no safety.
18 There is no security in this plan. It's a few jobs.

19 At the end of building time, those jobs will
20 vaporize. And in the meantime, just as this young
21 lady's home and all of her neighbors were vaporized, our
22 quality of life will, too.

23 It's really kind of sad we're at a point where
24 everyone is going toward emotionalism. Thank goodness
25 we have young people still coming up like Sparky who

1 will deal with the EIR and what is actually in it,
2 because only then can you see what we've been pointing
3 out.

4 It's the residents of Westchester with their
5 assorted degrees came out here and said, as a civil
6 engineer, as a planning person, as an aerospace techno
7 person, I've looked at the plan and it has serious
8 flaws.

9 I would hope that when we look at the EIR/EIS,
10 we will look at those serious flaws. We want to impose
11 upon the people of this community because we aren't
12 about 5- or 6,000 who work. We are about 120,000 who
13 live or try to, another 100,000 over here who try to
14 live under the control of a noisy and greedy
15 administration.

16 MR. WALL: Thank you, ma'am, for your comments.

17 I have no other speaker cards at this time.
18 Is there anyone in the audience who submitted a speaker
19 card prior to 1:00 o'clock who has not had an
20 opportunity to be heard?

21 Mr. Kessler, I'm turning the meeting over to
22 you.

23 MR. KESSLER: Is there anyone else who has not had
24 an opportunity to speak concerning the information on
25 the Draft EIS/EIR for the Supplement?

1 Not seeing anyone else, I will remind you if
2 you feel you are unable to provide us with verbal
3 comments today, we will be accepting written comments
4 until 5:00 p.m. Pacific Standard Time, Friday, November
5 7th, 2003. You can mail your comments either to me at
6 the FAA or to Jim Ritchie at LAWA. The mailing
7 addresses are listed on the cover of the Supplement to
8 the Draft EIR/EIS.

9 I want to thank everyone for your comments
10 today. This public hearing for the Supplement to the
11 Draft EIR/EIS on the Los Angeles Airport Master Plan is
12 now closed. Thank you.

13 (Whereupon the proceeding adjourned
14 at 2:20 o'clock p.m.)

15 ---oOo---

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1 STATE OF CALIFORNIA)
2 COUNTY OF RIVERSIDE) ss.

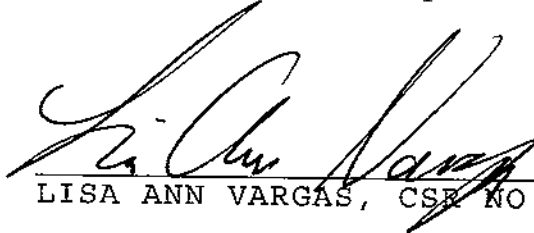
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I, LISA ANN VARGAS, certified shorthand reporter,
License No. 12049, do hereby certify:

That the proceedings contained herein were taken
before me at the time and place herein set forth and was
taken by me in shorthand and thereafter transcribed into
typewriting by me, and I hereby certify that the said
proceedings are a full, true and correct transcript of
my shorthand notes so taken.

I further certify that I am not interested in the
event of the action.

WITNESS my hand this 9th day of September 2003.


LISA ANN VARGAS, CSE NO. 12049

ERRATA SHEET

I declare under penalty of perjury that I have read the foregoing _____ pages of my deposition testimony, taken on _____ at _____, California, and that the same is a true record of the testimony given by me at the time and place hereinabove set forth, with the following exceptions:

Page Line Should read:

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Date: _____

Signature of the Witness

Name Typed or Printed

Speaker 2



CINDY MISCIKOWSKI

City of Los Angeles
Councilwoman, Eleventh District
Assistant President Pro Tempore

Committees
Chair, Public Safety

Vice-Chair, Rules, Election &
Intergovernmental Relations

Member, Budget and Finance

Member, Personnel

August 23, 2003

Mr. David Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 920007
Los Angeles, CA 90009-2009

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Dear Msrs. Kessler and Ritchie:

Under the proposed Alternative D of the Los Angeles International Airport Master Plan, the airport will undergo substantial changes which will impact a variety of sectors, including the communities, the airline industry, and the region. The plan is referred to as the "Safety and Security Plan" which reduces substantially the expansion in capacity and site footprint as proposed in Alternatives A, B and C.

While Alternative D has improved based on requests from the communities and from other constituents, it nonetheless raises some important questions. I have reviewed the Supplemental Draft Environmental Impact Report for the Master Plan and have determined that there are some specific issues that need to be further analyzed and addressed.

Transportation Issues:

Mitigation measures are unfunded, uncertain, & underevaluated: Alternative D

Page 1 of 7

Westchester Office
7166 W. Manchester Boulevard
Westchester, CA 90045
(310) 568-8772
(310) 410-3946 Fax

City Hall
200 N. Spring Street, Room 415
Los Angeles, CA 90012
(213) 485-3811
(213) 473-6926 Fax

West Los Angeles Office
1645 Corinth Avenue, Room 201
Los Angeles, CA 90025
(310) 575-8461
(310) 575-8305 Fax



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shifts the majority of the traffic impacts from the current central terminal area to the area now known as Manchester Square. While there are some traffic mitigations included in the Supplemental EIS/EIR, one of the main features of this proposal requires building an off-ramp from the I - 405 freeway at Lennox Blvd. directly into the new Ground Transportation Center (GTC). The vast majority of these mitigations are directly tied to the availability of airport-related funds and to the availability of funding from other agencies, like the Metro Transit Authority and the State of California. There is also a reliance upon "future" expansion of various programs outside of the airport's jurisdiction like the MTA's Rapid Bus service. There seems to be no analysis of the traffic impacts of Alternative D should these mitigations not materialize nor are there any alternatives presented.

Furthermore, there has been no analysis done of the impacts of the new freeway offramp from the I-405 freeway at Lennox Blvd. on the I-405 freeway, both North and South Bound. Currently, access to the airport via the I-405 is accessible via at least 3 freeway exits, both North and South bound. Alternative D concentrates the freeway access to one point from the I-405 freeway into the GTC. The draft document comparison states that under Alternative D, freeway speeds would be "faster than the No Action/No Project" alternative based on what appears to be an analysis of current traffic patterns. However, given that the proposal in Alternative D creates an entirely different traffic pattern, it is hard to imagine how the comparison is a valid one. Furthermore, there seems to be little hard evidence provided to back up the claims of faster freeway speeds and reduced traffic.

Cargo impacts could be further mitigated: DOT and LAWA have previously analyzed the extension of Avian Blvd. directly into the airport to provide a dedicated cargo road. This option has been fully designed and is likely ready to be implemented. This option would have a positive effect on current airport operations and traffic patterns.

Public transportation connectivity: The plan calls for the Green Line light rail to be connected to the Intermodal Transportation Center (ITC) located at the former Continental City site by way of a moving sidewalk or other device. Furthermore there is an existing EIR for expansion of the Green Line northward past LAX and into Westchester. Green Line project remains in the jurisdiction of the Los Angeles Metropolitan Transportation Authority (MTA), and the MTA owns the existing heavy rail right-of-way that proceeds northward along Aviation Blvd. into Westchester. Nonetheless, the plan should more explicitly call for the preservation and enhancement of the existing right-of-way for a future expansion of the Green Line. This is most sensitive in the area along Aviation adjacent to Runway 25/7, where it is subject to competing interests: light rail, heavy rail, automated people mover, street widening and FAA flight signaling infrastructure.

Security Issues:

Alternative D is billed as the "Safety and Security" plan for LAX. The premise upon which the security proposals have been designed is to protect the "primary function" of the airport, which, presumably, is the take-off and landing of aircraft. Therefore, the separation of passengers and vehicles from the Central Terminal Area was a primary design component of Alt D to prevent against bomb or other dangerous activity which would stop air traffic at LAX. While the specifics of the technologies required to implement the security provisions have not been detailed in the Supplement, additional information presented in the accompanying SAIC report relies upon a series of assumptions which lead to the ultimate conclusion that Alternative D is safer than the no project alternative and safer than all of the other alternatives previously presented.

As in other areas of the Supplemental EIS/EIR, Alternative D leads to more questions than answers, particularly in the realm of security. First, the premise of protecting the "primary function" of the airport is one that deserves greater consideration. Alternative D, while claiming to diffuse passengers through separate entry points at the Ground Transportation Center (GTC), the Consolidated Rental Car Facility (RAC) and the CTA, actually makes those locations easier targets for terrorists or others wishing to maximize the loss of life in any one incident. This leads to the question of whether enough will be done to protect airport patrons versus airport operations? In addition, one well-placed explosive device on the automated people mover could just as easily debilitate airport operations and create additional risk to area hotels and businesses located on Century Blvd. just below the people mover. There are any number of scenarios that could be imagined that seem to be ignored by the security proposals contained within the current document.

Further, it is worth noting that the current environmental documents do not fully elaborate upon the technology and construction specifics of the proposed security enhancements. LAWA's own security consultants have acknowledged that their analysis is based on technology that does not yet exist. The electronic scanning of automobiles and trucks upon entrance to parking facilities, face recognition technology, and fast baggage screening at the point of entry at the CTA are components of the security plan that are required to make Alternative D work. If any one of these component parts is not yet developed, is too costly once developed to implement or is not commercially available at the time of construction then the plan does not work and security risks are imminently greater.

SAIC consultants have also stated that while costs for implementation of the security plan are unknown at this time, ultimately the airport would achieve savings through the reduction in security personnel required since technology would replace them. However, the Supplemental EIS/EIR states clearly that there would be "no cost savings for law enforcement personnel" in fact, estimates that security personnel would increase by 162 for airport police and that 12 additional LAPD officers will be required. Is the baseline for this analysis security staffing at LAX pre- or post-9/11? Given that

the technologies do not yet exist, how do we even know what will be required to staff and maintain them?

Furthermore, LAWA's original intent was to create a security review after the approval of the EIR. However, the publication of the RAND study was an incentive to accelerate that review and incorporate the SAIC study into the plan release. If the security review was to come after the EIR approval by City Council, that suggests that any terminal structure can be made to be reasonably secure regardless of what was on the land use document. Otherwise, the security review by SAIC would have been incorporated at a very early date. Finally, should this be the case, it begs the fundamental question of why the plan calls for such aggressive construction and development of areas like the GTC to be located at Manchester Square, a mile away from the existing terminals.

There is also no discussion of how phasing of construction will affect the overall security elements. Since the CTA, people mover, and baggage transport facility are among the last components of the plan, how will the airport be protected, assuming the premise adopted by Alternative D, in the interim?

These discrepancies and the lack of detail for the actual implementation of the necessary security technologies are of grave concern. Other risk scenarios must be evaluated in this process.

Concerns over Growth Potential:

The Supplemental EIS/EIR acknowledges that under Alternative D, every single terminal function area will be substantially increased - in many cases doubled. This leaves the only restriction on growth the number of aircraft that can be accommodated by the physical gate structures. Regardless of the number of gates that will be constructed, there still exists the ability to expand gate capacity with portable gates, as are in use today in the western portion of the facility.

Given that ability, what will true capacity be at LAX following the implementation of Alternative D? Furthermore, what, if any, environmental or other review is required to move a portable gate onto the western tarmac? Finally, what constraints, if any, which exist for future elected officials in Los Angeles who may see fit to enact a true capacity expansion at LAX to 98 MAP or higher, even at the expense of a truly regional air transportation system?

Manchester Square:

Because of the uniqueness and prominence of the proposed GTC at Manchester Square, its discussion deserves special attention. Ground traffic impacts remain a question for the GTC. The community has been assured to a certain point at forums such as the LAX Working Group that traffic impacts would be minimized through the Westchester community because access points to the GTC are limited to the 405/105

freeways, Lennox Blvd. and other points south.

If, however, access to the GTC is largely expected from the 405/105 freeways, then those freeways which already experience overcapacity from non-airport uses will incur additional traffic impact. This suggests that some airport-bound vehicles will approach from north via other routes, like Sepulveda, Lincoln, Centinela, La Tijera, and La Cienega, much as they do today, even though the explicit design of the GTC is to make this access inconvenient for travelers.

The site footprint of the GTC as outlined in the land use plan raises further questions. If passengers are just moving through the GTC with no concessions or amenities, does it need to be of the large size as suggested on the plan's maps? What uses are called for in a facility the size of the GTC other than security devices? Alternative D is unclear on this. And if efficient passenger throughput can be achieved in a smaller facility, can it occupy either a smaller footprint in Manchester Square, or can it be located elsewhere? All of these issues raise the question of whether the GTC as located at Manchester Square will provide truly adequate security mitigation consistent with the costs associated with this aspect of the project.

OTHER ISSUES:

The draft documentation provided on Alternative D raises some significant additional concerns. One issue that appears to be under-addressed are the potential environmental impacts of the construction of the underground baggage transport facility. Some areas of the plan refer to the baggage facility as a part of the current proposal while others identify it as a potential future development. It seems that regardless of whether it is in or out of the current proposal, it should be evaluated as a part of the Master Plan. Placing a baggage transport system underground will have significant impacts - both during and after construction. How far below grade would this system need to be? What are existing physical limitations - both man made and natural that would affect the feasibility of this system? If the system is never implemented, how and where do the TSA requirements of 100% baggage screening get addressed? Currently there is little to no discussion of the myriad of issues including construction impacts, geological impacts, impacts of the water table, impacts on public utilities, relocation of public and other utility lines, and excavation requirements just to name a few.

Environmental Justice:

The Supplemental EIS/EIR, while identifying that the majority of affected communities are minority, clearly states that there are no Master Plan commitments related to environmental justice. It merely states that there will be continued input through the ongoing Environmental Justice Program. This is not sufficient given the serious impacts this project will have on the surrounding communities.

Cost:

The \$9 billion cost of Alternative D is no doubt a substantial fiscal impact on several sectors. While it is difficult to compare the LAX Master Plan with those of other U.S. airport remodeling plans and their local realities, the cost differences with those projects are nonetheless striking:

Atlanta:	\$5.4 billion
New York JFK:	\$1.2 billion
Chicago O'Hare:	\$6 billion
San Francisco:	\$2.4 billion

If the LAX Master Plan calls for limited or no capacity expansion plus safety and security improvements, then a cost of \$9 billion is inconsistent with the basic goals of the "Safety and Security Plan". Surely these laudable goals could be accomplished at a lower cost. Could not basic security and safety measures be implemented at LAX for \$2 billion, while reducing gates to limit capacity, increasing airfield safety, improving connectivity to public transportation and making LAX the crown jewel of a truly regional air transportation system?

The airline industry will be a substantial source of funding for this project. Assessments to the airlines will come in the form of passenger facility charges (PFCs) and sources. Currently, airlines at LAX enjoy low cost-per-enplanement (the cost of putting one passenger onto an airplane) as compared to other airports, due in part to the fact that LAWA has less debt service that it is currently passing on to the carriers. Cost-per-enplanement will nonetheless quadruple or quintuple at LAX as these assessments are incurred.

After the events of September 11, 2001 and due in part to the general economic downturn and subsequent reduction in business and pleasure travel, the airline industry is facing devastating economic impacts. As an industry that inherently has very high operating costs and capital investment requirements, the airlines are highly sensitive to fluctuations in their revenues.

Some airlines are currently in bankruptcy proceedings while others hover perilously close. Furthermore, some of the airlines currently operating at LAX, who represent a significant portion of the U.S. domestic and international travel markets, have expressed concern that they cannot incur these costs over the project's horizon and continue to provide service at LAX as their customers demand. While there has been some communication between the airlines and the planners, the airlines still feel that their concerns over project cost are unheard.

Other Alternatives Should be Examined:

Of all the project iterations to date, one concept that has never been given enough

thought is improving and enhancing the airport within the current physical layout. Creating transportation improvements like adding ATCS systems to more intersections, improving connectivity with public transportation, making security upgrades that will need to be done in the interim anyway, making runway modifications such as the South runway proposal, and terminal changes within the current physical layout can all be accomplished quickly and will have a real impact. These changes, combined with a consolidated transportation access location and a rental car facility could ultimately lead to a safer, more efficient airport that works better in the context of the surrounding community, truly caps growth, and costs significantly less than the soaring costs for Alternative D.

The RAND analysis of security identifies significant infrastructure improvements that can be done now, with existing technology, that will have a direct impact on the safety of airport patrons and airport operations. There are other proposals, such as the previously mentioned extension of Avion Blvd. as a dedicated cargo road and consolidated rental car facility that will significantly improve transportation access to LAX. The rental car facility alone will decrease over 1 million shuttle trips currently occurring because there are multiple rental car locations in and around the airport today.

By ignoring other options and issuing comparisons based on a "do nothing" alternative, we do a disservice to everyone. There is no question that "doing nothing" is not an option. This Master Plan should be one that achieves something real, at a reasonable price and not one that seems to raise more questions than it answers.

I urge your further consideration of these issues as you work to complete a true Master Plan for the future of LAX.

Sincerely,

Cindy Miscikowski
Councilmember, 11th District

**LAWA MASTER PLAN EIS/EIR
PUBLIC MEETING – FURAMA HOTEL - 23 AUGUST 2003
COMMENTS BY YVONNE BRATHWAITE BURKE CHAIR, LOS ANGELES
COUNTY BOARD OF SUPERVISORS**

Good morning! On behalf of the Los Angeles County Board of Supervisors, thank you for the opportunity to offer preliminary comments on the SUPPLEMENT TO THE DRAFT EIS/EIR for LAWA's Proposed LAX Master Plan. In reviewing the extensive materials presented in the original EIS/EIR of 2001 and the supplement of 2003, we recognize the enormity and importance of the challenge faced by LAWA, we acknowledge the extensive effort that has been made, and we thank LAWA for responding to public demand in extending the review period into November. HOWEVER, THESE CONSIDERATIONS DO NOT DIMINISH THE VERY REAL CONCERNS OF THE LOS ANGELES COUNTY BOARD OF SUPERVISORS CONCERNING THE PROPOSED MASTER PLAN and the INADEQUACIES OF THE SUPPLEMENT TO THE DRAFT EIS/EIR. I would like to touch briefly on a couple of the key issues at this time.

TRAFFIC, NOISE AND AIR QUALITY IMPACTS HAVE BEEN SHIFTED EASTWARD

The revised Master Plan as presented in new Alternative D reshuffles airport improvements away from neighboring areas north and south of LAX, and toward communities to the east. As a result, the unincorporated community of Lennox and the City of Inglewood now appear to bear the brunt of added traffic. The community adjacent to Manchester will now face a host of impacts related to the new passenger processing facility. Compared with the previously considered Alternative C, this proposal places even a heavier impact burden on communities to the north and east. I have serious concerns about the disproportionate impact of Alternative D on these communities, all of which are in my district. The City of Inglewood and the unincorporated community of Lennox will continue to be the most impacted by the operation of LAX.

Although Alternative D is presented as the alternative that will “constrain” passenger growth to 78.9 million annual passengers based upon the number of available gates, even the eye of a lay person can see that Alternative D provides LAWA with a footprint larger than the prior alternatives. This footprint, along with the new air terminal layout, provides the opportunity of future expansion of LAX with resulting increases in already intolerable air quality, noise, traffic and safety impacts on the communities of Inglewood and Lennox.

The residents of these communities already suffer inordinately from the current operation of LAX. *I personally believe it's high time we address whether LAX, an airport surrounded on three sides by urban development, shouldn't be scaled back rather than improved, enhanced and enlarged, unless the present impact from noise is mitigated.* The Los Angeles County Board of Supervisors has been on record for some time in support of a strong regional airport system which focuses on outlying airports such as Ontario or Palmdale, airports which are not surrounded by development . We expressed this position in our comments on the Draft EIS/EIR in 2001. Although Mayor Hahn has voiced his support for a regional airport system, Alternative D continues to reinforce **LAX as the preeminent airport for the Southern California region. Consequently, the concept of strengthening the role of outlying airports in order to avoid adversely impacting the lives of tens of thousands, if not millions, of people, is seriously undermined.**

ENVIRONMENTAL JUSTICE MAY NOT BE WELL SERVED BY THE EIS/EIR EVALUATION

The requirement to consider Environmental Justice has been in place for almost 10 years now, originally signed into law by President Clinton in 1994. And yet, the original Draft EIS/EIR prepared by LAWA in 2001 -- 7 years after Executive Order 12898 -- lacked even the most elementary analyses of this topic. Our preliminary review indicates that LAWA has not yet achieved a fair and complete assessment of the critically important issue of Environmental Justice.

In my earlier remarks concerning noise, air quality and traffic, I noted that Alternative D appears to shift the burden of airport improvements away from the wealthier communities on the north and south, and toward the more economically disadvantaged communities east and northeast of LAX. I believe that this Supplement to the Draft EIS/EIR will not be adequate until it provides an honest assessment of the trade-offs between environmental protection and environmental justice. In designing runway extensions and facilities to the east, this plan appears to protect biological resources -- particularly the El Segundo Blue Butterfly -- at the expense of residents -- children and families -- in the communities of Lennox, Inglewood and Manchester. Can such a trade-off be justified? I see no assessment that provides the evidence. This EIS/EIR is the right time to take a hard look at the human costs that will be incurred in order to protect a limited habitat area on the coast. We ask that the analysis be performed *now*, as part of the Environmental Justice assessment, before the opportunity is lost.

Thank you for your consideration of these comments.

TESTIMONY

Good morning, I'm Don Knabe, Los Angeles County
Supervisor for the Fourth District which represents LAX.

Thank you for the opportunity to speak this morning about
the future of Los Angeles International Airport and our
regional air transportation needs.

I appreciate Supervisor Burke's comments and support her
concerns about environmental justice issues, etc.

I'd like to begin by saying I agree with Mayor Hahn that
something must be done to make LAX more secure and
more efficient in handling passengers while balancing the

concerns of the local community and the need to create additional jobs.

Alternative D indicates that it is designed to accommodate a passenger activity level of 78.9 million annual passengers by reducing the number of existing gates and by foregoing the creation of the new terminal facilities and runway extensions that had previously been considered.

I support the mayor's stated goal of providing for more manageable limits on the passenger volumes at LAX given the well-documented impacts that the airport has had on the surrounding communities and the surrounding infrastructure.

The County of Los Angeles is in the process of reviewing the LAX Master Plan materials to get a better understanding of

just how the mayor intends to assure the region that the 78.9 MAP capacity will not be exceeded once Alternative D is implemented.

In May of this year our County Counsel provided us with their opinion that the City and Los Angeles World Airports could legally place deed restrictions on the LAX property restricting the future development of the airport in order to benefit nearby properties owned by other nearby public entities or private parties.

I believe limiting development is a way to keep a passenger cap in place. I have submitted a motion for consideration by the Board of Supervisors to call on the City of Los Angeles to deed restrict the land until 2020 to ensure that LAX does not exceed 78 MAP

I encourage Mayor Hahn and LAWA to follow through on efforts to limit LAX growth to a manageable level to the greatest extent possible through a commitment to place deed restrictions on certain portions of the LAX property until 2020 to prevent those portions from being used to expand facilities to serve passenger volumes beyond the intended 78.9 MAP level.

Specifically, it would be appropriate for LAWA and the City to commit that the portion of LAX generally located on the west side of the airport easterly of Pershing Drive between the north and south pairs of runways and westerly of the proposed Redeveloped Central Terminal Area (Area 1); and the portion generally located on the northeast corner quadrant of the LAX property and currently used for parking

lot and rental car purposes depicted as the site of the proposed Consolidated Rental Car Facility (Area 2) would be deed restricted through 2020.

The deed restrictions should provide that those two areas will not be developed with airport passenger terminal, airport runways, or other improvements intended to increase airport passenger capacities beyond Mayor Hahn's stated 78.9 MAP activity target levels.

Such a firm commitment may be crucial in obtaining the support of Mayor Hahn's Alternative D from at least some of the significant interested agencies and groups who will so directly be affected by the development at LAX.

While I've have spoken this morning about limiting growth, I do want to say that the security aspect of this plan is a major concern of mine. While the County is reviewing the security aspects of this plan and will comment on it in a written report as part of your official record, I still have strong security concerns with the Manchester Square passenger check in facility. I want to make sure that we ^{give} ~~consider~~ the same safety concerns to the passengers as we do the infrastructure of the airport.

Again, thank you for the opportunity to speak with you today and I hope that we can move forward in a productive way at achieving our common goals for the redevelopment of LAX; Limiting growth and protecting people through viable safety enhancements.

- * Good morning. I am Councilman Kelly McDowell, representing the City of El Segundo.
- * Given the length and complexity of the Master Plan and its environmental documents, our full comments on technical issues will not be ready for some time. Therefore my City's comments today are preliminary.
- * El Segundo continues to oppose Alternatives A, B, and C for the many reasons we expressed orally and in writing during the public review and comment period for the initial Draft EIS/EIR in 2002.
- * El Segundo has not endorsed Alternative D--but we feel its stated objectives are consistent with a regional aviation approach.
- * Specifically, the City of El Segundo supports a regional approach alternative that makes proper use of Inland Empire airports.
- * We support an alternative with fewer environmental impacts. And we would like to see the adverse impacts of the airport minimized and mitigated to the greatest extent feasible.
- * El Segundo supports enhanced safety and security at LAX.
- * And my City supports an alternative that by design will accommodate passenger and cargo levels no greater than the physical capacity of the airport as it exists today.

* Limiting LAX to its current capacity has always been our number one goal--and we believe that limiting LAX's capacity will:

** allow other airports in the region to develop and handle a fair share of future regional aviation demand;

** result in fewer environmental impacts; and

** improve safety and security at the airport.

* But my City is greatly concerned about the impacts of proposed southside airfield changes that would move the southernmost runway 50 feet closer to El Segundo.

* LAWA has stated that it believes these changes are necessary to improve runway safety.

* However, we are currently studying the impacts of the proposed reconfiguration, and the options for the southern runway complex.

* In particular, we urge full public consideration of end-around taxiways as an alternative that could provide greater safety at lower cost and with fewer added burdens on nearby communities.

- * Safety at LAX must be a priority for all of us.
- * El Segundo is prepared to support measures necessary to enhance safety--even if those measures increase our burden--but only if we are assured, by an independent expert, that other alternatives would not be equally effective.
- * In conclusion, we are grateful for Mayor Hahn's responsive leadership and his continuing pledge to constrain growth at LAX and foster a regional approach to meet future aviation demand.
- * It is our hope that the ultimate outcome of this Master Plan process will be a truly regional airport approach that ensures that LAX does not exceed its current capacity.
- * Thank you.

23 AUGUST 2003 LAWA MEETING
Furama Hotel, 8601 Lincoln Boulevard; 310.670.811; 9:00-1:00
TOPICS : Supplement, Baseline, Cumulative

- S. Bauer, here in assn. w/ AC Lazz, to Speak on Behalf of Co of L.A.

- In allotted 3 minutes, I will touch briefly on just a few key points:
 - - Use of Supplement to the Draft EIS/EIR
 - Baseline Data Assessment
 - Security Analysis for Alternative D

USE OF A SUPPLEMENT TO THE DRAFT EIS/EIR

CEQA Gdlns state that a *SUPPLMNT to an EIR may be prepared IF CHANGES IN A PROJ ARE NOT SIG.* **Where MAJOR REVISIONS** have occurred ... *the proper type of document is a SUBSEQNT EIR that presents ALL info ... instead of only the CHANGD info.* **BOTH types of review are intended for use in conjctn w/ prevsly certified docs.**

In present case, THERE IS NO PREVIOUSLY CERTIFIED or approved document. And FURTHERMORE, *the changes to this project are MAJOR - an entirely NEW ALT* has been introduced as the preferred project!

Thus EVEN AN ADAPTATION of CEQA -- to encompass a document that HASN'T BEEN CERTIFIED - would indicate the project should have been addressed through preparation of a comprehensive revised Draft EIS/EIR.

- **In this context, WHY DID LAWA NOT PREPARE A COMPHENSV REV. DR EIS/EIR THAT PRESENTED a FULL SET OF INFO for REVIEW w/ THE NEW ALT D?** } out

We have a 2ND SERIOUS CONCERN w/ this process: **In 2001**, Co. of L.A. devoted considerable **time, FUNDS & effort** to review & submit comments on *extnsive documntn* released by LAWA at that time. **I am CERTAIN a similar effort was spent by MANY OTHERS HERE TODAY.**

There is **NO QUESTION** that a *resp to the earlier comments* would have served to ADVANCE PUBLIC DISCOURSE, strengthen the opportunity for **ENV. PROTECTN**, and facilitate ^{an} UNDERSTANDING OF THE LEAD AGENCY'S THINKING on a wide range of KEY ISSUES...

current review + present insight into

→ **WHY, THEN**, did LAWA not take this opportunity to present ... or *EVEN SUMMARIZE* ... **ISSUES-RAISED** during the 2001 EIS/EIR review? *COMMENT OFFERED*

ADVANCE PUB DISCOURSE

FACILITATE CURRENT REVIEW

STRENGTHEN ENV. PROT.

PROVIDE INSIGHT INTO LD. AG. THINKING

INCONSISTENT AND OUTDATED BASELINE DATA

The 2003 Supplmt makes *cont'd widespread use of 1996 baseline data -- that was outdated even in 2001.* Instead of actually UPDATING the baseline, individual Sectns offer **BRIEF** discns comparing '96 data w/ data from 2000 (also 3 yrs out of date). Several ~~assmts actually conclude that the 96 base data is more useful~~ because the 'lower volumes would result in a larger change' (p.4-221) comp w/ current LAWA proposals.

What we DO NOT SEE is an **ANAL** of the **SIG.** baseline **SHIFT** that occurred following 9/11, and how that **SHIFT CHANGED** the **BENCHMARK** for understndg proj imps.

GIVEN that condns at LAX have **changed dramatically** since 2000 (much less '96) ... and ... GIVEN that LAWA developed an ENTIRELY NEW ALT D in resp. to the **MAGNITUDE** of those very changes, and designated ALT D as their **PREFERRED ALT** ...

→ ~~Given these things,~~ **WHY did LAWA NOT CONSIDER IT WORTHWHILE TO PROVIDE THE PUBLIC - & its own DECISION MAKERS - w/ a BASELINE REFLECTNG CONDNS AT LAX AS OF 2003?** *THAT ALSO*

SECURITY

The Suppl EIS/EIR presents Alt D as the "**Enhanced Safety & Security Plan.**" However, our review of Appdx I (*Comp of NA/NP Plan w/ Alt D*), indicates that LAWA has relied on a theoretical assmt that falls **SGNFECNTLY SHORT** on detail.

~~Our review of this KEY TOPIC is still in the early stages — we expect to significantly expand our comments on security when the anal is complete.~~
~~—~~ **However,** considerable adv media attn has already focused on LAWA's proposed use of *UNPROVEN SECURITY TECHNOLOGIES*. **I'd like to offer JUST 1 EXAMPLE to illustrate the potential impact of this approach.**

Why this is > valid concern

Apdx I mentions possible use of 'face-in-the-crowd' technology. On Aug 20 '03 -- just this past week -- the **Tampa, FLA Police Dept.** announced it has **DISCONTINUED** use of facial-recognitn surveillance after 2 yrs. This software product **failed to make a SINGLE positive identifiactn** from a database of more than 24,000 'mugshots'.

ALSO

~~Though Alt D is presntd as 'Safety & Security Alt', our anal indicates~~ this plan FOCUSES on 'hardening' security for ^{gateway ELEMENTS} ~~frontal aspects~~ of LAX while **largly IGNORING** perimeter, cargo areas, maintnce & fuel farm fac.. We've found **NO DISCN in Apdx I that specifically addresses backside security.**

We undrstd that MANY SECURITY FEATURES are TOO *sensitive* for public disclosure. However, the ~~apparent absence of detail,~~ **lack of sound analysis & ABSENCE OF CLARITY** – these flaws suggest that Alt. D is fundamentally flawed -- and in the very area of security that it was created to address.

Thank you for opportunity to share these comments on BEHALF of Co of LA



Speakers 19

P.O. Box 92216
Los Angeles, CA 90009-2216

Public Comments

Please print.

Name (First, MI Last, or Organization): FREDDY CORREA Date: 8/23/03

Address: 1840 W Pacific Coast Hwy.

City: Long Beach State: CA. Zip Code: 90810

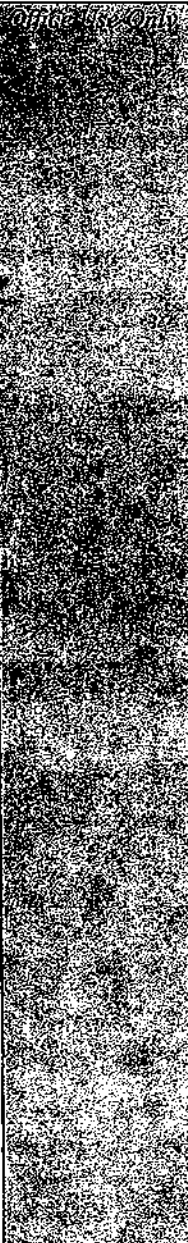
Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):

Number: Title:

Comments: I'm a Mechanical Engineer also a member of Local 250 The Steam Fitters ~~Local~~ Local.

My point of view is this: I feel ~~it is~~ imperative that LAX be renovated. Due to all the ~~and~~ congestion, ~~and~~ the ~~unneeded~~ ~~problems~~ ~~that~~ this airport is affected. also. I'll stimulate this stagnant local economy and I'll put LAX on the TOP AIRPORTS in the world.



Attach additional sheets if necessary.

Official comments must be received by 5:00pm, Pacific Standard Time, FRIDAY, NOVEMBER 7, 2003

GOOD MORNING NADIA AND GENTLE

for every one

10/20
A
APRIL 20
LENNOX
ON
90304

My name is Jose Luis Acosta. I have lived in Lennox for 23 years, in the flight path of LAX. Together my wife and I have raised 2 children in Lennox. My sons are 13 and 17 years old I've worked in tourism for 17 years as a Bartender in the Manhattan Beach Marriott.

~~TOURISM~~ ~~TOURISM~~

Speaker 31

It is not easy to live in Lennox and raise children here. Our community is poor. We have traffic. Our schools are crowded and noisy from the planes flying overhead. But one thing that makes it worthwhile for me to raise my family here is that I have a good, stable job in the tourism industry.

(TOURISM)

Modernization will effect us in Lennox. It can hurt us, or it can help us. Modernization could cause more traffic, more noise, more pollution, without giving anything in return. Or, the city can do everything possible to make sure that modernization benefits our community and provides good jobs with living wages and health care. If modernization can benefits our community, then we are willing to support it.

My name is Emma Worthington and I live in Inglewood. I also work at the airport and have worked there for almost 30 years. Like myself many people who work at the airport live in the surrounding communities. We live in Inglewood, Lennox, Hawthorne, El Segundo and Westchester. We understand the connection between good quality jobs and a quality life. We need ^{more} new jobs but we don't minimum wage jobs. What we need is jobs that provide a livable wage and affordable family health coverage. The companies at the airport provide those types of jobs and that is how I have been able to raise ^{as a single mom} my family and not be on welfare. ^{We Need} In order to insure that this modernization plan provides good employment opportunities for our communities, we encourage the mayor to include in his plan a local hiring program so that others in my communities can also raise their families and our youths can strive to emulate their parents. When we talk about modernization we say we are bringing the airport and Los Angeles into the 21st Century. Well we the workers would like to be able to bring our communities into the 21st Century along with the airport and the rest of Los Angeles. That is why we urge the mayor to ensure that his plan provides good paying jobs with good benefits and a community packet that will ensure we are along for the ride. **NOT LEFT BEHIND.**

Good Morning (Or Afternoon)

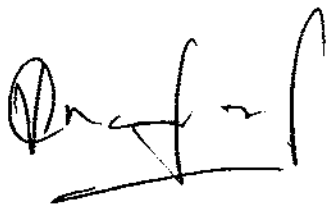
My name is Victor Crawford, **and I live at**
416 E. Regent St, **in the City of**
Inglewood Ca. 90301

I wanted to give my support to the proposal for Alternative D of the Airport Master Plan.

With Alternative D providing facilities for 78 million annual passengers and 3.1 million tons of cargo a year it supports the idea of Regional Airports. In past plans LAX was expected to have to handle as many as 98 million passengers a year and this was totally unexceptable to residents of the surrounding cities. Mayor Hahn has lived up to the commitment that he made before he was elected, that the modernization plan would limit airport usage.

Alternative D, according to the Environmental Impact Report, will provide the best design, including safety and security concerns, with the lest impact on area residents and I support that ideal.

Thank you for listening to my statement.



Hello. My name is Kevin Norton. I live at _____, in the City of _____.

I came today to let you know that I support the modernization of LAX. Mayor Hahn's design with Alternative D will fulfill the concerns that many area residents have had, especially in regard to the number of passengers that will be able to use the airport.

Mayor Hahn signed a letter that he would not support any airport design that allowed more than 78 million passengers a year to fly into or out of LAX. Alternative D, by design caps the number of passengers and cargo as well. This will push other airport sites to build airport facilities and redirect flights there.

A regional approach to air travel and cargo handling will be required when Alternative D is constructed and other area residents will realize that they should provide airport sites. This is a great plan and it should move forward as soon as possible.

Thank you.

My name is Maria Verduzco-Smith, my address is 10927 Grevillea Ave. Lennox, CA. 90304. I Serve as President of the Lennox Coordinating Council.

The Community of Lennox is severely impacted by airport operations but we feel we are mainly neglected. We have schools that jets fly directly over on their approach to the airport and most homes have not been sound proofed to protect against jet noise, as part of the sound mitigation program. Many of our residents can feel the oil and see the soot from the jets. Our children lose hours of education time yearly due to interruptions caused, each time a plane is landing.

There are many things to be taken into consideration when a community is located as close to an airport as Lennox: There is the health of the children, the quality of life for the residents and the impact of noise and traffic the airport causes. If the airport is going to modernize, then it is time for our community to modernize also. This plan must have some real community benefits in it so that future health problems can be alleviated, our schools can be safer, our community can be protected and measures are putⁱⁿ place to ensure that the people of Lennox are treated fairly.

Community benefits means that our community is not forgotten in the modernization process. It means that with \$9 billion being spent for airport modernization, there is money actually being spent in our community to make those infra-structural changes needed to accommodate the expected increase of noise and traffic. While there is a push for modernization, we also want to push for increased and visible benefits in our community of Lennox.

Thank you.

Good Morning (Or Afternoon)

My name is Robert Watson, and I live at _____, in the City of _____

Thank you for the opportunity to speak about the proposed LAX Modernization Plan.

Mayor Hahn has provided an excellent proposal for LAX and with his commitment to cap the airport passengers at 78 million a year, I think that he has satisfied many of the concerns of the residents who live and work near the airport. The idea that other areas, like Palmdale and Orange County will need to take some of the future airline passenger burden is a good one. Mayor Hahn's support for a Regional Approach should be commended as well.

We absolutely need to modernize LAX, not only for the economic and safety concerns that we have, but also so that the area residents will find solutions to their quality of live issues. I think that Alternative D provides many of these solutions, especially with the expanded use of the Green Line Light Rail system that will have a stop a the airport.

Thank you for holding these hearings.

In prior hearings such as this and numerous news paper articles regarding Alternative D, many factors as passenger caps, traffic, noise, jobs and security have been raised. Yet the major impetus behind alternative D continues to be security ^{regardless of the security initiated no security at all} so I'd like to address that ^{subject} particular issue. And frankly, it's not easy to assess the value of Alternative D in that light by reviewing the EIR document.

I offer these direct quotes from various sections of that document.

1. From the comparative analysis section of D vs No Action Page 34

“Vehicular traffic in the Central Terminal area results in crowded terminal areas that create attractive targets for terrorists & allows baggage containing potentially significant explosive devices into passenger congregation areas.” AND

“People approach all facilities with unsecured baggage until they reach the TSA checks.”

2. *“Security screening stations at the Ground Transportation Center and the Intermodal Transportation Center will protect the Central Terminal area from attack by persons armed with weapons.”*

By moving arrival & departure passengers rapidly through the entry point, only a small number of people would be clustered as a potential terrorist target.

3. From the Development & Refinement Sectionparagraph 2.2.8

“First level screening at the Ground Transportation Center will be random baggage and passenger checking and use of video surveillance and sniffing dogs.”

4. Same Sect 2.2.8

“The architectural design intent for the GTC is to create a partially climate controlled open-air structures to help diffuse potential blast impacts at the curb front by eliminating glass curtain walls.”

5. Again, from the comparative analysis section:

“The people mover presents a problem as it is unsecured and subject to attack – but, this can be partially mitigated by use of technology”

6. Again from Development & Refinement Section Paragraph 2.2.81

“Passengers not using skycap services may carry baggage on the Automated People Mover to the Central Terminal area where screening will be made by the appropriate airline.”

So =

- 1). If unsecured baggage in the Central Terminal is a current problem it doesn't appear this multi-BILLION dollar Alternative D solves that.
- 2). All passengers spread out through 8 terminals currently & you've seen lines all out down the sidewalk – Here all passengers must do through this one entry point but they will move rapidly so as not to present but a small number as a potential terrorist target?
- 3). The 6 car people mover really sounds like an exciting entry to the “*world class*” LAX with baggage carts being rolled in & out among the travelers as well as the meeters and greeters, who are able to ride to the central terminal area.
- 4). Of course, in a curbside blast, one would want nothing but “*partially climate controlled air*” between them & the explosion.

A security solution?

NO – A JOKE !

Submitted by Marvin D. Walter
7015 S. Sepulveda Private
Westchester, CA 90045-1512

Good morning (or Good Afternoon)

My name is Romeo Gonzalez. I live at _____, in the City of _____.

I would like to show my support for the LAX Master Plan and Alternative D. After almost 8 years of planning and dozens of hearings and testimony Mayor Hahn has introduced a plan that takes into account all of the concerns that have been raised.

With the heightened awareness of the possibility for airport disaster, either by accident or by human hand this plan will reduce and consequences. With the remote passenger and baggage handling facility, the flying public should have much more confidence in LAX security. This design, with the early scanning of passengers, carry-ons and baggage, makes the Central Terminal area and airline gates much safer.

I also like the use of people movers and trams in the design. Moving around LAX today is very difficult. The only way to get from airline to airline or different terminals is to walk or wait for a bus. Alternative D's transportation system saves time and confusion.

I hope Alternative D is adopted, and soon.

Thank you for taking my comments.

1 time or another. And if you've ever been at LAX lately,
2 you know how difficult it can be to get through the
3 check-in procedures or even pick up someone. That's why
4 I support the new proposal for the Master Plan.

5 As it is indicated on the boards that are set
6 up outside, there will be new passenger ticketing and a
7 baggage handling building built away from the central
8 terminal and gates. With the larger area for passenger
9 drop-off and pick-up and the baggage check-in facilities
10 being expanded, passengers should be processed much
11 faster.

12 Getting the people in and out of the drop-off
13 area faster will also give us a safer and more secure
14 airport. The chances that someone will be injured and
15 in a disaster will be greatly reduced with the new
16 design. Any idea that the existing security level at
17 the current airport will be more secure than the
18 expanding airport is ludicrous and damn near stupid.

19 And to the gentleman that is aspiring to
20 become a mayor, he is already 500,000 votes behind.
21 Anyone with common sense, because with all your
22 Princeton education, you have none.

23 (The statement submitted for the
24 record was marked as Statement 15
25 and is attached hereto.)

Good Morning (Or Afternoon)

My name is HOMER ANDERSON, and I live at 15824 S. WESTERN Ave., in the City of Gardena, CA 90247

All of us here today use airports at some time or another and if you have been at LAX lately, you know how difficult it can be to get through the check in procedures or even to pick-up someone.

That's why I support the new proposal for the Master Plan. As it is indicated on the boards that are set up outside, there will be new passenger ticketing and baggage handling building built away from the central terminals and gates. With the larger area for passenger drop-off and pick-up and the baggage checking facilities being expanded, passengers should be processed much faster.

Getting the people in and out of the drop-off area faster will also give us a safer and more secure airport. The chances that someone will be injured in any disaster will be greatly reduced with the new design.

Thanks

AFTERNOON

Good ~~morning~~ and welcome to Westchester. My name is Harry Rose, 7725 Hindry Avenue, Westchester 90045. I come before you today on behalf of Osage Neighbors Association, representing approximately 3600 homes in Osage Park and Westport Heights.

Because it would seem that none of our City officials have noticed, we would like to point out that most modern airports operate on a much larger footprint than LAX and are not located in densely populated urban areas. Denver had the vision to build a world-class airport on 53 square miles in a rural area and actually close their old airport. Total cost? Less than half the price of Alternative D. Los Angeles, where is the vision?

While we love a good Public Works boondoggle just as much as anyone else, this one is ill conceived and a violation of Mayor Hahn's election pledge to our community. Airport use of residential property violates his pledge to operate the airport within its current boundaries. The capacity of 78.9 MAP stated in the EIS violates the Mayor's election pledge to us by nearly 1 million passengers a year.

Alternative D would dramatically enhance flight field throughput and lay the groundwork for vastly increased ground transportation infrastructure setting the stage for future expansion of LAX operations. We have heard that the FAA is currently studying the feasibility of simultaneous landings on three runways under the new configuration. Do LAWA and FAA plan to visit this practice upon us in the future?

Alternative D would move airport bound traffic two miles to the east subjecting East Westchester, Lennox and Inglewood to increased vehicular air pollution and noise. How does this even begin to comply with the environmental justice provisions of CEQUA?

Alternative D locates a Ground Transportation Center in a tract of land currently zoned R1. The EIS clearly states that no residential property is to be acquired for the project. This leads us to assume that LAWA plans to use property acquired through an ongoing and supposedly Voluntary Noise Mitigation Acquisition program. This method of residential property acquisition for airport use ignores FAA guidelines in Order 5100.37A, Chapter 3, Section 9 implementing the Uniform Act of 1970. We would like a complete explanation as to how LAWA's acquisition and conversion of this property to airport use approaches any semblance of legality.

Thank You
Harry Rose, Osage Neighbors Association

Thank's for the opportunity to speak:

My name is Malcolm Joseph **I live at**
_____, **in the city of**
_____.

LAX has been a very large factor in the daily lives of all of us in Los Angeles County. Those who live near the airport have special concerns, even though the airport is an economic boon to us all. Obviously, traffic and noise have to be dealt with and I think that the LAX Master Plan with Alternative D does that.

The traffic plan, with improvements being proposed for intersections, extra lanes on La Cienega Boulevard and the improvement to the cargo delivery accesses roads will aid the flow of traffic in the airport's immediate area. But, the greatest change to increased traffic will be the connection of the Green Line Light Rail to the Transportation Center. Finally, a public transportation system will be available from Fly Away Parking facilities or Stations where passengers and be dropped off at over 50 sites throughout Los Angeles County.

Alternative D is my choice and I hope that the FAA and the City will approve the plan

Thank you.

LAX MASTER PLAN - SPENDS \$ 9 BILLION PLUS TO:

- * **Tear Down Airport Structures Possibly Not Yet Even Paid For**
- * **Concentrate Airport Congestion in Single Vulnerable Location**
- * **Promote Traffic Gridlock around LAX and Provide No New Rail Transit Access to LAX**
- * **Make LAX the Most Inconvenient Airport in the World**

Simply moves Airport Congestion & Likely Point of Terrorist Attack to another more congested site without equal replacement parking and still further away from Green Line to Blue Line to Red Line and Urban Destinations. Is it really convenient to go to Park and Ride Lots in Long Beach, Norwalk or Inglewood and ride busses to Manchester Square Airport Security Center ?

Our past leaders were visionary in buying a large airport site at Palmdale. Tokyo, Seoul, Hong Kong and Washington D.C. all built new larger International Airports far from their cities. Most now use old airports for Domestic Flights Only. Transit Links to other Airports and Cities.

HOW TO SPEND LESS AND GET MORE.....a possible Alternative Plan

LOS ANGELES AIRPORTS AND RAIL TRANSIT SCHEME * *

As Illustrated with Detailed Map - Plans & Text shown on Large Display Boards.
(Prevented from Showing at Airport *Public Hearing*. **Want to See ? Contact Me.**)

*** New Secure Los Angeles International Airport at Palmdale**

With all passenger and baggage screening and check -in features now in LAX Master Plan Using only a small portion of this vast site. Passenger Drop-Off at Tram-Transit Link.

Links Palmdale Metrolink Station (uc) with one-mile Elevated Airport Tram connecting to Security Center for Passenger and Luggage Screening, Flight Check-In and Baggage Check.

Continuing Tram to Huge International Terminal and on to even larger Domestic Terminal for Connecting Flights.

2.5 Mile Elevated Tram Loop from Terminals to Parking, Bus, Taxi and Car Rental Lots; to Security Center; and Metrolink Station.

Vehicle Entry Security Check Points. 500 acres of Open Parking Lots with approximately 50 to 70 thousand Car Capacity. 180 acres for Bus and Taxi Terminals and Car Rental Lots.

Existing Metrolink Travel Time from Union Station to Lancaster is 1 hour and 40 minutes. Would be less from Red Line/Metrolink Station to Palmdale Airport and even less by car on 14 Freeway.

Transit Travel Time to Airport could be greatly reduced by (1) Better Track Alignment (2) Improved Rail Roadbed (3) Grade Separation (4) Double Tracking and (5) Electrification.

*** Los Angeles Westchester Domestic Airport at LAX**

Linked by Terminals Tram to Metro Rail Line.

Passenger Drop Off and Security Check Point at Transit-Tram Entry Station

Security Check Stations at all Vehicle Entry Points.

Airport Conference Center & Corporate Jet parking at now Tom Bradley International Terminal.

Retain all LAX Terminals, Parking Structures and Runways as they now exist.

LAX Flights Actually Reduced. No Homes or Businesses Taken.

*** Easy Rail Transit to ALL Los Angeles Airports.**

Including Direct Metro Rail between LAX and Burbank Airports.

Only 15 miles of new Metro Rail lines could link Green Line and LAX to Burbank Airport and Metrolink Rail Line to Palmdale Airport.

Two mile Red Line Valley Metro Rail Extension to Burbank Airport Terminal. Then one mile more to new Antelope Valley Metrolink Station and Rail Transit Service to L.A. Int. Airport at Palmdale. Also increases low income workers access to large nearby affordable housing stock.

Ebony Metro Rail Line from Union Station to Wilshire-Western Stub. Then 12 miles to LAX. Subway down Crenshaw Blvd. and Elevated on MTA owned railroad right-of-way to Century/Aviation Station Link with LAX Airport Terminals Tram. Ending at Green Line Light Rail Aviation Station. Bay Area BART elevated everywhere except in Downtown City Areas.

Long Beach Airport Alternative Terminal Transit Links to Long Beach Blue Line Light Rail.

Now no direct rail access to Ontario Airport. Alternative Plan has new Ontario Airport Stations on Riverside and San Bernardino Metrolink Lines with Transit Links to Airport Terminal.

Tony Neil Kom - Environmental Planner

(323) 221 1415 KomCepts@aol.com

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May not be Copied or Used in Any Way Either in it's Entirety or in Any Part Without Prior Written Approval of Tony Neil Kom or Heirs. Dated August 1, 2003. Los Angeles, California

Creating jobs is a good thing, and keeping ALL of our U.S. airports modern and maintained is always a good thing.

But I have to say NO, emphatically, to the mayor's Alternative "d".

Mayor Hahn's PR machine keeps repeating that the 9 billion dollar plus LAX "Alternative d" will be safer and more secure. Experts from the Rand Corporation, in a study requested by Congresswoman Jane Harman, disagree. After studying the plan they found that the airport would, in fact, be less safe and less secure than the existing LAX.

In fact, the study concluded, modernization could be accomplished at a much lower cost than alternative d.

Concentrating all the travelers into one check-in just creates an even more attractive target for any terrorist activities. We all will be put at tremendous risk if we allow Mayor Hahn to create one giant bull's-eye at what once was Manchester Square.

Not safer, nor more secure, certainly not more convenient. and unnecessarily expensive.

Alternative "d" is not good community planning, Mr. Mayor, and it's not good governance.

Andrea Davis

7352 Vista del Mar Lane
Playa del Rey, CA 90293

310-823-8927

Speaker 54

DANNA COPE
8219 Reading Avenue
Westchester, CA 90045
Phone: (310) 641-2503
FAX: (310) 396-8437
e-mail: dcope@stjosephctr.org

August 23, 2003

Mr. David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
AWP-611.2
P.O. Box 92007
Los Angeles, CA 90009-2007

Mr. Jim Ritchie
City of Los Angeles
Los Angeles World Airports
LAX Master Plan Office
P.O. Box 92216
Los Angeles, CA 90009-2216

Dear Sirs:

While Alt. D is a definite improvement over Alts A, B, and C, it does not achieve its stated purpose: to provide safety and security.

Alt. D would cost over \$9 billion, exacerbate the traffic and air pollution problems, expand the boundaries of LAX, and provide very little in mitigation measures.

By expanding LAX into the Manchester Square area, Alt. D would merely transfer the dangers from the facilities in the Central Terminal Area out to the community, thereby leaving the traveling public and the residents still at risk. Gathering a large number of people into one area would create a terrorist target - and that is what a Ground Transportation Center in Manchester Square would be.

Concrete, metal and plastic would get protection; people would not.

Extending LAX boundaries into Manchester Square sends the message that LAWA intends to just keep expanding LAX and it can handle all the Southern CA traffic - no regional approach is needed. Other counties and communities should be taking on their share of the air traffic, not told they can rely on LAX.

SPHF 

There have been very few Category A runway incursions at LAX - certainly not enough to warrant a \$9 billion renovation which includes moving runways. Adequate safety precautions could be instituted with the cooperation of FAA, LAWA, and the airlines.

Air traffic has not rebounded to pre-9-11 levels. This gives us the luxury of taking time to reexamine the assumptions previously made that air travel would return to and increase from those levels. There is no reason to rush to prejudgement. There is time to explore more options on bringing other airports into compliance with a regional approach to air traffic.

I will be making written comments on specifics of the proposal prior to the November deadline.

Sincerely,

Danna Cope

Quoting from the supplement to the draft EIR/EIS --

“As of October 31, 2002, progress in acquiring properties under the Voluntary Residential Acquisition/Relocation Program for Manchester Square and Belford indicates that 62 percent of the property owners (351 properties and 1130 dwelling units) have volunteered to participate in the acquisition program.” What about the other 38 percent? What about the people who lived there for over fifty years and DON’T want to move? I guess no one from LAWA or L.A. city really cares, but then why should they?

Then, as I was randomly leafing through the EIR/EIS, I found an interesting report on the residences which will be most impacted with the plans. Guess which city is impacted most -- Inglewood of course!

At more than 120 “Newly Exposed Residential and Noise -Sensitive Uses Outside of the 1992 CNEL Noise Contour” for the Alternative D, and over 2,000 listed under “Alternative D 2015 dBA SEL Noise Contours Listing of Newly Exposed Residential Uses Outside of the 1992 65 CNEL Noise Contour”, we -- Inglewood -- are the most impacted area in the communities surrounding LAX.

But I guess that really doesn’t matter. We -- Inglewood residents -- are just low income NIMBY’s who want to stop this “Modernization” -- or is it expansion? -- plan.

Also in the Supplement to the Draft EIR/EIS was that wonderful interchange on Arbor Vitae ST. -- which our beloved L.A. Co. Supervisor pushed for -- under the title:

“Model Update Information -- Regional Roadway Improvements.”

Our county supervisor had once mentioned that the Arbor Vitae Interchange has nothing to do with Airport Related issues -- at least that is what I remember.

Even worse though, a LAWA staff member had once said it was for our -- now nonexistent -- Kmart!

I don’t think so!

**Official Hearing Transcript
Doubletree Hotel
Rosemead, California
Monday, October 20, 2003**

Following this page is the transcript of the oral testimony taken at the above hearing. Each speaker at the hearing has been assigned a unique identification number. The numbers assigned to each speaker for this hearing are:

Number	Speaker	Affiliation
SPHR00001	John Spaulding	None Provided
SPHR00002	Richard Slawson	LA/O Counties Building & Construction Trades Council
SPHR00003	Theo Kitchen	Los Angeles Convention and Visitors Bureau
SPHR00004	Ken Alpern	Friends of the Green Line
SPHR00005	Bobby Blanks	Congressmember Maxine Waters' Office

Any exhibits attached to this hearing transcript have been previously reproduced in this Final EIS/EIR as individual public comment letters.

Note: The certified copy of the official hearing transcript of testimony taken on Monday, October 29, 2003, at the Doubletree Hotel identifies one statement submitted for the record. A second statement was submitted for the record on behalf of the Friends of the Green Line and is provided on page 27 of the transcript.

CERTIFIED COPY

ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION AND
LOS ANGELES WORLD AIRPORTS, THE TENTH PUBLIC HEARING
ON THE SUPPLEMENT TO THE DRAFT EIS/EIR
FOR THE PROPOSED MASTER PLAN AT LAX

REPORTER'S TRANSCRIPT OF
PUBLIC TESTIMONY

TAKEN ON
MONDAY, OCTOBER 20, 2003

HELD AT THE DOUBLETREE HOTEL

888 Montebello Boulevard
Rosemead, California

REPORTED BY:

LISA ANN VARGAS, C.S.R. NO. 12049

NORMAN SCHALL & ASSOCIATES
Certified Shorthand Reporters

1055 Wilshire Blvd. Suite 1503
Los Angeles, CA 90017
(800) 734-8838
(213) 481-3636 Fax
e-mail: SchallDepo@aol.com
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APPEARANCES OF FACILITATORS:

- TOM WALL, Senior Project Manager
- DAVID KESSLER, Airport Planner for the Federal Aviation Administration
- JIM RITCHIE, Deputy Executive Director for the Los Angeles World Airports

APPEARANCES OF PUBLIC SPEAKERS:

1. JOHN SPAULDING, Resident of Pasadena Representing Himself
2. RICHARD SLAWSON, Executive Secretary of the Los Angeles and Orange Counties Building and Construction Trades Council
3. THEO KITCHEN, Los Angeles Convention of Visitor's Bureau
4. KENNETH ALPERN, Co-chair of the Friends of the Green Line
5. BOBBY BLANKS, Field Representative to Congressman Maxine Waters

STATEMENTS SUBMITTED FOR THE RECORD

<u>STATEMENT</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1	Statement Submitted by Bobby Blanks	20

1 ROSEMEAD, CALIFORNIA, MONDAY, OCTOBER 20, 2003

2 6:04 O'CLOCK P.M.

3 ---oOo---

4
5 MR. WALL: Ladies and gentlemen, good evening.
6 Welcome to the 10th in a series of open houses dealing
7 with the Los Angeles World Airport Master Plan,
8 Environmental Impact Report and Environmental Impact
9 Statement.

10 As we begin this evening, I would like to
11 introduce the two gentlemen sitting to my right. The
12 first will be Mr. Dave Kessler representing the Federal
13 Aviation Administration.

14 Mr. Kessler.

15 MR. KESSLER: Thank you. Good evening, ladies and
16 gentlemen. My name is David Kessler. I'm the
17 Environmental Protection Specialist for the Airports
18 Division of the Federal Aviation Administration,
19 Western-Pacific Region. I would like to welcome you to
20 the 10th of a series of public hearings the FAA and the
21 Los Angeles World Airports, or LAWA, are conducting on
22 the Supplement to the Draft Environmental
23 Statement/Environmental Impact Report, or EIS/EIR, for
24 the proposed Master Plan at Los Angeles International
25 Airport.

1 The Supplement to the Draft EIS/EIR addresses
2 an additional Alternative, Alternative D, the Enhanced
3 Safety and Security Plan that was added in the fall of
4 2001. This new alternative was added as a result of
5 comments submitted on the 2001 Draft EIS/EIR and the
6 terrorist attacks that occurred on September 11th, 2001.

7 The Notice of Availability of the Supplement
8 to the Draft EIS/EIR was published in various local
9 newspapers and in the Federal Register on Friday, July
10 11, 2003. The FAA and LAWA are the authors of the
11 Supplement. The Federal Highway Administration is also
12 a cooperating agency in the preparation of the Draft
13 EIS/EIR that was published in January 2001.

14 The purpose of these hearings is to collect
15 the comments of the general public concerning the
16 adequacy of the information disclosed in the Supplement
17 to the Draft EIS/EIR on the proposed Alternative D.

18 I would like to take this opportunity to make
19 sure that everyone understands that no decision will be
20 made today regarding the proposed project. Today's
21 hearing is not a question-and-answer type of forum. Our
22 job is to listen to what you have to say about the
23 accuracy of the information to the Supplement to the
24 Draft EIS/EIR. In other words, it is your turn to talk
25 to us.

1 Since we are here to listen, we're not going
2 to respond to questions about the pros and cons of the
3 proposed project. Since 5:00 o'clock this afternoon, we
4 have held a public workshop just outside of this room
5 for anyone to ask questions about the Master Plan, the
6 environmental process and the various proposed projects.

7 Following publication of the Supplement to the
8 Draft EIS/EIR for review and comment, the next step in
9 the joint federal and state environmental disclosure
10 process is holding this and other public hearings that
11 were held earlier in August of this year and continuing
12 through this week.

13 I would like to take this opportunity to recap
14 the environmental disclosure process for this project.
15 The environmental evaluation of the LAX Master Plan
16 began in 1997 with the publication of the Notice of
17 Intent to prepare the joint EIS/EIR in the Federal
18 Register. In July of 1997 we held a series of meetings
19 with members of the public and governmental agencies to
20 receive comments on the scope of the Draft EIS/EIR.
21 Following those meetings the Draft EIS/EIR was published
22 in January 2001. Both the 2001 Draft EIS/EIR and the
23 2003 Supplement have been prepared pursuant to the
24 National Environmental Policy Act of 1969, or NEPA, the
25 Council on Environmental Quality Regulations, which are

1 the implementing regulations for NEPA, the California
2 Environmental Quality Act of 1970, or CEQA, and the
3 Airport and Airway Improvement Act of 1982, as amended.

4 Following today's hearings and the close of
5 the comment period, we will then correct and revise the
6 EIS/EIR, as necessary, based on the comments received.
7 We will also prepare responses to the comments we
8 receive and include those responses along with those
9 that were submitted to the FAA and LAWA on the 2001
10 Draft EIS/EIR in the Final EIS/EIR. The information
11 contained in the Supplement will also be combined with
12 the information in the 2001 Draft EIS/EIR into the Final
13 EIS/EIR.

14 Before we begin receiving verbal comments, we
15 would like to let you know the grounds rules of this
16 hearing. First, as I said earlier, we're not here to
17 respond to questions about this project. We are only
18 here to listen and take notes. We also have a court
19 reporter here present to ensure we have an accurate
20 transcript of this hearing.

21 For anyone who would like to speak, we would
22 like to ask you to fill out a speaker card, like this
23 one, and give it to one of the people at the sign-in
24 desk. The card will then be brought up here to or
25 facilitator who then call the names of each speaker so

1 we could proceed in an orderly fashion. So everyone
2 gets an opportunity to provide verbal comments, everyone
3 will be given three minutes to speak. To be fair to
4 everyone, we will not allow people to transfer their
5 allotted time to someone else. I ask that when you
6 speak, you give us your name and address for the record.
7 We also have a Spanish language translator for anyone
8 wishing to provide comments in Spanish.

9 If there is anyone who is uncomfortable
10 speaking in front of a group or if you need more than
11 three minutes to provide your comments, we ask you to
12 provide your comments in writing. We have comment
13 sheets, like this one, available for your use also at
14 the sign-in desk. You could leave your comments at the
15 sign-in desk or you may mail your written comments using
16 the comment sheet or a letter to either address listed
17 on the cover of the EIS/EIR.

18 I would like you to understand that a verbal
19 comment is just as important as a written comment. So
20 please feel free to provide any comments on the document
21 you may have to us either verbally today or in writing.

22 On August 1st, 2003 LAWA asked FAA to extend
23 the public comment period to a total of 120 days. FAA
24 agreed to LAWA's request. On Friday, August 22nd, 2003
25 the U.S. Environmental Protection Agency published a

1 Notice in the Federal Register announcing the extension
2 to the public comment period. Therefore, comments on
3 the Supplement to the Draft EIS/EIR are now due by
4 5:00 p.m. Pacific Standard Time on Friday, November 7th,
5 2003.

6 Lastly, I would like everyone to know that
7 even though we have this hearing scheduled until
8 9:00 o'clock this evening, we will stay here as long as
9 necessary for everyone to provide verbal comments on the
10 Supplement to the Draft EIS/EIR. As I said earlier, our
11 job here today is to listen to your comments.

12 At this time I would like to ask everyone in
13 the room to take a moment, turn off your cell phones and
14 pagers to be courteous to those people making verbal
15 comments at tonight's hearing.

16 Now I will return the hearing back to our
17 facilitator who will introduce Mr. Jim Ritchie who will
18 provide some introductory comments from LAWA. Following
19 Mr. Ritchie's comments, we will then collect the speaker
20 cards and call the name of the first speaker.

21 Thank you.

22 MR. WALL: Thank you, Mr. Kessler. Receiving your
23 comments tonight representing the Los Angeles World
24 Airports is Mr. Jim Ritchie, the Deputy Executive
25 Director for long-range planning.

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Mr. Ritchie.

MR. RITCHIE: Thank you, Tom. Good evening, ladies and gentlemen. Welcome to the Doubletree for the 10th in a series of public hearings. I'll read some comments into the record for the purposes of consistency of our other previous hearings.

You may recall the public hearing process in 2001 while we were examining other expansion alternatives for the modernization of Los Angeles International Airport. The tragic events of 2001 and the leadership of Mayor Jim Hahn have reshaped the environmental process. The mayor's pressing concerns for safety and security have provided new guidance along with the public comments received during that public comment period from January 2001 through November 2001.

You are here tonight primarily to provide comments on that new Alternative referred to as Alternative D. This is a Supplement to the existing environmental process, and it has undergone a rigorous environmental analysis.

We are here tonight to receive your comments on this new safety and security plan and its impacts as disclosed in the Supplement to the Draft Environmental Impact Statement/Draft Environmental Impact Report. So with that, Tom, let's go to work.

1 MR. WALL: Thank you, Jim. As I call your name, I
2 would like you to come to the lectern, please, and give
3 us your name and address if you feel so inclined.
4 Please speak slowly and clearly so the court reporters
5 can get an accurate transcript of your testimony. Your
6 voices will also be recorded by a tape recorder.

7 Again, you'll have three minutes. I will
8 start the clock after you make your introduction. The
9 clock will start at three minutes and wind down to zero.
10 With 30 seconds left, you will see an amber light
11 illuminate. And when the three minutes are up, the red
12 light will come on and you will see three zeros on the
13 timer.

14 Our first speaker tonight will be Mr. John
15 Spaulding. Mr. Spaulding, welcome, sir.

16 MR. SPAULDING: Good evening. I'm John Spaulding.
17 My office address is 150 East Corson, C-o-r-s-o-n,
18 Pasadena, California. I am also a resident of Pasadena,
19 California. And I have been involved in these hearings
20 since 1997 since we've started into this process. I
21 think it is very important we move forward so that we
22 retain our place as the best airport in the world, and I
23 think we need to do this.

24 I'm here to testify on behalf of Alternative D
25 because it is the best plan for the City of

1 Los Angeles. This plan will provide 49,000 construction
2 jobs. And with the budget cuts and layoffs pending,
3 these jobs will help stimulate the regional economy and
4 keep people working. Simply, I support Alternative D of
5 the LAX Master Plan. Thank you very much.

6 MR. WALL: Thank you, Mr. Spaulding.

7 Our next speaker will be Mr. Richard Slawson.
8 Welcome, sir.

9 MR. SLAWSON: Good evening. My name is Richard
10 Slawson. I'm the Executive Secretary of the Los Angeles
11 and Orange Counties Building and Construction Trades
12 Council. Our council represents craft workers and their
13 families, over 130,000 that live all in the area of
14 Los Angeles surrounding the airport as well as the other
15 communities in Los Angeles and Orange County.

16 I wanted to provide further testimony tonight.
17 Mayor Hahn has suggested Alternative D. I believe this
18 plan will provide the security design that is needed to
19 satisfy the needs of passengers in the airlines. With
20 the Central Terminal Area being accessed by tram and
21 foot traffic only, the chances of a terrorist action
22 will be almost eliminated completely. The security
23 message that this plan sends will help to bring the
24 flying public back to the airlines and improve our
25 economy. The overall plan fits well into the area and

1 will improve traffic and noise concerns of all the
2 residents in the communities surrounding LAX.

3 I noted in the information that has been
4 provided by LAWA to the communities, as well the mayor's
5 commitment to restrict the annual passengers under this
6 design to 78.9 million lives up to the commitment that
7 was made, I guess it is three years ago now when he was
8 elected mayor and, also, limits LAX and the surrounding
9 communities' responsibility for handling aircraft
10 traffic and then allows other communities to take up the
11 slack.

12 We all know that we need a regional approach
13 to our airports throughout the area, and eventually
14 Palmdale and March Air Force Base. Ontario will
15 probably also be able to take up some of the traveling
16 needs of the traveling public as well as the cargo
17 handling that is necessary to keep our economy going
18 here.

19 We believe in this particular alternative. We
20 think it is the best one and hope that the LAWA and FAA
21 will continue the process and improve this
22 Alternative D. Thank you very much.

23 MR. WALL: Thank you, sir, for your testimony.

24 Do I have any other speaker cards? Is there
25 anyone else in the audience wishing to speak? Seeing no

1 one at this point, we'll take a short recess.

2 (Recess was taken.)

3 MR. WALL: Ladies and gentlemen, we will reconvene
4 the public hearing at this time. I have two additional
5 speaker cards. Let me call the two names of the
6 speakers one at a time. Gentlemen, when you come to the
7 podium, you will have three minutes to make your
8 comments. You will see the clock start. Once you have
9 had a chance to introduce yourself, the clock will then
10 run down from three minutes to zero. With 30 seconds
11 remaining, the amber light will illuminate.

12 The first speaker I'll call is Mr. Theo
13 Kitchen. Welcome, sir. We would like you to please
14 state your name and address for the record. The court
15 reporters will record your testimony and will also
16 record it via audiotape as well.

17 MR. KITCHEN: Thank you very much. My name is Theo
18 Kitchen. I'm with the Los Angeles Convention of
19 Visitor's Bureau. Our office address would be 333 South
20 Hope Street, 18th Floor. That is Los Angeles,
21 California 90071. And as I said, I'm with the L.A.
22 Convention of Visitor's Bureau. We represent the
23 tourism industry, an 11.3-billion-dollar industry to the
24 County of Los Angeles and also L.A. County's second
25 largest employer providing some 255,000 residents with

1 jobs.

2 We're definitely supportive of this measure.
3 We think that the core strategies will improve safety
4 and security and also maintain L.A.'s position as an
5 international gateway, position which is fairly
6 important because our competitors, being San Francisco,
7 Vegas, Minneapolis and New York, are all increasing
8 their own airport facilities, which means that we
9 potentially lose market share. If we lose international
10 travelers, that translates into a loss of jobs as well
11 as a loss of tax revenues. So I thank you for your
12 time.

13 MR. WALL: Thank you, sir, for your comments this
14 evening.

15 Our next speaker will be Mr. Kenneth Alpern.
16 Welcome, sir.

17 MR. ALPERN: Hello again. Good evening.
18 Ken Alpern, Co-chair, Friends of the Green Line. There
19 has been a lot of learning on our part and I think on
20 your part as sort of the processes and the legality of
21 construction and traffic mitigation that has come along,
22 but this is the three realistic goals that we're going
23 to present to the City Council of L.A. and the press.
24 This is what we've already begun to pursue.

25 We are very much in favor of many of the

1 features of Alternative D. We want this to be the best
2 alternative possible. Specific goals for LAX
3 reconfiguration plans, Green Line connections, Friends
4 of the Green Line has concluded as its realistic goals
5 to ask the City of L.A. and L.A. World Airports to not
6 prevent LAX rail access from the north and/or to prevent
7 the Green Line from proceeding north beyond LAX.

8 Where Friends of the Green Line now stands
9 with respect to the Green Line and L.A World Airports
10 traffic mitigation as part of its Final EIR is that
11 non-automobile related traffic measures should include,
12 one, a written promise for LAWA to fund the necessary
13 trench west of Aviation Boulevard along the MTA Harbor
14 subdivision right away to allow the Green Line to
15 proceed north from the current Aviation/Imperial Green
16 Line station without interfering with LAX radar beacons
17 and/or other electromagnetic operations associated with
18 LAX.

19 Two, a written promise for LAWA to fund and
20 construct its final Ground Transportation Center whether
21 it is at Manchester Square or anywhere else in a manner
22 that allows for a future Green Line station. LAX found
23 passengers from the north, like the West Side and the
24 valley. A large component of LAX users should not have
25 to overshoot LAX if there is a northern rail access to

1 reach the future Intermodal Transit Center at
2 Aviation/Imperial in order to connect with the Central
3 Terminal Area via the LAX people mover. To overshoot
4 LAX by a mile and then go all the way back does not make
5 sense to the MTA, the planners that I've spoken to, and
6 I'm sure you understand where the West Side might feel
7 the same way.

8 Three, a written promise for LAWA to fund and
9 staff any future preliminary engineering for a Green
10 Line that connects Westchester and the West Side in a
11 manner that does not preclude the Green Line from
12 reaching these destinations and in a manner that
13 compliments, not competes, with the future LAX people
14 mover.

15 Friends of the Green Line likes to consider
16 itself allies of LAWA and the voting people of the City
17 of L.A. And we look forward to having a transit system
18 that not only serves the interests of LAX, but also of
19 its neighbors, something that enhances the business
20 community of the immediate region and, furthermore,
21 establishes L.A. as something that pretty much every
22 major city in the nation now has, something with a very
23 good quality LAX rail connection. Thank you and have a
24 great evening.

25 MR. WALL: Thank you, Mr. Alpern.

1 Our next speaker is Mr. Bobby Blanks. Sir, I
2 notice that you just arrived. You will have three
3 minutes for your testimony. After you state your name
4 and address, I'll start the clock. And it will wind
5 down from three minutes to zero. We appreciate you
6 coming this evening.

7 MR. BLANKS: Thank you very much. I'll speak my
8 three minutes now, and then I'll come back in the next
9 session and probably finish up. I think it is going to
10 take a little longer than that.

11 MR. WALL: We ask, sir, if you have more time that
12 is required, that you submit them in writing.

13 MR. BLANKS: Okay.

14 MR. WALL: We have to limit you to three minutes.

15 MR. BLANKS: I'll go as far as I can.

16 Good afternoon. My name is Bobby Blanks. I'm
17 field representative to Congressman Maxine Waters.

18 Alternative D is a \$9-billion-dollar project
19 that would demolish homes and disturb communities
20 without improving the safety and security of LAX. The
21 Supplement to the Draft EIS/EIR is an inaccurate and
22 misleading document that fails to reflect the true
23 impact of this project.

24 The centerpiece of Alternative D is the Ground
25 Transportation Center, a large remote passenger check-in

1 facility that would be constructed at Manchester Square
2 several blocks away from the airport terminals. An
3 Intermodal Transportation Center would be constructed at
4 Aviation Boulevard and Imperial Highway which would
5 provide a connection to the Green Line.

6 According to the Supplement to the Draft
7 EIS/EIR, the Ground Transportation Center and the ITC
8 would be the primary access points for all passenger
9 drop-off and pick-up and vehicle parking. An automated
10 people mover system would be constructed to transport
11 people to the airport terminals, and a baggage tunnel
12 would be constructed to transport baggage, and a
13 consolidated rental car facility will be constructed in
14 Westchester as well.

15 Local families could no longer drive to the
16 Central Terminal Area in order drop-off passengers.
17 Instead, all passengers and employees would access the
18 Central Terminal Area from the Ground Transportation
19 Center, the ITC, and a rental car facility via the
20 automated people mover carrying their carry-on baggage
21 with them. This would be extremely inconvenient for
22 most passengers and it would present hardships for the
23 elderly, the handicapped and families traveling with
24 small children.

25 Airport security issues: Supporters of the

1 proposed project to construct a remote passenger
2 check-in facility claim that the facility is necessary
3 to improve the safety and security of LAX and prevent
4 terrorist attacks at LAX. Theoretically, diverting all
5 vehicular traffic to remote parking structures and the
6 remote passenger check-in facility would protect the
7 Central Terminal Area from car bombs.

8 The RAND Corporation conducted a study of the
9 proposed remote passenger check-in facility, which was
10 released May 14th, 2003. The study concluded that the
11 proposed project would not significantly improve the
12 security of LAX. The study also concluded that
13 concentrating passengers in the proposed remote
14 passenger check-in facility could make the check-in
15 facility the likely target of a terrorist attack.

16 Finally, the study concluded that
17 concentrating several airport functions in the remote
18 passenger check-in facility could exacerbate the effects
19 of an attack on airport operations.

20 The Supplement to the Draft EIS/EIR makes the
21 astounding claim that Alternative D would not displace
22 any residents. Instead, the Supplement predicts that
23 2,500 houses and apartments will be acquired by the
24 residents relocated under LAWA's existing Voluntary
25 Residential Acquisition/Relocation Program, through

1 which LAWA may acquire property and relocate residents
2 on a voluntary basis in order to mitigate the impact of
3 airport noise.

4 The Supplement then concludes that Alternative
5 D would not require the acquisition of any additional
6 dwelling units or the relocation of any additional
7 residents. This claim is especially ironic given the
8 fact that several Manchester Square residents and
9 apartment owners have already said that they would not
10 leave their homes voluntarily.

11 MR. WALL: Do you have much more to state,
12 Mr. Blanks? You do. Would you like to submit that to
13 us in writing? We appreciate your time this evening.
14 Thank you, sir. Very well done. Our court reporters'
15 fingers are smoking over there.

16 (The statement submitted for the
17 record was marked as Statement 1
18 and is attached hereto.)

19 MR. WALL: Do we have any other speaker cards this
20 evening? Seeing none, we will take a short recess in
21 the public hearing.

22 (Recess was taken.)

23 MR. KESSLER: Is there anyone who else has not had
24 an opportunity to speak concerning the information in
25 the Supplement to the Draft EIS/EIR? Not seeing anyone

1 else, I will remind everyone that if you feel you're
2 unable to provide us with verbal comments today, we will
3 be accepting your written comments until 5:00 p.m.
4 Pacific Standard Time, Friday, November 7, 2003. You
5 can mail your comments either to me at the FAA or to
6 Jim Ritchie with LAWA. The mailing addresses are listed
7 on the cover of the Supplement to the Draft EIS/EIR.

8 I want to thank everyone for your comments
9 today. This public hearing for the Supplement to the
10 Draft EIS/EIR on the Los Angeles International Airport
11 Master Plan is now closed. Thank you.

12 (Whereupon the proceeding adjourned
13 at 9:00 o'clock p.m.)

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1 STATE OF CALIFORNIA)
2 COUNTY OF RIVERSIDE) ss.

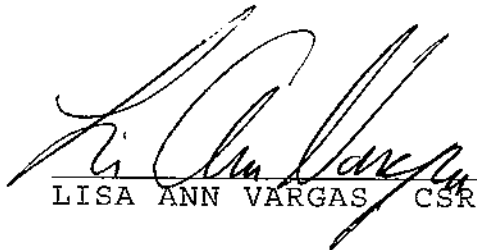
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I, LISA ANN VARGAS, certified shorthand reporter,
License No. 12049, do hereby certify:

That the proceedings contained herein were taken
before me at the time and place herein set forth and was
taken by me in shorthand and thereafter transcribed into
typewriting by me, and I hereby certify that the said
proceedings are a full, true and correct transcript of
my shorthand notes so taken.

I further certify that I am not interested in the
event of the action.

WITNESS my hand this 23rd day of October 2003


LISA ANN VARGAS, CSR NO. 12049

ERRATA SHEET

I declare under penalty of perjury that I have read the foregoing _____ pages
of my deposition testimony, taken on _____ at
_____, _____, California,
and that the same is a true record of the testimony given by me at the time and place hereinabove
set forth, with the following exceptions:

Page Line Should read:

_____	_____	_____
_____	_____	_____
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Date: _____

Signature of the Witness

Name Typed or Printed

MAXINE WATERS

MEMBER OF CONGRESS
35TH DISTRICT, CALIFORNIA

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Public Hearing
Supplement to the Draft EIS/EIR
for the Proposed LAX Master Plan
Doubletree Hotel, Rosemead, CA
Testimony from Rep. Maxine Waters
October 20, 2003

Alternative D is a \$9 billion project that would demolish homes and disturb communities without improving the safety and security of LAX. The Supplement to the Draft EIS/EIR is an inaccurate and misleading document that fails to reflect the true impact of this project.

The centerpiece of Alternative D is the Ground Transportation Center (GTC), a large remote passenger check-in facility that would be constructed at Manchester Square, several blocks away from the airport terminals. An Intermodal Transportation Center (ITC) would be constructed at Aviation Blvd. and Imperial Highway, which would provide a connection to the Green Line. According to the Supplement to the Draft EIS/EIR, the GTC and the ITC would be the primary access points for all passenger drop-off and pick-up and vehicle parking. An Automated People Mover (APM) would be constructed to transport people to the airport terminals, and a baggage tunnel would be constructed to transport baggage. A Consolidated Rental Car (RAC) facility would be constructed in Westchester.

Local families could no longer drive to the Central Terminal Area (CTA) in order to drop off passengers. Instead, all passengers and employees would access the CTA from the GTC, the ITC and the RAC via the APM, carrying their carry-on baggage with them. This would be extremely inconvenient for most passengers, and it would present special hardships for the elderly, the handicapped and families traveling with small children.

Airport Security Issues

Supporters of the proposed project to construct a remote passenger check-in facility claim that the facility is necessary to improve the safety and security of LAX and prevent terrorist attacks at LAX. Theoretically, diverting all vehicular traffic to remote parking structures and the remote passenger check-in facility would protect the Central Terminal Area from car bombs.

The RAND Corporation conducted a security study of the proposed remote passenger check-in facility, which was released on May 14, 2003. The study concluded that the proposed project would not significantly improve the security of LAX. The study also concluded that concentrating passengers in the proposed remote passenger check-in facility could make the check-in facility the likely target of a terrorist attack. Finally, the study concluded that concentrating several airport functions in the remote passenger check-in facility could exacerbate the effects of an attack on airport operations.

Statement
PLF/DEF 4
EXHIBIT
DATE 10-20-03 RPTR
Lisa Vargas
SPHR

On July 25, 2003, I introduced H.R. 2985, a bill to condition construction of a remote passenger check-in facility at LAX upon a finding that such a facility will promote the safety and security of the public. H.R. 2985 would require the Secretary of Homeland Security to review the proposed facility prior to its construction to determine whether it will protect the safety and security of air passengers and the general public more effectively than the existing facilities at LAX. If the Secretary of Homeland Security does not determine that the facility will improve public safety and security, the Federal Aviation Administration (FAA) would not be allowed to approve its construction. On Sept 2, the Board of Supervisors of Los Angeles County passed a motion to support my legislation.

Ironically, Alternative D does not even significantly improve security at the Central Terminal Area. According to the Supplement to the Draft EIS/EIR, Alternative D calls for the installation of new baggage screening facilities in the Central Terminal Area -- not the remote passenger check-in facility. If Alternative D were designed to protect the Central Terminal Area from terrorist attacks, one would think that the baggage would be fully screened before it is transported through the baggage tunnel to this area. Nine billion dollars is an extremely high price to pay for a project that provides a single building protection from car bombs but not from suitcase bombs.

Housing Issues

The Supplement to the Draft EIS/EIR makes the astounding claim that Alternative D would not displace any residents. Instead, the Supplement predicts that 2,500 houses and apartments will be acquired and the residents relocated under LAWA's existing Voluntary Residential Acquisition/Relocation Program, through which LAWA may acquire property and relocate residents on a voluntary basis in order to mitigate the impact of airport noise. The Supplement then concludes that Alternative D would not require the acquisition of any additional dwelling units or the relocation of any additional residents. This claim is especially ironic, given the fact that several Manchester Square residents and apartment owners have already said that they will not leave their homes voluntarily.

In reality, Alternative D would displace thousands of Manchester Square residents. In order to construct the remote passenger check-in facility, the City of Los Angeles would have to acquire and demolish 38 houses, 179 apartment buildings and a 52-year-old elementary school, in addition to the 263 structures it has already acquired. It would also have to relocate about 6,200 people, some of whom have federally subsidized housing vouchers. I strongly oppose the forced relocation of any of these residents.

Cost of the Alternative D

Alternative D would cost \$9 billion, an exorbitant amount of money, at a time when budget deficits are growing and the economy is weak. Airlines would be required to increase their passenger fees in order to fund the proposal, which would amount to a tax increase for air passengers. American taxpayers have already provided loan guarantees to the airline industry to keep the airlines in business following the terrorist attacks of September 11, 2001. They should not have to pay increased passenger fees for unnecessary airport construction projects as well.

Air passengers and other taxpayers are willing to provide reasonable expenditures to pay for measures that provide real increases in security, such as the installation of baggage screening facilities. However, the remote passenger check-in facility, the automated people mover and the baggage tunnel included in Alternative D are not reasonable expenditures and do not provide real increases in security.

The American people are sick and tired of deficits and bloated government spending. The State of California is now running a \$38 billion deficit, and the federal government has a \$525 billion deficit. Furthermore, Congress is in the process of providing the President an additional \$87 billion for continuing operations in Iraq and Afghanistan. Alternative D is an outrageously expensive boondoggle, which the American people cannot afford.

Conclusion

Alternative D is simply a continuation of former Mayor Richard Riordan's plan to expand the airport in the name of safety and security. I urge the City Council of the City of Los Angeles to reject this ill-advised and expensive scheme that will displace thousands of Manchester Square residents without improving the safety and security of LAX.

SPECIFIC GOALS FOR LAX RECONFIGURATION PLANS—GREEN LINE CONNECTIONS

Friends of the Green Line has concluded as its realistic goals to ask the City of Los Angeles and LA World Airports to **NOT PREVENT LAX RAIL ACCESS FROM THE NORTH AND/OR TO PREVENT THE GREEN LINE FROM PROCEEDING NORTH BEYOND LAX:**

Where Friends of the Green Line now stands with respect to the Green Line and LAWA Traffic Mitigation as part of its final EIR is that non-automobile-related traffic measures should include:

1) A written promise for LAWA to fund the necessary trench west of Aviation Blvd. along the MTA Harbor Subdivision ROW to allow the Green Line to proceed north from the current Aviation/Imperial Green Line station without interfering with LAX radar beacons and/or other electromagnetic operations associated with LAX

2) A written promise for LAWA to fund and construct its final Ground Transportation Center (whether it is at Manchester Square or anywhere else) in a manner that allows for a future Green Line station.

LAX-bound passengers from the north should not overshoot LAX to reach the future Intermodal Transit Center at Aviation/Imperial in order to connect with the Central Terminal Area via the LAX People Mover

3) A written promise for LAWA to fund and staff any future preliminary engineering for a Green Line that connects to Westchester and the Westside in a manner that does not preclude the Green Line from reaching these destinations, and in a manner that complements, not competes with, the future LAX People Mover

**Official Hearing Transcript
Granada Hills Charter High School
Granada Hills, California
Wednesday, October 22, 2003**

Following this page is the transcript of the oral testimony taken at the above hearing. Each speaker at the hearing has been assigned a unique identification number. The numbers assigned to each speaker for this hearing are:

Number	Speaker	Affiliation
SPHGH00001	Roger Cohen	Air Transport Association
SPHGH00002	Diana Dixon-Davis	None Provided
SPHGH00003	Bobby Blanks	Congressmember Maxine Waters' Office
SPHGH00004	Sergio Ramos	Laborers Local 300
SPHGH00005	Mike Ayer	None Provided
SPHGH00006	Chris Heywood	Los Angeles Convention and Visitors Bureau
SPHGH00007	Harry Sheffron	None Provided
SPHGH00008	M. E. Bryson	None Provided
SPHGH00009	Francisco Arrizon	Laborers Local 300
SPHGH00010	Jim Hilfenhaus	Democratic Party for the San Fernando Valley
SPHGH00011	Javier Nunez	Laborers Local 300

Any exhibits attached to this hearing transcript have been previously reproduced in this Final EIS/EIR as individual public comment letters.

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ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION AND
LOS ANGELES WORLD AIRPORTS, THE 11TH PUBLIC HEARING
ON THE SUPPLEMENT TO THE DRAFT EIS/EIR
FOR THE PROPOSED MASTER PLAN AT LAX

REPORTER'S TRANSCRIPT OF
PUBLIC TESTIMONY

TAKEN ON
WEDNESDAY, OCTOBER 22, 2003

HELD AT GRANADA HILLS CHARTER HIGH SCHOOL
10535 Zelzah Avenue
Granada Hills, California

REPORTED BY:

LISA ANN VARGAS, C.S.R. NO. 12049

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1 **APPEARANCES OF FACILITATORS:**

2 SHAUNA BAIN SMITH, Public Affairs Director for the
3 Lee Andrews Group

4 DAVID KESSLER, Airport Planner for the Federal Aviation
5 Administration

6 JIM RITCHIE, Deputy Executive Director for the
7 Los Angeles World Airports

8 **APPEARANCES OF PUBLIC SPEAKERS:**

9 1. ROGER COHEN, Representing Airport Transport
10 Association in Washington, D.C.

11 2. DIANA DIXON-DAVIS, A Member of her Local
12 Neighborhood Council

13 3. BOBBY BLANKS, Field Representative to Congressman
14 Maxine Waters

15 4. SERGIO RAMOS, Representing Laborer's Local 300

16 5. MIKE ARYE, Representing Himself

17 6. CHRISTOPHER HEYWOOD, Representing L.A., Inc.,
18 Convention & Visitors Bureau

19 7. HARRY SHEFFRON, Representing Himself

20 8. M.E. BRYSON, Representing Himself

21 9. FRANCISCO ARRIZON, Representing Laborer's Local 300

22 10. JIM HILFENHAUS, Regional Director of the Democratic
23 Party of San Fernando Valley

24 11. JAVIER NUNEZ, Representing Laborer's Local 300

25 **STATEMENTS SUBMITTED FOR THE RECORD**

<u>STATEMENT NUMBER</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1	Statement Submitted by Bobby Blanks	20

1 GRANADA HILLS, CALIFORNIA, WEDNESDAY, OCTOBER 22, 2003

2 6:00 O'CLOCK P.M.

3 ---oOo---

4
5 MS. SMITH: Good evening, ladies and gentlemen. On
6 behalf of the Federal Aviation Administration and
7 Los Angeles World Airports, I want to welcome you to the
8 11th hearing in a series of 12 public hearings being
9 conducted to receive your comments on the Environmental
10 Impact Statement and Environmental Impact Report for the
11 LAX Master Plan.

12 My name is Shauna Smith. I will be your
13 facilitator this evening. The two gentlemen to my right
14 will be receiving your testimony this evening.

15 Before we start the formal proceedings, they
16 each have introductory remarks that they would like to
17 make to you. We'll start with Mr. David Kessler who is
18 an Environmental Protection Specialist with the Federal
19 Aviation Administration.

20 Mr. Kessler.

21 MR. KESSLER: Thank you. Good evening, ladies and
22 gentlemen. My name is David Kessler. I'm the
23 Environmental Protection Specialist for the Airports
24 Division of the Federal Aviation Administration,
25 Western-Pacific Region. I would like to welcome you to

1 the 11th of a series of public hearings the FAA and
2 Los Angeles World Airports, or LAWA, are conducting on
3 the Supplement to the Draft Environmental Impact
4 Statement/Environmental Impact Report, or EIS/EIR, for
5 the proposed Master Plan at Los Angeles International
6 Airport.

7 The Supplement to the Draft EIS/EIR addresses
8 an additional Alternative, Alternative D, the Enhanced
9 Safety and Security Plan that was added in the fall of
10 2001. This new Alternative was added as a result of
11 comments submitted on the 2001 Draft EIS/EIR and the
12 terrorist attacks that occurred on September 11th, 2001.

13 The Notice of Availability of the Supplement
14 to the Draft EIS/EIR was published in various local
15 newspapers and in the Federal Register on Friday, July
16 11, 2003. The FAA and LAWA are the authors of the
17 Supplement. The Federal Highway Administration is also
18 a cooperating agency in the preparation of the Draft
19 EIS/EIR that was published in January 2001. The purpose
20 of these hearings is to collect the comments from the
21 general public concerning the adequacy of the
22 information disclosed to the Supplement to the Draft
23 EIS/EIR on the proposed Alternative D.

24 I would like to take this opportunity to make
25 sure that everyone understands that no decision will be

1 made today regarding the proposed project. Today's
2 hearing is not a question-and-answer-type of forum. Our
3 job is to listen to what you have to say about the
4 adequacy of the information to the Supplement to the
5 Draft EIS/EIR. In other words, it is your turn to talk
6 to us. Since we are here to listen, we are not going to
7 respond to questions about the pros and cons of the
8 proposed project.

9 Since 5:00 o'clock this afternoon, we have
10 held a public workshop just outside of this room for
11 anyone to ask questions about the Master Plan, the
12 environmental process and the various proposed projects.

13 Following publication of the Supplement to the
14 Draft EIS/EIR for review and comment, the next step in
15 the joint federal and state environmental disclosure
16 process is conducting today's hearing along with the
17 public hearings that were held and the three that we are
18 going to continue to hold this week.

19 I would like to take this opportunity to recap
20 the environmental disclosure process for this project.
21 The environmental evaluation of the LAX Master Plan
22 began in 1997 with the publication of the Notice of
23 Intent to prepare the joint EIS/EIR in the Federal
24 Register. In July of 1997 we held a series of meetings
25 with members of the public and governmental agencies to

1 receive comments on the scope of the Draft EIS/EIR.
2 Following those meetings, the Draft EIS/EIR was
3 published in January 2001. Both the 2001 Draft EIS/EIR
4 and the 2003 Supplement have been prepared pursuant to
5 the National Environmental Policy Act of 1969, or NEPA,
6 the Council on Environmental Quality Regulations, which
7 are the implementing regulations for NEPA, and the
8 California Environmental Quality Act of 1970, or CEQA.
9 The documents have also been prepared pursuant to the
10 Airport and Airway Improvement Act of 1982, as amended.

11 Following today's hearings and the close of
12 the comment period, we will then correct and revise the
13 EIS/EIR, as necessary, based on the comments received.
14 We will also prepare responses to the comments we
15 receive and include those responses along with those
16 that were submitted to the FAA and LAWA on the 2001
17 Draft EIS/EIR in the Final EIS/EIR. The information
18 contained in the Supplement will also be combined with
19 the information in the 2001 Draft EIS/EIR into the Final
20 EIS/EIR.

21 Before we begin receiving verbal comments, we
22 would like to let you know the ground rules of the
23 hearing. First, as I said earlier, we are not here to
24 respond to questions about this project. We are only
25 here to listen to your comments and take notes. We also

1 have a court reporter here present to ensure we have an
2 accurate transcript of the hearing.

3 For anyone who would like to speak, we would
4 like to ask you to fill out a speaker card, like this
5 one, and give it to one of the people at the sign-in
6 desk. The cards will then be brought up here to our
7 facilitator who then call the names of each speaker so
8 we could proceed in an orderly fashion.

9 So that everyone gets an opportunity to
10 provide verbal comments, everyone will be allowed three
11 minutes to speak. To be fair to everyone, we will not
12 allow people to transfer their allotted time to someone
13 else. I ask that when you speak, you give us your name
14 and address for the record. We also have a Spanish
15 language translator available for anyone wishing to
16 provide their comments in Spanish.

17 If there is anyone who is uncomfortable
18 speaking in front of a group or if you need more than
19 three minutes to provide your comments, we ask that you
20 provide your comments in writing. We have comment
21 sheets, like this one, also available for your use at
22 the sign-in desk. You could leave your comments at the
23 sign-in desk or you may mail your written comments using
24 either the comment sheet or a letter to either address
25 on the cover of the Supplement to the Draft EIS/EIR.

1 I would like you to understand that a verbal
2 comment is just as important as a written comment. So
3 please feel free to provide any comments on the document
4 you may have to us either verbally today or in writing.

5 On August 1st, 2003 LAWA asked the FAA to
6 extend the public comment period to a total of
7 120 days. FAA has agreed to LAWA's request. On Friday,
8 August 22nd, 2003 the U.S. Environmental Protection
9 Agency published a Notice in the Federal Register
10 announcing the extension to the public comment period.
11 Therefore, comments on the Supplement to the Draft
12 EIS/EIR are now due by 5:00 p.m. Pacific Standard Time
13 on Friday, November 7th, 2003.

14 Lastly, I would like everyone to know that
15 even though we have this hearing scheduled until
16 9:00 o'clock this evening, we will stay here as long as
17 necessary for everyone to get a chance to provide verbal
18 comments on the Supplement to the Draft EIS/EIR. As I
19 said earlier, our job here today is to listen to your
20 comments.

21 At this time I ask that everyone in the room
22 take a moment to turn off your cell phones and pagers to
23 be courteous to those people making verbal comments at
24 tonight's hearing.

25 Now I will return the hearing back to our

1 facilitator who will introduce Mr. Jim Ritchie who will
2 provide some introductory comments from LAWA. Following
3 Mr. Ritchie's comments, we will then collect the speaker
4 cards and call the name of the first speaker.

5 Thank you.

6 MS. SMITH: Thank you, Mr. Kessler. Next I would
7 like to introduce Mr. Jim Ritchie, Deputy Executive
8 Director of Los Angeles World Airports.

9 MR. RITCHIE: Thank you, Shauna. Thank you ladies
10 and gentlemen for coming out tonight. On behalf of the
11 Mayor's office, on behalf of L.A. World Airports, we
12 welcome you to Granada Hills High to what has been now
13 the 11th public hearing. I see many friends in the
14 audience.

15 We appreciate you taking the time tonight to
16 comment on the environmental process that is a component
17 of a lengthy analysis that we have undertaken.

18 You may recall in the year 2001 we were in an
19 11-month public comment period during that time frame
20 examining three other Alternatives, Alternatives A, B
21 and C, expansion alternatives as described. It was
22 during that time frame, of course, we had a tragic event
23 that impacted the nation in the form of a terrorist act
24 on September 11th midway through the review of that
25 environmental process and those alternatives.

1 Under the guidance and the leadership of the
2 Mayor of Los Angeles, Jim Hahn, we have reshaped and
3 added an additional Alternative commonly referred to as
4 Alternative D for your examination this evening.

5 Tonight we will accept, as Mr. Kessler said,
6 your comments on Alternative D. We can assure you that
7 up to this point the Alternative, as described, has
8 undergone and passed the rigorous environmental analysis
9 prescribed by the Federal Government and the State of
10 California.

11 So with that, again, we appreciate your
12 presence and look forward to your comments.

13 Ms. Smith.

14 MS. SMITH: Thank you, Mr. Ritchie. As Mr. Kessler
15 and Mr. Ritchie just explained to you, we are here to
16 receive your testimony. And the only purpose of my role
17 here is to help you stay within the three-minute time
18 frame, as Mr. Kessler explained to you, and tell you a
19 little bit about this clock here.

20 I won't start your time until after you say
21 your name and address for the record. I ask that you
22 spell your last name, if possible, and speak as clearly
23 and loudly as possible for our court reporters to get
24 your testimony and to get your name into the record.

25 Once I start the time, the green light will

1 appear. When you have 30 seconds left, you will see the
2 yellow light appear. At that time I suggest you start
3 wrapping up your remarks. When your time is expired,
4 you will see the red light appear and you will hear a
5 beep tone. At that time I'm going to have to ask you to
6 end your remarks and call the next speakers.

7 With that said, I will start. I will call our
8 first two speakers so that the next person could prepare
9 to speak. We have Roger Cohen and Diana Dixon-Davis.

10 MR. COHEN: Good evening. My name is Roger Cohen,
11 C-o-h-e-n. I am managing director of state and local
12 government affairs for the Air Transport Association in
13 Washington, D.C. We will be submitting detailed
14 comments for the record.

15 (The comments were not submitted at this hearing.)

16 MR. COHEN: Let me take a moment to thank everybody
17 and explain who ATA is. ATA and our 23-member airlines
18 provide 95 percent of these scheduled service both
19 passenger and cargo here in the United States. We and
20 our member airlines share the same goal of everyone else
21 here in Southern California, and that is to maintain a
22 safe, secure and efficient LAX so that it continues to
23 be the community's number one economic asset.

24 ATA's purpose for appearing this evening is to
25 emphasize the importance of the LAX Master Plan to the

1 airline industry and to the national aviation system.
2 Our goal is that at the end of the Master Plan process,
3 LAX not only is an efficient cost-effective airport, but
4 that by working with all parties we can make LAX great
5 once again.

6 Doing nothing is not an option. And there are
7 several improvements long overdue and should begin
8 immediately, including immediately undertake the south
9 airfield runway improvements. We must alleviate the
10 roadway congestion, and we must upgrade the security
11 related infrastructure.

12 Going forward there are several principles
13 that we at ATA will focus on. First is flexibility.
14 And the airline industry is rapidly changing and has
15 undergone more radical upheaval in the last two years
16 than it has in its 75-year history. Future customer
17 patterns, security rules, and so forth, cannot be
18 predicted. So LAX should not lock into any plan that
19 forecloses future options.

20 Secondly, we must maintain the multifaceted
21 LAX mission. It's the world's largest O&D airport, most
22 unique in the country, if not in the world in this
23 regard. It serves long haul domestic, short haul
24 domestic flights. It is an international center and
25 cargo hub. The Master Plan should not sacrifice any of

1 these missions since Southern California has no other
2 viable airport options.

3 Thirdly, we must improve aviation safety,
4 security and capacity. The project should be
5 prioritized to fix the immediate aviation issues such as
6 the south airfield.

7 I would like to also focus on customer and
8 marketplace based solutions. LAX must be fixed to
9 maximize customer convenience and make it easier, not
10 harder, for commerce to flow freely at the airport. And
11 in this regard we strongly believe that funneling all
12 passengers through Manchester Square will be a barrier
13 to good customer service.

14 Finally, LAX is paid for by the users. It
15 must not be a burden on already -- and it is not a
16 burden on the already strapped local government. \$10 to
17 \$12 billion dollars is more than this industry has
18 earned in total over its 75-year history. And even a
19 scaled back plan would create thousands of jobs locally
20 and would represent one of the largest public works
21 projects in the United States.

22 We at ATA will work with all parties through
23 this process so that at the end of the day we could all
24 point with pride to an LAX that works for the next
25 generation. Thank you.

1 MS. SMITH: Thank you. I apologize, I didn't start
2 the timer on time, so I had to go do this.

3 Our next speaker is Diana Dixon-Davis, and I
4 will start the clock on time.

5 MS. DIXON-DAVIS: My name is Diana Dixon-Davis.
6 That's spelled D-i-x-o-n, hyphen, D-a-v-i-s. I live at
7 10832 Glendora Avenue in Chatsworth. I'm actually a
8 member of a local neighborhood council. I'm a
9 demographer by training. And I have -- first I have a
10 housekeeping question.

11 Frankly, this is the first time. I know there
12 have been hearings and they've been around the city;
13 however, I have never seen the EIR document. And I'm
14 wondering, is it available in our libraries? I don't
15 want to take up my time. Can you redo that because I
16 think that is more for the benefit of everyone? Where
17 are they available and what is the internet and website
18 for access to this document? Pardon?

19 MR. RITCHIE: Go ahead and finish your time. I'll
20 talk to you on the break and tell you.

21 MS. DIXON-DAVIS: Well, I think it's for everyone's
22 benefit to know how to get ahold of these documents. It
23 shouldn't just be myself knowing privately.

24 MS. SMITH: Yes, Ms. Dixon, as Mr. Kessler
25 explained --

1 MR. RITCHIE: I would suggest not waste your three
2 minutes. I don't know the exact library. I can tell
3 you it's throughout the L.A. basin. LaxMasterplan.org
4 is how you can reach it on the website.

5 MS. DIXON-DAVIS: Okay. That is basically what I
6 wanted to hear. Okay. I'm going to bring up three
7 points. I don't know if I'll get to all three of them.

8 First, I wanted see -- I don't know how this
9 plan fits into the regional air traffic needs without
10 the community. And I think that -- I don't know if
11 that's stressed in there. We could not get an answer in
12 the workshop as to how it fits into the needs throughout
13 the -- not only the L.A. basin, but the Southern
14 California air passenger traffic needs.

15 Secondly, I'm concerned about the choke
16 points. If you have everyone coming into two or three
17 places, one abandoned suitcase or bag, such as my purse
18 over there, could trigger a security alert. You could
19 shutdown tremendous portions of the entire LAX facility.
20 Everyone coming in or everyone leaving, I think there
21 needs to be a study of what would happen if you have
22 security alerts in certain sections and how much --
23 right now security alerts are, in essence, isolated
24 because of this first nature of the check-in and
25 check-out system.

1 Thirdly, and this is the most important point
2 I wanted to raise is concerning handicap facilities. I
3 have an inherited problem of muscular dystrophy. And I
4 find it very tiring to go through LAX because of the
5 long walks that currently exists. And it looks like
6 this will increase walking distance extensively. And
7 I'm wondering if there have been studies done as to
8 right now if I'm dropped off at the curb and I have to
9 walk to the check-in and then to the airplane, how many
10 feet I walk versus what it will be with now all these
11 remote access and constant changing of -- you have to go
12 from your car, to the train to -- or to the walkway, to
13 a train, to another walkway, to another place. It's
14 just -- I think there is going to be a significant
15 increase in the walking distance. And this will have a
16 significant impact on handicapped passengers who are
17 traveling alone.

18 And then those who are traveling with an
19 attendant might find it even more difficult. Because
20 currently if I take my mother to the airport, I can get
21 dropped off right at the curb. And, basically, we
22 arrange for a -- a wheelchair right there at the
23 entrance or I escort her using a wheelchair or other
24 type of conveyance up to the plane. And they give me
25 special permission for this. But right now I don't see

1 this -- I don't know whether this is incorporated into
2 your study. And I think giving the federal requirements
3 of ADA access, if this is an important thing, then
4 perhaps needs to be added to your study.

5 And, also, I would suggest that you do make
6 notification to all the neighborhood councils in the
7 city about these last few hearings. We have not heard
8 about this hearing in advance. I saw it in the paper
9 today. And I am the vice president of the local
10 neighborhood council. And there are 90 of us out there
11 who need to be notified. Thank you.

12 MS. SMITH: Thank you, Ms. Dixon.

13 Our next speakers are Bobby Blanks and Sergio
14 Ramos. I just want to -- you guys can prepare to come
15 up, Mr. Blanks first, but I just wanted to go over a
16 couple of ground rules before we proceed.

17 First I just wanted to reiterate that we're
18 here to take your testimony and your comments. We're
19 not able to answer questions during this period. We
20 still have some of our consultants in the workshop room
21 that are able to answer those questions and to answer
22 Ms. Dixon's question about where the document is
23 available. We still have people sitting in at the
24 sign-in area. And this young lady waiving the beige
25 document in her hand can provide that information to

1 you. We do have consultants placed all around that can
2 answer those questions, but this period, the three
3 minutes, is just to receive your testimony.

4 And if you're reading from any documents, if
5 you could give those to our court reporters after you're
6 finished so they can place those in the record as well.
7 Thank you.

8 I apologize, Mr. Blanks.

9 MR. BLANKS: My name is Bobby Blanks, B-l-a-n-k-s.
10 And I am the Field Representative to Congressman
11 Maxine Waters of the 35th Congressional District and
12 which LAX resides. Address, 10124 South Broadway, Suite
13 Number 1, Los Angeles, California 90003.

14 Alternative D is a \$9-billion-dollar project
15 that would demolish homes and disturb communities
16 without improving the safety and security of LAX. The
17 Supplement to the Draft EIS/EIR is an inaccurate and
18 misleading document that fails to reflect the true
19 impact of this project.

20 Local families could no longer drive to the
21 Central Terminal Area in order to drop off passengers.
22 Instead, an automated people mover would be constructed
23 to transport people to the airport terminals, and a
24 baggage tunnel will be constructed to transport baggage.
25 All airport employees and passengers would access the

1 Central Terminal Area from the Ground Transportation
2 Center, the Intermodal Transportation Center, and the
3 Rental Car Center via the automated people mover
4 carrying their carry-on baggage with them. This would
5 be extremely inconvenient for most passengers, and it
6 would present special hardships for the elderly, the
7 handicapped and families traveling with small children.

8 On July 25th, 2003 I introduced H.R. 2985, a
9 bill to condition construction of a remote passenger
10 check-in facility at LAX upon a finding that such a
11 facility would promote the safety and security of the
12 public. H.R. 2985 would require the Secretary of
13 Homeland Security to review the proposed facility prior
14 to its construction to determine whether it will protect
15 the safety and security of air passengers and the
16 general public more effectively than the existing
17 facilities at LAX. If the Secretary of Homeland
18 Security does not determine that the facility will
19 improve public safety and security, the Federal Aviation
20 Administration would not be allowed to approve its
21 construction. On September 2nd the Board of Supervisors
22 of Los Angeles County passed a motion to support my
23 legislation.

24 In reality, Alternative D will displace
25 thousands of Manchester Square residents. In order to

1 construct the remote passenger check-in facility, the
2 City of Los Angeles would have to acquire and demolish
3 38 houses, 179 apartment buildings and a 52-year-old
4 elementary school, in addition to the 263 structures it
5 has already acquired. It would also have to relocate
6 about 6,200 people, some of whom have federally
7 subsidized housing vouchers. I strongly oppose the
8 forced relocation of any of these residents.

9 The American people are sick and tired of
10 deficits and bloated government spending. The State of
11 California is now running a \$38-billion-dollar deficit,
12 and the federal government has a \$374-billion-dollar
13 deficit in 2003. Furthermore, Congress is in the
14 process of providing the President an additional
15 \$87 billion for continuing operations in Iraq and
16 Afghanistan. The American people cannot afford to spend
17 \$9 billion on an outrageously expensive boondoggle at
18 LAX. Alternative D is simply a continuation of former
19 Mayor Richard Riordan's plan to expand the airport in
20 the name of safety and security.

21 (The statement submitted for the
22 record was marked as Statement 1
23 and is attached hereto.)

24 MS. SMITH: Thank you.

25 Sergio Ramos.

1 MR. RAMOS: Good afternoon. My name is Sergio
2 Ramos. And I'm a union representative. I'm here on
3 behalf of my business manager Sergio Rascon of Laborer's
4 Local 300. We represent 7,000-plus members.

5 I'm here to testify on behalf of Alternative D
6 because it is the best plan for the City of Los Angeles.
7 The plan provides for 49,000 construction jobs. With
8 all the budget cuts and layoffs, jobs will help to
9 stimulate our regional economy and keep people working.
10 We support Alternative D of LAX Master Plan. Thank you.

11 MS. SMITH: Thank you. Mike Ayre and Christopher
12 Heywood, please.

13 MR. AYRE: My name is Mike Ayre spelled A-y-r-e;
14 address 17128 Lanark Street, Van Nuys, 91406.

15 I am here to speak in favor of the Mayor's
16 Alternative D plan. Mayor Hahn's plan addresses the
17 safety, security and regional needs. Most importantly,
18 it addresses the modernization that is necessary to
19 LAX to maintain LAX as a key international gateway and
20 one of the largest origination and destination airports.
21 Our regional economy needs -- our economy depends on it.
22 Modernization is long overdue. Let's move forward with
23 the Alternative D plan. Thank you.

24 MS. SMITH: Thank you.

25 Mr. Heywood.

1 MR. HEYWOOD: Good evening. My name is Chris
2 Heywood. I'm representing L.A., Inc., the Convention &
3 Visitor's Bureau, L.A.'s official tourism marketing
4 organization. And we are here in support of LAX Master
5 Plan Alternative D.

6 Tourism is L.A.'s second largest industry
7 representing 240,000 jobs in L.A. County alone in 2002.
8 We believe that Alternative D modernization of LAX is
9 key to maintaining L.A.'s key international gateway
10 status. Consumers have more choices than ever before in
11 terms of international gateway airports, and is crucial
12 for LAX to step up to the plate and ensure that its
13 already antiquated facility is brought up to modern
14 times.

15 LAX must also be in a comfortable position to
16 access its primary U.S. domestic markets. And we
17 believe that Alternative D does that. International
18 visitation to LAX represents 30 percent of total
19 visitors' spending. And ensuring that LAX is perceived
20 as a safe and secure airport from the international
21 market will ensure the steady flow of international
22 consumers. And we certainly want to continue to have
23 those consumers come to Los Angeles.

24 The plan also addresses the regionalization of
25 air travel demands throughout Southern California, and

1 we believe it is a sound and prudent Alternative.

2 Thank you.

3 MS. SMITH: Thank you.

4 Next we have Harry Sheffron, and Francisco
5 Arrizon after Mr. Sheffron, please.

6 MR. SHEFFRON: Good evening. My name is Harry
7 Sheffron, S-h-e-f-f-r-o-n, at 17121 Lorillaro Street,
8 Granada Hills. I speak as a local resident.

9 The first I heard about this was in today's
10 paper. My main concern is the 405 and the 105 freeways.
11 People bring us all these wonderful ideas. You want to
12 increase the body flow through LAX by another ten
13 million people. And that's great. We are going to need
14 that because we want the community to grow. But we also
15 have to address, and this is what my main concern is,
16 traffic on the freeways. We have the longest parking
17 lot in the world. And I don't want to be on it any
18 longer than I have to.

19 So for the record, I want to make sure that
20 somebody is going to address the fact that we have
21 ground transportation in and out of the city, not just
22 at the airport, so that we could handle this extra ten
23 million people including the people that are going to be
24 living in the new communities that are being built
25 around the San Fernando Valley upwards of 30,000 homes.

1 That's going to add more bodies to the freeway every
2 single day. Frankly, I'm tired of sitting on the
3 freeway.

4 So this is just for the record I want to make
5 sure it gets addressed. Thank you.

6 MS. SMITH: Thank you.

7 Francisco Arrizon.

8 UNIDENTIFIED SPEAKER: He stepped out.

9 MS. SMITH: He stepped out.

10 Mr. Bryson or Ms. Bryson, M.E. Bryson.
11 Mr. Bryson, you can go ahead and give Francisco a
12 chance. You'll be right after Mr. Bryson, Mr. Arrizon.
13 Okay.

14 MR. BRYSON: My name is M.E. Bryson, B-r-y-s-o-n.
15 I'm speaking as a concerned Northridge citizen.

16 I am against this proposal. One of the main
17 reasons I am against this proposal is to turn around and
18 make this one airport in Los Angeles the major source of
19 transportation in and out of this city and this country
20 would turn around and make it a very opportunistic
21 place for terrorists. If terrorists wanted to attack
22 this city and cause more harm to this country and our
23 economy, LAX would be a prime target. Wake up.

24 The other reason I'm against this is the
25 airport now is too big. It has poor highway access.

1 We'll add to check-in time. We'll increase access time
2 when weather is bad. We'll add noise to the surrounding
3 area. We'll increase the probability of overhead
4 accidents. And I've already told you about terroristic
5 opportunities. Too many people north of Mulholland
6 Drive need a better way to get in and out of the
7 Los Angeles, and the facility is available in Palmdale.
8 It is an international airport. It was intended to be
9 an international airport. The city has flubbed the dub.
10 Okay. The state at the current time has absolutely
11 nothing in their budgetary or planning stages to turn
12 around and provide better freeway or highway access to
13 the Los Angeles International Airport.

14 Now, my reasons why it should be the
15 international airport in Palmdale is Palmdale, like I've
16 already said, is a major international airport. And it
17 will make less attractive for terrorists. If there is a
18 terrorist bomb down in the Los Angeles International
19 Airport, you can kiss this city good-bye. The economic
20 effects would be unbelievable. You might as well just
21 drop an atomic bomb right in the middle of the Civic
22 Center. And I hope you people realize that.

23 We made a horrible mistake when we moved our
24 Navy fleet out of Long Beach and put it down in
25 San Diego for Admiral's Holiday. And everybody that

1 knows anything about planning knows you never put your
2 major forces in one place where they can all be attacked
3 at one time. Thank you.

4 MS. SMITH: Thank you. Francisco Arrizon.

5 MR. ARRIZON: Yes. Thank you. Good evening. Sorry
6 about that. I thought --

7 MS. SMITH: That's okay. Could you just state your
8 name and spell it for the record, please.

9 MR. ARRIZON: Yes. My name is Francisco Arrizon.
10 I'm with the Laborer's Local 300. I'm here representing
11 Mr. Sergio Rascon, our business manager and, also, the
12 8,000 members of the local.

13 We are here in support of Alternative D. This
14 will create jobs for our labor force, for the community.
15 We have -- throughout the City of Los Angeles we have
16 residents. I represent the public sector employees that
17 work in the school district, the County, the L.A.
18 Housing Authority, that they constantly are using our
19 airports. And it facilitates all of the air travels for
20 business, for pleasure. And once again, we are here in
21 support. Thank you.

22 MS. SMITH: Thank you. Do we have anyone else
23 present that wishes to give their testimony? We're here
24 until 9:00 p.m. Please fill out a speaker card if you
25 wish to speak. We would like to receive your testimony.

1 The speaker cards are located at the sign-in desk at the
2 entrance to my left.

3 And at this point we'll take a 15-minute
4 recess and we'll reconvene -- what time do we have?
5 We'll reconvene at 6:50. Thank you.

6 (Recess was taken.)

7 MS. SMITH: If I could have your attention for one
8 moment, please. It's 7:00 p.m. We were to reconvene,
9 but we still don't have any speaker cards. If you wish
10 to give us your testimony, we are here to receive it
11 until 9:00 p.m., but we will stay in recess until we
12 receive another speaker card. Thank you.

13 (Recess was taken.)

14 MR. KESSLER: After a moment we are going to take
15 our next speaker.

16 MS. SMITH: Reconvening now, we'd like to ask
17 everyone to take your seats, and we'll call our next
18 speaker who is Mr. Jim Hilfenhaus. Mr. Jim Hilfenhaus?
19 "Hilfenhau"? Mr. Hilfenhaus. Oh, in the rest room.
20 Time-out.

21 (Discussion was held off the record.)

22 MS. SMITH: Now, do you understand the ground rules,
23 Mr. Hilfenhaus?

24 MR. HILFENHAUS: What's that?

25 MS. SMITH: Is it Mr. "Hilpenhau" or "House"?

1 MR. HILFENHAUS: "House."

2 MS. SMITH: "House." So I was right the first time.

3 Do you understand the ground rules? You have
4 three minutes. It starts at the green light. 30
5 seconds you see the yellow light. The red light time is
6 expiring. I will have to ask you to stop speaking. If
7 you can just state your name and address and spell your
8 last name for the record, and then I'll start your time.

9 MR. HILFENHAUS: Sure.

10 MS. SMITH: Thank you.

11 MR. HILFENHAUS: My name is Jim Hilfenhaus. It is
12 spelled H-i-l, F like Frank, e-n-h-a-u-s, like Sam.
13 Address is 9732 Via Siena, S-i-e-n-a, Burbank, but
14 actually it's in the City of Los Angeles, mailing
15 address Burbank, 91504.

16 Okay. And I'm here to speak as the Regional
17 Director of the Democratic Party for the San Fernando
18 Valley. The Democratic Party has gone on record in
19 support of the LAX Modernization Plan and has been in
20 that position since it was first brought up as the
21 expansion. We're strongly supportive on both jobs,
22 environmental and security issues involved here.

23 The modernization of the LAX is well needed.
24 It's a 40-year-old structure that was designed for first
25 jet flights. We're now expanding to larger jets. Of

1 course, the runways need to be separated, widened. But,
2 basically, everything from 9-11 forward has been a
3 retrofit. The modernization enables security to be
4 smooth and efficient and expeditious through the
5 airport.

6 The airport is an economic driving engine for
7 the City of Los Angeles. It's our port of entry for
8 international tourism and travel, and tourism is the
9 largest basis of the economics of the City of
10 Los Angeles. So we do need to continue our tourists'
11 travel, which is subdued since 9-11, but will be
12 continuously expanding as it is throughout the country.

13 This is a well overdue project. We have gone
14 on record in the L.A. County Democratic Central
15 Committee on support. I think three years ago we had a
16 huge hearing with both sides appearing. It was voted
17 overwhelmingly in support of the LAX. At that time it
18 was modernization. We continue to support this plan,
19 and Plan D the Alternative.

20 The work is needed. From an economic engine
21 of jobs for the work itself, a 12-billion-dollar input
22 into the L.A. economy, which may not be the issue here
23 at hand, but can't be denied, can recoup the energy of
24 California in our current recession. We are in a job
25 crisis, and we do need to have these jobs out there

1 rehabilitating the airport that will drive other
2 economic engines within this economy. The purchasing of
3 houses, the scholarships of schools, sending children
4 off to further their careers in college, we need that.
5 We need the jobs that come about through that. The
6 local community needs the jobs, as far as the
7 maintenance in the airport that the modernization will
8 bring, the securitization, the internal shopping centers
9 and such. So thank you for your time.

10 MS. SMITH: Thank you. Do any other audience
11 members care to speak?

12 At this time we do not have any other speaker
13 cards. We are here until 9:00 p.m. We'd like to
14 receive your testimony. We will go into recess until we
15 receive another speaker card. Thank you very much.

16 (Recess was taken.)

17 MR. KESSLER: If you could please take your seats.
18 We do have another speaker card, Mr. Javier Nunez. We
19 will be calling him in just a moment. So I ask everyone
20 to return to their seats so we could listen to
21 Mr. Nunez. Thank you.

22 Just a second. Shauna is our facilitator.
23 She is going to explain the rules of our hearing. And
24 then Mr. Ritchie here will be ready in just a moment.
25 Once we get started, we'll use our clock here to help

1 you with your testimony this evening.

2 MR. NUNEZ: Thank you.

3 MS. SMITH: Good evening, Mr. Nunez. Are you
4 familiar with how these clocks run?

5 MR. NUNEZ: Yes.

6 MS. SMITH: Okay. So I will start the clock after
7 you state your name and spell your last name and address
8 for the record. You will have three minutes. When you
9 have 30 seconds left, the yellow light will flash. When
10 your time has expired, the red light will flash and you
11 will hear a beep tone.

12 To my far right is Mr. Jim Ritchie who is the
13 Deputy Executive Director of Los Angeles World Airports.
14 And to my near right is Mr. David Kessler. He is an
15 Environmental Protection Specialist with the Federal
16 Aviation Administration. They are here to receive your
17 testimony. I am just here to facilitate. So with that
18 said --

19 MR. NUNEZ: Understood.

20 MS. SMITH: -- we're here to take your testimony.

21 MR. NUNEZ: Thank you. My name is Javier Nunez,
22 N-u-n-e-z. And my address is 11006 Noble Avenue,
23 Mission Hills, California. And I am vice president of
24 Laborer's Local 300 in the construction industry. Also
25 along with that, I'm also a minister with Victory

1 Outreach Ministries and have done some extensive
2 traveling in, you know, other countries. And been as a
3 minister and as a union official have done quite a bit
4 of traveling.

5 In my opinion, Los Angeles is in desperate
6 need of change at LAX. There has to be a system that
7 has to be put in place where we're able to not only at
8 the same time provide jobs for our community and provide
9 work, because that's one of the reasons why I'm here,
10 but foremost what's most important is the security of
11 the people, the security of children going through the
12 airport and making sure that we do the best that we can
13 do as residents of the Los Angeles County in securing
14 our airport for visitors that are coming in from other
15 countries as well as from those that live within the
16 County of Los Angeles that are leaving to other
17 countries or to other destinations.

18 I think what we have in place right now, it's
19 a place where the world has changed tremendously. From
20 the 1950s -- and we won't go back that further -- to the
21 year 2003 the minds of people have changed. The
22 attitudes of people have changed. For some reason there
23 seems to be the attitude of people is, if you don't do
24 what I say, then I'm going to go ahead and be vindictive
25 and I'm going to use violence to make my point across.

1 And that's what we need to stop. We need to be careful
2 and make sure that we put a plan together that that will
3 not occur. That we will not -- that we will have the
4 people traveling that are coming in and out of LAX first
5 of all and foremost be safe and that we implement a
6 system at LAX that will meet those needs because
7 Los Angeles in the minds of many people is a great
8 target.

9 But I know together, with all of us coming
10 together we could have a safe and a beautiful terminal
11 that people will feel secure. And we need to bring the
12 business back to L.A. And we need other people to feel
13 secure that when they come fly into Los Angeles and they
14 are going to Hollywood, that they are secure. We need
15 tourists from all over the world to come and visit L.A.
16 and leave their money here. God bless you.

17 MS, SMITH: Thank you.

18 MR. KESSLER: Thank you.

19 MS. SMITH: Good night. Thank you for coming.

20 All right. Are there any other audience
21 members who wish to give their testimony? We're here
22 until 9:00 p.m. Please fill out a speaker card if you
23 wish to give your testimony. We will recess until we
24 receive another speaker card. Thank you.

25 (Recess was taken.)

1 MR. KESSLER: Is there anyone who else has not had
2 an opportunity to speak concerning the information in
3 the Supplement to the Draft EIS/EIR?

4 Not seeing anyone else, I will remind everyone
5 that if you feel you're unable to provide us with verbal
6 comments today, we will be accepting written comments
7 until 5:00 p.m. Pacific Standard Time, Friday, November
8 7, 2003. You can mail your comments either to me at the
9 FAA or to Jim Ritchie with LAWA. The mailing addresses
10 are listed on the cover of the Supplement to the Draft
11 EIS/EIR.

12 I want to thank everyone for your comments
13 today. This public hearing for the Supplement to the
14 Draft EIS/EIR on the Los Angeles International Airport
15 Master Plan is now closed. Thank you.

16 (Whereupon the proceeding adjourned
17 at 9:00 o'clock p.m.)

18 ---oOo---

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1 STATE OF CALIFORNIA)
2 COUNTY OF RIVERSIDE) ss.

3

4 I, LISA ANN VARGAS, certified shorthand reporter,
5 License No. 12049, do hereby certify:

6 That the proceedings contained herein were taken
7 before me at the time and place herein set forth and was
8 taken by me in shorthand and thereafter transcribed into
9 typewriting by me, and I hereby certify that the said
10 proceedings are a full, true and correct transcript of
11 my shorthand notes so taken.

12 I further certify that I am not interested in the
13 event of the action.


14

15 WITNESS my hand this 25th day of October 2003

16

17

18


LISA ANN VARGAS, CSR NO. 12049

19

20

21

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23

24

25

ERRATA SHEET

I declare under penalty of perjury that I have read the foregoing _____ pages of my deposition testimony, taken on _____ at _____, California, and that the same is a true record of the testimony given by me at the time and place hereinabove set forth, with the following exceptions:

Page Line Should read:

Date: _____

Signature of the Witness

Name Typed or Printed

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35TH DISTRICT, CALIFORNIA

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Testimony from Rep. Maxine Waters

**Public Hearing on the Supplement to the Draft EIS/EIR
for the Proposed LAX Master Plan**

**Granada Hills Charter High School
10535 Zelzah Avenue
Granada Hills, CA 91344**

October 22, 2003

Alternative D is a \$9 billion project that would demolish homes and disturb communities without improving the safety and security of LAX. The Supplement to the Draft EIS/EIR is an inaccurate and misleading document that fails to reflect the true impact of this project.

The centerpiece of Alternative D is the Ground Transportation Center (GTC), a large remote passenger check-in facility that would be constructed at Manchester Square, several blocks away from the airport terminals. An Intermodal Transportation Center (ITC) would be constructed at Aviation Blvd. and Imperial Highway, which would provide a connection to the Green Line. According to the Supplement to the Draft EIS/EIR, the GTC and the ITC would be the primary access points for all passenger drop-off and pick-up and vehicle parking. A Consolidated Rental Car (RAC) facility would be constructed in Westchester.

Inconvenience for Passengers

Local families could no longer drive to the Central Terminal Area in order to drop off passengers. Instead, an Automated People Mover would be constructed to transport people to the airport terminals, and a baggage tunnel would be constructed to transport baggage. All airport employees and passengers would access the Central Terminal Area from the GTC, the ITC and the RAC via the Automated People Mover, carrying their carry-on baggage with them. This would be extremely inconvenient for most passengers, and it would present special hardships for the elderly, the handicapped and families traveling with small children.

Airport Security

Supporters of the proposed project to construct a remote passenger check-in facility claim that the facility is necessary to improve the safety and security of LAX and prevent terrorist attacks at LAX. Theoretically, diverting all vehicular traffic to remote parking structures and the remote passenger check-in facility would protect the Central Terminal Area from car bombs.

The RAND Corporation conducted a security study of the proposed remote passenger check-in facility, which was released on May 14, 2003. The study concluded that the proposed project would not significantly improve the security of LAX. The study also concluded that concentrating passengers in the proposed remote passenger check-in facility could increase the likelihood that the check-in facility would be the target of a terrorist attack. Finally, the study concluded that concentrating several airport functions in the remote passenger check-in facility could exacerbate the effects of an attack on airport operations.

On July 25, 2003, I introduced H.R. 2985, a bill to condition construction of a remote passenger check-in facility at LAX upon a finding that such a facility will promote the safety and security of the public. H.R. 2985 would require the Secretary of Homeland Security to review the proposed facility prior to its construction to determine whether it will protect the safety and security of air passengers and the general public more effectively than the existing facilities at LAX. If the Secretary of Homeland Security does not determine that the facility will improve public safety and security, the Federal Aviation Administration (FAA) would not be allowed to approve its construction. On September 2, the Board of Supervisors of Los Angeles County passed a motion to support my legislation.

Ironically, Alternative D does not even significantly improve security at the Central Terminal Area. According to the Supplement to the Draft EIS/EIR, Alternative D calls for the installation of new baggage screening facilities in the Central Terminal Area -- not the remote passenger check-in facility. If Alternative D were designed to protect the Central Terminal Area from terrorist attacks, one would think that the baggage would be fully screened before it is transported through the baggage tunnel to this area. Nine billion dollars is an extremely high price to pay for a security project that provides protection from car bombs but not from suitcase bombs.

Displacement of Residents

The Supplement to the Draft EIS/EIR makes the astounding claim that Alternative D would not displace any residents. Instead, the Supplement predicts that 2,500 houses and apartments will be acquired and the residents relocated under LAWA's existing Voluntary Residential Acquisition/Relocation Program, through which LAWA may acquire property and relocate residents on a voluntary basis in order to mitigate the impact of airport noise. The Supplement then concludes that Alternative D would not require the acquisition of any additional dwelling units or the relocation of any additional residents. This claim is especially ironic, given the fact that several Manchester Square residents have already said that they will not leave their homes voluntarily.

In reality, Alternative D would displace thousands of Manchester Square residents. In order to construct the remote passenger check-in facility, the City of Los Angeles would have to acquire and demolish 38 houses, 179 apartment buildings and a 52-year-old elementary school, in addition to the 263 structures it has already acquired. It would also have to relocate about 6,200 people, some of whom have federally subsidized housing vouchers. I strongly oppose the forced relocation of any of these residents.

The Cost of Alternative D

Alternative D would cost \$9 billion, an exorbitant amount of money, at a time when budget deficits are growing and the economy is weak. Airlines would be required to increase their passenger fees in order to fund the proposal, which would amount to a tax increase for air passengers. American taxpayers have already provided loan guarantees to the airline industry to keep the airlines in business following the terrorist attacks of September 11, 2001. They should not have to pay higher passenger fees for unnecessary airport construction projects as well.

Air passengers and other taxpayers are willing to support reasonable expenditures to pay for measures that provide real enhancements in security, such as the installation of baggage screening facilities. However, the remote passenger check-in facility, the Automated People Mover and the baggage tunnel included in Alternative D are not reasonable expenditures and do not provide real enhancements in security.

The American people are sick and tired of deficits and bloated government spending. The State of California is now running a \$38 billion deficit, and the federal government has a \$374 billion deficit in 2003. Furthermore, Congress is in the process of providing the President an additional \$87 billion for continuing operations in Iraq and Afghanistan. The American people cannot afford to spend \$9 billion on an outrageously expensive boondoggle at LAX.

Conclusion

Alternative D is simply a continuation of former Mayor Richard Riordan's plan to expand the airport in the name of safety and security. I urge the City Council of the City of Los Angeles to reject this ill-advised and expensive scheme that will displace thousands of Manchester Square residents without improving the safety and security of LAX.

**Official Hearing Transcript
Epic Center/Olympic Swim Stadium
Los Angeles, California
Saturday October 25, 2003**

Following this page is the transcript of the oral testimony taken at the above hearing. Each speaker at the hearing has been assigned a unique identification number. The numbers assigned to each speaker for this hearing are:

Number	Speaker	Affiliation
SPHE00001	Bernard Parks	City of Los Angeles
SPHE00002	Kelly McDowell	City of El Segundo
SPHE00003	Kevin Norton	International Brotherhood of Electrical Workers, Local 11
SPHE00004	Denny Schneider	Alliance for Regional Solution to Airport Congestion
SPHE00005	Shabaca Heru	Community Coalition for Change
SPHE00006	Emma Worthington	None Provided
SPHE00007	Tony Muhammad	Nation of Islam
SPHE00008	Brenda Robinson	None Provided
SPHE00009	Tom Heckman	Local 12, Operating Engineers
SPHE00010	Skip Henke	LA/O Counties Building & Construction Trades Council
SPHE00011	Keith Blowers	None Provided
SPHE00012	James Hopkins	None Provided
SPHE00013	Steve Wehus	International Brotherhood of Electrical Workers, Local 11
SPHE00014	James Odom	Sheet Metal Trade, Local 105
SPHE00015	Liz Badras	None Provided
SPHE00016	Tammy Lazer	None Provided
SPHE00017	Charles Adelman	None Provided
SPHE00018	Timothy Watkins	None Provided
SPHE00019	Sheila Bernard	Grass Roots Venice Neighborhood Council
SPHE00020	Nelle Ivory	None Provided
SPHE00021	Bobby Blanks	Congressmember Maxine Waters' Office
SPHE00022	Sondra Roberts	None Provided
SPHE00023	Sandra Delahoussaye-Bond	None Provided
SPHE00024	Willie Solomon	None Provided
SPHE00025	John Ferruccio	None Provided
SPHE00026	Ethel Swiney	Wilton and Gramercy Place Club
SPHE00027	Roger Williams	International Brotherhood of Electrical Workers, Local 11
SPHE00028	Richard Slawson	LA/O Counties Building & Construction Trades Council
SPHE00029	Tarlise Netherly	None Provided

Number	Speaker	Affiliation
SPHE00030	Dan Hawn	Operating Engineers, Local 12
SPHE00031	Lisa Hernandez	Communities for a Better Environment
SPHE00032	Sparky Carpio	None Provided
SPHE00033	Anthony Furtado	International Union of Operating Engineers, Local 12
SPHE00034	Styles Logan	None Provided
SPHE00035	Jimmie Holmes	None Provided
SPHE00036	Shu Woo	None Provided
SPHE00037	Jason Ahn	Korean Community Service
SPHE00037	Samuel In	Korean Community Service
SPHE00037	Don Jung	Korean Community Service
SPHE00037	Jay Kim	Korean Community Service
SPHE00037	Esther Kwon	Korean Community Service
SPHE00037	Kay Lee	Korean Community Service
SPHE00037	Shawn Lim	Korean Community Service
SPHE00037	John Oh	Korean Community Service
SPHE00037	Tua Pek	Korean Community Service
SPHE00037	Peter Rhee	Korean Community Service
SPHE00037	Chun Sonko	Korean Community Service
SPHE00038	Susan Kim	None Provided
SPHE00039	Dan Mishell	Los Angeles Convention and Visitors Bureau
SPHE00040	Cecil Carpio	None Provided
SPHE00041	Diane Sambrano	None Provided
SPHE00042	Clarence Daniels	Concessions Management Services
SPHE00043	Byrd Young	None Provided
SPHE00044	Bill West	None Provided
SPHE00045	Marqueece Harris-Dawson	Community Coalition in South Central Los Angeles
SPHE00046	Harry Rose	None Provided
SPHE00047	Carole Hossan	None Provided
SPHE00048	Bruce McDaniel	Lennox School District
SPHE00049	Willie Crittendon	Inglewood School District Board of Education
SPHE00050	James Washington	S.E.I.U., Local 347

Any exhibits attached to this hearing transcript have been previously reproduced in this Final EIS/EIR as individual public comment letters.

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ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION AND
LOS ANGELES WORLD AIRPORTS, THE 12TH PUBLIC HEARING
ON THE SUPPLEMENT TO THE DRAFT EIS/EIR
FOR THE PROPOSED MASTER PLAN AT LAX

REPORTER'S TRANSCRIPT OF
PUBLIC TESTIMONY

TAKEN ON
SATURDAY, OCTOBER 25, 2003

HELD AT EPIC CENTER/OLYMPIC SWIM STADIUM
3980 South Menlo Avenue
Los Angeles, California

REPORTED BY:

LISA ANN VARGAS, C.S.R. NO. 12049

NORMAN SCHALL & ASSOCIATES
Certified Shorthand Reporters

1055 Wilshire Blvd. Suite 1503
Los Angeles, CA 90017
(800) 734-8838
(213) 481-3636 Fax
e-mail: SchallDepo@aol.com
www: SchallCourtReporters.com

1 **APPEARANCES OF FACILITATORS:**

2 SHAUNA BAIN SMITH, Public Affairs Director for the
3 Lee Andrews Group

4 DAVID KESSLER, Airport Planner for the Federal Aviation
5 Administration

6 JIM RITCHIE, Deputy Executive Director for the
7 Los Angeles World Airports

8 **APPEARANCES OF PUBLIC SPEAKERS:**

9 1. COUNCILMAN BERNARD PARKS, L.A. City Councilmember

10 2. COUNCILMAN KELLY MCDOWELL, Councilmember Representing
11 El Segundo

12 3. KEVIN NORTON, Representing International Brotherhood
13 of Electrical Workers Local 11

14 4. DENNY SCHNEIDER, Representing Alliance for Regional
15 Solution to Airport Congestion

16 5. SHABACA HERU, The Community Coalition for Change

17 6. EMMA WORTHINGTON, Representing Herself

18 7. TONY MUHAMMAD, Western Regional Representative
19 for the Nation of Islam

20 8. BRENDA ROBINSON, Representing Herself

21 9. THOMAS HECKMAN, Member of Local 12 Operating
22 Engineers

23 10. SKIP HENKE, Council Representative for the
24 Los Angeles Building and
25 Construction Trades Council

11. KEITH BLAUERS, Representing Himself

12. JAMES HOPKINS, Representing Himself

13. STEVE WEHUS, International Brotherhood of
14 Electrical Workers Local 11

15. JAMES ODOM, Representing the Sheet Metal
16 Trade Local 105

1 **APPEARANCES OF PUBLIC SPEAKERS CONTINUED:**

2 15. LIZ BADRAS, Representing Herself

3 16. TAMMY LAZER, Representing Herself

4 17. CHARLES ADELMAN, Representing Himself

5 18. TIMOTHY WATKINS, Representing Himself

6 19. SHEILA BERNARD, President of the Grass Roots Venice
 Neighborhood Council

7 20. NELLE IVORY, Representing Herself

8 21. BOBBY BLANKS, Field Representative for
9 Congressmember Maxine Waters

10 22. SONDRRA ROBERTS, Representing District 4 Task Force

11 23. SANDRA DELAHOUSSAYE-BONDS, Representing Inglewood's
 District 4 Task Force

12 24. WILLIE SOLOMON, Representing Himself

13 25. JOHN FERRUCCIO, Representing Pipe Trades Union
14 Local 250

15 26. ETHEL SWINEY, Representing the Wilton and Gramercy
 Place Club

16 27. ROGER WILLIAMS, Representing the International
17 Brotherhood of Electrical Workers
 Local 11

18 28. RICHARD SLAWSON, Representing the Los Angeles and
19 Orange Counties Building and
 Construction Trades Council

20 29. TARLISE NETHERLY, Representing Herself as a
21 Handicapped Citizen

22 30. DAN HAWN, Representing Operating Engineers Heavy
 Equipment Operators Local 12

23 31. LISA HERNANDEZ, Speaking on Behalf of Carlos Porras

24 32. SPARKY CARPIO, Representing Herself

25

1 **APPEARANCES OF PUBLIC SPEAKERS CONTINUED:**

- 2 33. ANTHONY FURTADO, Representing Operating Engineers
3 Local 12
- 4 34. STYLES LOGAN, Representing the 8th District
5 Residents
- 6 35. JIMMIE HOLMES, Representing Himself
- 7 36. SHU WOO, Representing Himself
- 8 37. ESTHER KWON, A Korean Community Member speaking on
9 behalf of Jason Ahn, Kay Le, Tua Pek, Peter Rhee,
10 Don Jung, John Oh, Jay Kim, Chun Sonko, Samuel In
- 11 38. SUSAN KIM, Representing herself and the Korean
12 Community
- 13 39. SHAWN LIM, Representing the Korean Community
- 14 40. DANIEL MISHELL, Representing L.A., Inc., The
15 Convention & Visitor's Bureau
- 16 41. CECIL CARPIO, Representing Herself
- 17 42. DIANE SAMBRANO, Representing Herself
- 18 43. CLARENCE DANIELS, AMAC/GLAAC
- 19 44. BYRD YOUNG, Representing Herself as a Community
20 Stakeholder
- 21 45. BILL WEST, A Business Representative of the
22 Neighborhood Council in
23 Westchester/Playa del Rey
- 24 46. MARQUEECE HARRIS-DAWSON, member of the Community
25 Coalition in South Central Los Angeles
- 26 47. HARRY ROSE, Representing Himself
- 27 48. CAROLE HOSSAN, Representing Herself
- 28 49. BRUCE MCDANIEL, Representing Lennox Unified School
29 District
- 30 50. WILLIE CRITTENDON, Representing Inglewood Unified
31 School District

1 APPEARANCES OF PUBLIC SPEAKERS CONTINUED:

2 51. JAMES WASHINGTON, Representing Local 347 SEIU,
3 Service Employees International Union
4
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STATEMENTS SUBMITTED FOR THE RECORD

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1 SATURDAY, OCTOBER 25, 2003, LOS ANGELES, CALIFORNIA

2 10:00 O'CLOCK A.M.

3 ---oOo---

4
5 MS. SMITH: If I could get everyone's attention,
6 please. On behalf of the Federal Aviation
7 Administration and Los Angeles World Airports, I want to
8 welcome you to the 12th hearing in our series of public
9 hearings being conducted to receive your comments on the
10 Environmental Impact Statement and Environmental Impact
11 Report for the LAX Master Plan. My name is Shauna Bain
12 Smith, and I will be your facilitator this morning.

13 The two gentlemen to my right will be
14 receiving your testimony. Before we start the formal
15 proceedings, they each have introductory remarks they
16 would like to make. I'll start with Mr. David Kessler
17 who is the Environmental Protection Specialist with the
18 Federation Aviation Administration.

19 Mr. Kessler.

20 MR. KESSLER: Thank you. Good morning, ladies and
21 gentlemen. My name is David Kessler. I'm the
22 Environmental Protection Specialist for the Airports
23 Division of the Federal Aviation Administration,
24 Western-Pacific Region. I would like to welcome you to
25 the 12th of a series of public hearings the FAA and

7

1 the Los Angeles World Airports, or LAWA, are conducting
2 for the Supplement to the Draft Environmental Impact
3 Statement/Environmental Impact Report, or EIS/EIR, for
4 the proposed Master Plan at Los Angeles International
5 Airport.

6 The Supplement to the Draft EIS/EIR addresses
7 an additional Alternative, Alternative D, the Enhanced
8 Safety and Security Plan that was added in the fall of
9 2001. This new Alternative was added as a result of
10 comments submitted on the 2001 Draft EIS/EIR and the
11 terrorist attacks that occurred on September 11th, 2001.

12 The Notice of Availability of the Supplement
13 to the Draft EIS/EIR was published in various local
14 newspapers and in the Federal Register on Friday, July
15 11, 2003. The FAA and LAWA are the authors of the
16 Supplement. The Federal Highway Administration is also
17 a cooperating agency in the preparation of the Draft
18 EIS/EIR that was published in January 2001. The purpose
19 of these hearings is to collect comments from the
20 general public concerning the adequacy of the
21 information disclosed to the Supplement to the Draft
22 EIS/EIR on the proposed Alternative D.

23 I would like to take this opportunity to make
24 sure that everyone understands that no decision will be
25 made today regarding the proposed project. Today's

1 hearing is not a question-and-answer-type of forum. Our
2 job is to listen to what you have to say about the
3 adequacy of the information in the Supplement to the
4 Draft EIS/EIR. In other words, it is your turn to talk
5 to us. Since we are here to listen, we are not going to
6 respond to questions about the pros and cons of the
7 proposed project.

8 Since 9:00 o'clock this morning we have held a
9 public workshop just outside of this room for anyone to
10 ask questions about the Master Plan, the environmental
11 process and the various proposed projects.

12 Following publication of the Supplement to the
13 Draft EIS/EIR for public review and comment, the next
14 step in the joint federal and state environmental
15 disclosure process is conducting today's hearing along
16 with the public hearings that were held in August and
17 earlier this week.

18 I would like to take this opportunity to recap
19 the environmental disclosure process for this project.
20 The environmental evaluation of the LAX Master Plan
21 began in 1997 with the publication of a Notice of Intent
22 to prepare the joint EIS/EIR in the Federal Register.
23 In July of 1997 we held a series of meetings with
24 members of the public and the governmental agencies to
25 receive comments on the scope of the Draft EIS/EIR.

1 Following those meetings, the Draft EIS/EIR was
2 published in January 2001. Both the 2001 Draft EIS/EIR
3 and the 2003 Supplement have been prepared pursuant to
4 the National Environmental Policy Act of 1969, or NEPA,
5 the California Environmental Quality Act of 1970, or
6 CEQA, and Airport and Airway Improvement Act of 1982, as
7 amended.

8 Following today's hearings and the close of
9 the comment period, we will then correct and revise the
10 EIS/EIR, as necessary, based on the comments received.
11 We will also prepare responses to the comments we
12 receive and include those responses along with those
13 that were submitted to the FAA and LAWA on the 2001
14 Draft EIS/EIR into the Final EIS/EIR. The information
15 contained in the Supplement will be combined with the
16 information in the 2001 Draft EIS/EIR into the Final
17 EIS/EIR.

18 Before we begin receiving verbal comments, we
19 would like to let you know the ground rules of this
20 hearing. First, as I said earlier, we are not here to
21 respond to questions about this project. We are only
22 here to listen to your comments and take notes. We also
23 have a court reporter here to ensure we have an accurate
24 transcript of this hearing.

25 For anyone wishing to speak, we ask that you

1 fill out a speaker card, like this one, which is
2 available at the sign-in desk. Please give it to one of
3 the people at the sign-in desk after you filled it out.
4 The cards will then be brought up here to our
5 facilitator who will then call the names of each speaker
6 so we could proceed in an orderly fashion.

7 So that everyone gets an opportunity to
8 provide verbal comments, everyone will be given three
9 minutes to speak. To be fair to everyone, we are not
10 going to allow people to transfer their allotted time to
11 someone else. I ask that when you speak, you give us
12 your name and address for the record. We also have a
13 Spanish language translator here for anyone wishing to
14 provide their comments in Spanish.

15 If there is anyone who is uncomfortable
16 speaking in front of a group or if you need more than
17 three minutes to provide your comments, we ask that you
18 provide your comments in writing. We have comment
19 sheets, like this one, also available for your use at
20 the sign-in desk. You could leave your comments at the
21 sign-in desk or you may mail your written comments using
22 either the comment sheet or a letter to either address
23 listed on the cover of the Supplement to the Draft
24 EIS/EIR.

25 I would like you to understand that a verbal

1 comment is just as important as a written comment. So
2 please feel free to provide any comments on the document
3 you may have to us either verbally today or in writing.

4 On August 1st, 2003 LAWA asked the FAA to
5 extend the public comment period to a total of
6 120 days. FAA agreed to LAWA's request. On Friday,
7 August 22nd, 2003 the U.S. Environmental Protection
8 Agency published a Notice in the Federal Register
9 announcing the extension to the public comment period.
10 Therefore, comments on the Supplement to the Draft
11 EIS/EIR are now due by 5:00 p.m. Pacific Standard Time
12 on Friday, November 7th, 2003.

13 Lastly, I would like everyone to know that
14 even though we have this hearing scheduled until
15 1:00 o'clock this afternoon, we will stay here as long
16 as necessary for everyone to get a chance to provide
17 verbal comments on the Supplement to the Draft EIS/EIR.
18 As I said earlier, our job here today is to listen to
19 your comments.

20 At this time I'd ask that everyone in the room
21 take a moment, please turn off your cell phones and
22 pagers to be courteous to those people making verbal
23 comments at today's hearing.

24 Now I will return the hearing back to our
25 facilitator who will introduce Mr. Jim Ritchie who will

1 provide some introductory comments from LAWA. Following
2 Mr. Ritchie's comments, we will then collect the speaker
3 cards and call the name of the first speaker.

4 Thank you.

5 MS. SMITH: Thank you, Mr. Kessler. Next I would
6 like to introduce Mr. Jim Ritchie, Deputy Executive
7 Director of Los Angeles World Airports.

8 Mr. Ritchie.

9 MR. RITCHIE: Good morning, ladies and gentlemen.
10 Thank you, Shauna. I would like to welcome you to what
11 is today our 12th public hearing in a series we have
12 commenced since the beginning of this public comment
13 period that will close on November the 7th. I guess
14 that's in a couple of weeks from now.

15 On behalf of Los Angeles World Airports, on
16 behalf of the City of Los Angeles we appreciate you
17 taking your precious day off of the weekend to come out
18 here and join us and give us your ideas and thoughts.

19 I'd also like to thank Councilman Parks for
20 suggesting this wonderful venue, the restoration is --
21 (audience begins clapping) -- the restoration of such an
22 old, wonderful facility.

23 You may recall, this is part of a process, a
24 rather long process, you'll recall where we were in the
25 year 2001. We started in January of that year with

1 public hearings -- public hearings and a comment period
2 that went for a total of 11 months ending in November of
3 that year. At that time, of course, that year we saw
4 a lot of interesting things, some tragic things at that
5 time. But during that time this group, many of our team
6 that you've met in the workshop, we were reviewing what
7 was referred to as expansion plans, Alternatives A, B
8 and C during that time frame.

9 Of course, in the year 2001 we learned a lot.
10 We learned a lot from the communities. We had new
11 elected leadership. We learned from the elected
12 leadership across the region that many felt expansion
13 plans were not appropriate. We listened to our elected
14 leaders. We had a new mayor, Jim Hahn. He made a
15 pledge during his candidacy. He was elected and has
16 said "My pledge, and I'm sticking to it" from the
17 standpoint of not expanding LAX, but defining it around
18 some of the more critical things.

19 Immediately after his office, of course, we
20 had -- immediately after he took office, of course, we
21 had those issues of public comments we were aware of.
22 We had the issues of safety and modernization that had
23 continued to nag us at the airport -- well, since 1984,
24 frankly, that issue. We all tragically recall on
25 September the 11th we had a new dynamic. We had the

1 issues of security that we had to address.

2 Jim Hahn stood up to the plate at that time
3 and told us "Get back to the drawing board. I want an
4 airport defined around no expansion. I want an airport
5 to address the safety issues. We have new security
6 issues and pressing modernization needs."

7 We went back to the drawing table. And we
8 just emerged not too long ago after working in the dark
9 late hours under the bright lights of our drafting
10 tables and prepared a new approach. We're rather
11 excited about that approach. We're excited to get your
12 comments on how we've done. I'm equally as proud of the
13 response that this team has made listening to your
14 comments through 2001, as I as incorporating the
15 guidance and leadership we received from our elected
16 officials.

17 So today is a very important day. We are
18 looking at -- I mentioned Alternatives A, B and C had
19 been reviewed today. We have a new Alternative,
20 Alternative D based around safety, security and
21 modernization. You've had an opportunity to review that
22 with some of our technical experts in the room next
23 door.

24 So, again, I thank you. I can assure you that
25 that Alternative that you have looked at, that we have

1 presented to the public and our elected leadership has
2 passed that same rigorous environmental test, which is
3 always a challenge. It has passed that test. It is
4 ready for your comments. It is ready for us to respond
5 to that and adjust the plan where we can take it to our
6 City Council and provide them with a range of
7 Alternatives to address probably the most important
8 public facility in the City of Los Angeles.

9 I may be a little biased when I say that, but,
10 of course, I work at the airport. So, again, thank you.
11 And, please, Shauna, let's go to work.

12 MS. SMITH: Thank you, Mr. Ritchie.

13 Again, my name is Shauna Bain Smith. And as
14 your facilitator today, my only purpose is to ensure
15 that all those that wish to comment are able to do so in
16 an orderly and timely fashion. I have this high-tech
17 clock here to help me do that. I just want to go over
18 some of the ground rules Mr. Kessler mentioned so that
19 everyone understands them clearly.

20 Everyone will be allowed three minutes to
21 speak. Once you fill out this speaker card, it will be
22 given to me in the order which they receive it. So no
23 one speaker will be taken out of order. I ask when you
24 come to the podium, you state your name and you spell
25 your last name for our court reporters because it's

1 important for us to have your name for the record.

2 After you state your name, I will start the
3 time. I won't start the time before then. Your three
4 minutes will start when the green light appears. When
5 you have 30 second, left you will see the yellow light.
6 At that time I ask that you start wrapping up your
7 remarks because I don't want to be rude and cut anybody
8 off. When you see the red light come on, that means you
9 have to end your remarks there.

10 If you're reading from some prepared remarks,
11 I would appreciate it if you could give us a copy of
12 what you're reading and we can enter those into the
13 record. If feel you don't have enough time to actually
14 say everything, we can still input those into the record
15 by you turning in your written remarks. And, also, as
16 Mr. Kessler mentioned, you can also fill out a written
17 comment form. So when the red light appears, you will
18 also hear a beep tone, and I will ask you to complete
19 your remarks.

20 And I will call three speaker names so that
21 people can prepare to come to the podium. Starting with
22 the first speaker, we'll begin.

23 Does everyone understand? Is everyone happy
24 with that? Okay, I'm going to start.

25 Our first speaker is Councilman Bernard Parks.

1 And after Councilman Parks we'll have Councilman Kelly
2 McDowell and Kevin Norton.

3 COUNCILMAN PARKS: Good morning. I understand this
4 is the last meeting. I appreciate you having this
5 extension so the community could have input. I also
6 appreciate and want to say thank you to my staff Jessie
7 and Yolanda for bringing this meeting to this facility.

8 One of the things you will hear, and I think
9 it's important -- oh. You're going to hear from the 8th
10 District residents. And that is that they have felt as
11 a historical process --

12 MS. SMITH: Hold on, please, Councilman Parks. I
13 apologize. We're going to adjust that mic, and I will
14 start your time over.

15 COUNCILMAN PARKS: Okay.

16 MS. SMITH: Can we do a test on the mic? Do we need
17 to raise the mic for you, Councilman Parks? You're such
18 a tall man.

19 (The AV technician adjusted his microphone.)

20 MS. SMITH: Is that better?

21 COUNCILMAN PARKS: That's better.

22 I want to thank you and thank the staff. But
23 I think what you're going to hear from the 8th District
24 residents, they feel they've been historically ignored
25 as it relates to airport issues. They hear and read in

1 the newspaper constantly that issues that deal with
2 Westchester, El Segundo, maybe Inglewood are really what
3 dominates the airport's view of the world.

4 We have thousands of residents that live in
5 the flight path. When you go to the area Century and
6 Westwood, the area of Vermont and Manchester many times
7 you cannot conduct business outside without having to
8 give deference to airplanes. There is a great deal of
9 concern about what has been used by the airport as to
10 the noise ordinances, and when houses will be insulated
11 and when they are not. What people do not understand is
12 the issue of where a house right next door is insulated
13 and the one next door is not. And they do not believe
14 that your 1992 chart is accurate, and that it's
15 something in which they believe many decisions have been
16 made based on that information.

17 Also, you're going to hear the issues of
18 mitigation. They are fully aware that years ago that
19 airport middle school was abandoned because of the
20 noise, but, yet, little or nothing has been done in the
21 schools in this community that also suffer from the
22 noise.

23 They also are going to be concerned about the
24 lack of mitigation for traffic and how people drive
25 through their community to get to the airport. But

1 there has been no traffic mitigation or concerns as
2 relates to their streets being widened, having park and
3 rides for traffic mitigation to take them around their
4 community.

5 You're going to hear comments about what is
6 perceived to be a violation of rules about late night
7 flying in the sense of flights certainly coming in much
8 later than what the airport has said historically.

9 You're also going to hear information about
10 low flying in the sense that people believe the flights
11 fly lower than what the rules require.

12 Also, some health issues. There are people
13 that live in the area of Century and Western that
14 believe there are many health issues that are caused by
15 repetitiveness of flights, the amount of exhaust. And I
16 know there have been discussions for years whether there
17 is a droppage of fuel in the area and where many tests
18 have been given. And the airport says that doesn't
19 happen, but, yet, people believe that is a common
20 practice as they go outside and look at their vehicles
21 and look at their lawns and look at their homes as it
22 relates to what they believe is fuel that basically will
23 drop from the airplanes.

24 So these are the kinds of things that the 8th
25 District community feels they've been ignored. They

1 feel as though the airport makes -- oh, okay. They make
2 millions of dollars providing a very valuable asset to
3 the City of Los Angeles. I think half a million jobs
4 are associated, but they also realize that their lives
5 are negatively impacted and should be dealt with.

6 The other issue you're going to hear about is
7 contracts, who gets the contracts when it is built and
8 the issue of the safety. Is it really safe when you
9 deal with bringing everyone into one area of the airport
10 to have their baggage as opposed to a diverse plan that
11 moves people throughout the airport?

12 With that, before she pulls the gong on me, I
13 just want to say thank you for coming out to this
14 community. Again, you're going to hear frustration
15 because there is a sense in this community that they've
16 been ignored for a long time on many issues, but
17 particularly this issue. Thank you.

18 MS. SMITH: You had two seconds to spare.

19 COUNCILMAN PARKS: Thank you.

20 MS. SMITH: Thank you, Councilman Parks.

21 Before you start, Councilman McDowell, I have
22 a couple of quick remarks. First of all, I apologize
23 for our timer flub. I want to ask one of our AV techs
24 if he wouldn't mind sitting here so that when we have
25 people come to the mic, he can adjust the mic

1 accordingly, and we won't have any more delays that way.

2 And if anyone has any electronic devices on in
3 the audience, can you please turn them off so that we
4 could be respectful for those that are giving comments?

5 And with that, Councilman McDowell.

6 COUNCILMAN MCDOWELL: Good morning. I'm Councilman
7 Kelly McDowell, representing the City of El Segundo.

8 Given the length and complexity of the Master
9 Plan and the environmental documents, our complete
10 documents, including those on technical issues, will be
11 finalized and submitted soon. And my City's comments
12 today are preliminary.

13 We continue to oppose Alternatives A, B and C
14 for the many reasons we expressed both orally and in
15 writing during the public review and comment period for
16 the original Draft EIS/EIR in 2002.

17 The City of El Segundo has not endorsed
18 Alternative D. However, we feel that its stated
19 objective of constraining LAX to its current capacity is
20 appropriate and supports a regional aviation approach.

21 To be clear, my city could only support an
22 alternative that by design will accommodate passenger
23 and cargo levels no greater than the physical capacity
24 of the airport as it exists today.

25 We have retained a nationally respected expert

1 to assess the capacity of Alternative D. And to the
2 extent our expert's findings are that the passenger and
3 capacity of Alternative D, as currently designed,
4 exceeds 78 million annual passengers, we would hope that
5 LAWA cooperate with El Segundo in incorporating any
6 revisions to the plan necessary to ensure the capacity
7 is not increased beyond 78 MAP.

8 Limiting LAX's capacity to its current
9 capacity has always been our number one goal. And we
10 believe that limiting capacity at LAX will allow other
11 airports in the region to develop and handle their fair
12 share of future regional aviation demand. However, my
13 city is concerned about the impacts of southside
14 airfield changes that would move the southernmost runway
15 50 feet closer to
16 El Segundo. LAWA has stated that it believes these
17 changes are necessary to improve runway safety.

18 However, we're currently studying the impacts
19 of the proposed reconfiguration and the options for the
20 southern runway complex.

21 In particular, we urge full public
22 consideration of end-around taxiways as an alternative
23 that could provide greater safety at lower cost and with
24 fewer new burdens on local communities.

25 Safety at LAX must be a priority for everyone.

1 We are prepared to support measures necessary to enhance
2 safety, even if those measures increase our burden, but
3 only if we are assured through an independent expert
4 that Alternatives with fewer impacts are not equally
5 effective.

6 In conclusion, we are grateful for Mayor
7 Hahn's responsive leadership and his pledge to constrain
8 growth at LAX and to foster a regional approach to
9 meeting future aviation demand. And it is our hope that
10 the ultimate outcome of the Master Plan process will be
11 a regional airport approach that ensures that LAX does
12 not exceed its current capacity. Thank you.

13 (The statement submitted for the
14 record was marked as Statement 1
15 and is attached hereto.)

16 MR. RITCHIE: Thank you.

17 MS. SMITH: Thank you.

18 MR. NORTON: Good morning. My name is Kevin Norton.
19 I'm a business representative with International
20 Brotherhood of Electrical workers Local 11; 833 Airport
21 Boulevard, Los Angeles.

22 I wanted to testify on LAX Master Plan and in
23 support of Alternative D that Mayor Hahn has presented.
24 I know that LAX needs to be fixed. Most people here
25 know that LAX needs to be fixed. They also know that

1 doing nothing won't improve safety. Doing nothing will
2 not make our lives more secure, and doing nothing will
3 not stop people from using this airport. If we want a
4 limit of the number of people who will be flying out of
5 LAX, we need to adopt Alternative D. If we want traffic
6 improvements that are a part of this plan, we need to
7 move forward. If the airport is to be improved and made
8 safer, we need to use the designs that are built into
9 Alternative D. I hope your recommendations will be to
10 improve the environmental impact reports and support
11 Mayor Hahn's recommendation. Thank you.

12 MS. SMITH: Thank you. Again, I would ask everyone
13 to turn off their electronic devices, please.

14 Next we'll have Mr. Denny Schneider. After
15 Mr. Schneider we have Mr. Shabaca Heru. And after
16 Mr. Heru we have Ms. Emma Worthington. Thank you.

17 MR. SCHNEIDER: I'm Denny Schneider; 7929 Breen,
18 Westchester.

19 I'd like to address many issues. I also speak
20 on behalf of ARSAC, the Alliance for Regional Solution
21 to Airport Congestion. We're the ones that got the
22 mayor to his no expansion pledge, which he is not
23 meeting. We do not feel that this plan holds the
24 airport to 78 million annual passengers. It allows for
25 future expansion of significant size.

1 With all that said, I have personal concerns,
2 and that is safety, health, and what it's doing to our
3 communities. We have a problem here that as they are
4 now doing research, they are finding that we have
5 problems from the noise levels that are current criteria
6 that is causing us to endure high blood pressure, gastro
7 problems and everything else that you could imagine.
8 This plan does not resolve the issue. It helps foster
9 concentration of air traffic at LAX, not the region.
10 75 percent of all the traffic in the region will still
11 be going out of LAX. And that's like putting a sign
12 that says "If anything happens there, this community's
13 economy will tank." That is totally unacceptable.

14 There are some good things in the plan. There
15 are several unacceptable things including the Manchester
16 Square. This is a very unique situation where we, as
17 many of the community organizations -- and I could tell
18 you that our neighborhood council has also come out
19 against it with a very strongly worded article.

20 I also sit on the LAX Community Noise Round
21 Table where numerous serious questions of noise issues
22 have been raised. And the real issue is one of, how do
23 we resolve these issues? We need more cooperation and
24 listening. I can give you an example.

25 The OSAGE Neighbor's Association, of which I

1 am a board member, has represented the eastern half of
2 Westchester. For 14 months we have been requesting a
3 meeting with the Mayor's office, Board of Airport
4 Commissioners and LAWA. We have yet to have them find a
5 day that's available.

6 So in conclusion, I'm going to hand you a
7 small package of comments. And I wish you would
8 consider them because the documentation doesn't always
9 meet the videos and the words that we're hearing.
10 Thank you.

11 (The documents submitted for the
12 record were marked at Statement 2
13 and are bound under separate cover.)

14 MS. SMITH: Thank you, Mr. Schneider. No matter how
15 large or small, we do accept the comments. Thank you.

16 Mr. Shabaca Heru. Did I pronounce that
17 correctly, sir? Thank you. After Mr. Heru, we have
18 Emma Worthington.

19 MR. HERU: Good morning. My name is Shabaca Heru. I
20 live at 207 East 136th Street. That's H-e-r-u. My
21 organization's name is The Community Coalition for
22 Change. We have been in business for about eight years.

23 I've lived in L.A. County all my life. I've
24 moved around. What I'm concerned about primarily is
25 environmental injustice. The largest polluter in the

1 L.A. County area is the airport.

2 Just this morning in talking to people and
3 looking at the various proposals, they are very
4 ambitious. And it seems as though the biggest concern
5 isn't for the people because people have been affected
6 by the noise. They have been affected by the vibrations
7 of the aircraft. They've been affected by the
8 emissions. They have been affected by fuel falling on
9 their homes. They have been affected in various ways by
10 what's going on right now.

11 We'd like to have proposals that consider the
12 people first. The people seem to be put in a
13 confrontational position with the developers and with
14 the money interest. All of the plans, I think, have not
15 been presented to the public in a way that we can have
16 some sort of idea of what's going on. I think the
17 people in the city right now are held hostage. And we
18 would like to see something occur where there is
19 actually a clear dissemination of the information as to
20 what is going on. We'd like to have some clear-cut idea
21 as to how we're going to stop the pollution, not just
22 vague promises, not just lip service. And we'd like to
23 see that the expansion plan right now is capped and some
24 of the traffic is diverted to some of the airports in
25 the other outlying areas. There comes a point where it

1 becomes fruitless to just expand LAX, to concentrate and
2 to all of the development there. Thank you.

3 MS. SMITH: Thank you.

4 Ms. Worthington. And after Ms. Worthington we
5 have Tony Muhammad and Brenda Robinson.

6 MS. WORTHINGTON: My name is Emma Worthington.
7 That's W-o-r-t-h-i-n-g-t-o-n; 4634 West Imperial
8 Highway, Inglewood, California 90304.

9 I also work at the airport, and I have worked
10 at the airport for almost 30 years. I live in
11 Inglewood. And like a lot of my coworkers, we live in
12 the surrounding areas, Inglewood, Lennox, Hawthorne,
13 El Segundo and Westchester. We understand the
14 connection between good quality jobs and quality life.
15 We need new jobs, but we don't need minimum wage jobs.
16 What we need is jobs that provide a livable wage and
17 affordable family health coverage. The companies at the
18 airport provide those types of jobs, and that is how
19 I've been able to raise my family and not be on welfare.

20 In order to ensure this modernization plan
21 provides good employment opportunities for our
22 communities, we encourage the Mayor to include in his
23 plan a local hiring program, apprenticeships and
24 programs for the youth so that our youth can strive to a
25 better future.

1 When we talk about modernization, we say we
2 are bringing the airport and Los Angeles into the
3 21st Century. Well, we the workers would like to be
4 able to bring our communities into the 21st Century
5 along with the airport and the rest of Los Angeles. And
6 that is why we urge the Mayor to ensure that his plan
7 provides good paying jobs with good benefits and a
8 community packet that will ensure that we're along for
9 the ride and that we're not left behind. Thank you.

10 (The statement submitted for the
11 record was marked as Statement 3
12 and is attached hereto.)

13 MS. SMITH: Thank you. Mr. Tony "Mohammady," am I
14 pronouncing that correctly?

15 MR. MUHAMMAD: No.

16 MS. SMITH: I wanted to say "Mohammad," but there is
17 a Y on the end.

18 MR. MUHAMMAD: Well, okay. I'll get it right for
19 you.

20 I'm Minister Tony Muhammad. I'm the Western
21 Regional Representative for the Nation of Islam.
22 Muhammad is M-u-h-a-m-m-a-d.

23 First of all, I certainly thank you all for
24 coming to South Los Angeles. Our big concern here in
25 South Los Angeles that if this airport is going to be

1 expanded and built, then we want to make sure that our
2 community of South Los Angeles benefits in a great way.
3 And that we refuse to allow any constructions to go on
4 if we don't have our fair share.

5 So, therefore, we would hope that the Mayor's
6 office as well as your commission will partner, not just
7 with the multi-million dollar companies, but grass root
8 organizations. I'm talking about that man at the
9 bottom. And that there be apprenticeship programs set
10 up where we have proven programs that works with
11 ex-offenders, that worked with those gentlemen, men and
12 women, who are coming out of a lifestyle of gangs, who
13 wants to change their life, but there are no jobs.

14 So we're going to be watching you. We're
15 going to be circling our wagons to make sure that
16 whatever you're going to do is going to partner. We
17 want a real partnership with the community where you can
18 guarantee certain jobs as well as training. And if
19 these young men and women get the training and their
20 skills are used correctly, this is something they could
21 take for a lifetime. You could be very beneficial in
22 correcting a lot of social ills that is in our
23 community. For when we meet with many of the young men
24 and women who live a negative lifestyle, number one,
25 they said "we have no jobs." When there is no jobs,

1 there is hopelessness. And hopelessness becomes the
2 mother of violence.

3 And so, therefore, we would hope that you
4 would partner with our community and bring meaningful
5 jobs, not just jobs, but as well as work with
6 African-American and Latino contractors where we also
7 can get a big piece of the pie, I mean a big piece of
8 the pie. All right.

9 So we thank you and may God bless you all in
10 this endeavor. And we certainly will be watching.
11 Thank you.

12 MS. SMITH: Thank you. Ms. Brenda Robinson. And,
13 again, I apologize, Mr. Muhammad, but there is a Y
14 there.

15 MS. ROBINSON: Good morning. My name is Brenda
16 Robinson. That's R-o-b-i-n-s-o-n. I live at 1900 West
17 91st Street, 90047. And I have lived in the community
18 for 31 years.

19 I am here today to give testimony to the
20 damage being done to our homes as a result of the
21 increased air travel in our community. This issue is
22 not new to us. We have tried over the last ten years to
23 engage in a constructive dialogue with LAX airport
24 representatives time and time again. Yet, they have
25 decided to ignore our concerns and request for

1 assistance in repairing our homes that are impacted by
2 the increased air services. Many of our homes have
3 cracks in the foundations. Our doors and window frames
4 are out of alignment with the structure of the homes.
5 Our roofs have been damaged as a result of low flying
6 and the fumes traveling down. The noise has been so
7 loud when the airplanes are traveling over our homes
8 that we have to play an up-and-down game with the volume
9 control sound on our televisions in order to be able to
10 hear what is being said, in addition to our phone calls
11 not being able to hear someone talk to us because the
12 noise is so loud.

13 When representatives have met with us, and
14 that's only been on a few occasions, and have stated
15 that they wanted to work with us and to work
16 hand-in-hand in trying to address this issue, they are
17 not being true to their word. We have shown them based
18 on the MAP that you have as your flight path the noise
19 box indicators that it is outdated. It is well over ten
20 years old. And we are not even anywhere in the
21 indication of those noise box indicators.

22 We have requested time and time again that new
23 boxes be re-established and put into the community and
24 that we be an active part in identifying where those
25 boxes are placed. Yet, to no avail have we received any

1 kind of response to that request.

2 We are requesting -- and let me state it. No,
3 not requesting. We are demanding that the action take
4 place to address our concerns and to establish a
5 relationship with us in helping to resolve the issues
6 and the concerns of repairing our homes in the same
7 manner as you have done with Westchester, Inglewood and
8 a small portion of South L.A. close to the Inglewood
9 City line. Keep in mind that LAX is owned by the City.
10 And we as residents of the City pay taxes and we
11 patronize the facility and should be entitled to the
12 level of customer service you pay to visitors using that
13 facility. Thank you.

14 MS. SMITH: Thank you. Next we have Mr. Thomas
15 Heckman. After Mr. Heckman we have Skip Henke and Keith
16 Blauers after Mr. Henke.

17 Mr. Heckman.

18 MR. HECKMAN: Good morning. My name is Tom Heckman.
19 I'm member of Local 12 Operating Engineers. I'm also a
20 resident of the Village Green area of Los Angeles.

21 And I would like to say that I'm totally in
22 support of Mayor Hahn's Alternative D as the best plan
23 for the City of Los Angeles which would give jobs and
24 the proper flight plans and maybe deal with some of
25 these issues that we have coming up today. Thank you.

1 MS. SMITH: Thank you. If I could, again, remind
2 our speakers to spell their last names for our court
3 reporters, please.

4 Mr. Henke.

5 MR. HENKE: Thank you. My name is Skip Henke. Last
6 name is spelled H-e-n-k-e. I live at 3200 Whitney Lane
7 in the City of Burbank. I'm also in very close
8 proximity to the Burbank Airport. So I'm quite familiar
9 with the airplanes and noise and the other things that
10 happen when you live around it. And it's always not so
11 nice.

12 I'm a council representative for the
13 Los Angeles Building and Construction Trades Council.
14 Our constituents live throughout the Los Angeles,
15 Orange County, Ventura County area. And they fly when
16 they travel.

17 I myself find myself coming down to
18 Los Angeles International Airport periodically to fly to
19 a destination that I cannot reach from the Burbank
20 Airport in a very easy fashion.

21 I enjoy going to Burbank because it's
22 convenient. It's easily accessible. It's safe.
23 They have good security systems. And it's also near my
24 house. When I come to Los Angeles International
25 Airport, I find myself in a traffic jam. I find myself

1 not easily accessible standing in long lines being
2 detained for a long period of time to get access to the
3 ticket areas and to other locations within the airport
4 facilities.

5 When I get on the plane and I go to my
6 eventual destination, I do not find that. I find
7 airports that have been modernized, airports that have
8 been expanded, airports that have increased their
9 security system, their accessibility and the
10 transportation modes that are used in and around the
11 airport.

12 I stand here today to support Mayor Hahn's
13 Master Plan Alternative D. This plan limits the number
14 of passengers that can use LAX in the future and will
15 require the other airports in our region to take some of
16 the impact of new passengers. That along with the
17 security designs being incorporated into the plan will
18 benefit the flying public of the Los Angeles Regional
19 area.

20 Once again, I thank you for the opportunity to
21 speak here, and I urge your support of Alternative D.
22 Thank you.

23 MS. SMITH: Thank you.

24 Mr. Keith -- is it "Blauers" or "Blowers"?
25 "Blauers." And after Mr. Blauers we have James Hopkins,

1 please.

2 MR. BLAUERS: I'm Keith Blowers. I live at 6672
3 West 86th Place in Westchester. I want to thank you for
4 holding these hearings because I think they give us
5 information we need to make decisions on the effects of
6 a new airport. I believe the City is on the right track
7 with the LAX Master Plan, especially with Alternative D.

8 Alternative D designed has taken into account
9 all of the concerns. The traffic, noise and safety have
10 been voiced by elected officials. This plan will
11 improve the City's need to modernize the airport and the
12 responsibility to maintain a high degree of security.

13 This plan should be approved since it has
14 fulfilled the commitments that the airport has made to
15 the adjacent communities in the past. And with the time
16 and cost of the project being critical to improving the
17 City's airport commitments, I believe that the approval
18 process should be completed as soon as possible.

19 Thank you for your time.

20 MS. SMITH: Thank you.

21 Mr. Hopkins.

22 MR. HOPKINS: Hi. My name is James Hopkins. I live
23 at 6510 West 84th Place in Westchester right straight
24 across from the tower at LAX. And I just want to
25 express my favor of this expansion and this plan. It

1 certainly beats the other plans that they had up here
2 before.

3 Also where Westchester Parkway and the
4 Manchester Boulevard and Lincoln Boulevard, I think that
5 would accept and handle all the traffic in that area,
6 quite well on our side anyway, the Westchester side.

7 And as far as -- I hear a lot of people come
8 up here and express their concern about the noise. And
9 I just want to say that I only live four blocks from
10 Manchester right in the middle. And I have more
11 problems with neighbors' dogs making noise than I do
12 with the airport. Thank you very much.

13 MS. SMITH: Thank you. I'm going to call three more
14 speakers, and then we'll take a short break.

15 Mr. Kessler, Mr. Ritchie, 10 to 15 minutes?
16 Would that be okay? Thank you.

17 Steven Wehus. After Mr. Wehus we have James
18 Odom. And after Mr. Odom, we have Liz Badras.

19 Mr. Wehus. Thank you.

20 MR. WEHUS: Good morning. My name is Steve Wehus.
21 You said it right. Thank you. W-e-h-u-s. I live at
22 733 Hindry Avenue in the City of Inglewood. And if I
23 raise my hand, the airplane tires can touch me, but that
24 doesn't bother me.

25 I represent the International Brotherhood of

1 Electrical Workers Local 11. And I'd like to express my
2 support for Mayor Hahn's Alternative D. This project
3 will create 49,000 construction-related jobs which
4 impresses me because I'm pro Los Angeles, pro
5 Los Angeles County. I can work anywhere in the United
6 States. I chose L.A. to live. I love this city. I
7 support everything that this city does or doesn't do,
8 major projects, anything that concerns citizens. But
9 this project here environmentally isn't going to disrupt
10 anything. It's going to create jobs in the future. And
11 in the future and in the long run if we look at it, it's
12 going to benefit the City of Los Angeles.

13 I'm not too familiar with all of the programs
14 and all of the -- everything going on with the city, but
15 I do know one thing. It creates jobs. And to me 49,000
16 jobs is very impressive for Los Angeles residents.

17 Under the PLA agreement the jobs will be good
18 paying jobs. I think the plan is good for the workers
19 in Los Angeles -- no, I know it's good for the workers
20 Los Angeles.

21 I support Alternative D. I support the City
22 of Los Angeles. Thank you for listening to me.

23 MS. SMITH: Thank you.

24 MR. ODOM. Good morning. My name is James Odom,
25 O-d-o-m. I'm sorry. You were supposed to call --

1 MS. SMITH: No, no, no, you were right.

2 MR. ODOM: I reside at 3975 Cherry Wood Avenue in
3 the City of Los Angeles. I'm a Representative of the
4 Sheet Metal Trade Local 105 that covers
5 Los Angeles, Orange County, San Bernardino and
6 Bakersfield. I bring support of 5,000 members
7 supporting the L.A. Master Plan Alternative D.
8 Thank you.

9 MR. RITCHIE: Thank you.

10 MS. SMITH: Thank you.

11 Ms. Badras.

12 MS. BADRAS: Yes. Thank you. My name is Liz
13 Badras. And it's spelled B-a-d-r-a-s. I reside in
14 Glendale and I work in Hollywood.

15 I thank you very much for taking the time to
16 come out this morning to hear us. I've been in the
17 tourism and hospitality industry for over 20 years. I
18 work for a company that has been in tourism for over
19 35 years.

20 We are in support of the LAX Master Plan
21 because it's vital to the fundamental and continuation
22 of business growth and travel and tourism in
23 Los Angeles. The Master Plan outlines modernization and
24 security that are key elements required to ensure that
25 LAX remain an international gateway city for years to

1 come. Most important is the necessity to ensure our
2 airports in and around Los Angeles remain free from the
3 threat of terrorism. Widening the south runways to
4 prevent future airfield incursions when consolidating
5 rental car companies into one facility at LAX are some
6 of the merits that will encourage success of a well-run
7 airport.

8 Since tourism is the second largest industry
9 in Los Angeles, we feel it is very vital to support this
10 Master Plan. Thank you.

11 MS. SMITH: Thank you, Ms. Badras.

12 We're going to shorten this break because we
13 want to give everyone an opportunity to speak and get
14 their comments in. We don't want to hold anybody up.
15 So it's going to be a five-minute break, and we're going
16 to reconvene at 11:00 a.m.

17 (Recess was taken.)

18 MS. SMITH: If I could get everyone to take your
19 seats. If you have anyone in the hallway that you could
20 hustle in here, now would be a good time. I'm going to
21 go ahead and start while people are still coming in.

22 Again, good morning. My name is Shauna Bain
23 Smith. I'm your facilitator this morning. To my right
24 is David Kessler. He's an Environmental Protection
25 Specialist with the Federal Aviation Administration, and

1 Mr. Jim Ritchie, Deputy Executive Director of Los
2 Angeles World Airports.

3 We will reconvene now. And I just wanted to
4 go over the grounds rules again really quickly for those
5 that are just joining us. Everyone will have three
6 minutes to speak. We need you to fill out a speaker
7 card, which you can find at the registration desk if you
8 would like to speak. Your three minutes begins after
9 you give us your name and address for the record. If
10 you could spell your last names for our court reporters,
11 we would really appreciate that.

12 When you have 30 seconds of time left, you
13 will see this yellow light. When your time has expired,
14 you will see a red light and you will hear a beep tone.
15 I will call three names at a time so that you could
16 prepare your remarks while one person is speaking. I,
17 again, ask that if you have any electronic devices,
18 please turn them off now. And if we could keep
19 conversation to a minimum in order to respect those that
20 are speaking, I'm sure we would all appreciate it.

21 So with that said, I'll call our next three
22 speakers. Ms. Tammy Lazer. And after Ms. Lazer, we
23 have Mr. Charles Adelman. And after Mr. Adelman we have
24 Timothy Watkins.

25 MS. LAZER: I am standing, by the way. My name is

1 Tammy Lazer, L-a-z-e-r. I reside at 14159 Dickens
2 Street in Sherman Oaks. I'm a tour guide in the City of
3 Los Angeles for the last 20 years.

4 This expansion plan will be well situated to
5 meet the needs of the future of Los Angeles. An airport
6 that is modernizing is an airport with improved security
7 and conveniences. These perceptions help the case for
8 visiting Los Angeles and will certainly add to the
9 \$11 billion dollars in visitor spending in this city.
10 And, of course, we all know that we all benefit from
11 this, but what we need is a personal identity. So let's
12 become a first-class airport in the first-class city so
13 that we could maintain a standing as an international
14 Gateway.

15 LAX should provide passengers with direct
16 connections and protect its access to the primary U.S.
17 markets that are so important to us. The competition is
18 fierce out there. And everyone is investing their
19 ability to capture business which had traditionally come
20 to Los Angeles. Major destination at airports all over
21 are reinvesting to capture this international travel
22 market. And each year this international consumer and
23 domestic consumer is given other options in quality and
24 in quantity to his access to the United States. The LAX
25 modernization is necessary to meet the current and the

1 future aviation needs of this city. LAX is a Gateway to
2 the world. And we should certainly maintain a critical
3 role in aviation systems.

4 This expansion is a long-term investment and
5 will keep L.A. in the forefront. The eyes of the world
6 right now are on us with the advent of the Walt Disney
7 Hall, the new cathedral, the Getty museum. Thousands of
8 tourists and business people will be visiting
9 Los Angeles. So let's start to begin to take our bows
10 for a change as a first-class city with a first-class
11 airport. Let everyone know here today that there is
12 even more to come from Los Angeles. Thank you.

13 MS. SMITH: Thank you.

14 Mr. Charles Adelman. And, again, after
15 Mr. Adelman we'll have Timothy Watkins. And after Mr.
16 Watkins, we'll have Sheila Bernard, please.

17 MR. ADELMAN: Hi. My name is Charles Adelman,
18 A-d-e-l-m-a-n. I live at 6146 Eleanor Avenue in
19 Los Angeles. That's in Hollywood.

20 This plan proposes to spend billions of
21 dollars to fix up the airport, but it kind of leaves
22 things kind of the way they are, really. It just moves
23 congestion on the ground from one place to another,
24 moves a major security risk from the Central Terminal
25 Area to a new Central Parking Area off of the airport,

1 but doesn't really fix those problems.

2 The thing you have to remember about LAX, it
3 is a main trans pacific hub for the United States.
4 Every international flight going into or out of LAX
5 carries both local origin and destination passengers as
6 well as people connecting from other areas or to other
7 areas. The airlines need that to keep their airplanes
8 full on long international flights.

9 Transit, one of the major problems with LAX,
10 of course, is ground congestion. We cannot solve the
11 ground congestion problem by just moving the parking
12 from one place to another. We have got to build a real
13 mass transit system into the airport. We have got to
14 build direct rail connections from LAX to the other
15 airports in the region if you want the other airline --
16 airports to take some of the load off of LAX. You have
17 got to build real transit into LAX from downtown and
18 from the San Fernando Valley as well as from Orange
19 County because people are not all going to come in by
20 car and they are not all going to come in on the Green
21 Line coming from Norwalk because very few people are
22 coming to LAX from Norwalk.

23 Also the thing that needs to be dealt with at
24 LAX is we need to provide a little more in the way of
25 services for those people who are having to kill a lot

1 of time there between connecting flights. And that, by
2 the way, by providing more services for those people
3 will provide a new source of revenue for the airport to
4 make up for the revenue that is going to be lost if
5 people take public transit rather than paying to park.
6 Thank you.

7 MS. SMITH: Thank you.

8 Mr. Timothy Watkins.

9 MR. WATKINS: Good morning. My name is Timothy
10 Watkins. That's T-i-m-o-t-h-y, W-a-t-k-i-n-s. I live
11 at 1143 East 88th Place and I work at 10950 South
12 Central. Both of those locations are just about three
13 minutes apart from each other, and they are both under
14 the flight path into LAX.

15 I live in South Central Los Angeles, and I
16 don't mind much about the name change. It's South
17 Central Los Angeles for me because I live right off of
18 Central Avenue and 88th. It is South Central Avenue.
19 I've raised six children there and I've mentored two
20 children through college at the same location. And all
21 the while I've been there because I believe that we make
22 a contribution to the community.

23 When you get down to, you know, the impact
24 that the airplanes have on the community -- I'm happy to
25 see my brothers and sisters from the unions here because

1 I know that they are looking out for the best interests
2 of their membership. But as a community member, it's my
3 job at WLCAC to look out for their brothers and sisters,
4 mothers and fathers, grandparents and children that
5 aren't necessarily members of the union.

6 So I was especially pleased that Jim Hahn kept
7 one of his old campaign promises to reach out to the
8 community and invite people that are not ordinarily
9 invited into these discussions to have their voices
10 heard and to understand that there are, too,
11 opportunities for people that are not union members and
12 are not skilled yet, that there will be training
13 opportunities and there will be job development
14 opportunities to includes, again, those brothers and
15 sisters and sons and daughters of union members and
16 others.

17 At the end of the day, though, the question
18 that I'm raising -- and I hope everybody in this room
19 hears loud and clear -- is that the poor communities
20 that lie in the pathway of those flights that approach
21 the airport are going to feel the impact of whatever is
22 done for another 100 years and that we should be
23 involved in something that outlives the project to put
24 these improvements in place. We should be involved as
25 communities in something that either supplies a service,

1 a product, some goods or something else that brings
2 sustenance back to the community that helps improve
3 quality of life conditions.

4 Last thing I would like to say is that because
5 my daughters go to Westchester High School and they are
6 now going into the 12th grade, for two years I've had
7 the pleasure of getting on that freeway. And if I get
8 on the freeway at 7:15, I get to the school in ten
9 minutes. If I get on the freeway at 7:30, it takes
10 a half an hour. If I get there at about 7:40, it takes
11 even longer and it's because the freeway just backs up
12 at that off-ramp to the airport. So I'm hoping that the
13 people mover system that's an integral part of this
14 project will alleviate that backup pressure and let us
15 have that beautiful 105 that dumps us out on Sepulveda
16 in that five-minute run from Watts to the end of the
17 freeway. Thank you.

18 MR. RITCHIE: Thank you.

19 MS. SMITH: Thank you, Mr. Watkins.

20 Next we have Sheila Bernard. After Sheila
21 Bernard, we have Nelle Ivory. And Mr. Bobby Blanks
22 after Ms. Ivory.

23 MR. BERNARD: Good morning. I'm Sheila Bernard.
24 That's S-h-e-i-l-a, B-e-r-n-a-r-d. I'm the President of
25 the Grass Roots Venice Neighborhood Council. Many

1 months ago our council passed a resolution against the
2 widening of Lincoln Boulevard and for consideration of
3 rail transit along Lincoln Boulevard.

4 Advocates for rail such as the Friends of the
5 Green Line have proposed a number of ways that rail
6 could lead to points north including Venice and Santa
7 Monica, but also including Northern California,
8 including western states, et cetera.

9 Now, your technical people who are very
10 talented, very articulate, explained Alternative D does
11 not preclude rail transit. However, not precluding rail
12 transit is not enough. We need you to design rail into
13 the airport improvement. Now, we know it's not your
14 department and we know that the airport is not MTA's
15 department, but the public needs for LAWA and MTA to
16 provide leadership by designing the airport improvement
17 together.

18 We need both facilities to view the
19 transportation of problems of Los Angeles wholistically.
20 The public needs to see a decrease in air traffic, but
21 an overall increase in public transportation. Building
22 and maintaining and operating public transit can be an
23 enormous source of good jobs that will not pit working
24 people against community members seeking to protect
25 their health against the effects of increased air

1 traffic.

2 The decrease in air traffic can be
3 accomplished using high speed rail for destinations in
4 Northern California and western States. Those local
5 destinations are taking up at least a fourth of the air
6 traffic in LAX and will continue to do so in the future
7 unless we do otherwise.

8 While it's true that millions of dollars have
9 gone into the current design, it's worth millions more
10 to revise the plan to ensure its intentional inclusion
11 of both local and high speed rail to avoid billions of
12 dollars of expense later relative to continued erosion
13 of people's health, our environment and the quality of
14 life in our city. Thank you.

15 MS. SMITH: Thank you.

16 Ms. Nelle Ivory. And after Ms. Ivory, Mr.
17 Bobby Blanks.

18 MS. IVORY: My name is Nelle Ivory. My last name is
19 spelled I-v-o-r-y.

20 MS. SMITH: Tell us when the mic is comfortable for
21 you.

22 MS. IVORY: Yes, I think it is now. I made notes.
23 It may not be in order. However, I'm kind of angry
24 because -- and when I refer to you, don't take it
25 personal. I'm referring to, I guess, Master Plan of LAX

1 and who put it together. I feel it's an insult to have
2 all that information out there and expect us to absorb
3 it and come back and relate it to this project because I
4 hear people said C and D and all of that. I tried to
5 read as much as I could. And it's insulting to me to
6 think that you -- when I say "you," I'm not talking
7 about you personally. You're just a liaison between
8 them and us.

9 Now, I think that project is for, and I've had
10 consideration into it, is the politicians, the rich and
11 all of that because they did not come into our community
12 and ask us to do a ground walk-through and suggest how
13 they should do it because the people in the neighborhood
14 could tell them, but we didn't have that.

15 And another thing I would like to say, you
16 can't insult me, but I said that it's insulting for
17 people to think that we can absorb all of that and then
18 give you feedback to take back to the entities that is
19 involved in this. I think it's a regime to enrich the
20 rich, politicians and the other people, not the people
21 that live in the area and all of that because I find out
22 a lot of times jobs are given to out-of-state people. I
23 think it should be in-state, California people, and
24 mainly our area.

25 And like Mr. Muhammad said, all of these

1 people come in our prison, they have paid their price.
2 Why shouldn't they have jobs? All of them are not
3 murderers and all of that. However, they should have
4 jobs. And we want that.

5 Another thing, I was asking one man out there
6 where the funding is coming from. He said federal
7 bonds, grants, which is our money that we sent to the
8 Federal Government and paid taxes. And he said revenue
9 bonds. Revenue bonds come from us taxpayers, whatever
10 concession, landing fees, passengers worldwide, airline
11 concessions and all much that? 4.

12 However, all of that said, let everybody --
13 and I'm not ashamed to live in South Central
14 Los Angeles, any place like that -- let the people of
15 the community be employed, and like the lady said, pay
16 decent wage and don't pay for all of these other rich
17 companies to suck us up. I don't think it's necessary
18 to tear our airport down, just renovate it. And if you
19 want the terrorists to stay out, you don't have to tear
20 down the whole airport and renovate it. Have some place
21 outside the airport to do that before they get in. You
22 wouldn't open your door to a terrorist. You would keep
23 them outside. So don't let them get in.

24 I think that another thing, if you don't
25 believe I'm telling the truth, the planes start dumping

1 their fuel between Central Avenue and Avalon. I don't
2 live in that area right now, but I used to. And if you
3 don't believe it, sit on Century. They start dumping
4 their fuel between Central Avenue and Avalon, and they
5 dump it all over. I thought it was smoke, but I'm
6 sorry, I just wanted to say this. It's the fuel that
7 the airplanes dump before they go to the airport.

8 Thank you.

9 MS. SMITH: Thank you, Ms. Ivory.

10 Mr. Bobby Blanks, and then we'll have Sondra
11 Roberts.

12 MR. BLANKS: My name is Bobby Blanks. Last name is
13 B-l-a-n-k-s, Field Representative to Congressman
14 Maxine Waters. Address is 10124 South Broadway, Suite
15 Number 1, L.A., California 90003. I would like to read
16 a prepared statement.

17 Alternative D is a \$9-billion-dollar project
18 that would demolish homes and disturb communities
19 without improving the safety and security of LAX. The
20 Supplement to the Draft EIS/EIR is an inaccurate and
21 misleading document that fails to reflect the true
22 impact of this project.

23 The centerpiece of Alternative D is the Ground
24 Transportation Center, a large remote passenger check-in
25 facility that would be constructed at Manchester Square

1 several blocks away from the airport terminals.

2 The RAND Corporation conducted a study of the
3 proposed remote passenger check-in facility, which was
4 released May 14, 2003. The study concluded that the
5 proposed project would not significantly improve the
6 security of LAX.

7 On July 25th, 2003 I introduced H.R. 2985, a
8 bill to condition construction of a remote passenger
9 check-in facility at LAX upon a finding that such a
10 facility would promote the safety and security of the
11 public. H.R. 2985 would require the Secretary of
12 Homeland Security to review the proposed facility prior
13 to its construction to determine whether it will protect
14 the safety and security of air passengers and the
15 general public more effectively than the existing
16 facilities at LAX.

17 If the Secretary of Homeland Security does not
18 determine that the facility will improve public safety
19 and security, the FAA would not be allowed to approve
20 its construction. On September 2nd the Board of
21 Supervisors of Los Angeles County passed a motion to
22 support my legislation.

23 In reality, Alternative D would displace
24 thousands of Manchester Square residents. It would also
25 have to relocate about 6,200 people, some of whom who

1 have federally subsidized housing vouchers. I strongly
2 oppose the forced relocation of any of these residents.

3 My constituents living next door to LAX in
4 Westchester, Inglewood, Hawthorne, Gardena and South
5 Central Los Angeles must contend with excessive noise,
6 pollution and traffic congestion caused by the airport.
7 These residents suffer many sleepless nights due to
8 deafening jet noise. Residents have reported increased
9 cases of asthma, respiratory illness and hearing
10 problems.

11 The American people are sick and tired of
12 deficits and bloated government spending. The state
13 budget of California is now running a
14 \$38-billion-dollar deficit. And the Federal Government
15 has a \$374,000-billion-dollar deficit in 2003.
16 Furthermore, Congress is in the process of providing the
17 President an additional \$87 billion for continuing
18 operations in Iraq and Afghanistan. The American people
19 cannot afford to spend \$9 billion on an outrageously
20 expensive boondoggle at LAX.

21 Alternative D is simply a continuation of
22 former Mayor Richard Riordan's plan to expand the
23 airport in the name of safety and security. I urge the
24 City Council of the City of Los Angeles to reject this
25 ill-advised and expensive scheme that will displace

1 thousands of Manchester Square residents and others
2 without improving the safety and security of LAX.

3 (The statement submitted for the
4 record was marked as Statement 4
5 and is attached hereto.)

6 MS. SMITH: Thank you, Mr. Blanks.

7 Next, Sondra Roberts. After Ms. Roberts we
8 have Ms. Sandra Delahoussaye-Bonds, and then Willie
9 Solomon. Is this our first Sondra?

10 MS. ROBERTS: Yes. Good morning.

11 MS. SMITH: Good morning.

12 MS. ROBERTS: My name is Sondra, S-o-n-d-r-a. And
13 my last name is R-o-b-e-r-t-s. I live at 3503 West
14 113rd Street in Inglewood.

15 When I moved to Inglewood 30 years ago -- 31
16 years ago as a matter of fact, the airport was
17 innocuous. Inbound planes flew in a pattern which
18 seemed to follow Century Boulevard. Outbound planes did
19 not affect us. The air traffic was minimal. The street
20 traffic was bearable. The air was breathable. My sleep
21 was not disturbed at night. Now residents anywhere in
22 the city have either seen or heard an airplane over
23 their houses. All of this, all of these changes have
24 resulted in some very detrimental things.

25 Traffic congestion, our main arteries as well

1 as our neighborhoods are now affected, the speeding
2 traffic, very heavy traffic which has damaged our
3 streets and roadways. Noise pollution is evident
4 24 hours a day not only by aircraft, but by street
5 traffic. And if you're unfortunate enough to live near
6 the freeway, freeway traffic.

7 These are a main cause. Noise pollution can
8 be a cause of neurosensory disorders. Air pollution is
9 a known fact and it certainly comes with what we have to
10 deal with from the airport. Aircraft emissions,
11 traffic, street traffic emissions, particulate matter,
12 which is something we have to breathe day in and day
13 out. Most of our adults suffer from some respiratory
14 disorder, but alarmingly the problem is wide-spread
15 among our children whose young lungs should be
16 uncontaminated.

17 We have neurological and psychiatric
18 disorders, sleep deprivation, anxiety, depression,
19 learning disorders. Airports are on their descent
20 directly over many of our schools.

21 Safety issues such as low-flying aircraft, too
22 many aircraft flying in close proximity to one another.
23 More airport related facilities moving closer and into
24 our communities bringing with them the possibility of
25 terrorist attacks. Property damage, which is caused by

1 air pollution and sound waves. LAX has been
2 methodically increasing the airport's capacity without
3 the benefit of the required environmental impact
4 reports.

5 The current report is sorely lacking in
6 validity. It does not address the solutions to any of
7 our quality of life issues, traffic, noise and air
8 pollution, mental and physical health, property damage
9 and safety. It is based on old, erroneous,
10 unsubstantiated and irrelevant data.

11 LAX is not an asset to Inglewood. It is the
12 worst possible neighbor any community could have. It
13 profits from our misfortune. But what better place to
14 exploit than a low income minority community?

15 If I had any lung capacity left, I would go
16 outside -- it would be nice to go outside and take a
17 nice clean breath of air. Thank you.

18 MS. SMITH: Thank you. Ms. Roberts.
19 Ms. Roberts, do you mind giving us a copy of that so we
20 can enter it into the record? Thank you so much.

21 (The statement submitted for the
22 record was marked as Statement 5
23 and is attached hereto.)

24 MS. SMITH: Thank you.

25 MS. DELAHOUSSAYE-BOND: Good morning.

1 MS. SMITH: Good morning.

2 MS. DELAHOUSSAYE-BOND: I'm the next Sandra,
3 S-a-n-d-r-a, D-e-l-a-h-o-u-s-s-a-y-e, hyphen, Bonds,
4 B-o-n-d.

5 I am opposed to Plan D. The MAP now is
6 already over-tasking my community of Inglewood. I
7 didn't mention, I am from the City of Inglewood, 10503
8 South 2nd Avenue.

9 The mitigation measures that are currently
10 being performed within my city are grinding along very
11 slowly. Unfortunately not quick enough to keep up with
12 the adverse effects that those in the flight pattern are
13 having to endure. I am not in favor of the flyaway
14 sites off the perimeters as they are currently being
15 considered. I don't think the terrorists will not know
16 that we have hundreds of people in one convenient place
17 in which they've -- if that was their desire, wanted to
18 do any bombing.

19 The 1992 noise evaluation guides I think are
20 very skewed as well. They don't accurately today
21 represent the noise contours that have been expanded
22 from the time they were first performed, the evaluation
23 process. I encourage the lowering of the decibels from
24 65 to 60. I think that would more accurately address
25 the contours as they are now being impacted.

1 There is another situation that is currently
2 in effect with the mitigation measures. And that is the
3 process of only mitigating with noise insulation half of
4 many many blocks, as someone earlier had mentioned,
5 neighbor from neighbor next door. One is given
6 mitigation, the other is not. They are still involved
7 with pollution, structural damage, noise and, of course,
8 particulate particles that are coming down on them.

9 I support regional airport planning. To me
10 this is the most logical way of sort of spreading the
11 burden that is currently being forced upon those in the
12 flight pattern of LAX.

13 The infractions of nighttime curfews I think
14 are horrendous. Those who are in the flight pattern
15 know 4:00 o'clock in the morning almost religiously
16 you're going to be awakened. It goes on and on. No
17 matter how many times you call and make a complaint, you
18 are sent, if you're lucky enough to get a letter in
19 response there is some lovely explanation. The thing is
20 we're missing sleep. Our children, those who are having
21 to get up and go to work, they are rest broken. We
22 don't deserve this. We think we in the flight pattern
23 deserve as much as anyone else. My word is regional
24 regional regional.

25 MS. SMITH: Thank you. After -- is this

1 Mr. Solomon? Mr. Solomon, after you speak I need Ethel
2 Swiney to be prepared and Roger Williams.

3 MR. SOLOMON: My name is Willie Solomon. I live at
4 120 East Century Boulevard, Los Angeles, California.

5 Why are planes permitted to take-off and land
6 between the hours of 11:00 p.m. and 6:00 a.m.?

7 Referring to jet noise levels, why haven't
8 some criteria been established to account for flight
9 patterns over areas such as Vermont Knolls?

10 Why can't jet engine noise be muffled within
11 ten miles from the landing?

12 How can the residue from jet fuel be reduced
13 over our community?

14 Why not extend the airport and runways out
15 into the ocean? Japan has done this very successfully.

16 What methodology has been devised to mass
17 transit passengers to terminals if no curb side drop-off
18 is permitted?

19 Local residents have been told from the start
20 that the general aspects of the plans were not
21 negotiable, then why are you holding public hearings?

22 Since existing airport was designed to
23 accommodate 40 million passengers, last year 56.2
24 million used the facilities, and the expansion will
25 accommodate 78.9 million. What are your plans to not

1 further impact our quality of life or has it been
2 factored into your plans?

3 Now the economical part of this airport,
4 49,000 jobs that the airport expansion project to
5 create. How many jobs for the residents in these
6 communities that have and will be impacted be made
7 available?

8 The Mayor has addressed certain Unions with
9 expansion plans. Are there plans to reach out to
10 non-union workers, give them an opportunity for
11 employment?

12 How would this -- how will the public be
13 notified of available -- these employments? Thank you.

14 MS. SMITH: Thank you, Mr. Solomon. Mr. Solomon,
15 don't go away yet. Can I get that from you? Thank you
16 so much. (The statement submitted for the
17 record was marked as Statement 6
18 and is attached hereto.)

19 MS. SMITH: We have Mr. John Ferruccio? And I
20 should know this name because I've announced it before.
21 Did I announce it correctly? Almost. And after that
22 Mr. Ethel Swiney, please.

23 MR. FERRUCCIO: Thank you. Good morning. My name
24 is John Ferruccio. That's F-e-r-r-u-c-c-i-o.

25 Myself and my family have been longtime

1 residents of Los Angeles in the City of Gardena. And I
2 am here today to testify on behalf of Alternative D
3 because I feel it is the best plan for the City of
4 Los Angeles.

5 As a union organizer for both journeymen and
6 apprentices in the pipe trades, in the construction
7 field, my obligation to the local communities is
8 hopefully to provide an opportunity for employment.
9 This plan will provide for more than 50,000 construction
10 jobs and numerous employment positions after
11 construction in the local area. With all the budget
12 cuts and layoffs in our city, very obviously here
13 currently more jobs will help stimulate our region, our
14 regional economy, and most importantly, keep people
15 working.

16 As for the security concerns, I support Mayor
17 Hahn's efforts to incorporate safety as a key element of
18 the design of the airport. It is vital to the LAX
19 Master Plan.

20 In closing, let's not waste any more time. We
21 need to be pro-active with safety, security and jobs.
22 Let's move forward with Alternative D. Thank you for
23 your time.

24 MS. SMITH: Thank you.

25 MR. KESSLER: Thank you.

1 MS. SMITH: Ms. Ethel -- is it "Swiney"? Thank you.
2 And Mr. Roger Williams after Ms. Swiney. And after that
3 Ms. Oadie. I think it's Oadie Ross.

4 MS. SWINEY: Good morning.

5 MR. KESSLER: Good morning.

6 MR. RITCHIE: Good morning.

7 MS. SWINEY: My name is Ethel Swiney spelled
8 S-w-i-n-e-y. And I'm stakeholder in this area. I
9 represent the Wilton and Gramercy Place Club.

10 And I'm here in opposition to the expansion of
11 the LAX Airport because of the fact that most of us I
12 would say from Century Boulevard to north of
13 Manchester -- which I live 500 feet -- or from
14 Manchester Boulevard, and I am in direct landing
15 pattern, I can see the landing wheels go down at night.
16 If I'm in my play room, I can see the lights go on, the
17 landing lights.

18 I've been in the area for 38 years. I was
19 there when they opened up what is now called the North
20 Runway. Which when the 747s started coming in during
21 the '70s, the closest I was to the landing pattern was
22 Century Boulevard. I also worked at Manhattan Place
23 Elementary School, which is 1850 West 96th Street.
24 During the assembly the principal had to stop her
25 announcements in order to let the planes go by.

1 The children have been affected at least 37
2 years by the taking off and landing. And we in that
3 particular area get a double portion because when the
4 weather is bad, the airplanes come eastward. And we
5 also get the ones that is coming into the airport.

6 So for health reason I'm really against it
7 because it causes children to become asthmatic. I work
8 in my garden and I plant plants and things. And I can
9 feel the residue that come from these planes on my
10 beans, my greens, or whatever, and it is detrimental to
11 the people that's in this particular area.

12 And I also have been on the list for
13 soundproofing for three and a half years. No one has
14 taken the time to come out to check out my house. I
15 call every three months. And they tell me they will get
16 back to me and to let me know they are still working in
17 my area, but they have not contacted me. So I would
18 like to go on record as the President of the Wilton and
19 Gramercy Club, we are against the expanding of the LAX.
20 Thank you.

21 MS. SMITH: Thank you.

22 Mr. Roger Williams. And after Mr. Williams we
23 have Oadie Ross. Thank you.

24 MR. WILLIAMS: Good morning. My name is Roger
25 Williams, W-i-l-l-i-a-m-s. And my address is 733 South

1 Hindry Avenue in Inglewood, 90301. And I'm representing
2 the International Brotherhood of Electrical Workers
3 Local 11. I am basically here today to testify in
4 support of Mayor Hahn's Alternative D Master Plan.

5 I feel that Alternative D is the most sound
6 and balanced approach to modernization at LAX. And I,
7 therefore, voice my support of Alternative D and the
8 Mayor's effort to bring modernization at LAX. Thank
9 you.

10 MS. SMITH: Thank you. Ms. Oadie Ross. Is Ms. Ross
11 here? I'm going to pass on Ms. Ross and come back.

12 Mr. Richard Slawson. After Mr. Slawson, we'll
13 have Mr. James Harris. After Mr. Harris we'll have
14 Tarlise Netherly.

15 MR. SLAWSON: Good morning. It's still morning. My
16 name is Richard Slawson. I'm the Executive Secretary of
17 the Los Angeles and Orange Counties Building and
18 Construction Trades Council. Our council represents
19 construction craft unions that represent approximately
20 130,000 members living and working and raising their
21 families throughout Los Angeles and Orange County.

22 I wanted to comment on a couple of things that
23 have been said today about the difference between moving
24 forward and not moving forward. I've participated in
25 quite a few of the meetings that have been held by the

1 Southern California Association of Governments,
2 participated on the Aviation Subcommittee when many of
3 the proposals were put together talking about the
4 numbers of actual passengers that would be able to be
5 handled by not only LAX, but the other airports in the
6 area.

7 Without this Master Plan or without a Master
8 Plan going forward, the SCAG reports say that LAX could
9 expand to 98 million passengers annually. With the
10 plan, Mayor Hahn has limited that to 78 million. So I
11 want everyone that is here today to understand that we
12 need to do something to correct the problems at LAX, not
13 do nothing and see the problems be exaggerated and
14 continued.

15 We support the airport working with all of the
16 communities. I know that they have in many cases held
17 many many community meetings. I've attended probably 90
18 percent of them, everything from around the airport to
19 the San Fernando Valley. I live in Torrance. Our
20 office is in the City of Los Angeles at 1626 Beverly
21 Boulevard. So we live and work throughout every region
22 here.

23 And I also wanted to talk about our
24 membership. As you can see from the people that are
25 here today, we represent people that live everywhere in

1 Los Angeles and Orange County. They live in Inglewood.
2 They live in Los Angeles. I live in Torrance. There
3 are people that live in Redondo Beach, El Segundo. We
4 represent 130,000 members. We think we represent the
5 community as well. We are in support of Alternative D
6 because we think it is the solution to problems, not --
7 and will not allow the situation to continue to get
8 worse.

9 Talking about the jobs, our members make up
10 this community. We don't come from Arizona. We don't
11 come from Northern California or some other state. We
12 all live right here. Our 130,000 members who are
13 raising their families, purchasing homes, paying their
14 bills, sending their kids to school just like everyone
15 else here. There are 49,000 construction jobs
16 approximately. I think there is even more than that
17 that will be involved in this project. We have put
18 together an agreement with the City that utilizes
19 apprenticeship, that continues to open up entry level
20 positions in the construction trades to create careers
21 for people that live in our community, pay their taxes
22 in our community. And we are committed to making sure
23 that those jobs -- that everyone in the community has
24 opportunities for all of those jobs as well as the
25 people we already represent. Thank you very much for

1 the opportunity to speak here.

2 MS. SMITH: Thank you, Mr. Slawson.

3 Next we have Mr. James Harris. Mr. Harris.
4 We're going to pass on Mr. Harris. Mr. Tarlise
5 Netherly. After Ms. Netherly we'll have Dan Hawn. And
6 after Dan Hawn we'll have Carlos Porras.

7 MS. NETHERLY: Good morning.

8 MS. SMITH: Good morning.

9 MS. NETHERLY: My name is Tarlise Netherly. And it
10 is spelled, N as in Nancy, e, T as in Tom, h-e-r-l-y.

11 I'm going to start by saying I do support
12 Alternative D. However, it took me a total of 12 days,
13 3 hours a day, to read and understand the proposed plan
14 and the drastic changes being proposed. I originally
15 began reading the plan to get an insight on a piece of
16 property in your proposal that I would like to develop.
17 However, in doing research I found something quite
18 alarming.

19 With myself being handicapped, I am thoroughly
20 aware of my surroundings. Therefore, I notice that the
21 plan had not stated specific handicapped or disabled
22 safety precautions being developed. The Alternative
23 Master D Plan states "it's accessible" but what does
24 that mean?

25 For instance, in the proposal, the proposed

1 people mover, there are no intended railings for the
2 blind to hold on to. There are no seating schematics --
3 excuse me, there are no seating schematics and there are
4 no wheelchair safety locks. Anyone who knows anything
5 about wheelchairs knows that the wheel locks on the
6 wheelchairs are not always sturdy. There is also no
7 mention of our exceptional four-legged friends, our
8 dogs, to assist us in getting around. They, too, are a
9 part of us. Posting the well-recognized handicap
10 placard is meaningless if there is no actual assistance
11 to back it up.

12 Your suggestion of Alternative Master D Plan
13 utilizes a great deal of paper, but, yet, leaves out a
14 part of a social class that is still alive -- excuse me,
15 still alive, well and extremely vital to the community.
16 It is imperative that precautions for the handicapped
17 and disabled be included on paper and not just phased in
18 while construction takes place. This would be improper
19 procedure.

20 All too often society ignores the fact that
21 someone who looks, talks and walks differently may,
22 indeed, have feelings just like the next normal person.
23 This is precisely why I am asking the council to go back
24 and review the schematics of Alternative D before making
25 a commitment of spending millions of dollars in order to

1 construct and redevelop LAX and its surrounding areas.
2 Should you decide to research the information I have
3 given you regarding the handicapped and disabled, you
4 will find there is a substantial amount of people both
5 young and elderly who enjoy and/or are required to
6 travel. Your people mover must accommodate us as well.

7 MR. RITCHIE: Thank you very much.

8 MS. SMITH: Thank you, so much. Would you mind
9 giving your --

10 MS. NETHERLY: You can have it.

11 MS. SMITH: Thank you so much.

12 (The statement submitted for the
13 record was marked as Statement 7
14 and is attached hereto)

15 MS. SMITH: After Ms. Netherly is Mr. Dan Hawn.
16 Again, after Mr. Hawn we have Carlos Porras. We will
17 take a short break after Mr. Porras, another five-minute
18 break. I just wanted to remind you of that again.
19 Thank you.

20 Mr. Hawn.

21 MR. HAWN: Thank you. Hello, my name is Dan Hawn,
22 H-a-w-n. I'm a representative of the Local 12 Operating
23 Engineers Heavy Equipment Operators. We represent
24 approximately 23,000 members. And, of course, they
25 would benefit from --

1 MS. SMITH: Hold on, Mr. Hawn, excuse me. I
2 apologize. We are having some technical problems here.
3 Let's take the five-minute break now, if you don't mind,
4 Mr. Hawn. And we will take care of the timer and come
5 back. If I could ask everyone to give us five quick
6 minutes while we take care of our equipment. We will
7 reconvene I think it's at 11:50.

8 (Recess was taken.)

9 MS. SMITH: While we are waiting for Mr. Ritchie to
10 join us on the stage, he is coming from the back of the
11 audience now, I wanted to go over a couple of things
12 again for those who are just joining us.

13 First of all, we would appreciate it if you
14 have any electronic devices, cell phones, pagers,
15 stopwatches, if you could please turn those off so that
16 we can respect those that are providing their comments.
17 We would appreciate it.

18 Second of all, I wanted to introduce myself
19 and the gentlemen receiving your testimony again. My
20 name is Shauna Bain Smith. I'm your facilitator. To my
21 right, immediate right is David Kessler. He is an
22 Environmental Protection Specialist with the Federal
23 Aviation Administration. To my far right is Mr. Jim
24 Ritchie. And he is Deputy Executive Director of
25 Los Angeles World Airports. They will be receiving your

1 testimony. I am just here to ensure that we can receive
2 that testimony in an orderly and timely fashion.

3 So once again really quickly, although I know
4 our speaker here understands this, for those that are
5 just joining us, we have this time clock. Everyone will
6 be given three minutes to speak after you have filled
7 out this speaker card.

8 I will not start the time until you have given
9 your name and address for the record. If you could
10 please spell your last name for the benefit of our court
11 reporters, we would appreciate it. If you are reading
12 from prepared remarks, you can hand them to our
13 interpreter who is sitting right next to you to your
14 right, and she will turn those in for the record as
15 well.

16 When you have 30 seconds of time left, you
17 will see the yellow light. When your time has expired,
18 you will see the red light. I ask that you start
19 wrapping up your remarks at the 30 second mark so that I
20 don't have to cut you off when the red light does.

21 With that, we'll call our three speakers. And
22 we will start where we left off during the break. That
23 was with Mr. Dan Hawn. And after Mr. Hawn we will have
24 Carlos Porras and Sparky Carpio.

25 Mr. Hawn.

1 MR. HAWN: Good morning. My name is Dan Hawn,
2 H-a-w-n, at 150 East Corson, Pasadena, California. I'm
3 a representative of Operating Engineers Local 12, heavy
4 equipment operators. We represent approximately 23,000
5 members. Our members work on projects such as the
6 Alameda Corridor, the Alameda Corridor east that is
7 currently underway, the cost and freeway construction
8 going around Southern California and hopefully that
9 improves the lives of the residents in the communities.

10 Now, we would certainly benefit, our members
11 would, from all the work that would be generated by L.A.
12 expansion. But not only that, we're concerned about
13 when our members go home if they have quality of life to
14 enjoy their families when they do get home. That's an
15 important factor. For that reason we are -- we believe
16 that Mayor Hahn's Alternative D design serves the local
17 communities, the communities that our members live in.

18 I understand that a lot of people in those
19 communities have concerns about the workers or the
20 openings for the construction work that is going to be
21 generated through there. Our apprenticeship programs --
22 like Mr. Slawson indicated, our apprenticeship programs
23 are deeply involved in the career days in all the
24 communities. So they pass out the applications for the
25 apprenticeship programs who are always open to the

1 communities. Our members live in the communities. I
2 appreciate your time. Thank you.

3 MS. SMITH: Thank you, Mr. Hawn.

4 Carlos Porras.

5 MS. HERNANDEZ: Thank you. Hi. My name isn't
6 Carlos, but Lisa Hernandez, but I am making a statement
7 for Carlos Porras who is the Executive Director of
8 Communities for a Better Environment, CBE.

9 In L.A. County African-American, latinos and
10 Asians are three times more likely to have a hazardous
11 waste treatment, storage or disposal facility within one
12 mile of their homes than a white population. Schools
13 with more than 50 percent people of color population are
14 three times more likely to have a facility reporting to
15 the Federal Toxic Release Inventory within a mile of the
16 school. Children attending schools with the highest
17 risk of respiratory health problems score significantly
18 lower achievement. These are health problems due to
19 poor air quality. There aren't enough studies that
20 study the effect of exhaust. And the EIR does not
21 sufficiently address this problem.

22 People of color have historically been
23 burdened with negative impacts of development that
24 benefits the broader society while forced to live in
25 poverty. People of color are now declaring this

1 environmental racism unjust. We demand environmental
2 justice. Any project at LAX will have impacts on the
3 surrounding communities of color. And we demand justice
4 for these communities. Any project that benefits the
5 economy must benefit the people impacted. Thank you.

6 (The statement submitted for the
7 record was marked as Statement 8
8 and is attached hereto.

9 MS. SMITH: Thank you.

10 Next, we have Sparky Carpio. And after Sparky
11 we have Anthony Furtado. And after Mr. Furtado, we have
12 Styles Logan.

13 MS. CARPIO: S-p-a-r-k-y, Carpio, C-a-r-p-i-o; 407
14 Exton Avenue, Number 4, Inglewood, California 90302.

15 When I was skimming through the Supplement to
16 the Draft EIS/EIR and listening to different LAWA staff
17 people and elected officials, I have come to believe
18 they seem to be more concerned and careful of the
19 infrastructure and the economics of the buildings and
20 money-making resources than of the health, welfare and
21 sanity of the communities. All I see in this plan is
22 greed on all levels of government. Why don't people who
23 are not elected officials get the compensation and
24 quality of life they deserve?

25 Also in 2001 SCAG had an item in its RTP

1 about the Arbor Vitae interchange. And time and time
2 again elected officials had said that it had nothing to
3 do with the airport or its expansion, and LAWA staff
4 even went so far as to say that the interchange was for
5 the Forum, which is now a church, Hollywood Park, which
6 needed financial help from the City of Inglewood, and a
7 K-Mart that is no longer existent. So if the
8 interchange is not for the airport, why is it in the
9 EIS/EIR?

10 There is also an MOU between LAWA and
11 Inglewood that is mentioned in the EIS/EIR that its
12 aviation easement requirements are currently suspended
13 - the requirements to the aviation easements that the
14 residents had to sign takes away their rights to sue the
15 airport. In the past Inglewood's mayor had wrongly
16 stated at a City Council meeting that the easements had
17 been eliminated while in fact they were merely
18 suspended.

19 And then with Manchester Square as the GTC,
20 how will it improve security and safety? And, by the
21 way, there are two -- there are now two Manchester
22 Squares because a while ago L.A. City Council had --
23 had -- I forgot. I think they had -- they had renamed a
24 park in -- in L.A., Manchester Square, but it is not the
25 one near the airport adjacent to the airport. So that's

1 a bit confusing. I think in the EIS/EIR that should be
2 clarified to which one you were addressing.

3 And I guess if you want to keep the CTA safe,
4 Manchester Square helps. But how is putting all the
5 people closer to the residents of Westchester going to
6 keep the passengers and residents safe? If someone
7 really wanted to do something to improve safety and
8 security, they would do the best thing and regionalize.
9 Thank you.

10 (The statement submitted for the
11 record was attached as Statement 9
12 and is attached hereto.)

13 MS. SMITH: Thank you.

14 Mr. Furtado.

15 MR. FURTADO: I'm Anthony Furtado, F-u-r-t-a-d-o. I
16 live at 2300 Bellevue Avenue, L.A., 90026. That's Echo
17 Park. I'm also a member of International Union of
18 Operating Engineers Local 12. I'm an apprentice. I've
19 lived in Echo Park just about all my life. I'm here to
20 voice my support for Mayor Hahn's Alternative D. Thank
21 you.

22 MS. SMITH: Thank you.

23 MR. RITCHIE: Thank you. Styles Logan. And after
24 Mr. Logan we have Jimmie Holmes and then Shu Woo.

25 MR. LOGAN: The sun has changed. It is now good

1 afternoon to all of you here.

2 MS. SMITH: Good afternoon.

3 MR. LOGAN: Thank you for giving us time to address
4 some of our concerns here.

5 I have some comments about the quality of life
6 in the surrounding areas. First of all, pollution.
7 Both noise and aerosol components will increase
8 dramatically because airline traffic will expand the
9 level required by the planned MAP.

10 Included in the plan should be a proposal to
11 provide funds to complete the existing soundproofing
12 contracts and identify the remaining homes that are
13 affected based on 55 DNL noise levels and above.

14 The infrastructure, Century Boulevard from the
15 110 Freeway to La Cienega and other heavily traveled
16 streets to and from the airport should be resurfaced
17 regularly with funding support from the LAWA to
18 eliminate potholes and other irregularities.

19 Homeowners residing in the flight path of
20 Los Angeles International Airport are significantly
21 impacted by the airplane noise making it difficult to
22 plan and enjoy activities in the backyard or leave doors
23 and windows opened for ventilation. The constant drone
24 of the airplanes taking off and landing does not permit
25 normal phone conversations without interruption or the

1 enjoyment of a television program without exceeding the
2 60 decibel levels, which have been determined to be a
3 normal level for a conversation.

4 Environmental issues, health issues and
5 surrounding soundproofing for residents living in the
6 flight path and around LAX must be mitigated prior to
7 approval of any Master Plan.

8 The environmental; the environmental impact,
9 particularly air pollution and noise will be
10 substantially increased during the physical construction
11 as well as when the expansion is complete.

12 Health issues. Studies dating back to 1977
13 report that continued exposure to loud noise is a health
14 hazard to individuals living near and around the flight
15 corridor.

16 Airplane noises are linked to stress,
17 hypertension, sleep deprivation and interruptions,
18 work-related performances, learning and academic
19 performances.

20 The residents of the 8th District would like
21 to go on the record opposing any expansion until the
22 environmental health and economic issues are mitigated
23 to assure that our quality of life will not be further
24 compromised. My name is Styles Logan. That's
25 S-t-y-l-e-s, L-o-g-a-n. I live at 1243 West 80th Street

1 in Los Angeles, 90044. Thank you.

2 (The statement submitted for the
3 record was marked as Statement 10
4 and is attached hereto.)

5 MR. RITCHIE: Thank you.

6 MS. SMITH: Well, I see how you got your first name.
7 You changed your whole style. I was about to ask you
8 for your name. Thank you, Mr. Logan.

9 Jimmie Holmes. And after Mr. Holmes, Mr. Shu
10 Woo.

11 MR. HOLMES: Good afternoon. My name is Jimmie
12 Holmes, J-i-m-m-i-e, H-o-l-m-e-s. I live at 3933 6th
13 Avenue, Los Angeles, California 90008. And I'm not here
14 really about the expansion. I understand that
15 government is going to do what they want along with the
16 cooperation and support of billion-dollar businesses.
17 The thing I'm here for is the increased air traffic over
18 my home in the last two months.

19 I moved in my house approximately six years
20 ago and I saved a long time to buy it. Upon moving
21 there I never even noticed the airport. Now, every day
22 starting at approximately 4:30 a.m. and until 1:30 --
23 1:30 a.m. and through the night there is constant air
24 traffic. I've tracked it on the internet, planes of
25 shapes and sizes traveling at altitudes of three

1 thousand, five thousand feet to three thousand feet. I
2 don't understand. Airport expansion? Yeah, people will
3 stand to make billions of dollars from it, no doubt, but
4 why over the homes in the African-American and Hispanic
5 communities?

6 The plans that I have reviewed do not address
7 that. It's not going to slow air traffic over my home.
8 It's not going to limit exhaust fumes over my home.
9 It's not going to assist me with funding to buy a new
10 home outside of the area that has been attacked with
11 these planes. What am I to do? What is my six-year-old
12 son to do and all his playmates that are running up and
13 down the street? I'm really here just to get my name on
14 the record because I know you people are going to do
15 what you're going to do?

16 I make \$100,000 a year. And I'm sure that no
17 one making this decision is living in an area with
18 planes flying over their homes, except that one
19 gentleman who enjoys it, but that's not me. So please
20 take those things into consideration before the plan is
21 executed. Thank you.

22 MS. SMITH: Thank you. Shu Woo. After Mr. Shu Woo
23 we have Henry Jimenez.

24 MR. WOO: Good afternoon. My name is Shu Woo. I
25 live in Los Angeles near the airport area and work first

1 in El Segundo and then downtown Los Angeles for over 30
2 years. Prior to that I lived in another big city right
3 underneath the flight path. My son went to Westchester
4 neighborhood school for the past nine years. As an
5 airport user and a person who travels near the airport
6 often, I enjoy the convenient location but at the same
7 time see the shortcoming of the current airport,
8 particularly after 9-11.

9 I am here to speak to support Mayor Jim Hahn's
10 Alternative D plan. This plan basically is a safety and
11 security modernization plan. It is also an efficient
12 plan aimed at improving quality of life for travelers
13 and residents alike. It is to reduce waiting at the
14 terminal and on the airfield, move passenger in and out
15 of the airport quickly and safely, mitigate negative
16 impact on the surrounding, making everything flow
17 smoothly. This is the main idea here. Runways are to
18 spread further apart to improve safety. And when
19 arrival and check-in parcels are dispersed in a much
20 wider area and streamline it through a multi-layer of
21 securities, everything flows. When everything flows,
22 there is very little concentration along lines of
23 passenger at airport. The likely terrorist target would
24 be diminished.

25 Pollution will be reduced when everything

1 flows. Security as well as traveling experience and the
2 quality of life will be greatly enhanced. This is part
3 of a regional solution that would allow air traffic flow
4 to be shifted to other airports. This plan allows some
5 growth at LAX without negatively impacting the
6 neighborhood. It would not bring the neighborhood more
7 congested traffic in the air or the ground. However, it
8 is not decided to be an expansion plan that the
9 residents hates or some airline would like to see, but
10 nothing should be more important to the airline industry
11 than security and safety. You can't put a price tag on
12 that. You don't want to -- you can't afford to have
13 another 9-11 to happen. A few dollar each passenger
14 each time is well worth it.

15 It's like buying an insurance policy, but is
16 actually much better. An insurance policy pays the
17 beneficiary some money after something bad happen. Most
18 people would much prefer a plan that could spend some
19 money and be able to reduce the chance of something bad
20 from happening in the first place.

21 LAX is probably the most important
22 infrastructure in the region. It is like a major artery
23 carrying economic lifeblood to all the communities.
24 We simply can't ignore this. LAX has one major
25 advantage over most big city airports in the world. LAX

1 is very close to the heart of the city. This is great
2 for tourism, international trade, local jobs and
3 business alike. We want to preserve this major
4 advantage that makes Los Angeles great. However, LAX
5 fall behind in modernization compared to most other big
6 city airports. I believe Mayor Jim Hahn's plan is the
7 most balanced and well thought through approach. Let's
8 get to work. Thank you.

9 MS. SMITH: Thank you, Mr. Woo.

10 Next we have Henry Jimenez. After Mr. Jimenez
11 we have Daniel Aguilar. After Mr. Aguilar -- are any of
12 these people here? Okay. So we will pass on
13 Mr. Jimenez.

14 Mr. Aguilar? Jesus Jimenez? Greg Garcia?
15 Frederick DePalm? Is that a yes?

16 Fernando Contreras? Daniel Avina?
17 Jorge Sifuentes? Jorge? Esther Kwon? Esther Kwon,
18 yeah. Someone is here. After Esther we have Don Jung
19 and then Monica Choi.

20 MS. KWON: To save some time, we're all going to say
21 our names, and then I'll speak. Is that okay?

22 MS. SMITH: Is that okay with you guys? I don't see
23 a problem with that. Does that include Susan Kim?

24 MS. KWON: Yes.

25 MS. SMITH: And Jason Ahn?

1 MS. KWON: Yes.

2 MS. SMITH: And Samuel In?

3 MS. KWON: Yes.

4 MS. SMITH: Shawn Lim? Okay. What about Richard
5 Eum? Is he part of this group as well, and Scarlet Eum?

6 MS. KWON: Uh-huh, yes.

7 MS. SMITH: And I think that ends that group here.

8 I know I don't have to call these names afterwards.

9 Okay. If you would each like to state your name, please
10 for the record, and we'll have your speaker speak on
11 your behalf.

12 MS. KWON: My name is Esther Kwon. I'm the Korean
13 Community Service Active Member.

14 MR. AHN: My name is Jason Ahn, A-h-n.

15 MS. LEE: My name is Kay Lee. It's Buena Park -- I
16 come from Orange County, just one I want. I was
17 impressed -- I read -- when I read Thursday and the July
18 10th and James Hahn said doing nothing is not a potion
19 we have an antiquated airport from the standpoint of
20 modern -- if you read on there something, people will
21 fly somewhere else. That's it.

22 MS. SMITH: Thank you.

23 MR. PEK: My name is Tua, P-e-k.

24 MS. SMITH: Thank you.

25 MR. RHEE: My name is Peter Rhee, R-h-e-e, 2701

1 Wilshire Boulevard.

2 MS. SMITH: Thank you.

3 MR. JUNG: My name is Don Jung. I'm the President
4 of a company named Trim Life.

5 MS. SMITH: Thank you.

6 MR. OH: My name is John Oh. Spelling is O-h.

7 MR. KIM: My name is Jay Kim. Last name is K-i-m.

8 MS. SMITH: Okay.

9 MR. SONKO: Good afternoon. My name is Chun,
10 S-o-n-k-o. Thank you.

11 MS. SMITH: Okay.

12 MR. IN: Good afternoon. My name is Samuel In.
13 Spell is I-n, 952 Westchester Place, L.A., 90019.

14 MS. SMITH: Thank you.

15 MR. LIM: Good afternoon. My name is Shawn Lim.
16 Last name is L-i-m. We are here --

17 MS. SMITH: Excuse me one moment.

18 MR. LIM: Yes.

19 MS. SMITH: Are you now going to make the remarks
20 for the entire group because I need to know when to
21 start your time?

22 MR. LIM: Okay. I'm starting -- we are speaking
23 only two person. I'm starting --

24 MS. SMITH: So can I get the rest of the group to
25 please take a seat. If I could get the rest of the

1 group to take their seats that have introduced
2 themselves, and I'm going to give you time to make your
3 remarks, and then you will make your remarks. We have
4 to make them two separate remarks, okay?

5 MR. LIM: Yes.

6 MS. SMITH: So you've stated your name for the
7 record. And I'm going to start the time now. Okay?

8 MR. LIM: Okay. My name is Shawn Lim. Last name is
9 L-i-m. I'm trying to save the time for all of you. We
10 come in here Korean-American, we support Mayor James
11 Hahn, the expansion Alternative D Plan because that --
12 we had a lot of trouble coming in all of the others for
13 the country. Our LAX is old, small. We have a lot of
14 people coming in here. Then we have a lot of problem of
15 inconvenience. We need to let all people know in the
16 world L.A. is a big city. We need the security. We're
17 going to let them know. We're going to expand the
18 airport, better -- better technology. We're going to
19 put it up there. People knew we have the security.

20 I had a lot of people living in Korea. They
21 are not coming here after 9-11. Because of that, the
22 United States after 9-11, all these people think we have
23 a lot of problem, we have a lot of security reason. So
24 we had a better expansion, Alternative D plays a help
25 that all the other foreign country know L.A. is a safety

1 place. They come in here and travel.

2 Then, also, in Korea a lot of years ago they
3 had a big expanded international airport. They had a
4 separated international airport. They separated. They
5 built on it years ago is a real convenience because you
6 don't need to carry the luggage on it. You stop by the
7 terminal, luggage you check-in, luggage go to the
8 airport. Wherever you go just a little package you
9 carry, go inside the airport. This saves a lot of time.
10 And then, also, they had a lot of safety reason. It is
11 a good security. So we need the expansion LAX so people
12 know LAX is a better community, a better safety place.

13 So my point is our Korean-American business
14 owner, a lot have a difficult time for leave because our
15 businesses, some of them belong to Korea, some of them
16 belong to China and Japan. Nobody come in here and
17 visit the United States. So we need the expansion, the
18 LAX people convenience. People come in here. They feel
19 safety. They feel like it is security also. That's why
20 I support James Hahn Expansion Alternative D Plan. 100
21 percent our Korean-American organization supports the
22 James Hahn plan. Thanks for letting me talk.

23 MS. SMITH: Thank you. Thank you.

24 MS. KIM: Good afternoon. My name is Susan Kim.
25 The address is 952 South Western Avenue, L.A.,

1 California, 90006. I'm here to represent Korean
2 community.

3 I have come here today to support
4 Alternative D of the LAX Master Plan. To me when we buy
5 a house, we move into the house. If we live there for
6 like 10, 20 years, we spend money to operate the houses
7 whether we're going to sell it or still living in there.
8 We make it to moderate changes to have a better life.
9 And so that Mayor Hahn's proposal is a balanced plan
10 because it allows for some growth while taking into
11 consideration the impacts to the surrounding
12 communities. Plus this project will create some, what,
13 50,000 construction-related jobs for the people of
14 Los Angeles.

15 The plan will improve operations and create a
16 greater -- greater level by customer service by
17 improving the passenger experience for travelers.
18 I myself believe it is time for modernize LAX. And I
19 believe Alternative D is the step in the right
20 direction. Alternative D isn't for Mayor Hahn himself.
21 It is for the City of Los Angeles and the people in the
22 Los Angeles. Thank you.

23 MS. SMITH: Thank you, Ms. Kim. Ms. Kim, if you
24 have any of those prepared remarks to which you
25 referred, I believe there was another member of your

1 audience that used some, if you could turn those into
2 our court reporter. Thank you.

3 (The statement submitted for the
4 record was marked as Statement 11
5 and is attached hereto.)

6 MS. SMITH: We next have Jessie M. Gatis or is it
7 Jessie M. Gatis? And then we have Cecil Carpio, and
8 then Daniel Mishell. So is Jessie Gatis not present?
9 Daniel Mishell? Okay. After Mr. Mishell we have Cecil
10 Carpio, and then Diane Sambrano.

11 Mr. Mishell.

12 MR. MISHELL: Hi. Dan Mishell, M-i-s-h-e-l-l. I'm
13 here on behalf of the L.A. Convention, Inc., the
14 Convention & Visitors Bureau. We are the agency that
15 promotes tourism for the City of L.A. And we've had
16 over 20 million tourists spending over \$11 billion
17 dollars over the last many years.

18 We support the LAX Master Plan Alternative D
19 because the way it addresses three basic issues, safety
20 and security, modernization and efficiency and
21 regionalization that is sharing the incoming/outgoing
22 traffic with other regional airports.

23 We like that this plan addresses the value of
24 two supporting segments of L.A. visitor economy, the
25 transcontinental domestic market and its linkage with

1 the international travel customer. In order to maintain
2 standing as an international gateway, LAX must be able
3 to provide passengers with direct connections to the
4 primary domestic carriers. This plan understands that
5 to be a gateway, LAX will need to protect its access to
6 the primary U.S. markets. This is especially important
7 in face of what our competition is doing. Destinations
8 at airports like Las Vegas, San Francisco and
9 Minneapolis are reinvesting in their airports to capture
10 more of the international travel market. Each year it
11 goes by the international consumer is given greater
12 options in the quantity and quality of his access to the
13 U.S.

14 Finally, we are very aware of the perception
15 that modernization has on a city. An airport that is
16 modernizing is an airport with improved security and
17 conveniences. These perceptions help make the case for
18 visiting Los Angeles and, thus, adding to the \$11
19 billion dollars in visitor spending and securing the
20 jobs of 240,000 citizens. Thank you.

21 MS. SMITH: Thank you. Ms. Cecil Carpio, please.

22 MS. CARPIO: Cecil Carpio, C-e-c-i-l, C-a-r-p-i-o.
23 I'm from the City of Inglewood.

24 Well, not to belittle this whole public
25 hearing process, but this is almost kind of my hobby. I

1 almost don't take it seriously.

2 First off I'd like to say that my daughter
3 spoke earlier and took out all my -- took all my thunder
4 from what I'm about to say, but I'll just skip through
5 it real quick. I'll do this real quick.

6 My concern is small, but significant. The
7 name Manchester Square is meaningful to anyone who is
8 familiar with the Master Plan for LAX. Manchester
9 Square is, or I should say was, a neighborhood within
10 Westchester. Westchester is a community within the City
11 of Los Angeles. The homes within Manchester Square are
12 being acquired and demolished by Los Angeles World
13 Airports. Manchester Square is slaughtered to become
14 the site of a huge Ground Transportation Center.
15 Manchester Square is part of the Mayor Hahn's Master
16 Plan for expansion of LAX.

17 The name Manchester Square is in the minds and
18 on the lips of anyone who seriously discusses
19 Alternative D. However, how many people know that the
20 City Council of Los Angeles approved a resolution to
21 name a neighborhood within the community of South
22 Central Manchester Square. On an editorial aside, I
23 think that's rather sinister. There are two Manchester
24 Squares in the City of Los Angeles. The question I pose
25 to the respondents to public comments, how are you going

1 to differentiate between the old Manchester Square and
2 the new one?

3 I oppose all Alternatives that increase the
4 capacity of Los Angeles International Airport. All
5 Alternatives including the no-action no-project
6 Alternative increase the capacity of LAX. Until the
7 Department of Airports aggressively protects the
8 communities from noise and pollution, I will not support
9 any Alternative for LAX. The noise variance is coming
10 up. It is time to aggressively address the issues --
11 I'm sorry, that was -- thank you. If I may just --

12 (A cell phone rings.)

13 MS. SMITH: Hm-hm.

14 MS. CARPIO: Thank you. I would hope that the
15 Department of Airports would aggressively address those
16 issues within that noise variance, otherwise you're
17 going to have a lot of problems on your hands. The
18 noise variance will probably be submitted by February of
19 next year. It's time we sit down and start talking
20 about some real resolutions to what's going on,
21 particularly in the City of Inglewood. And I propose
22 that those involved with that variance start talking to
23 community members rather than city officials or there is
24 going to be a lot of problems in Inglewood. Thank you.

25 MR. RITCHIE: Thank you.

1 MS. SMITH: Thank you. Diane Sambrano. After
2 Diane, Clarence Daniels, please. After Mr. Daniels,
3 we'll have Byrd Young.

4 Sambrano.

5 MS. SAMBRANO: Thank you. My name is Diane
6 Sambrano. That's D-i-a-n-e, S as in Samuel, a, M as in
7 Mary, B as in boy, r-a-n-o.

8 I couldn't help but notice today as she went
9 through the list of persons who had requested to speak
10 that so many of the persons that did leave had names
11 like mine, Garcia, Hernandez, Enriquez. And how they
12 came to this meeting simply amazes me to begin with
13 because 120 pages of the EIR/EIS, how many of them can
14 you count that were in Spanish? Oops, kind of like the
15 lady about handicapped awareness. I think we have
16 totally disregarded populations most impacted.

17 As I look at my community, no matter how many
18 reports I pick up from various institutions that like to
19 put us in those little boxes and say we look like this
20 and we sound like that, no -- no agency has come up with
21 less than 56 Hispanicity. The vast majority of our
22 students, 67 percent Hispanic came from
23 non-English-speaking homes. How are they made aware of
24 the impacts to their lives, the respiratory ailments?

25 We all talk about noise. Do you realize that

1 every time a speaker gets up to speak here if you live
2 in my house, three planes have flown over you, three
3 planes where you had to stop speaking. So we're very
4 accustomed to this very quick and rapid speaking where
5 we can get a lot said very quickly because we do it on a
6 regular basis. Unfortunately that does not help our
7 children learn in their institutions we call
8 educational.

9 Now I know that LAWA is very much aware of the
10 great outreach to community and they give our children
11 Barbie dolls and Tonka trucks at Christmas, but that
12 doesn't give them an education nor does it help
13 the respiratory ailments. It frustrates me that as I
14 listen to several people from the unions come up and
15 give an address, many of those addresses are in that
16 area that I know is now airport compatible because it is
17 only industrial. So I think the address frequently
18 given was not of a residence but of a business office.

19 So how then can they talk about how good it is
20 for them to make so many thousand dollars a year when
21 they aren't the ones losing the sleep because they don't
22 live in that business address? It also amuses me coming
23 up is a seminar called "Keeping the Public Trust, Ethics
24 In Government." When we decide any community is not
25 entitled a quality of^c life and environment justice, that

1 definitely smacks in the face of public trust. Safety
2 and security, anyone who read, not just thought of or
3 heard about this plan, would find out that any time you
4 put a group of people in one location, they become a
5 wonderful target. It is kind of like anyone who cooks
6 using a funnel can totally be plugged by one bean.

7 Thank you.

8 MS. SMITH: Thank you. Mr. Clarence Daniels,
9 please. And after Mr. Daniels, Ms. Byrd Young.

10 MR. DANIELS: Good afternoon. My name is Clarence
11 Daniels. And I'm the president and owner of Concessions
12 Management Services. Our company operates food and
13 beverage concessions at LAX.

14 However, I'm here this morning really wearing
15 several hats. In addition to being a business owner at
16 LAX, I'm a resident of the City of Los Angeles. I'm
17 currently President of the Greater Los Angeles
18 African-American Chamber of Commerce which represents
19 African-American owned businesses in the Greater
20 Los Angeles area. And I serve on the board and I'm the
21 Western Regional Representative for the Airport Minority
22 Advisory Council, which is the Professional Trade
23 Association for minority and women-owned businesses that
24 do business in airports across the country.

25 And really I think I'm here this morning to

1 really ask the question, if not now, when? All of us
2 know that LAX, the location of LAX cuts both ways.
3 One, it's near the ocean. So we can't expand westward.
4 So we're landlocked. An earlier speaker made the point
5 that the location of LAX is also very convenient to
6 downtown and because of our freeway system to other
7 areas of economic activity. So we have a great
8 location, a great airport. And we have great
9 management. However, we are handicapped by the age of
10 our facility, by the layout of our facility and by the
11 need for our facility to grow. We must remain
12 competitive.

13 LAX right now is a major entry point for
14 Pacific Rim nations for both passengers and cargo.
15 There are a lot of airports because I work at five other
16 airports as well. And our organization is involved in
17 every airport around the country. And most airports are
18 remaining competitive by expanding their capacity, by
19 increasing their technology, by making themselves more
20 accessible for transportation. Most airports you can
21 take public transportation right into the airport.

22 You know, I hope we don't make the mistake
23 like we've done in other areas of public transportation
24 and not be forward thinking enough to realize that
25 Alternative D, which is a very balanced approach, gives

1 us an opportunity to plan for the future of L.A., for
2 our children, for our economy. Alternative D really is
3 a balanced approach that would allow us to remain
4 competitive. It would address a lot of safety issues.

5 I operate right now at Tom Bradley
6 International Terminal. So we serve the international
7 carriers, and I'm in terminal six which serves domestic
8 carriers. And we interact and talk to airport station
9 managers and airline employees all the time. And the
10 real issue is, when we are going to make LAX as safe as
11 secure as we all want it to be. I think Alternative --
12 I know -- I believe that Alternative D is finally an
13 Alternative that would allow us to remain competitive.

14 Also, I think it's important as an
15 African-American business owner to point out that LAX
16 has a disadvantaged business enterprise program, a
17 minority business enterprise program that ensures right
18 now in the concession area 40 percent of all the
19 concession opportunities go to minority and women-owned
20 companies. I employ 70 employees. 90 percent of them
21 are minority who live in Hawthorne, who live in
22 Inglewood, who live in Westchester.

23 MS. SMITH: Thank you, Mr. Daniels.

24 MR. DANIELS: And those employees would greatly
25 benefit from the Alternative D. Thank you very much for

1 the opportunity to speak.

2 MS. SMITH: Thank you. If you have prepared remarks
3 there, would you mind giving them?

4 MR. DANIELS: I don't.

5 MS. SMITH: You don't. It was so eloquent I thought
6 they were prepared. After Mr. Daniels, Byrd Young,
7 please.

8 MS. YOUNG: Good afternoon. Hello, Mr. Ritchie. I
9 think you've met me before. My problem is pollution.

10 Federal environmental protection, that's Code
11 40 of the CFR, and I think that's Chapter One that gives
12 the outline of what we should be doing. Now, I found --
13 I was researching this. I'm sorry my time was so
14 limited in the research effort, but my beef is with
15 cancer. Since 1990 cancer has been the second leading
16 cause of deaths of illnesses in the 90047. Okay.
17 Recently I had to take a leave because I contract it.
18 Many of my neighbors, I -- in case Mr. Logan is one of
19 my neighbors, and I think Mr. Ritchie was at one of the
20 seminars. And according to UCLA studies -- and it's
21 continually on the rise. So, you know, CDC in 1990
22 report stated that there were clusters of illnesses that
23 were not investigated. And I think -- and chronic
24 diseases, and I don't think all of them have been
25 reported. Because in one of the neighborhoods there

1 have been 11 people to die of cancer within maybe, what,
2 200-foot block -- foot block. And I was really
3 concerned about that. I'm sure that's not all. Those
4 are not all of the problems and the health problems.

5 So, as he said, you know, we are not going to
6 have it. Our children are not going to have -- want to
7 be alive if this continues. So I think this problem
8 should be -- that I recommend that people protect
9 whoever is beneath the flight path. And that's whether
10 that is doing the -- doing the noise protection -- what
11 is that called? But I think --

12 MS. SMITH: Soundproofing?

13 MS. YOUNG: Soundproofing, because it's known that
14 50 percent of the population is deaf.

15 MS. SMITH: Thank you. Can you please state your
16 name for the record, Ms. Young? You forgot to do that.

17 MS. YOUNG: My name is Byrd Young with the Y -- the
18 Y with the I. And I live at 9416 South Hobart directly
19 beneath a flight path.

20 MS. SMITH: Thank you so much.

21 Bill West. After Mr. West -- after Mr. West
22 we'll have Marqueece Harris Dawson. Is Marqueece here?
23 And after Mr. Harris Dawson, we'll have Harry Rose.

24 Mr. West.

25 MR. WEST: Thank you very much.

1 MS. SMITH: Thank you.

2 MR. WEST: Jim, congratulations on all of these
3 hearings.

4 MR. RITCHIE: Good morning. Thank you.

5 MR. WEST: Bill West, 8929 South Sepulveda
6 Boulevard, Los Angeles, 90045.

7 I wear many hats. Where do I begin? I am
8 currently the business representative of the
9 neighborhood council in Westchester/Playa del Rey. I'm
10 also the general manager of the HP Drolinger Company
11 (phonetic). We have 28 properties just north of LAX,
12 about 400 tenants. I'm also a homeowner, born and
13 raised in the city, went to that wonderful school just
14 down the street. And I'm happily retired from the
15 Los Angeles Police Department. And I guess I'm still a
16 member of that union.

17 With that, I am happy to tell the panel that
18 on Tuesday last the neighborhood council of the
19 Westchester/Playa del Rey voted to oppose Alternative D.
20 I remind you that neighborhood councils were enacted as
21 part of the City Charter to take up local issues and
22 recommend courses of action for their consideration.
23 And we have reviewed this for months and months. And it
24 was the overwhelming vote of that council to reject
25 Mayor Hahn's Plan D.

1 One of the issues that has come up is the
2 toxicity of airline fuel. I might remind you that
3 airline fuel is located -- or loaded with toxic
4 chemicals. As the planes decelerate for landing, their
5 engines operate less efficiently than while cruising
6 and, thus, they discharge more pollutants than they do
7 when they are cruising.

8 We have teachers and we have children and we
9 have families that live probably in three or four
10 counties that are affected by this. I understand that
11 LAUSD has an environmental section that has done some
12 studies on this. And I would urge that those studies be
13 made part of the public record on this.

14 Also there are certain areas that are going to
15 have to be dealt with based on an overriding
16 consideration issue which basically means that if you
17 choose to go forward with this plan, you have to
18 acknowledge that there are adverse environmental
19 impacts. You don't care and you're going to go forward
20 anyway, which would include children's health issues,
21 which would include cancer clustering, other respiratory
22 conditions, hearing loss. You have decrease in
23 productivity as motorists spend more hours stuck in
24 traffic. While the construction workers will see
25 increase work during the years this plan would take to

1 build out, everyone else traveling to or within miles of
2 the airport will spend more time on the road and less at
3 work or with their families.

4 Public safety at the airport; LAX now states
5 that they operate the airport quite safely. And I
6 believe they do. If they do that, why do we need to
7 "increase the safety," quote, unquote, going a mile and
8 a half to the east. And I would refer to the RAND
9 report on that. They need to create jobs where people
10 live rather than move people through congested traffic
11 from where they live to LAX. Thank you very much.

12 MS. SMITH: Thank you, Mr. West.

13 MR. RITCHIE: Thank you.

14 MS. SMITH: Marqueece Harris-Dawson, please.

15 MR. HARRIS-DAWSON: Good morning.

16 MS. SMITH: Good morning.

17 MR. HARRIS-DAWSON: Afternoon rather.

18 MS. SMITH: Afternoon.

19 MR. HARRIS-DAWSON: My name is Marqueece
20 Harris-Dawson. I am a staff member at the Community
21 Coalition in South Central Los Angeles at 8101 South
22 Vermont Avenue in the South L.A. Manchester Square.

23 MS. SMITH: I was going to ask you to spell your
24 name.

25 MR. HARRIS-DAWSON: M-a-r-q-u-e-e-c-e.

1 MS. SMITH: Thank you.

2 MR. HARRIS-DAWSON: So Manchester Square in South
3 L.A. is where our office is located. We represent 3,500
4 members who live in the Vermont Knowles area and
5 throughout South Central. We wanted to come to this
6 hearing to make a couple of points.

7 One, is that any expansion or public works
8 project of this size should include both the needs and
9 the interests of the people who live in the flight
10 pattern. And actually our offices are in the flight
11 path. And one of those things is repaving of our
12 streets and other public works projects like
13 soundproofing at the homes of our members.

14 The other point we would like to make is that
15 any public works project of this size should include a
16 significant community benefits package. We believe if
17 taxpayer money is going to be spent, especially with
18 this big a price tag, that the primary beneficiaries
19 ought to be people who pay taxes. So jobs at living
20 wage for the source of hiring and making sure that this
21 project improves the quality of our lives as best it can
22 rather than us being built over and built through, like
23 we get done over and over again. So I want to thank you
24 for your time and invite you all to come to the
25 community Coalition and hear from our members sometime.

1 MS. SMITH: Thank you so much.

2 Harry Rose, please. After Mr. Rose, Carole
3 Hossan. And after Ms. Hossan we have Bruce McDaniel.

4 Mr. Rose.

5 MR. ROSE: Good afternoon. I'm Harry Rose. I live
6 in Osage Park neighborhood of Westchester. I believe
7 you probably know where that is by now. We're
8 eight-tenths of a mile north of where you say you would
9 like to locate your Ground Transportation Center.
10 There is a couple of issues I would like to talk about.

11 One is the lip service that the City of
12 Los Angeles pays to affordable housing. Now, Manchester
13 Square is an area that once contained affordable
14 housing. There were 7,000 residents that lived there.
15 On October 29th, 1999 Los Angeles City Council adopted
16 resolution 99, dash, 2013 to purchase 33 single-family
17 dwellings and five multi-family dwellings located in
18 Manchester Square. They've been doing this under an
19 airport noise mitigation program.

20 Now, normally when you buy property in an
21 airport noise mitigation program, what you do is you buy
22 the property on a voluntary buy-out, place an aviation
23 easement on the property and you resell it on the
24 residential market, thus maintaining affordable housing.

25 With the council's resolution began a

1 multi-year program to purchase residential property with
2 passenger facility charges collected for the stated
3 purpose of noise mitigation. The initial purposes were
4 properties from owners who had approached LAX and asked
5 their homes to be acquired. Throughout the ensuing
6 years about 50 percent of the homes in Manchester Square
7 have been acquired. None of it has been resold. None
8 of it has been placed back on the market.

9 It should be noted before this process began,
10 LAX had entered into a Master Plan process that
11 considered all of Manchester Square properties as
12 belonging to the airport and usable for airport
13 operations. Yet, the current executive summary for
14 LAX Master Plan Alternative D tells us that the entire
15 process will be able to move forward without the
16 purchase of a single residential property. In the
17 regional discussions of voluntary buy-out for residents
18 that desire to have their homes purchased, LAX had
19 assured people that the purchased homes would be well
20 maintained and kept in a condition that would not blight
21 the neighborhood. This soon changed. As vacant homes
22 were looted and crime in the neighborhood increased, LAX
23 began the demolition process of its purchases.
24 Remaining residents found themselves increasingly
25 surrounded by fenced-off vacant lots. And the question

1 now rises, when does voluntary acquisition become
2 involuntary?

3 The community of Westchester has historically
4 lost homes to airport expansion time and time and time
5 again. And the residents of Westchester are tired of
6 this. And it's time that it stop.

7 MS. SMITH: Thank you. Thank you, Mr. Rose.

8 Carole Hossan, please. Can we get some help
9 with that?

10 MS. HOSSAN: Thank you.

11 MS. SMITH: Are you comfortable with the mic?

12 MS. HOSSAN: A little lower. I'm short. Thanks.

13 Carole Hossan, Westchester. I have a couple
14 of questions at the beginning.

15 How long -- or what is the cost going to be to
16 fix LAX to accommodate the new large airplanes? How
17 much would the cost be to have Ontario accommodate those
18 new large airplanes?

19 My second question is, how long will it take
20 at LAX, the profits generated by the new NLAs to pay for
21 the cost of the renovations and the same at Ontario?
22 Onto something else.

23 The Alternative D EIS/EIR states that under
24 Alternative D the LAX Master Plan would be consistent
25 with the policy of the regional aviation plan, that's

1 SCAGs, which calls for no-expansion of LAX. So explain
2 how can that be possible when the centerpiece of the
3 plan, the GTC, is not owned by LAX? The Alternative D
4 EIS/EIR states the purposes of objectives of the Master
5 Plan are to provide sufficient airport capacity for
6 passengers freight in the L.A. region. So why did your
7 original scoping outreach effort not include a single
8 agency within San Bernardino, Orange, Riverside or
9 Ventura Counties?

10 Here is a quote from an article in the Sierra
11 Club Magazine. According to the NRDC a single jet
12 landing, taxiing, idling and taking off causes as much
13 pollution as a car traveling 5,600 miles. Also, some of
14 today's quieter more fuel-efficient aircraft engines
15 generate an average of 40 percent more smog forming
16 nitrogen oxides than the engines they replaced. So why
17 is it that your analysis in your Alt D EIS/EIR indicated
18 that aircraft emissions account for 90 percent -- 97
19 percent of total emissions and contribute most to the
20 emissions of individual toxic air pollutants, yet, none
21 of the mitigation measures address aircraft emissions?
22 Why is that?

23 I think your analysis of air pollution has
24 been widely lacking. And since we do live there, it
25 would be nice to know exactly what it is we are

1 breathing and how it can be fixed. Thank you very much.

2 MS. SMITH: Thank you, Ms. Hossan.

3 Next we have Bruce McDaniel. After
4 Mr. McDaniel, we'll have Willy Colinden. My
5 brother-in-law's name is Crittendon. I saw it, but no
6 one crossed the Ts. Mr. Crittendon, you will be after
7 this gentlemen here.

8 MR. MCDANIEL: Hi. My name is Dr. Bruce McDaniel.
9 I'm the superintendent of the Lennox School District
10 which is located immediately west of LAX and it's
11 bordered on two sides by the 405 Freeway and 105
12 Freeway.

13 We serve over 7,000 children in this very
14 condensed area, nearly all of whom are from ethnic
15 minorities and extremely low socioeconomic families. We
16 have a paramount interest in the LAX Master Plan because
17 of the direct effect on our community. We've carefully
18 analyzed the impacts of the new option in the Master
19 Plan and found that mitigations are crucial in our
20 community because of the extreme proximity to the
21 airport.

22 The Lennox School District previously conveyed
23 many of our communities' interests and of impacts and
24 specific concerns in September 2001. We're a member of
25 the LAX Coalition for Economic Environmental and

1 Educational Justice. And as such, we are committed to
2 working to ensure that the appropriate mitigations do
3 take place.

4 Lennox School District looks forward to
5 working with Mayor Hahn, the Los Angeles City Council,
6 the LAWA Board of Airport Commissioners and Los Angeles
7 World Airport staff in the development of appropriate
8 measures. We're confident that with the mitigation that
9 is necessary, we can support the Mayor in his effort to
10 improve safety and security at Los Angeles International
11 Airport. Thank you.

12 MR. RITCHIE: Thank you very much.

13 MS. SMITH: Thank you. Mr. Willie Crittendon.

14 MR. CRITTENDON: Thank you very much.

15 MS. SMITH: You're welcome.

16 MR. CRITTENDON: Good afternoon.

17 MS. SMITH: Good afternoon.

18 MR. CRITTENDON: My name is Willie Crittendon. And
19 I'm the president of the Inglewood School District Board
20 of Education. We know that the expansion program is
21 going to happen. So we need to ensure that our
22 community, our voices are heard, the mitigation, which
23 really affects our school district, and especially Oak
24 Street School. We are looking at that piece. And far
25 more important than that, jobs for our students and

1 apprentice-type of program because we know every student
2 is not going to go to college. And this is going to be
3 a seven- or eight-year process. And we need to ensure
4 that there are training programs, apprenticeships that
5 would involve the Inglewood Unified School District in
6 terms of providing opportunities for those students to
7 learn and graduate and go out in the world of work.
8 Because if students -- if students have those skills,
9 they will feel good about themselves and they will
10 become productive.

11 And there is a hook in this that you will tell
12 the students, if you do the right thing, you have to
13 come to school. You have to perform. And here is an
14 opportunity for you to be gainfully employed and learn a
15 sellable skill. And that's where we're coming from, the
16 job aspect, sellable skills and the mitigation because
17 I've lived in Inglewood since 1967. I lived on 6th
18 Avenue. I could stand in my backyard and read the
19 labels on the planes. So we need to ensure that the
20 insulation, sound abatement is well taken care of so
21 that our students, our parents won't start to have a
22 loss of hearing and to show that we will be working with
23 you to make sure that this is going to be in the best
24 interest of our community and, most importantly of all,
25 to benefit our City of Inglewood and the Inglewood

1 Unified School District and especially the 18,000
2 students that we have responsibility for.

3 Thank you very much.

4 MR. RITCHIE: Thank you, sir.

5 MS. SMITH: Thank you, sir. I'm going to call some
6 names of people that passed earlier. Oadie Ross? Is
7 Oadie Ross available? Henry Jimenez? Daniel Aguilar?
8 Jesus Jimenez? Greg Garcia? Frederick DePalm?
9 Fernando Contreras? Daniel Avina? Jorge Sifuentes?
10 Jessie M. Gatis?

11 At this time I don't have any other speaker
12 cards in hand. One gentleman. Welcome. Can we make
13 sure to get him a speaker card as well, please.

14 Can I get you to state your name and address
15 for the record, please, and spell your last name. And
16 then I'll start your time.

17 MR. WASHINGTON: I did sign a card. My name James
18 Washington. I represent Local 347, Service Employees
19 International Union. I am here to read into the record
20 a statement from the general manager of Local 347 Julie
21 Butcher and president of the Local, Bob Schoonover.

22 MS. SMITH: Thank you.

23 MR. WASHINGTON: W-a-s-h-i-n-g-t-o-n. The address
24 is 1015 Wilshire Boulevard, Los Angeles. I am a
25 longtime city resident. I live in between two airports,

1 Long Beach and LAX and several general aviationary
2 facilities.

3 "On behalf of the Service Employees
4 International Union, I would like to express our strong
5 support for Alternative D of the LAX Master Plan.

6 SEIU Local 347 represents over 700 employees
7 that work at LAX and thousands that live in surrounding
8 communities. The employees we represent are directly
9 impacted by what happens at LAX. We feel your efforts
10 to modernize LAX are a step in the right direction.
11 Alternative D is a balanced approach to maintaining LAX
12 as an economic engine for our regional economy while
13 considering the environmental and traffic impacts to the
14 surrounding communities.

15 Your safety and security alternatives address
16 many security concerns at LAX and allows the flexibility
17 to accommodate evolving federal security requirements
18 and technology. SEIU Local 347 has a great interest in
19 providing a safe and secure work environment for its
20 members at the airport and in surrounding areas.

21 SEIU Local 347 feels strongly that the
22 modernization of the airport is long overdue and
23 necessary. The improvements that Alternative D poses
24 will provide for improved operations, increased
25 efficiencies that will benefit passengers and

1 concessions at LAX. Maintaining LAX as an international
2 gateway to the country will maintain hundreds of
3 thousands of jobs directly related to LAX. We recognize
4 the importance of preserving LAX as a premier airport in
5 the world.

6 We appreciate your leadership and continuous
7 effort to modernize LAX. We look forward to working
8 closely with you through the Master Plan process.
9 Sincerely, Julie Butcher."

10 MS. SMITH: Thank you so much. Do you mind
11 providing our staff with that? Thank you so much.

12 (The statement submitted for the
13 record was marked as Statement 12
14 and is attached hereto.)

15 MS. SMITH: At this time I don't have any other
16 speaker cards before me. We want to ensure that
17 everyone had an opportunity to speak.

18 At this time having no more speaker cards
19 before me, I will turn the hearing over to
20 Mr. David Kessler to close the hearing out.

21 MR. KESSLER: I will ask, again, if there is anyone
22 who has not had an opportunity to speak concerning the
23 information in the Supplement to the Draft Environmental
24 Impact Report/Environmental Impact Report?

25 Not seeing anyone else, I will remind you that

1 if you feel you are unable to provide us with verbal
2 comments today, we will be accepting written comments
3 until 5:00 p.m., Pacific Standard Time, on Friday,
4 November 7, 2003. You can mail your comments either to
5 me at the FAA or to Jim Ritchie with LAWA. The mailing
6 addresses are listed on the cover of the Supplement to
7 the Draft EIS/EIR.

8 I want to thank everyone for your comments
9 today. This public hearing for the Supplement to the
10 Draft EIS/EIR on the Los Angeles International Airport
11 Master Plan is now closed. Thank you.

12 MS. SMITH: Thank you.

13 (Whereupon the proceeding adjourned
14 at 1:02 o'clock p.m.)

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1 STATE OF CALIFORNIA)
) ss.
2 COUNTY OF RIVERSIDE)
3

4 I, LISA ANN VARGAS, certified shorthand reporter,
5 License No. 12049, do hereby certify:

6 That the proceedings contained herein were taken
7 before me at the time and place herein set forth and was
8 taken by me in shorthand and thereafter transcribed into
9 typewriting by me, and I hereby certify that the said
10 proceedings are a full, true and correct transcript of
11 my shorthand notes so taken.

12 I further certify that I am not interested in the
13 event of the action.

14
15 WITNESS my hand this 26th day of October 2003.

16
17 
18 _____
LISA ANN VARGAS, CSR NO. 12049

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25

ERRATA SHEET

I declare under penalty of perjury that I have read the foregoing _____ pages of my deposition testimony, taken on _____ at _____, California, and that the same is a true record of the testimony given by me at the time and place hereinabove set forth, with the following exceptions:

Page Line Should read:

Date: _____

Signature of the Witness

Name Typed or Printed

Councilman Kelly McDowell
City of El Segundo
Comments on the LAX Master Plan Draft EIS/EIR Supplement
EPIC Center, Los Angeles
October 25, 2003

Good morning. I am Councilman Kelly McDowell, representing the City of El Segundo.

Given the length and complexity of the Master Plan and environmental documents, our complete comments, including those on technical issues, will be finalized soon and my City's comments today are preliminary.

The City of El Segundo continues to oppose Alternatives A, B, and C for the many reasons the City expressed orally and in writing during the public review and comment period for the initial Draft EIS/EIR in 2002.

The City of El Segundo has not endorsed Alternative D. However, we feel its stated objective of constraining LAX to its current capacity is appropriate and supports a regional aviation approach.

To be clear, the City of El Segundo can only support an alternative that by design will accommodate passenger and cargo levels no greater than the physical capacity of the airport as it exists today.

The City has retained a nationally respected expert to assess the capacity of Alternative D.

To the extent that our expert consultant's findings are that the passenger capacity of Alternative D, as currently designed, exceeds 78 MAP, we would hope that LAWA would cooperate with El Segundo in incorporating any revisions in the Plan necessary to ensure the capacity is not increased beyond 78 MAP.

Limiting LAX's capacity to its current capacity has always been our number one goal.

We believe that limiting capacity at LAX ~~will~~ allow other airports in the region to develop and handle their fair share of ~~the~~ future regional aviation demand.

However, my City is greatly concerned about the impacts of southside airfield changes that would move the southernmost runway 50 feet closer to El Segundo.

LAWA has stated that it believes these changes are necessary to improve runway safety.

However, we are currently studying the impacts of the proposed reconfiguration and the options for the southern runway complex.

In particular, we urge full public consideration of end-around taxiways as an alternative that could provide greater safety at lower cost and with fewer new burdens on local communities.

Safety at LAX must be a priority for all of us.

El Segundo is prepared to support measures necessary to enhance safety, even if those measures increase our burden, but only if we are assured, through an independent expert, that alternatives with fewer impacts are not equally effective.

In conclusion, we are grateful for Mayor Hahn's responsive leadership and his pledge to constrain growth at LAX and foster a regional approach to meeting future aviation demand.

It is our hope that the ultimate outcome of this Master Plan process will be a regional airport approach that ensures that LAX does not exceed its current capacity.

Thank you.

####

My name is Emma Worthington and I live in Inglewood. I also work at the airport and have worked there for almost 30 years. Like myself many people who work at the airport live in the surrounding communities. We live in Inglewood, Lennox, Hawthorne, El Segundo and Westchester. We understand the connection between good quality jobs and a quality life. We need new jobs but we don't minimum wage jobs. What we need is jobs that provide a livable wage and affordable family health coverage. The companies at the airport provide those types of jobs and that is how I have been able to raise my family and not be on welfare. In order to insure that this modernization plan provides good employment opportunities for our communities, we encourage the mayor to include in his plan a local hiring program so that others in my communities can also raise their families and our youth can strive to emulate their parents. When we talk about modernization we say we are bringing the airport and Los Angeles into the 21st Century. Well we the workers would like to be able to bring our communities into the 21st Century along with the airport and the rest of Los Angeles. That is why we urge the mayor to ensure that his plan provides good paying jobs with good benefits and a community packet that will ensure we are along for the ride. NOT LEFT BEHIND.

MAXINE WATERS

MEMBER OF CONGRESS
35TH DISTRICT, CALIFORNIA

CHIEF DEPUTY WHIP

COMMITTEES:
FINANCIAL SERVICES

SUBCOMMITTEE ON HOUSING AND
COMMUNITY OPPORTUNITY
RANKING MEMBER

JUDICIARY

SUBCOMMITTEE ON COURTS,
THE INTERNET AND
INTELLECTUAL PROPERTY

SUBCOMMITTEE ON CRIME, TERRORISM
AND HOMELAND SECURITY

Congress of the United States
House of Representatives
Washington, DC 20515-0535

PLEASE REPLY TO:
 2344 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-0535
(202) 225-2201
FAX: (202) 225-7854

DISTRICT OFFICE:
10124 SOUTH BROADWAY
SUITE 1
LOS ANGELES, CA 90003
(323) 757-8906
FAX: (323) 757-9506

Testimony from Rep. Maxine Waters

**Public Hearing on the Supplement to the Draft EIS/EIR
for the Proposed LAX Master Plan**

**EPIC Center/Olympic Swim Stadium
Community Hall
3980 S. Menlo Avenue
Los Angeles, CA 90037**

October 25, 2003

Alternative D is a \$9 billion project that would demolish homes and disturb communities without improving the safety and security of LAX. The Supplement to the Draft EIS/EIR is an inaccurate and misleading document that fails to reflect the true impact of this project.

The centerpiece of Alternative D is the Ground Transportation Center (GTC), a large remote passenger check-in facility that would be constructed at Manchester Square, several blocks away from the airport terminals. An Intermodal Transportation Center (ITC) would be constructed at Aviation Blvd. and Imperial Highway, which would provide a connection to the Green Line. According to the Supplement to the Draft EIS/EIR, the GTC and the ITC would be the primary access points for all passenger drop-off and pick-up and vehicle parking. A Consolidated Rental Car (RAC) facility would be constructed in Westchester.

Inconvenience for Passengers

Local families could no longer drive to the Central Terminal Area in order to drop off passengers. Instead, an Automated People Mover would be constructed to transport people to the airport terminals, and a baggage tunnel would be constructed to transport baggage. All airport employees and passengers would access the Central Terminal Area from the GTC, the ITC and the RAC via the Automated People Mover, carrying their carry-on baggage with them. This would be extremely inconvenient for most passengers, and it would present special hardships for the elderly, the handicapped and families traveling with small children.

Airport Security

Supporters of the proposed project to construct a remote passenger check-in facility claim that the facility is necessary to improve the safety and security of LAX and prevent terrorist attacks at LAX. Theoretically, diverting all vehicular traffic to remote parking structures and the remote passenger check-in facility would protect the Central Terminal Area from car bombs.

The RAND Corporation conducted a security study of the proposed remote passenger check-in facility, which was released on May 14, 2003. The study concluded that the proposed project would not significantly improve the security of LAX. The study also concluded that concentrating passengers in the proposed remote passenger check-in facility could increase the likelihood that the check-in facility would be the target of a terrorist attack. Finally, the study concluded that concentrating several airport functions in the remote passenger check-in facility could exacerbate the effects of an attack on airport operations.

On July 25, 2003, I introduced H.R. 2985, a bill to condition construction of a remote passenger check-in facility at LAX upon a finding that such a facility will promote the safety and security of the public. H.R. 2985 would require the Secretary of Homeland Security to review the proposed facility prior to its construction to determine whether it will protect the safety and security of air passengers and the general public more effectively than the existing facilities at LAX. If the Secretary of Homeland Security does not determine that the facility will improve public safety and security, the Federal Aviation Administration (FAA) would not be allowed to approve its construction. On September 2, the Board of Supervisors of Los Angeles County passed a motion to support my legislation.

Ironically, Alternative D does not even significantly improve security at the Central Terminal Area. According to the Supplement to the Draft EIS/EIR, Alternative D calls for the installation of new baggage screening facilities in the Central Terminal Area -- not the remote passenger check-in facility. If Alternative D were designed to protect the Central Terminal Area from terrorist attacks, one would think that the baggage would be fully screened before it is transported through the baggage tunnel to this area. Nine billion dollars is an extremely high price to pay for a security project that provides protection from car bombs but not from suitcase bombs.

Displacement of Residents

The Supplement to the Draft EIS/EIR makes the astounding claim that Alternative D would not displace any residents. Instead, the Supplement predicts that 2,500 houses and apartments will be acquired and the residents relocated under LAWA's existing Voluntary Residential Acquisition/Relocation Program, through which LAWA may acquire property and relocate residents on a voluntary basis in order to mitigate the impact of airport noise. The Supplement then concludes that Alternative D would not require the acquisition of any additional dwelling units or the relocation of any additional residents. This claim is especially ironic, given the fact that several Manchester Square residents have already said that they will not leave their homes voluntarily.

In reality, Alternative D would displace thousands of Manchester Square residents. In order to construct the remote passenger check-in facility, the City of Los Angeles would have to acquire and demolish 38 houses, 179 apartment buildings and a 52-year-old elementary school, in addition to the 263 structures it has already acquired. It would also have to relocate about 6,200 people, some of whom have federally subsidized housing vouchers. I strongly oppose the forced relocation of any of these residents.

Noise and Traffic Congestion

For several years, I have been working to limit the environmental impact of Los Angeles International Airport (LAX) on the surrounding community. My constituents living next door to LAX, in Westchester, Inglewood, Hawthorne, Gardena and South Central Los Angeles, must contend with excessive noise, pollution and traffic congestion caused by the airport. These residents suffer many sleepless nights due to deafening jet noise. They must wipe the soot from aircraft emissions from their cars and driveways everyday. Residents have reported increased cases of asthma, respiratory ailments and hearing problems.

I do not accept the claim in the Supplement to the Draft EIS/EIR that Alternative D would reduce by 1,300 the number of residents exposed to noise levels of over 65 CNEL by the year 2015. Most airport noise is the result of airplane landings and departures, and Alternative D does not propose any reduction in landings and departures. In fact, Alternative D would increase the airport's capacity from 78 million air passengers per year to 78.9 million air passengers per year. Consequently, Alternative D could allow the number of landings and departures and the corresponding jet noise to increase. Of course, Alternative D could reduce the number of residents exposed to high levels of airport noise as a result of the forced relocation of residents from Manchester Square. However, forcing residents to leave their homes is no way to respond to their complaints about noise.

The claim in the Supplement to the Draft EIS/EIR that Alternative D would reduce traffic congestion is also not credible. Alternative D would concentrate airport traffic on the east side of the airport near the proposed remote passenger check-in facility, causing a shift in airport traffic to the I-405 freeway near the Arbor Vitae/Manchester Avenue exits. This could cause a tremendous increase in traffic congestion on I-405, which is already heavily congested. It could also increase traffic congestion in the surrounding communities as airport passengers and other drivers seek alternative routes to get to, from and around the airport. Concentrating airport traffic at a single facility will not reduce congestion.

The Cost of Alternative D

Alternative D would cost \$9 billion, an exorbitant amount of money, at a time when budget deficits are growing and the economy is weak. Airlines would be required to increase their passenger fees in order to fund the proposal, which would amount to a tax increase for air passengers. American taxpayers have already provided loan guarantees to the airline industry to keep the airlines in business following the terrorist attacks of September 11, 2001. They should not have to pay higher passenger fees for unnecessary airport construction projects as well.

Air passengers and other taxpayers are willing to support reasonable expenditures to pay for measures that provide real enhancements in security, such as the installation of baggage screening facilities. However, the remote passenger check-in facility, the Automated People Mover and the baggage tunnel included in Alternative D are not reasonable expenditures and do not provide real enhancements in security.

The American people are sick and tired of deficits and bloated government spending. The State of California is now running a \$38 billion deficit, and the federal government has a \$374 billion deficit in 2003. Furthermore, Congress is in the process of providing the President an additional \$87 billion for continuing operations in Iraq and Afghanistan. The American people cannot afford to spend \$9 billion on an outrageously expensive boondoggle at LAX.

Conclusion

Alternative D is simply a continuation of former Mayor Richard Riordan's plan to expand the airport in the name of safety and security. I urge the City Council of the City of Los Angeles to reject this ill-advised and expensive scheme that will displace thousands of Manchester Square residents without improving the safety and security of LAX.

I've resided in Inglewood for 30 years. When I moved here the airport was innocuous. Inbound planes flew in a pattern which seemed to follow Century Blvd. Out bound planes did not affect us.

The air traffic was minimal. The street traffic was bearable. The air was breathable. My sleep was not disturbed at night.

Now residents anywhere in the city have either seen or heard an airplane over their houses.

And this has resulted in.....

Traffic Congestion

main arteries

neighborhoods (speeding)

street damage

Noise Pollution 24 hours per day

aircraft

street

freeway

neurosensory disorders

Air Pollution

Aircraft emissions

Traffic emissions

Particulate matter (that we have to breath day in and day out)

Most of our adults suffer from some respiratory disorder, but alarmingly the problem is wide spread among our children whose young lungs should be uncontaminated.

Neurological / Psychiatric Disorders

Sleep deprivation

Anxiety-depression

Learning disorders *airplanes are on the descent directly over many of our schools*

Safety Issues

Low flying aircraft

More airport related facilities moving closer and into our communities – bringing with them possible terror attacks

Too many aircraft flying in close proximity at a time

Property Damage

caused by air pollutants and sound waves

LAX has been methodically increasing the airport's capacity without the required environmental impact reports.

The current report is sorely lacking in validity. It does not address solutions to any of our quality of life issues, traffic, noise and air pollution, mental and physical health, property damage and safety. It's based on old, erroneous, unsubstantiated, and irrelevant data.

LAX is not an asset Inglewood. It is the worst possible neighbor any community could have. It profits from our misfortune. But what better place to exploit than a low income minority community?

If I had any lung capacity left, I'd like ^{to go out of my house} to be able to fill them with clean air.

LAX PUBLIC HEARING

Questions from constituents of the 8th District concerning flight schedules, noise and employment:

- Why are planes permitted to take-off and land between the hours of 11:00 PM and 6:00 AM?
- Referring to jet noise levels - why haven't new criteria been established to account for flight patterns over areas such as Vermont Knolls?
- Why can't jet engines noise be muffled 10 miles before landing?
- How can the residue from jet fuel be reduced over our community?
- Why not extend the airport and runways out into the ocean?, Japan has done this successfully?
- What methodology has been devised to mass transit passengers to terminals if no curbside drop off is permitted?
- Local residents were told from the start that the general aspects of the plans were not negotiable, then why are you holding public hearings?
- Since the existing airport was designed to accommodate 40 million passengers, last year 56.2 millions used the facilities and the expansion will accommodate 78.9 million, what are your plans to not further impact our quality of life or has it been factored into your plans?

✓ ECONOMY: ✓

- Of the 49,000 jobs that the airport expansion is projected to create, how many jobs for the residents in those communities that have and will be impacted be made available?
- The Mayor has addressed unions with the expansion plans, are there plans to reach out to none union workers, giving them an opportunity for employment?
- How will the public be notified of available employment?

AA (NAME) W. SOLOMON
LIVE, SOUTHEAST
NEI COUNCIL

SOUTH
EAST

Dear Counsel Members,

My name is Tarlise Netherly; I am addressing you today for two reasons.

First, I am here to ask you not to approve "Alternative Master D Plan" for the Los Angeles International Airport and its surrounding area. I am making this request because there is a problem with the proposed plan. ~~THE WAY IT IS.~~

It took me a total of 12 days, 3 hours a day, to read and understand the proposed plan and the drastic changes being proposed. I originally began reading the plan to get insight on a piece of property in your proposal that I would like to develop; however, in doing my research I found something quite alarming.

With myself being handicapped I am thoroughly aware of my surroundings; therefore, I noticed that the proposal has not stated specific handicapped or disabled safety precautions being developed. The "alternative master d plan" states is "it's accessible" but what does that mean?

For instance in the proposed "People Mover", there are no intended railings for the blind to hold onto, there are no seating schematics, and there are no wheelchair safety locks. Anyone who knows anything about wheelchairs knows the wheel locks on the wheelchair are not always sturdy. There is also no mention of our exceptional four-legged friends (dogs) who assist some of us in getting around; they too are a part of us. Posting the well-recognized handicap placard is meaningless if there is no actual assistance to back it up.

Your suggestion of "Alternative Master Plan D" utilizes a great deal of paper, and yet leaves out a part of a social class that is alive, well and extremely vital in the community, it is imperative that precautions for the handicapped and disabled are included on paper and not just phased in while construction takes place; this would be improper procedure.

All too often, society ignores the fact that someone who looks, talks, and walks differently may indeed have feelings just like the next "normal" person. This is precisely why I am asking the counsel to go back and review the schematics for "Alternative Master Plan D", before making a commitment to spending millions of dollars in order to reconstruct and redevelop LAX and its surrounding areas. Should you decide to research the information I have given you regarding the handicapped and disabled, you will find there are a substantial amount of people both young and elderly who enjoy and/or are required to travel. Your "people mover" must accommodate us as well.

The second reason for my coming before you is, as I have previously stated, there is a piece of property in your plan that I would very much like to develop.

The current address of the property is 9011 S. Airport Blvd, Los Angeles, Ca. Its location is on the north/south corner of Arbor Vita and Airport Blvd; [directly adjacent the Post Office]. Please see map 2.3-1 and 2.3-2 in Alternative Master Plan D Volume I The

property has been vacant for approximately five years; previously, it was occupied by the Hertz Corporation, as a car rental station.

I would like to take this land and establish a nightclub. Allow me to emphasize that this will not be a strip club but an establishment where all diversities can go and enjoy themselves. The club will promote class, excitement, and relaxation, as there will be "Spoken Word" and Jazz on Wednesday's and Sunday's. There will also be Hip Hop and disco Thursday through Saturday, with hopes of diverting attention away from the adult entertainment in the area. In doing so, we will introduce a higher quality of entertainment in correlation with the image you are trying to establish with the reconstruction of the LAX area. Thus, generating additional positive revenue for the various surrounding communities around the Los Angeles International Airport.

My proposal of the nightclub will generate positive revenue for the area. As you may already know there is currently a law on the table regarding lap dancing which if passed would mean that exotic dancers would have to remain six feet way from the customer; no doubt that this will cripple the adult entertainment industry. Should this law come to pass, it will affect the three adult clubs in the airport area. From a strategic standpoint, I would like for my nightclub to take a positive spin from the negative outcome. Bring a positive outlook to the situation while still maintaining and generating more revenue for the area, ~~thus raising the property value of the said target area.~~

According to your "Alternative Master Plan D-section A2.2- Passenger Operations 1996 vs. 2000". LAX in 1996 had 57,975 visitors to the Los Angeles area vs. in 2000 there was 67,303, a difference of 9,328 (1.7%) in approximately 4 years. With ~~the~~ precise advertising, considering future demographics of the area, I believe that there will be an approximate growth increase of 2% to 5% in 5 years to support the financial burden needed for the redevelopment of the area.

I know that I am solely one person, however I am one person taking a stand for not only myself but for others in my community. The handicapped and disabled persons issue came up only after doing the research required for the nightclub. I now leave you with two major issues to contemplate. First, how to incorporate safety precautions for the handicapped and disabled into your plan, and second, allowing me to lease a plot of land that has been vacant for quite some time. My objective is to turn it into a positive influence for the community and the LAX area as well.

I have taken the liberty of visiting the land, as well as have taken (show pictures) as you can see, the surrounding area is a place where an influx of revenue can have a positive influence on the area. Since the current night spots are the sports bars in hotels. with the nightclub in this central area there will be a diversion of revenue from the distant surrounding areas to the main area in which you are trying to redevelop.

The areas that will be influenced by the nightclub's location; 1) more employment, 2) parking structures, 3) eateries, 4) the hotels in the area, 5) airport travelers, and 6) the ~~raise of value for the airport and~~ the surrounding business and residential communities.

Now I am not going to tell you that everything is going to be completely positive, because this is not Utopia. The downside to all this is going to be a security issue for both the Airport and the nightclub, however that can be minimized, with the right Security firm that coincides with the Security implemented in the surrounding parking structures and the Airport, that downside can become null and void.

I urge you, the counsel, to please consider this alternative, ^{in the} as opposed to using taxpayer money to ~~redevelop and reconstruct LAX.~~

↓
ment

Please print.

Name (First MI Last, or Organization): Carlos J. Poreas Date: 10/25/03

Address: 5610 Pacific Blvd #203

City: HUNTINGTON PARK State: CA Zip Code: 90255

Document: Draft Master Plan Addendum Supplement to the Draft EIS/EIR

Subsection (if applicable):
 Number: _____ Title: EXECUTIVE DIRECTOR

Comments:

In L.A. County African American, Latinos and Asians are three times more likely to have a hazardous waste treatment, storage or disposal facility within one mile of their homes than white population. Schools with more than 50% people of color population are three times more likely to a facility reporting to the Federal Toxic Release Inventory within a mile of the school. Children attending schools with the highest risk to respiratory health problems score significantly lower achievement (from poor air quality)

People of color have historically been burdened with the negative impacts of development that benefits the broader society while forced to live in poverty. People of color are now declaring this environmental racism unjust. We demand environmental justice. Any project at LAX will have impact on the surrounding communities of color and we demand justice for these communities. Any project that benefits the economy has to benefit the people impacted.

Office Use Only

Attach additional sheets if necessary.

Official comments on the Master Plan and/or Supplement to the Draft EIS/EIR must be received by 5:00pm, Pacific Standard Time, FRIDAY, November 7, 2003

Send Comments to:

Mr. David B. Kessler, AICP
 U.S. Department of Transportation
 Federal Aviation Administration
 P.O. Box 92007
 Los Angeles, CA 90009-2007

or

Mr. Jim Ritchie
 City of Los Angeles
 Los Angeles World Airports
 LAX Master Plan Office
 P.O. Box 92216
 Los Angeles, CA 90009-2216

Skimming through the supplement to the draft EIS/EIR, and listening to different LAWA staff people (and elected officials) I have come to believe that they seem to be more concerned and careful of the infrastructure and economics of the buildings and money-making resources, than of the health, welfare and sanity of the surrounding communities. All I see in this plan is greed on all levels of government. Why don't people who are elected officials get the compensation and quality of life they deserve? ~~are~~ ^{not}

In 2001 SCAG had an item in its RTP about the Arbor Vitae interchange. Time and again elected officials had said that it had nothing to do with the airport or its expansion, and LAWA staff even went so far as to say that the interchange was for the Forum (which is now a church), Hollywood Park (which needed financial help from the city of Inglewood) and a Kmart that is no longer existent. So if the interchange is not for the airport why is it in the EIS/EIR?

There is a MOU between LAWA and Inglewood that is mentioned in the EIS/EIR, that its aviation easement requirements are currently suspended—the requirements to the aviation easements that the residents had/have to sign takes away their right to sue the airport.

In the past Inglewood's mayor had wrongly stated at a City Council meeting that the Easements had been eliminated while in fact they *were* merely suspended.

With Manchester Square as the GTC how will it improve security and safety? I guess if you want to keep the CTA safe Manchester Square helps, but how is putting all the people closer to the residents of Westchester going to keep the passengers and residents safe? If someone really wanted to do something to improve safety and security they would do the best thing and regionalize.

QUALITY OF LIFE COMMENTS:

- Pollution - both noise and aerosols components will increase dramatically, because airline traffic will expand to the level required by the planned MAP goal.
- Included in the plan, should be a proposal to provide funds to complete the existing soundproofing contracts and identify the remaining homes that are affected, based on 55 DNL noise levels and above.
- The infrastructure- Century Blvd. from the 110 freeway to La Cienega and other heavily traveled streets to and from the airport should be resurfaced regularly with funding support from LAWA to eliminate pot holes and other irregularities.
- Homeowners residing in the flight path of Los Angeles International Airport are significantly impacted by airplane noise, making it difficult to plan and enjoy activities in the backyard or leave doors and windows opened for ventilation. The constant drone of airplanes taking off or landing does not permit normal phone conversation without interruptions or the enjoyment of a television program without exceeding the 60 decibels dBA level, which have been determined to be a normal level for conversation.
- Environmental issues, health issues and soundproofing for residents living in the flight path and around LAX must be mitigated prior to approval of any plans to expand.

ENVIRONMENTAL:

- The environmental impact, particularly air pollution and noise will be substantially increased during the physical construction as well as when the expansion is complete.

HEALTH ISSUES:

- Studies dating back to 1977 reports that continued exposure to loud noise is a health hazard to individuals living near or around flight corridors.

- Airplane noises are linked to:
 - Stress
 - Hypertension
 - Sleep deprivation and interruptions
 - work-related performance
 - learning and academic performance

The residents of the 8th District would like to go on record opposing any expansion until the environmental, health and economic issues are mitigated to assure that our quality of life will not be further compromised.

952 S. WESTERN AVE
CANA CA 90006 #112

MY NAME IS SUSAN KIM
AND I REPRESENT KOREAN WELFARE ORGANIZATION
I have come here today to ~~testify on~~ support
~~of~~ of ~~the~~ Alternative D of the
LAX MASTER plan.

I believe that Mayor Hank's proposal
is a balanced plan because it allows
for some growth while taking into
consideration the impacts to the surrounding
communities plus this project will create
some what 50,000 jobs. construction
related jobs for the people of Los Angeles

The plan will improve operations and
create a greater level of customer
service by improving the passenger
experience for travelers

I ~~believe~~ myself believe it is time to
~~modernize~~ modernize LAX. ~~and~~ ~~that~~
and I believe Alternative D is step
in the right direction
Alternative D isn't for Mayor Hank.
IT'S for the Thank you
city of Los Angeles.



October 24, 2003

The Honorable James K. Hahn
Mayor's Office
City of Los Angeles
200 North Spring Street
Los Angeles CA 9012

1015 WILSHIRE BLVD.
LOS ANGELES, CA 90017

213/482-6660
213/482-6673 FAX
800-LOCAL347

www.seiu347.org

Dear Mayor Hahn:

On behalf of the Service employees International Union - AFL-CIO (SEIU) Local 347, I would like to express our strong support for Alternative D of the LAX Master Plan.

SEIU Local 347 represents over 700 employees that work at LAX and thousands that live in the surrounding communities. The employees we represent are directly impacted by what happens at LAX. We feel that your efforts to modernize LAX are a step in the right direction. Alternative D is a balanced approach to maintaining LAX as an economic engine for our regional economy while considering the environmental and traffic impacts to the surrounding communities.

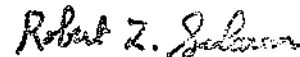
Your Safety and Security Alternative addresses many security concerns at LAX and allows the flexibility to accommodate evolving federal security requirements and technology. SEIU Local 347 has a great interest in providing a safe and secure work environment for its members at the airport and in the surrounding areas.

SEIU Local 347 feels strongly that the modernization of the airport is long overdue and necessary. The improvements that alternative D proposes will provide for improved operations and increased efficiencies that will benefit passengers and concessions at LAX. Maintaining LAX as an international gateway to the country will maintain hundreds of thousands of jobs directly related to LAX. We recognize the importance of preserving LAX as a premiere airport in the world.

We appreciate your leadership and continuous efforts to modernize LAX. We look forward to working closely with you throughout the master plan process.

Sincerely,


Julie Butcher
General Manager



Bob Schoonover
President

Fighting to Keep Public Services Public



SPHE

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CERTIFIED COPY

ON BEHALF OF THE FEDERAL AVIATION ADMINISTRATION AND
LOS ANGELES WORLD AIRPORTS, THE 12TH PUBLIC HEARING
ON THE SUPPLEMENT TO THE DRAFT EIS/EIR
FOR THE PROPOSED MASTER PLAN AT LAX

A COMPILATION OF COMMENTS SUBMITTED FOR THE RECORD

BY DENNY SCHNEIDER

ON

SATURDAY, OCTOBER 25, 2003

HELD AT THE EPIC CENTER/OLYMPIC SWIM STADIUM

3980 South Menlo Avenue

Los Angeles, California

REPORTED BY:

LISA ANN VARGAS, C.S.R. NO. 12049

NORMAN SCHALL & ASSOCIATES

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I N D E X

COMMENTS SUBMITTED BY DENNY SCHNEIDER

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Comments to the LAX Master Plan and EIS/EIR dated July 2003

Hand Delivered at the last LAX MP hearing held on October 24, 2003

From: Dennis J. Schneider
7929 Breen Av., Los Angeles, CA 90045

Attached to this cover sheet are approximated 300 pages of detailed annotated comments provided in both hard copy and on CD.

Summary:

Alternatives A, B, and C were demonstrated to be deficient in 2001. Earlier comments to the approximate 12,000 page review materials provided showed that these alternatives have unacceptable impacts on local communities and for Southern California. Although numerous comments were provided in 2001, **no responses have been provided to the public.** Although the newest alternative, Alternative D, addresses several of the prior fatal flaws and is preferable to the earlier proposed alternatives many issues remain.

LAWA and the City of LA is to be commended for their outreach efforts to verbally present their plans to the many public organizations. Plans such as the "flyaways" should be commended.

LAWA outreach for idea exchange, however, has fallen very short. The Osage Neighbors Association, which represents the eastern half of Westchester, is one of the areas most heavily impacted and has many concerns. Yet the Board of Airport Commissioner leadership, LAWA management, and the Mayor's Office have been unable to find an available evening to meet with the ONA Board of directors during the past 14 months despite numerous requests by ONA.

Development of the alternatives has been in a restrictive environment. Documents were released in security controlled areas and anyone potentially critical of the plans was prohibited from attending. The same restricted access policy was true of the Mayor's Blue Ribbon Committee on Manchester Square. It was held in a restricted area of LAX with specifically selected individuals. Neither handouts nor recordings were made available to the committee members; the public and press were excluded from these meetings. When an alternative plan was presented by several committee members concerned about the use of Manchester Square it was rebuffed and not seriously considered.

The approximately 6,500 pages of the Supplemental documents released in July 2003 is very tricky to read and evaluate due to persistent cross referencing between documents released in 2003 and those from 2001. Further, it is very difficult to determine the origin and dates of materials used in exhibits. Numerous times charts dated 2002 or 2003 contained only 1994-96 data without saying so. Many exhibits are sorely deficient in detail on some issues and contain conflicting information for others. The basis assumptions for specific conclusions are difficult to determine from the way in which data is presented. Broadly subjective words like "substantial," or "minimal" are used in place of specifics.

The various alternatives (with several options inside each) are compared to a "No Action/No Project" which is unrealistic and results in a comparison of "apples to vegetables."

Numerous critical issues in Alternative D remain unanswered or unaddressed. On that basis, alone, it should be rejected. Spending more good money just because enormous amounts of money have already been expended is a POOR justification to continue with this EIS/EIR. It should be redone due to the irrecoverable number of errors and omissions.

The Supplemental (and original) document reviews are further complicated by the page numbering differences in the electronic versions posted and the hard copy.

This Plan still concentrates over 75% of commerce at LAX resulting in an unwarranted economic risk for Southern California.

Below is a representative sample of major impact issues for Alternative D EIS/EIR

Noise

- Incomplete review of CNEL impact; changes in patterns depend on which runway configuration is implemented, mix of aircraft that actually occurs, no topology impacts are considered, frequency ranges measured (higher and lower) are not comprehensive.
- Single event (SNL) impacting level criteria are overly generous; impacts understated
- Health impacts-such as respiratory issues, learning issues, autonomic issues such as blood pressure, sleep deprivation and sleep interruptions, and gastrointestinal issues are understated.

Air analysis

- Air circulation patterns not adequately considered.
- Particles less than PM10 (ie PM2.5 studies) not done
- NOx gases not considered.

Traffic issues

- Mitigations recommended, not fixed – many to be paid by agencies other than LAWA or the city not guaranteed or funded.
- Cargo not fully controlled yet; needs separate entrance off 105 freeway.
- Traffic into the community.

Construction Impacts

- Traffic, noise, pollution
- Business impacts

Safety

Manchester Square separation from the rest of the contiguous airport.

- Ability to evacuate; how to get emergency crews there?
- Community closer to potential attacks.
- LNG facility closer to the community (northern MS area).
- Security is only as good as weakest link which may be other airports.

Substantial difference between Alt D and others that came first makes the CEQA compatibility questionable. Much of the old data from 1996 was incomplete and evaluations and comparisons with 2000 conditions does not fix the old data flaws.

Passenger Inconvenience

- Baggage handling; One stop check in needed
- Lugging baggage on APM? Handicapped, Elderly, Children, bulky items not addressed.
- Delays and transferring is inconvenient.

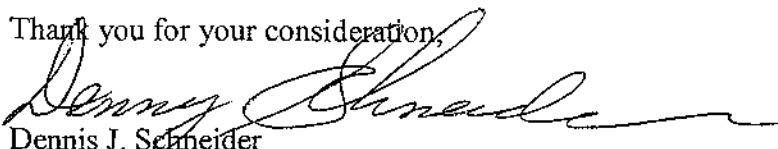
Consolidated Rental Car facility (RAC) would be better serving near the 105 freeway.

Impreciseness of plans; multiple options listed so impact projections can't be traced to the cost impacts on future commerce (increased fees)

Modes other than cars need consolidation and convenience; i.e. Green Line on MTA route to downtown; major bus center, cabs, level three bus routes.

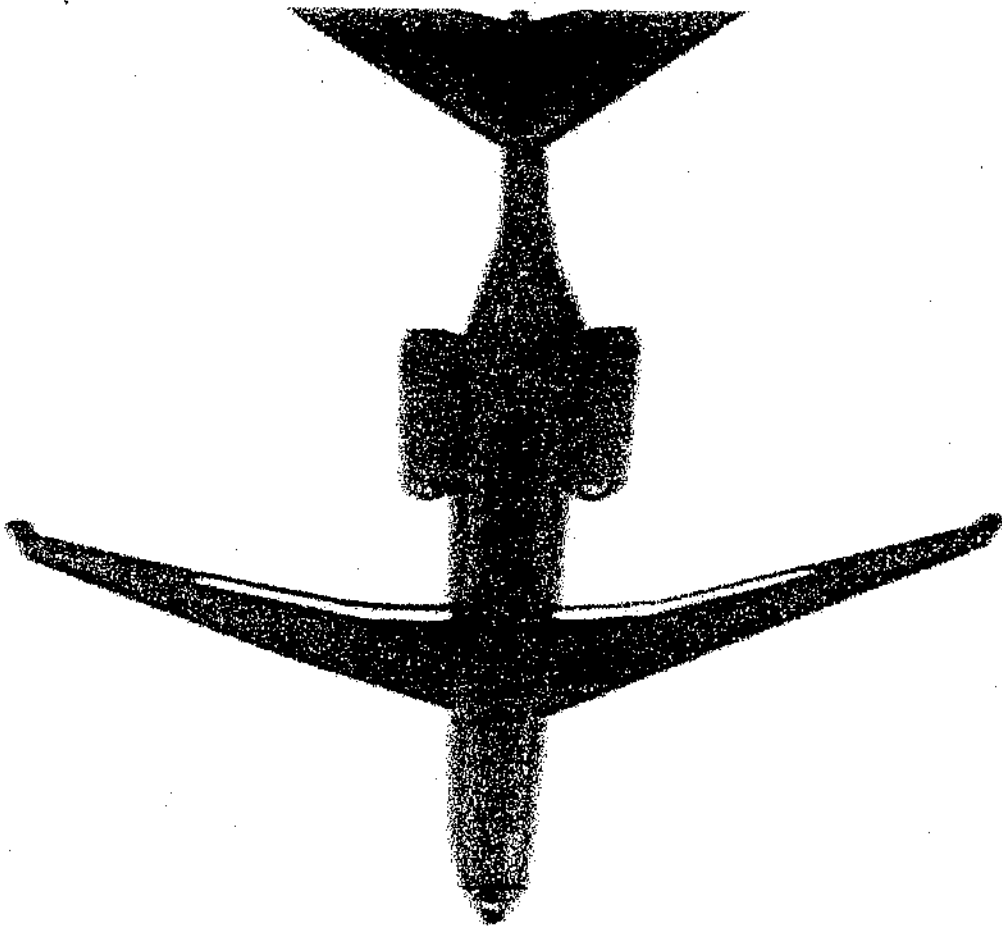
Massive expenditures at LAX detracts from the possibility of the development of a practical regional solution.

Thank you for your consideration,



Dennis J. Schneider

CD



NOISE ISSUES
TO BE
CONSIDERED

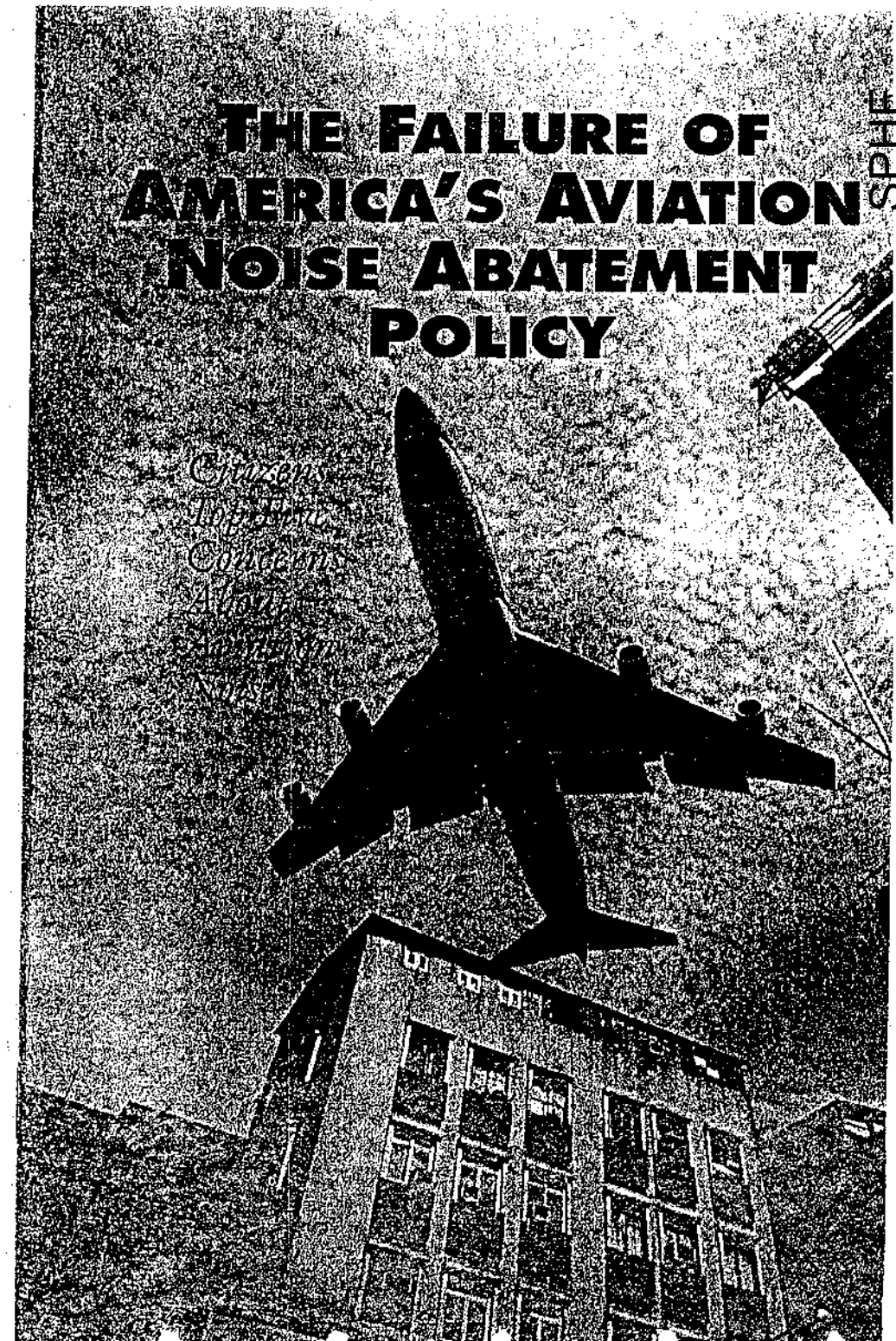
Noise Pollution Clearinghouse

P.O. Box 1137

Montpelier, Vermont 05601-1137

1-888-200-8332

www.nonoise.org



THE FAILURE OF AMERICA'S AVIATION NOISE ABATEMENT POLICY

*Citizen's
Top Priority
Concerns
Always
Avalanche
Noise*

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EXECUTIVE SUMMARY

This study exposes the aviation industry and the Federal Aviation Administration (FAA), its federal regulatory body, as oblivious to the true impact aviation noise has on the public who live near airports as well as ignorant of the science of noise impact assessment. Based on the technique of content analysis applied to the 1,261 public comments received by the FAA concerning its draft Noise Abatement Policy 2000, this study finds that the overwhelming majority of commenters believe the FAA's noise abatement policy is a failure. 96% of the more than one thousand people who submitted comments to the FAA believe the draft Noise Abatement Policy will not adequately protect citizens from aviation noise.

KEY FINDINGS OF THE STUDY INCLUDE:

Aviation noise is getting worse

The people who actually live near airports report that the noise problem has grown, while the FAA in their draft noise abatement policy and the industry in their comments think aviation noise problem has decreased substantially. 759 commenters specifically mentioned aviation noise as a worsening problem, and 739 included this in their top three concerns.

Nighttime flights and sleep interference are citizens' greatest concerns

The top concern of citizens was sleep interference and nighttime flights. 998 commenters raised this issue, and for 968 people, it was one of their top three concerns. This is in sharp contrast to the

"With regard to the protection of public health and welfare, the FAA has previously concluded that the state of scientific knowledge does not support any inference of a direct, quantitative relationship between airplane noise exposure and health consequences."

Patricia Higginbotham for the Air Transport Association

"The 1976 Policy has been highly successful. It has guided actions over a period of almost 25 years that have substantially reduced aviation noise and its impacts. By the year 2000, the FAA estimates that there will be about 500,000 Americans exposed to significant levels of aircraft noise—down substantially from the six to seven million people exposed in 1976."

FAA's Noise Abatement Policy that mentioned sleep interference only four times in a 25,000 word plan, and then only tangentially. Nighttime effects are almost totally ignored by the industry and regulators.

Aviation noise is imposed on neighbors unjustly

Airport neighbors feel strongly that the FAA, airports, and aviation industry would not subject themselves to the same noise levels that they impose on neighbors. 686 people noted this incompatibility with Christian and Kantian conceptions of justice that require treating your neighbor as you would like to be treated. The solution: require that FAA and airport officials live within the FAA's significant impact zone, the 65 DNL contour around airports. If FAA officials had to live with aviation noise, the noise would be reduced drastically.

What They Said:

Even as noise has been so dramatically reduced, the national aviation system, including the airport component of that system where aircraft noise is the most severe, has grown significantly in this last quarter of the century."

FAA, Noise Abatement Policy 2000

"Northwest Airlines fundamentally disagrees with the FAA's suggestion that the number of Americans impacted by aviation noise remains significant and that aggressive new measures must be taken to address aviation noise without regard to the high costs of such measures relative to the modest incremental benefits of such expensive measures."

Tom Tinkham for Northwest Airlines

"You may want to believe current policy has worked but your head is buried in the tainted soil of the aviation industry and the beltway."

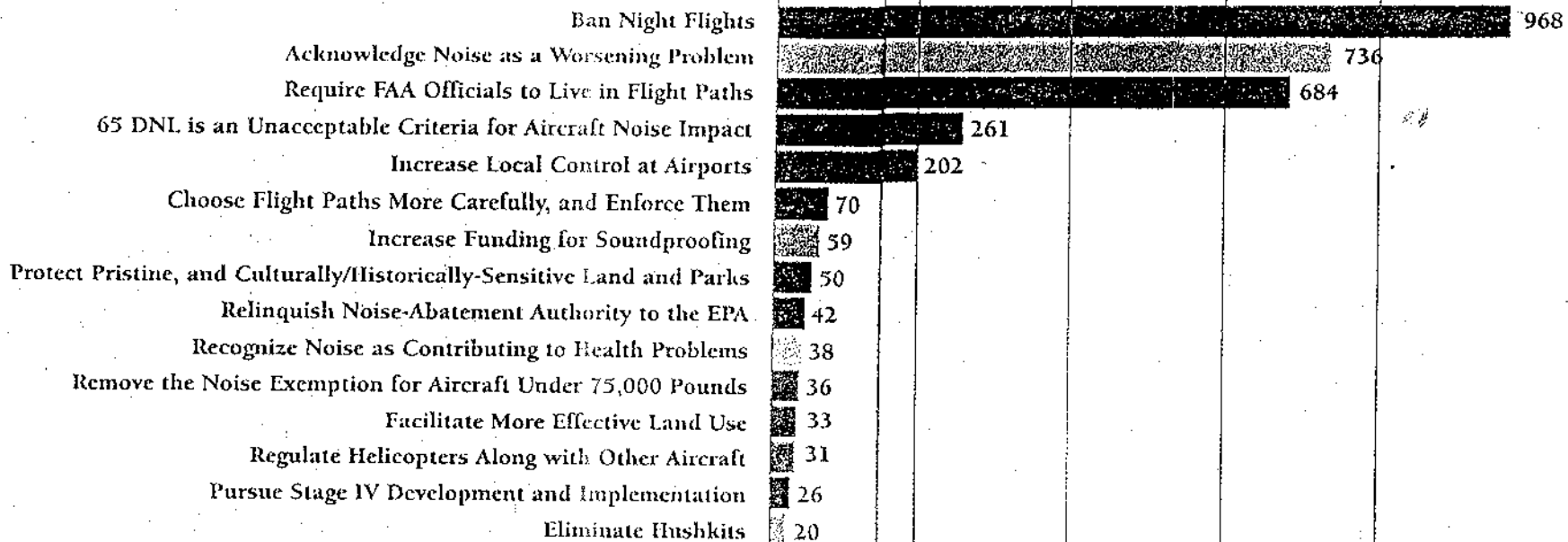
Chas Feltus from the DeKalb Peachtree Airport Advisory Committee in Chamblee, GA

"Jet noise is not 'white' noise, like the hum of a fan or refrigerator. It is an intrusive, drawn-out, congested scraping noise which sounds as large as the entire sky. Worse, it is heard approaching, then peaking, then resonating repeatedly as it fades. Each jet passage is a distinct nerve-grating event, which cannot be 'tuned out.'"

Gregory Muldowney from Glen Mills, PA

Major Concerns of Commenters

Ranking of Major Issues within the Top Three Concerns of Each Commenter



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More than 1,200 citizens living near airports and heliports mailed and emailed comments to the FAA in response to the draft. Overwhelmingly, they found these goals and the related policies to be insufficient. In addition, they feel the previous Policy and the subsequent laws and regulation have failed to protect their health and quality of life. The neighbors of airports report the aviation noise is a growing problem with increasing instances of interference from increased flights, and that less noisy technology has not kept up with the increase in number of flights.

The FAA will soon be releasing its revised Noise Abatement Policy. This study is designed to aid the FAA, the airline industry, and local airports' understanding of exactly what airport neighbors need. Employing the method of content analysis, this study provides an accurate image of the problems with the current and proposed noise abatement policy as seen by the people who have to live with the problems.

II. METHODOLOGY

The Noise Pollution Clearinghouse (NPC) obtained a copy of all comments submitted to the FAA. A total of 1,261 people and organizations submitted comments. An initial sample of 130 comments (approximately 10%) was read to determine the most often repeated themes and ideas within the comments. A category for each unique idea was created in a database. Categories of ideas that were mentioned by only one or two of the initial 130 commenters were eliminated to focus on the major concerns of the commenters. Since there were only 45 industry comments, their idea categories were not similarly filtered, because doing so would have virtually eliminated their concerns from this study. This process, and a few slight modifications to the categories as more comments were read, left 36 categories. (See Appendix A2 for a list and description of the categories.)

The 1,261 comments were read and checked for the presence of the 36 categories. In addition, the top three concerns of each commenter were noted. The top three concerns were taken to more accurately reflect the most important issues to neighbors (although in this paper both the top three concerns as well as all mention of the 36 categories by each commenter are presented). An idea was considered to be one of a commenter's top three concerns based on the space devoted to that idea. If three ideas were not clearly most important after this test, proximity to the beginning of the comment was used to determine importance.

III. RESULTS

1. Nighttime Flights Disturb and Interfere with Sleep

The top concern of citizens was sleep interference and nighttime flights. 998 commenters raised this issue, and for 968 people, it was one of their top three concerns. This is in sharp contrast to the FAA's Noise Abatement Policy that mentioned sleep interference only 4 times in a 25,000 word plan, and then only tangentially. From the comments, it is clear that sleep disturbance is a major concern and that less noisy Stage III aircraft have not addressed this problem. Nighttime flights prevent people from falling asleep, wake them after they manage to fall asleep, and prevent them from falling back to sleep again. Given the current aviation technology, location of airports, and scientific knowledge concerning sleep disturbance, nighttime curfews at most airports are needed to protect sleep, and thereby secure improved health and a better quality of life of people living near these airports.

That aviation noise disturbs and interferes with sleep is of little surprise to anyone who has had a flight path routed over their home. It is not uncommon for noise levels outside a home to be 90 decibels, and for interior levels to be louder than typical alarm clocks. The World Health Organization recommends that exterior levels not exceed an instantaneous value of 60 dBA and an average value of 45 dBA at night (WHO, 1999, Guidelines for Community Noise). Many communities and states also recognize the need to control nighttime noise to protect their citizens. Typical nighttime maximum levels, such as the state of New Jersey limit for residential areas, are 50 dBA.

What is truly remarkable is that the FAA has not yet taken sleep disturbance and interference seriously. An entire chapter of the Noise Abatement Policy should have been devoted to sleep disturbance and interference, yet it was mentioned only four times. Here is all the 25,000-word plan to protect citizens from aviation noise has to say about sleep:

1. "Since its inception in 1993, [Federal Interagency Committee on Aircraft Noise] FICAN has reached the following conclusions:
 - ◆ The Acoustical Society of America should form a working group tasked with development [sic] a revised standard for predicting noise-induced sleep disturbance."
2. "Current and future FICAN activities include:
 - ◆ Publishing technical positions on aviation noise topics based on definitive research by member agencies. Such topics include noise-

"For a good night's sleep, the equivalent sound level should not exceed 30 dB(A) for continuous background noise, and individual noise events exceeding 45 dB(A) should be avoided...."

Physiological Functions. *In workers exposed to noise, and in people living near airports, industries and noisy streets, noise exposure may have a large temporary, as well as permanent, impact on physiological functions. After prolonged exposure, susceptible individuals in the general population may develop permanent effects, such as hypertension and ischaemic heart disease associated with exposure to high sound levels....*

Performance. *It has been shown, mainly in workers and children, that noise can adversely affect performance of cognitive tasks. Although noise-induced arousal may produce better performance in simple tasks in the short term, cognitive performance substantially deteriorates for more complex tasks. Readings, attention, problem solving and memorization are among the cognitive effects most strongly affected by noise. Noise can also act as a distracting stimulus and impulsive noise events may produce disruptive effects as a result of startle responses.*

"Noise exposure may also produce after-effects that negatively affect performance. In schools around airports, children chronically exposed to aircraft noise under-perform in proof reading, in persistence on challenging puzzles, in tests of reading acquisition and in motivational capabilities. It is crucial to recognize that some of the adaptation strategies to aircraft noise, and the effort necessary to maintain task performance, come at a price. Children from noisier areas have heightened sympathetic arousal, as indicated by increased stress hormone levels, and elevated resting blood pressure. Noise may also produce impairments and increase in errors at work, and some accidents may be an indicator of performance deficits."

WHO, 1999, Community Noise Guidelines

While the industry is quick to deny any noise problem, they are equally quick to insist the problem has gotten better. And it is true, some aircraft have gotten less noisy. The introduction of a Stage III aircraft (among those that weigh more than 75,000 pounds) has enabled the FAA to advance the myth that aviation noise problem has decreased. People living around airports, however, report the problem is worsening. The reasons for this disconnect are many. The reduction in noise per aircraft has been more than offset by the increase in instances of interference. Moreover, less than 5% of the total number of non-military US airplanes meet Stage III requirements. Many aircraft (those weighing less than 75,000 pounds) do not have

to meet quieter restrictions, and many aircraft only marginally meet Stage III requirements. In addition, night flights, which occur at more sensitive times, have grown substantially, resulting in more instances of sleep interference. Finally, many formerly small airports have more than doubled or tripled in size, creating major problems where once only occasional overflights had once occurred.

Reliance on a Yearly Day-Night Average Sound Pressure Level as a metric and 65 dBA criterion for significant impact allows the FAA to maintain that noise impacts are decreasing while they are actually increasing. See "65 dBA is Unacceptable" below for more information concerning the inappropriate 65 DNL metric and criterion.

3. The Aviation Noise Problem is Unjust: FAA, Airport, and Airline Officials Would Not Live with this Situation Themselves

Airport neighbors feel strongly that the FAA, airport, and aviation industry officers would not subject their families to the same noise levels that they impose on airport neighbors. 686 people noted this incompatibility with Christian and Western conceptions of justice and the unfairness of the situation they endure. The "Golden Rule," the command that you treat your neighbor as you would like to be treated, is not one airports, airlines, or the FAA heeds.

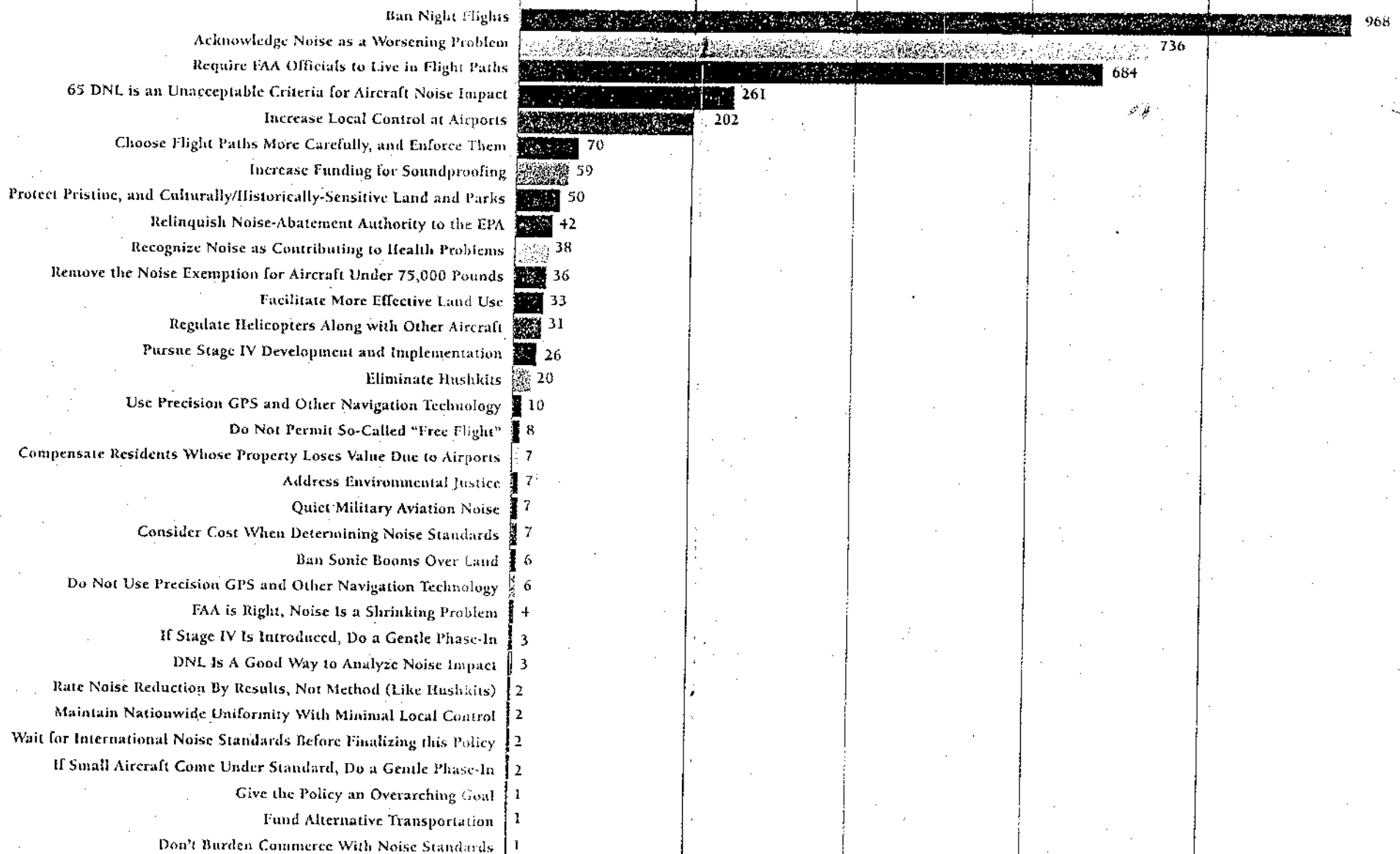
The FAA steers well clear of Christian or similar secular western ethical principles. What applies to citizens on the ground, for example, that it is wrong to drive through a residential neighborhood at night, honking your horn and waking the residents, does not apply to the FAA and airlines, whose night flights wake hundreds of neighbors repeatedly.

There is an easy way to correct the inherent unfairness airport neighbors suffer at the hands of people who would not themselves live with the noise problem: require FAA and airport public employees to live within the 65 DNL significant impact contour around airports. Residency requirements exist for many municipalities across the country, such as Boston, and should be applied to the FAA and airport officials.

A residency requirement would embody the Golden Rule by employing a simple procedure that would require that public employees experience and live with the noise they permit. This procedure is akin to procedures used by five-year-olds across the country: that the one who divides the pie chooses last. Whether the issue is apple pie or aviation noise policy, this

Concerns of Commenters

Ranking of Issues Within the Top Three Concerns of Each Commenter



Number of Commenters Supporting Each of the 36 Categories

Ranking of All Issues Mentioned by Each Commenter



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paths – once set – must be enforceable using fines or other disincentives. Community input should be considered when choosing flight paths.

Regulate Helicopters Along with Other Aircraft

Helicopters must be subject to engine noise standards, minimum height requirements, and limitations on hovering duration. Heliports should be sited 5,000 feet away from residential areas.

Quiet Military Aviation Noise

Increase Funding for Soundproofing

Homes and public buildings must be soundproofed by the FAA so that there are no single noise events that reach higher than 45 dBA inside the building. Easements must not be required as a prerequisite for obtaining soundproofing. Multi-year funding should be considered to allow for better local planning.

Prohibit Sonic Booms Over Land

Do Not Permit "Free Flight"

Free flight would allow consistent use of the cheapest routes, even if they impose social costs on whoever is under that route. A noise abatement policy must ensure that routes are chosen to minimize the noise impact to communities.

Use Precision GPS and Other Navigation Technology to Better Track and Regulate Aircraft

GPS and other navigation technology should be used because it can keep flights on carefully designed, less disruptive flight paths, and allow violators to be identified and fined.

Do Not Use Precision GPS and Other Navigation Technology as Envisioned by the Policy

GPS and other navigation technology should not be used because it will assure that noise burdens unfairly fall on only a narrow band of residences over and over again. If it is used, paths should be spread somewhat so as to avoid overburdening a tiny section of the population.

Fund Alternative Transportation

Alternative transportation, such as high-speed rail, should be funded. If high-speed rail replaced air trips of under 500 miles, the noise situation could be greatly improved without significant sacrifices in travel time.

Address Environmental Injustice Issues

No racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences (including noise, air, and water pollution) resulting from the operation of airports, airlines, and air-planes. The new policy must actively seek ways to abate noise for minorities and low income families.

Compensate Residents Whose Property Loses Value Due to Airports

Each year compensation should be given to homeowners and to compensate for lost value and lost quality of life.

Categories for Which a Small Number of Comments from Industry were Received:

- Wait for International Noise Standards Before Finalizing this Policy
- FAA Is Right, Noise Is a Shrinking Problem.
- Research Low Frequency Noise and Effects
- Maintain Nationwide Uniformity With Minimal Local Control
- Don't Focus On Source Noise Reduction
- Rate Noise Reduction By Results, Not Method (Like Hushkits)
- If Small Aircraft Come Under a Standard, Do a Gentle Phase-In
- If Stage IV Is Introduced, Do a Gentle Phase-In
- Don't Burden Commerce With Noise Standards
- Minimize Procedures for Air Traffic Controllers and Pilots
- DNL Is A Good Way to Analyze Noise Impact

"The information I received said that letters must be sent by Monday August 28. I am mailing this on Sunday, August 27. I am 70 years old, disabled and have been very busy this week so this is the best I can do. But I do want to protest Fed Ex. I have personally investigated the residential areas threatened by Fed Ex Noise. Two are retirement homes run by the Friends - Friends Home West on Friendly Avenue and New Garden Friends Home where I plan to move. The New Garden Friends cemetery where I plan to be buried is also in the noise cone but I don't think it will bother me there."

Jean Gordon from Greensboro, NC

"Please carefully consider - many who chose to purchase homes in airport areas when jet travel was still in the imagination of engineers are the blue collar factory workers who built the early airplanes and defense equipment insuring this country's safety. It is their spouses and their children who inhabit the homes near many of the nation's airports today. Many of those workers sacrificed their lives by exposure to various elements. Must their families continue to sacrifice quiet and air quality?"

Diane Sambrano from Inglewood, CA

"A pox on you for trying to do a 'comprehensive update...to build upon A.N.C.A....' It is bad enough that you fooled Congress into thinking the Airport Noise and Capacity Act (ANCA) would control airport capacity and limit noise. It did nothing of the kind! It was a clever way to pass control over all future regulation into your hands. It denies states' rights and the ability for voters to exercise 'the will of the people.'"

Donald Elsmore from Burbank, CA

Industry:

"Section 2 (Goals and Policies) contains the 'heart of the Aviation Noise Abatement Policy.' Unfortunately, portions of this proposed policy present serious heartburn."

Stephen Alterman for the Cargo Airline Association

"Contrary to the opinions of some parties to this debate, airlines do not fly aircraft solely to annoy local communities and politicians. Rather, the aircraft used, and the timing of the flights, are specifically designed to meet market demands."

Stephen Alterman for the Cargo Airline Association

"Moreover, with regard to the protection of public health and welfare, the FAA has previously concluded that the state of scientific knowledge 'does not support any interference of a direct, quantitative relationship between airplane noise exposure and health consequences.'"

Patricia Higginbotham for the Air Transport Association

"ATA supports FAA's confirmation that it will...maintain the priority of safety and efficient use of air space over noise mitigation."

Patricia Higginbotham for the Air Transport Association

"In particular, Northwest Airlines fundamentally disagrees with the FAA's suggestion that the number of Americans impacted by aviation noise remains significant and that aggressive new measures must be taken to address aviation noise without regard to the high costs of such measures relative to the modest incremental benefits of such expensive measures."

Tom Tinkham for Northwest Airlines

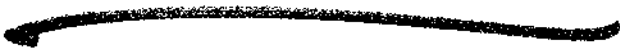
"Although each citizen benefits, whether or not they actually fly in this system, the value of this national resource to the nation is both under appreciated and threatened."

Andrew Cebula for the National Air Transportation Association

"Local opposition based on noise was identified as a major barrier to improving the Nation's airports. Aircraft noise has become the rallying point for many of these anti-airport organizations."

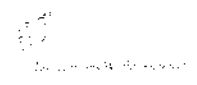
Andrew Cebula for the National Air Transportation Association

ANNOTATED COMMENTS FOR VARIOUS PAGES REFERENCED



Taking Flight
For A Better Future

Los Angeles International Airport - Draft Master Plan Addendum
July 2003



Summary of Comments on Addendum-Master Plan Alt D- commented.pdf

Page: 1

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 9:01:38 PM

Security from connecting passengers needs addressing.
Sepulveda could back up long distances as it become a drop off for "walk in" passengers.

Preface

The goal of the Master Plan process is to produce a plan for modernizing Los Angeles International Airport (LAX) that is appropriate for the City of Los Angeles and for the five-county region. In 2001, the **Draft LAX Master Plan** and the **Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR)** were published by Los Angeles World Airports (LAWA), the operator of LAX, to seek input from the public and to start the agency review and comment process. These documents were produced to describe and analyze four alternatives: the No Action/No Project Alternative, Alternative A, Alternative B, and Alternative C.

Alternative D, the fifth Master Plan alternative, was developed after the **Draft LAX Master Plan** and **Draft EIS/EIR** documents were published. Alternative D was developed in response to the feedback and public comments received on the No Action/No Project Alternative and Alternatives A, B, and C.

There are three reports to document and describe Alternative D and each is intended for a specific audience and purpose. The **Draft LAX Master Plan Addendum**, the **Supplement to the Draft Environmental Impact Statement and Environmental Impact Report (Supplement to the Draft EIS/EIR)**, and the **Airport Layout Plans (ALP) Package**.

Draft LAX Master Plan Addendum: This document is an addendum to the **Draft LAX Master Plan** and has been prepared to add Alternative D to the four Master Plan alternatives currently being evaluated as part of the LAX Master Plan process. The **Draft LAX Master Plan Addendum** describes and evaluates Alternative D in the same manner the previous alternatives were described, with content and format based on the constrained alternatives analysis contained in Volume 4, Chapter V, Section 3.3 of the **Draft LAX Master Plan**.

Supplement to the Draft EIS/EIR: This document has been prepared to analyze the potential environmental impacts of Alternative D, using the same methodology by which the previous alternatives were analyzed in the **Draft EIS/EIR**, and to compare Alternative D to these alternatives. The environmental impacts of Alternative D have been analyzed in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). An EIS is produced in accord with NEPA and an EIR produced in accord with CEQA.

Airport Layout Plans (ALP) Package: The Airport Layout Plans Package consists of a series of drawings that illustrate the layout of existing and proposed facilities at the airport. This Federal Aviation

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 4:41:05 PM
read Vol 4 chap V sect 3.3

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 4:54:15 PM
I

LAX Master Plan Addendum

Administration (FAA) required plans set is intended to serve as a record drawing for the airport as well as a guide for the airport's future development. The **ALP Package** also includes a narrative description of the drawings. The objective of the narrative report is to explain the reasoning behind, and the key features of, the plan and to provide the FAA with information needed to approve the drawings.

The public will have the opportunity to formally review and comment on the **Draft LAX Master Plan Addendum** and the **Supplement to the Draft EIS/EIR**. Government entities and the public will have a chance to review and provide comments through oral testimony, written comments, and public hearings. The City of Los Angeles and the FAA will decide which of the Master Plan alternatives best meets the needs of Los Angeles and the Los Angeles region after input from the public and governmental entities has been received and considered.

No action will be taken on the proposed LAX Master Plan until the Mayor of Los Angeles and the Los Angeles City Council approve it.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 4:47:06 PM

T

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 4:55:14 PM

T

Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 4:57:36 PM
 When will the FAA have a say? Is the FAA veto only? In the event of a conflict between FAA and LAWA who is the referee to determine a final resolution?

Executive Summary

The Los Angeles International Airport (LAX) Master Plan is a modernization plan that accounts for the growth of the airport since 1984. In 2001, the Draft LAX Master Plan and Draft Environmental Impact Statement and Environmental Impact Report (Draft EIS/EIR) were published and included three project alternatives (A, B, and C), plus a No Action/No Project Alternative. Los Angeles World Airports (LAWA) received a large number of comments on the plans described in these documents and subsequently offered a new alternative for consideration. The new alternative, Alternative D, was developed to offer a regional approach alternative for the LAX Master Plan to ensure representation of the communities' full range of priorities as well as to increase the safety and security of the airport. Figure ES-1 provides an illustration of the plan.

Alternative D would be designed to serve approximately 78 million annual passengers (MAP), the level of passenger activity identified by Southern California Association of Governments (SCAG) for LAX in the 2001 Regional Transportation Plan (RTP). Alternative D would encourage the development and use of regional airports to serve local demand by constraining the facility capacity at LAX to approximately the same aviation activity levels identified in the No Action/No Project Alternative. In the short-term LAX would continue to serve as the region's predominant international airport for passenger and cargo operations due to the specialized facilities developed over time to serve these functions.

Alternative D represents a new design approach to securing airports for the future. This would be achieved in part by removing private and commercial vehicles from the existing Central Terminal Area (CTA). This approach reduces the risk to airport users while also protecting the airport infrastructure and its link to the economy. The alternative would incorporate, to the greatest extent possible, Transportation Security Administration (TSA) recommendations as they are developed as well as the latest passenger and baggage security screening technologies. Alternative D would also enhance the on-airport presence of law enforcement, surveillance security, and emergency response teams. The Alternative D airfield modifications would include new taxiways on the north and south airfields and additional runway length on the main airfield to improve aircraft movement, thereby reducing the potential for runway incursions and reducing delays. The airfield reconfigurations would improve the efficiency of the airport by reducing large aircraft movement restrictions and physically accommodating the New Large Aircraft (NLA) and the next generation of quieter jets.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:04:45 PM

T

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:05:33 PM
... LAX to remain predominant international airport!

Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:06:31 PM

T

Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:07:39 PM
... Didn't TSA say they prefer one complete baggage check as early as possible?

Sequence number: 5
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:07:39 PM

T

Sequence number: 6
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:09:45 PM
... How will emergency response get from the LAX body to the outlying GTC across open public areas? How will evacuation be accomplished?

Sequence number: 7
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:09:45 PM

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Sequence number: 8
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:10:33 PM
... This increases potential through put for more flights per gate

Alternative D would improve the level of passenger service throughout the LAX by including new passenger and baggage processing facilities where the public parking garages are located today. In addition, Alternative D would provide for construction of new aircraft parking gates as well as demolition of some existing gates. As a result, Alternative D would have fewer total gate positions than the existing conditions or the No Action/No Project Alternative. As a result, all aircraft parking would be adjacent to a terminal or concourse, eliminating the current need to bus passengers to remote aircraft parking positions.

Deterrence and prevention of terrorist attacks are essential considerations of the Alternative D plan. Its elements include (1) avoiding concentration of people in the public areas, to the greatest extent possible, so as to reduce the likelihood and potential lethality of terrorist attacks with bombs or firearms; (2) moving passengers and their baggage through check-in and security screening and into the secure areas as quickly as possible, and (3) permitting only known, screened, and controlled vehicles into the Central Terminal Area (CTA), and avoiding concentration of unscreened vehicles and people at the curbs of the proposed Ground Transportation Center (GTC), Intermodal Transportation Center (ITC), and the Consolidated Rental Car (RAC) facility. Alternative D would utilize an expanded LAWA-operated FlyAway program throughout the region to disperse passenger processing. This service would include remote check-in of passengers and baggage, and provide direct access into the CTA. Refer to Appendix I for a detailed assessment of security and safety features of Alternative D.

Alternative D would consolidate parking and curbside area at a new GTC. This facility would become the primary point of pick-up and drop-off for passengers utilizing LAX. The facility would combine a controlled and monitored roadway access system with first level passenger security screening and profiling to further enhance the safety and security of all passengers using LAX.

A new ITC would provide a more efficient connection currently exists between the existing MTA Green Line station and the CTA. The airport's rental car facilities would be in one location, referred to as the RAC, to simplify passenger access to these services. A new Automated People Mover (APM) system would connect the GTC, ITC, and RAC to the redeveloped CTA. The end goal of this design concept is to achieve a new balance between the needs of both passenger security and passenger convenience.

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Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:11:25 PM

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Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:12:44 PM
How will baggage be delivered from the GTC? Will people have to carry it? Is this defined or slated for future development determination?

Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:14:02 PM

T

Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:17:24 PM
Will the remaining gates be more fully utilized than the ones replaced? Are they to be modernized to handle larger aircraft more frequently? Will all gates be "modernized" or only some of them? How will this be controlled for limiting future growth?

Sequence number: 5
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:17:24 PM

T

Sequence number: 6
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:20:57 PM
What controls on cargo access will preclude access to the planes since 50% of the cargo is in the belly of the passenger aircraft? How will cars at the GTC and RAC be screened? If no parking at curbside in these is enacted, how will the cars parked in the adjacent parking structures be screened?

Sequence number: 7
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:21:43 PM

T

Sequence number: 8
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:22:44 PM
Detailed review of Appendix I for security and safety features is required

Sequence number: 9
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:22:44 PM

T

Sequence number: 10
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:27:15 PM
If the GTC is the "PRIMARY POINT OF PICKUP AND DROP-OFF" were the press conference comments that people in the RAC and ITC Green Line transfer areas would go directly to the GTC mean that security needs to be able to easily get to all three off-airport sites? What proportions will be initially checked at each site?

Sequence number: 11
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:27:15 PM

T

Sequence number: 12
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:28:19 PM
Will the new ITC become a broad access to other mass transit such as buses and rapid buses?

Sequence number: 13
Author: Denny Schneider
Subject: Highlight

Comments from page 18 continued on next page

Alternative D would improve the level of passenger service throughout the CTA by including new passenger and baggage processing facilities where the public parking garages are located today. In addition, Alternative D would provide for construction of new aircraft parking gates as well as demolition of some existing gates. As a result, Alternative D would have fewer total gate positions than the existing conditions or the No Action/No Project Alternative. As a result, all aircraft parking would be adjacent to a terminal or concourse, eliminating the current need to bus passengers to remote aircraft parking positions.

Deterrence and prevention of terrorist attacks are essential considerations of the Alternative D plan. Its elements include (1) avoiding concentration of people in the public areas, to the greatest extent possible, so as to reduce the likelihood and potential lethality of terrorist attacks with bombs or firearms; (2) moving passengers and their baggage through check-in and security screening and into the secure areas as quickly as possible, and (3) permitting only known, screened, and controlled vehicles into the Central Terminal Area (CTA), and avoiding concentration of unscreened vehicles and people at the curbs of the proposed Ground Transportation Center (GTC), Intermodal Transportation Center (ITC), and the Consolidated Rental Car (RAC) facility. Alternative D would utilize an expanded LAWA-operated FlyAway program throughout the region to disperse passenger processing. This service would include remote check-in of passengers and baggage, and provide direct access into the CTA. Refer to Appendix I for a detailed assessment of security and safety features of Alternative D.

Alternative D would consolidate parking and curbside areas at a new GTC. This facility would become the primary point of pick-up and drop-off for passengers utilizing LAX. The facility would combine a controlled and monitored roadway access system with first level passenger security screening and profiling to further enhance the safety and security of all passengers using LAX.

A new ITC would provide a more efficient connection than currently exists between the existing MTA Green Line station and the CTA. The airport's rental car facilities would be in one location, referred to as the RAC, to simplify passenger access to these services. A new Automated People Mover (APM) system would connect the GTC, ITC, and RAC to the redeveloped CTA. The end goal of this design concept is to achieve a new balance between the needs of both passenger security and passenger convenience.

Date: 7/12/2003 5:28:38 PM

T

Sequence number: 14

Author: Denny Schneider

Subject: Note

Date: 7/12/2003 5:30:34 PM

For those rental car agencies not included in the 10 consolidated will they be bused to the RAC for processing or will people go to the GTC and be transferred to the outlying car agencies from there?

Sequence number: 15

Author: Denny Schneider

Subject: Highlight

Date: 7/12/2003 5:30:34 PM

T

Sequence number: 16

Author: Denny Schneider

Subject: Note

Date: 7/12/2003 5:31:58 PM

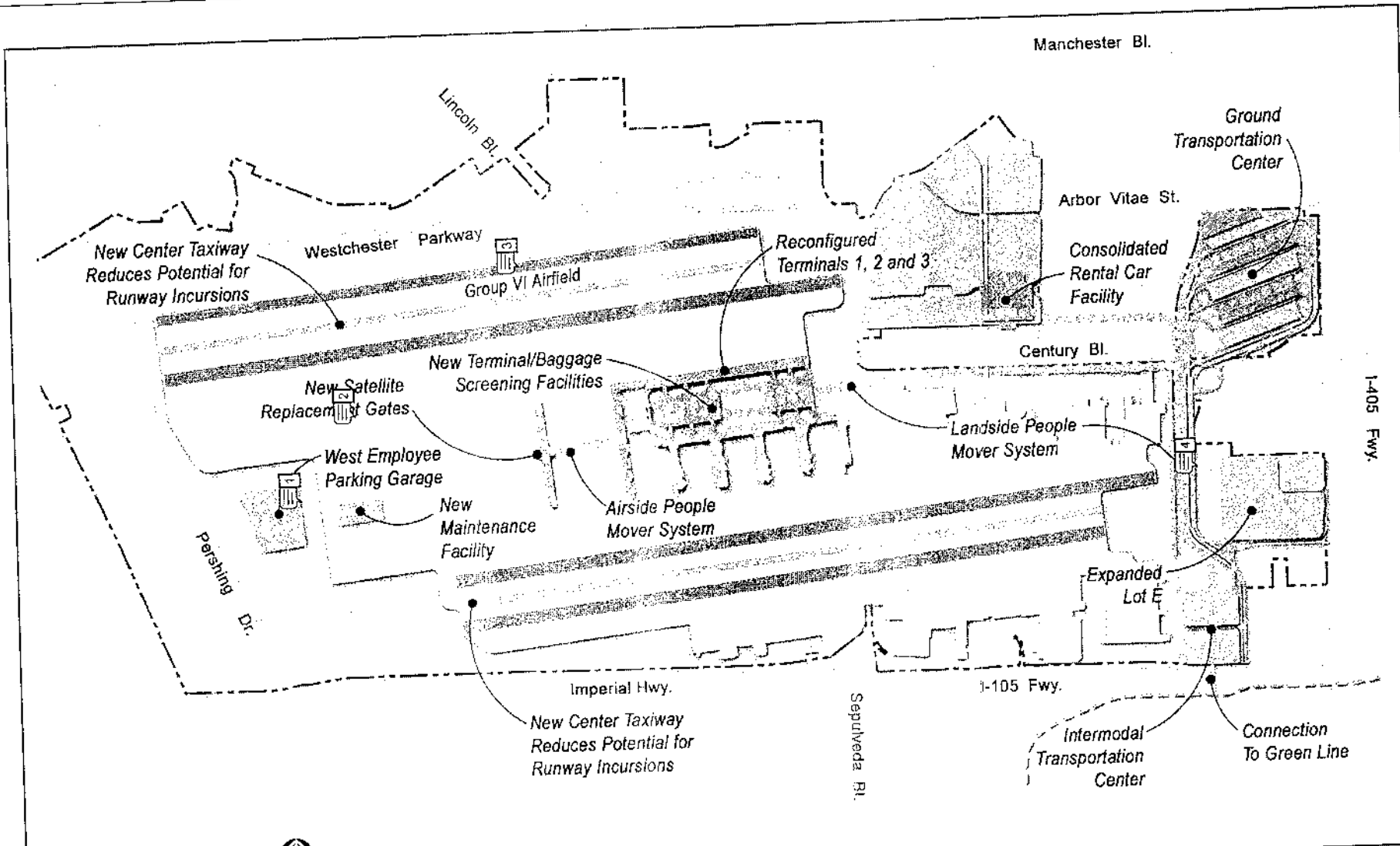
Will there be separate lines to each facility or will they all be in series? Will hotel and other stops also be included in the same line? How will security be enacted if people can get on and off at the various stops?

In accordance with governmental regulations, Alternative D is currently undergoing an environmental evaluation, the findings of which will be published in 2003. As part of the evaluation, this Draft LAX Master Plan Addendum was developed to describe Alternative D in a manner similar to the alternatives discussed in the Draft LAX Master Plan (January 2001). Additional background information and analyses used to design Alternative D are available in the earlier document.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:32:44 PM

T

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:34:09 PM
Since the Jan. 2001 document never specified Alt D will this document refer to that documentation in table format so that it is consolidated for Alt D review? Where is such a table?



Prepared by: Lancum & Brown
Draft: July 31, 2002

Not to Scale

Los Angeles International Airport Master Plan

Alternative D
Enhanced Safety and Security Plan

Figure
ES-1

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/12/2003 5:44:13 PM

What accommodations for the additional traffic to the West Employee Parking Garage? What security controls will be in place? This structure would be a great launching site for attacking aircraft.

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 7/12/2003 5:39:40 PM

The fuel farm is not shown as moving in other detailed drawings. Will it be too close to the new runways?

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 7/12/2003 5:41:59 PM

The definition of Group VI airfield is not firm. When the separation distances are found to be inadequate in two years will the plan be modified to accommodate the new numbers? If it is so critical to the north side, why is it not done on the south side where the majority of cargo facilities are situated?

Sequence number: 4

Author: Denny Schneider

Subject: Note

Date: 7/12/2003 5:38:48 PM

Does the People Mover system preclude any other use of the MTA right of way along Aviation Blvd? This will be critical for future development of a mass transit system to support LA because this right of way goes from the South Bay all the way to Downtown LA.

1 Planning Objectives

The Los Angeles International Airport (LAX) Master Plan is a modernization plan that accounts for the growth of the airport since 1984. In 2001, the Draft LAX Master Plan and Draft Environmental Impact Statement and Environmental Impact Report (Draft EIS/EIR) were published and included three project Alternatives (A, B, and C), plus a No Action/No Project Alternative. Los Angeles World Airports (LAWA) received a large number of comments on the alternatives described in these documents and subsequently offered a new alternative for consideration. The new alternative, Alternative D, was developed to offer a regional airport alternative for the LAX Master Plan to ensure representation of the communities' full range of priorities. LAWA simultaneously began master planning effort for Ontario International Airport (ONT) and Palmdale Regional Airport (PMD). The fifth Master Plan alternative, Alternative D: The Enhanced Safety and Security Plan, is the focus of this report. Figure ES-1 provides an illustration of the proposed plan.

1.1 POLICY AND PLANNING OBJECTIVES

The planning objectives for the Draft LAX Master Plan have evolved throughout the development of the study. They reflect the future needs of the airport users and community and environmental oversight agency input. At the beginning of the Master Plan process in 1995, seven goals were established to guide the planning effort:

- ◆ **Goal 1:** Continue to satisfy regional demands for global air transport of passengers and cargo by adding new and optimizing existing facilities at LAX, along with distributing commercial service not essential to the LAX international gateway role to other airports in the region.
- ◆ **Goal 2:** Ensure the safety of all airports.
- ◆ **Goal 3:** Continue to operate efficiently and continue to provide major direct and indirect economic benefits to local, regional and state environments.
- ◆ **Goal 4:** Operate LAX in an environmentally sensitive and responsible manner.
- ◆ **Goal 5:** Through enhanced urban design, maximize compatibility between LAX and the demand for housing, employment, service, and protect surrounding neighborhoods.
- ◆ **Goal 6:** Improve ground access to and around LAX by maximizing the use of regional highway and transit networks and mitigate neighborhood traffic impacts.

Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 7/12/2003 5:48:25 PM
Growth Master Plans for these two airports were previously written when the South Side Development plan was done in the late 80s/early 90s. Why are these not being implemented instead of redoing those plans? If the Alternative D is a result of comments to A, B, & C why are these not deleted from the alternatives?

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:49:22 PM

Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:52:18 PM

If the community needs have been taken into consideration, why has the Manchester Square area been designated for airport use when it is currently residential and in March 2001 the LA City Council determined that it should be put in the Westchester/Playa del Rey Community Plan Update as a park because of the paucity of recreational open space in this area?

Sequence number: 4
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:52:18 PM

Sequence number: 5
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:53:57 PM

The Mayor signed a no expansion pledge and this document expresses the intent to restrict present capacity. Why is it then saying that it plans to add new facilities as a number one priority?

Sequence number: 6
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:54:15 PM

Sequence number: 7
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 5:56:40 PM

Shouldn't safety of residential areas be at the same level as airport users?

Sequence number: 8
Author: Denny Schneider
Subject: Highlight
Date: 7/12/2003 5:56:40 PM

Sequence number: 9
Author: Denny Schneider
Subject: Note
Date: 7/12/2003 6:03:40 PM

Efficient operation? How will baggage movements be accomplished? This critical action is not firmed up at all. Studies are being released to state that the economic benefits are NEUTRAL for Alternative D. Studies to determine regional economic benefits should be done to determine if equivalent expansion/development at locals other than LAX is more rewarding. This study should include secondary impacts such as lost efficiencies due to exacerbating LAX area congestion and increased pollution resulting in health and social welfare impacts.

Sequence number: 10
Author: Denny Schneider
Subject: Highlight
Date: 7/13/2003 7:47:31 AM

Sequence number: 11
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 7:53:37 AM

Use of regional highways is another euphemism for all of the major streets through the communities around LAX. In Westchester-Playa del Rey there is no more room to expand these streets without removing homes or moving them far too close to homes. Additional manipulation of signals to foster flow is also limited as the egresses from the residential areas has already limited the number of autos able to leave and pedestrians to safely cross streets.

- ◆ **Goal 7:** Achieve a balance between increased LAX operations and environmental, social, land use, ground access, economic and air commerce impacts.

In the early stages of the Master Plan, a number of alternatives were developed that reflected these goals. Chapter V, Section 2 of the Draft LAX Master Plan (January 2001) contains a discussion of these alternatives.

As the Master Plan progressed through public review, the original goals remained, however, the weight and emphasis given to each goal has varied over time. In particular, as feedback on the initial alternatives was obtained from the community and oversight agencies, a higher priority was placed on environmental and community objectives than on economic and air service objectives. As a result, the four shortlisted alternatives in the Draft LAX Master Plan contained airside facility limitation that would require air service adjustments to meet the 2015 unconstrained passenger and cargo forecasts. Chapter V, Section 3 of the Draft LAX Master Plan contains the descriptions and evaluations of the shortlisted alternatives. Chapter III of the Draft LAX Master Plan contains the forecast of aviation activity.

The environmental impacts of the four Master Plan alternatives were evaluated in the Draft LAX Master Plan and the Draft EIS/EIR. Following the publication of the Draft LAX Master Plan and the Draft EIS/EIR in January 2001, public comment received during the review period called for a regional approach alternative, whereby growth at LAX would be planned so as to encourage other airports to accommodate future air travel demand. The terrorist attacks that occurred on September 11, 2001 greatly elevated the issue of airport security. In response to these events the newly elected Mayor of Los Angeles directed the Los Angeles Board of Airport Commissioners to develop a new LAX Master Plan alternative that, consistent with public comment calling for a regional approach alternative, would be designed to accommodate passenger and cargo activity levels at LAX that would approximate those of the No Action/No Project Alternative, have fewer environmental impacts than the No Action/No Project Alternative, and in light of the tragic events of September 11, 2001, would be designed to enhance airport safety and security.

Responding to the Mayor's direction, the new alternative is designed to:

1. Enhance safety and security at LAX for users and to protect the airport infrastructure;
2. Encourage the development and use of regional to serve local demand by constraining the facility capacity at LAX to approximately

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/13/2003 7:54:07 AM

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Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 7:54:50 AM
Must reread Chap V, Sec 2 of the Draft Plan to see why these alternatives have not survived

Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/13/2003 8:01:28 AM

T

Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 7:58:58 AM
Review of this addendum requires a copy of the original draft due to constant referral to various sections in the old. Chap V, Sec 3 lists alternatives; Chap III contains aviation demand forecast.

the same aviation activity levels identified in the No Action/No Project Alternative;

3. Maintain LAX as the international gateway to Southern California; and

4. Mitigate the impacts of LAX's continued operation.

Based on this direction, LAXA began master planning efforts of Ontario International Airport and Palmdale Regional Airport and simultaneously developed a fifth alternative for the LAX Master Plan, Alternative D: The Enhanced Safety and Security Plan. The latter effort is the focus of this report.

1.2 FACILITY CONSTRAINTS

The most constraining component of an airport defines the practical capacity¹ of the entire airport. The airport is a complex system made up of components through which passengers and aircraft flow in a sequential order. Aircraft arriving at the airport pass through the airspace, land on the runways, travel on the taxiways and proceed to the terminal gates to unload and reload passengers. Once loaded and ready for departure, the aircraft will pass through these same components in reverse order. Passengers move through the system in a similar set of sequential steps. Departing passengers travel on local roadways and on-airport roads, arrive at the terminal from the curbside, parking, or other shuttle facility, are processed in the terminal and proceed to the designated aircraft gate for boarding. Arriving passengers generally proceed through these steps in reverse order upon arrival at an airport. Exceptions for arriving passengers include domestic connecting passengers who board other flights, international arrivals who move through Federal Inspection Services (FIS) facilities, and baggage claim before they connect to other flights or use ground transportation facilities.

Each component of the airport system has a throughput capacity level, which is typically a function of the physical characteristics of the component. For example, the number of runways, the size of the terminal buildings, number of gates, and the airport's operating

¹ & Practical Capacity is a term used here to refer to the number of operations (take-offs and landings) that can be accommodated with no more than a given amount of delay, usually expressed in terms of maximum acceptable average delay. Practical annual capacity (PANCAP) is the level of operations that results in a reasonable average delay per aircraft in the normal peak two-hour operating period. Another term used is throughput capacity, which is the rate at which aircraft can be brought into or out of the airfield without regard to any delay they might experience. This definition assumes that aircraft will always be present waiting to take off or land and capacity is measured in terms of the number of such operations that can be accomplished in a given period of time.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/13/2003 8:02:53 AM

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Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 8:09:15 AM

Master Plans already exist for Ontario and Palmdale. Why were these never implemented? Why, for instance, is a top post still existing to recruit business for LAX instead of placing even greater emphasis on other regional airports?

procedures determine the throughput or processing rate of the airport. The capacity of the overall airport system equals the capacity of its weakest component. On the airside, where capacity is measured in terms of aircraft operations, the airport's capacity is driven by the most constraining of its major components: airspace, runway acceptance rate, taxiway accessibility, or available and accessible aircraft parking gates.

Each of the Master Plan alternatives has facility constraints that would limit its ability to accommodate the forecast of unconstrained passenger and cargo demand to varying degrees. Alternatives A and B, which accommodate the forecast for both passengers and cargo, nonetheless require adjustments in airline schedules to do so because of airfield limitations. When an airport system component is operating at capacity, meaning that it is processing a maximum level of hourly operations given its characteristics and procedures, increasing the capacity of other components does not increase the capacity of the system. For example, if a runway is operating at its throughput operational capacity and, by definition, accepting the maximum number of hourly arriving and/or departing flights without regard for delay, increasing the number of gates will not improve the airport's ability to accept more arriving flights. The runway system would have to be expanded to increase the throughput operational rate.

Each Master Plan alternative has an activity level that is determined by the ability of facilities in that alternative to serve the unconstrained passenger and cargo market demand. **Figure 1.2-1** summarizes the Master Plan alternatives and their corresponding activity levels.

The No Action/No Project Alternative is limited by the capacity of the curbside in the Central Terminal Area (CTA) where passengers are dropped off and picked up in front of the existing terminals. The resulting annual passenger performance measure of this alternative is approximately 78 million. Alternatives A and B include a fifth runway and were designed to serve the 2015 passenger demand forecast. Alternative A and B would accommodate approximately 97.9 million annual passengers (MAP).² Alternative C's projected annual passenger activity level served is limited by the capacity of the four-runway system and is forecast to be approximately 89.6 million. The constrained activity profiles for Master Plan Alternatives A, B, and C are discussed in Chapter V of the Draft LAX Master Plan in Section

² & ⁵ In order to accommodate the 2015 unconstrained passenger forecast of approximately 98 MAP, it would be necessary for the airlines to make air service adjustments, such as reducing the number of daily flights to a destination, limiting the number of non-stop destinations served or adjusting the flights' departure or arrival time to off-peak hours.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/13/2003 8:09:15 AM

T

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 8:10:18 AM
The no action alternative limitation is noted to be curbside capacity, not gates or runways!

Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/13/2003 8:17:10 AM

T

Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 8:18:12 AM
Page 1-4 has an incomplete sentence indicating the constrained activity profiles are somewhere in Chapter V of the LAX Master Plan Draft.

Sequence number: 5
Author: Denny Schneider
Subject: Highlight
Date: 7/13/2003 8:14:19 AM


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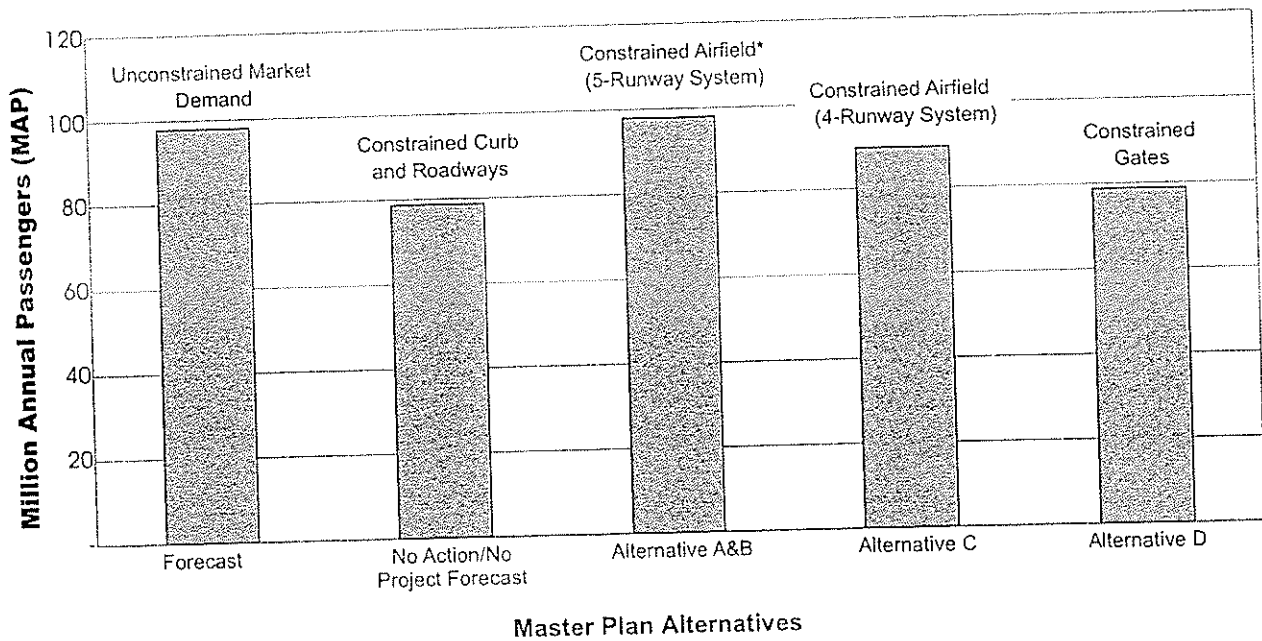
Sequence number: 6
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 8:15:45 AM
The footnote stating a 98 MAP estimate for Alt A or B states that it assumes voluntary air service adjustments such as reducing the number of flights to LAX!

3.3.2. Extensive analysis is included in that document, establishing the levels of passengers that each alternative is designed to accommodate. Alternative D was designed to accommodate approximately the same level of passenger activity and design day aircraft operations as the No Action/No Project Alternative.

The passenger activity that would be expected in 2015 with Alternative D was determined based on the design of the Alternative D gate facilities and the projected airline response to the constrained facilities. The ability to increase aircraft size, thereby increasing passenger levels, was limited by the number and type of gates available under the Alternative D terminal design. The design of Alternative D would encourage airlines to choose the most efficient use of the gate facilities at LAX and supplement high-frequency domestic service at other airports in the region.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/13/2003 8:19:30 AM

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 8:24:32 AM
 This basic premise of limiting Alt D via gates indicates an assumption of specific numbers and types of gates. This addendum does not have this detail and in LAX Working Group meetings LAWA officials were unable to define how gates were to be modified.



* In order to accommodate the 2015 unconstrained passenger forecast of 98 MAP, it would be necessary for the airlines to make air service adjustments, such as reducing the number of daily flights to a destination, limiting the number of non-stop destinations served or adjusting the flights' departure or arrival time to off-peak hours.

Prepared by: Lindum & Brown
Date: 8/10/03

Los Angeles International Airport Master Plan

Master Plan Alternative Capacity Constraints

Figure
1.2-1

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 8:29:39 AM
Figure 1.2-1 graphs Alternative Capacity Constraints. Where is the back up materials listing the assumptions?

The Alternative D cargo activity is determined by the amount of cargo space available to process cargo tonnage. This sort space would be measured in square feet of cargo building space. The Alternative D cargo facilities would be sized to accommodate the total cargo volume forecast in the constrained No Action/No Project Alternative.

The effective constraint on cargo activity in Alternative D would be the lack of sufficient cargo building space to process the unconstrained cargo activity forecast. The most effective representation of this constraint is illustrated by the utilization rates, or tons per square foot, for the available warehouse space. A common benchmark in the industry is to process approximately 0.9 to 1.0 annual ton of cargo for each square foot of cargo warehouse space available. Higher space utilization rates, ranging from 1.1 to 1.42 annual tons per square foot, are expected for domestic and express cargo, with lower space utilization rates, ranging from 0.5 to 0.6 annual tons per square foot, expected for international freight due to the added time associated with customs clearing and fewer available flights.

The space utilization rate (excluding air mail) calculated for Alternative D is 1.22 tons per square foot. This rate is based on approximately 2.3 million square feet of cargo building space and approximately 2.85 million annual tons (MAT) of cargo (excluding air mail). It is the weighted average of the domestic and express cargo (approximately 2.09 tons per square foot) and international cargo (approximately 0.8 ton per square foot). Based on current cargo activity, the split is 55 percent domestic and 45 percent international, however cargo space split is 32 percent domestic and 68 percent international. Air mail is projected to be 272,000 tons, resulting in approximately 3.1 MAT of cargo activity.

The utilization rates for Alternative D exceed both the industry standard rates and the high utilization rates already experienced at LAX. Improvements in cargo technologies and efficiencies that may not be realized within the planning horizon would be required to realize the Alternative D utilization rates.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/13/2003 8:29:39 AM

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 8:37:57 AM
 It is commendable that the space utilization rate takes improved modernization into consideration. Has the ground trucking limitation also been considered? What is that limitation?

Table 1.3-2

LOS ANGELES REGION AIRPORT SYSTEM SCENARIOS
2015 PASSENGER ACTIVITY FORECASTS

Airport	LAX Master Plan	Additional LAX Master Plan Scenarios			
	Forecast	Scenario 1	Scenario 2	Scenario 3	
Los Angeles	97,960,000	97,500,000	105,700,000	96,500,000	
Ontario	48,510,000	13,862,500	20,750,000	13,875,000	
John Wayne		N/A	11,625,000	7,862,500	
Marine Corps Air Station (MCAS) El Toro		28,750,000	N/A	21,625,000	
Burbank		6,777,778	6,333,333	7,666,667	
Long Beach		1,000,000	1,300,000	860,000	
Palm Springs		1,080,000	900,000	1,100,000	
Oxnard/Point Mugu		344,000	355,000	300,000	
Palmdale		305,000	700,000	230,000	
Regional Total		146,470,000	149,619,278	147,663,333	150,019,167

Landrum & Brown, 2000

In each of the three scenarios, LAX was projected to serve passenger levels higher than those associated with the No Action/No Project Alternative and Alternative D. These alternatives would accommodate approximately 78 MAP producing a potential demand of approximately 13 to 20 MAP that cannot be accommodated by the region's airports.

1.3.2 PROJECTED REGIONAL CAPACITY ESTIMATES

As of 2001, the Southern California Association of Governments (SCAG) estimated the existing airport capacity in the region at approximately 120 MAP.³ As discussed in the previous section, the 2015 regional demand is expected to total approximately 146.5 MAP. Approximately 73 percent, or 107 MAP, will be origin and destination (O&D) demand by 2015. Table 1.3-3 summarizes the estimated 2025 capacity and/or passenger forecast of the region's airports.

³ SCAG 2001 Regional Aviation Plan for the 2001 Regional Transportation Plan (RTP).

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 8:39:25 AM
Important assumption that 73% of 146.5 MAP demand in 2025 will be O & D.

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 7/13/2003 8:37:57 AM
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Table 1.3-3
 LOS ANGELES REGION AIRPORTS ESTIMATED 2015
 PASSENGERS

	MAP
Primary	
Los Angeles Int'l.	78
Secondary	
Ontario	30
John Wayne	8
Burbank	9
Long Beach	3
Palm Springs	3
Commuter	
Palmdale	2
Other	4
	137
Total Region	
Potential Unmet Demand	30
Total Passenger Activity	167

Source: SCAG 2001 Regional Transportation Plan, excluding Marine Corps Air Station El Toro

As illustrated in Table 1.3-3, the region's airports would have a projected shortfall of approximately 30 MAP. Although SCAG's forecast horizon is 10-years beyond the planning horizon of the Master Plan, there is inadequate existing airport capacity in the region to serve long-term passenger demand.

Lack of capacity in the regional airport system would lead to a loss of connecting passenger demand to airports outside the region. The airlines would encourage connecting passengers to use other hub airports to reach their destination by offering more flight options, more convenient schedules, and lower prices. Serving local passenger demand, both domestic and international, is the airlines' highest priority. However, connecting passengers allow the airlines to offer more frequent service to many destinations by filling more seats on each flight. If connecting passengers are routed over other hubs, the airlines would likely reduce the number of flights offered, resulting in reduced customer service.

This pattern would be most evident—and the economic impact most strongly felt—in international service. Other regions in the western part of the U.S. compete with Los Angeles for the economic benefits of international air service and have been building the specialized airport facilities required to serve as international gateway airports. A more complete discussion of the status of competing U.S. gateway airports is found in Section 1.3.5 of this document.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/13/2003 8:43:33 AM

Note the previous section 1.3.2 states the 2015 regional demand as 146.5 while Table 1.3-3 shows the 2015 demand as 167 with 30 MAP as potential unmet...

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 7/13/2003 8:43:48 AM

T

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 7/13/2003 8:47:07 AM

SCAG forecast of 2015 is 10 years beyond the planning horizon of the LAX Master Plan? It will take almost that long to finish this LAX project. Doesn't this plan look that far into the future?

A sensitivity analysis conducted by SCAG in 1998 found that if LAX capacity was constrained in an effort to force demand to other regional airports, much of the traffic would relocate to airports outside the region such as San Francisco, Denver, and Dallas rather than to secondary regional airports within the region. This loss of traffic would take place largely because the Los Angeles region's secondary airports are not in a strong enough position, nor do they have the infrastructure necessary, to provide competitive international gateway service by 2015. In the near future, it is unlikely that they will develop the volume of connecting flights, specialized import-export facilities, and other facilities associated with an international gateway. Accordingly, failure to provide facilities to accommodate regional demand would mean increasing levels of congestion and delay, which would result in passenger air service going to other regions.

1.3.3 SECONDARY REGIONAL AIRPORTS

Examining passenger activity and scheduled passenger departures reveals a close match between each of the regional airports' share of total regional aviation service and passengers for the year 2000 (see Table 1.3-4). This correlation demonstrates that the air transportation marketplace tends to reach a balance between supply and demand. As long as there are adequate airport facilities, the level of service will rise or fall with local demand and airport activity. The existing conditions and published plans for each of the secondary airports in the Los Angeles region are provided in Appendix C.

Table 1.3-4

COMPARISON OF AIR SERVICE AND PASSENGER MARKET SHARE

Airport	2000		Percent (%) Share	
	Passengers ^{1/}	Departures ^{2/}	Passengers ^{1/}	Departures ^{2/}
Los Angeles Int'l.	67,303,000	372,525	76.0%	72.2%
John Wayne	7,773,000	49,779	8.8%	9.6%
Ontario	6,756,000	40,347	7.6%	7.8%
Burbank	4,749,000	27,745	5.4%	5.4%
Long Beach	638,000	4,213	0.7%	0.8%
Palm Springs	1,281,000	17,189	1.4%	3.3%
Commuter Airports	111,000	4,061	0.1%	0.8%
Total	88,611,000	520,000	100.0%	100.0%

Sources:

^{1/}SCAG compilation records.

^{2/}Official Airline Guides, Scheduled Passenger Aircraft Departures in 2000.

Note: Commuter Airports include Imperial County Airport and Oxnard Airport.

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Sequence number: 1
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
Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 8:52:04 AM
With 12 years in the future why can't emphasis to create this infrastructure be done?

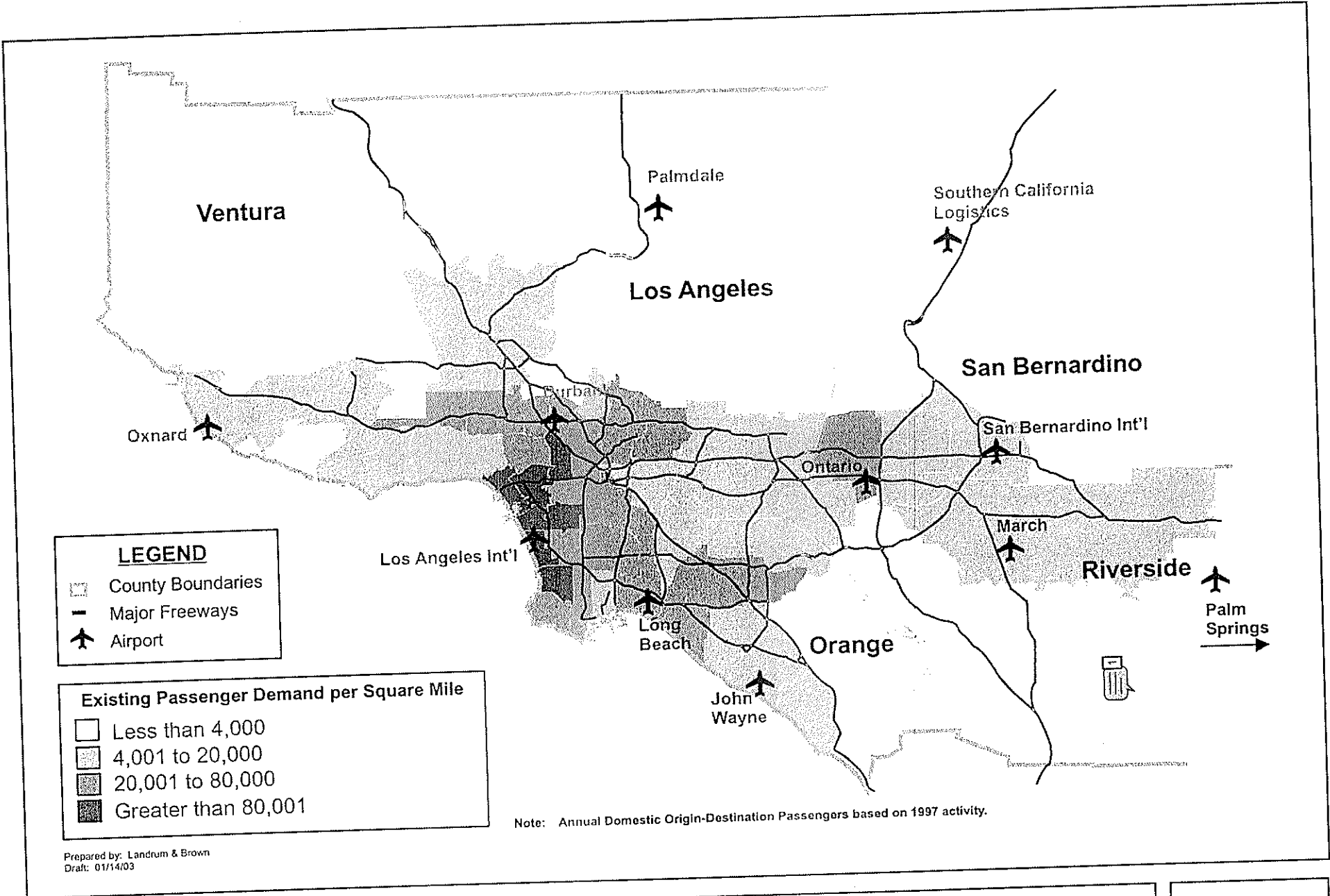
Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/13/2003 8:52:22 AM
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Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 8:54:59 AM
Stating that regional airport share matches use demonstrates market balance does not take into consideration disparity in ticket pricing and flight availability. With incentive pricing equal to LAX ticket costs many people living in the other areas of the LA region would use their local airports.

Airlines make decisions on which airport to serve based on several factors, including the population within a reasonable travel distance and the cost to introduce service at a new airport. **Figure 1.3-2** shows the population concentration of travel demand, where people are living and working, as it varies throughout the region. **Figure 1.3-3** shows the region's airports and the areas around each airport considered to be within a reasonable travel distance, or a 60-minute travel time. When combined, these figures provide information on the location of the travel demand, and how much time would be necessary to access the airports. This is the type of data the airlines use when selecting which airports to serve. In the case of the Los Angeles region, travel time tends to be a better predictor than travel distance due to congested local traffic conditions.

Table 1.3-5 presents the top 25 domestic O&D markets for the Los Angeles region in 2000 and the market share of scheduled departures from LAX and each of the close-in secondary airports. The cities representing the domestic market in highest demand, and the relative share of scheduled service for the year 2000, changed very little from the top markets in 1995. Domestic markets are relatively stable and, without outside influence, the airport and destination pairs are unlikely to change dramatically (see Section 1.3.2). Tables that present the O&D demand to the top domestic markets and the scheduled service from each of the regional airports are included in **Appendix 1**

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Author: Denny Schneider
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 See Appendix C for tables of O & D service demand.



Los Angeles International Airport Master Plan

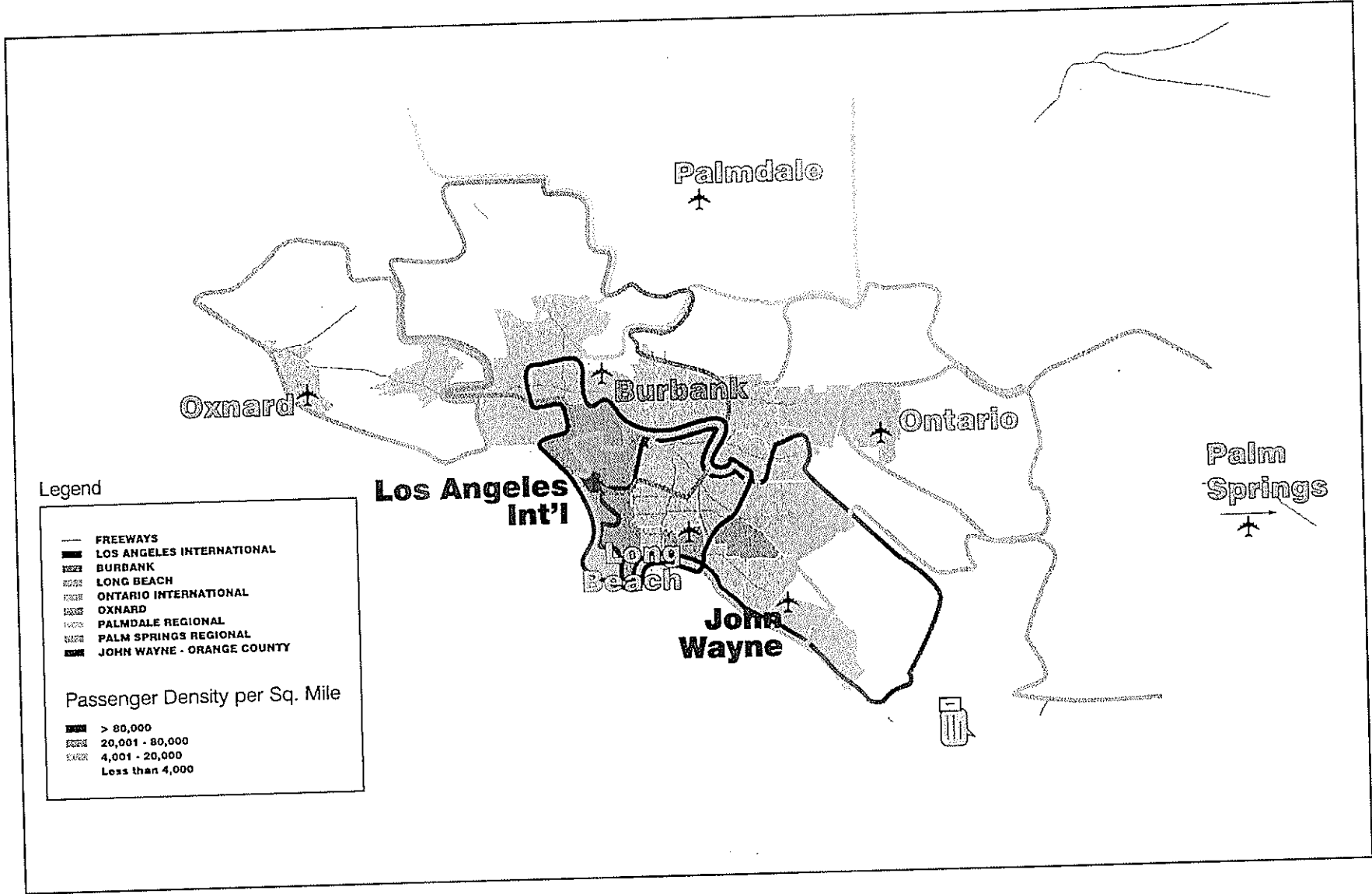
Los Angeles Region's 2015 Concentration of Domestic O&D Passenger Demand

Figure 1.3-2

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 9:02:00 AM

Figure 1.3-2 Forecasts demand based on 1997 information. The 2000 Census showed marked changes and high growth in outlying areas. If this is to be an accurate representation it should use more current information than that of almost 6 years ago.

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Prepared by: Landrum & Brown
Draft: 12/12/02

Los Angeles International Airport Master Plan

Los Angeles Region's Airport Travel Time Zones
(60 Minute Accessibility)

Figure
1.3-3

Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 7/13/2003 9:05:41 AM

For 60 minute travel distance assumptions was the "present" SCAG estimate of 36 mph on fwy assumption used or the 18 mph for 2015? Similarly, what assumptions were used for economic AND population growth for travellers?

PLANNING OBJECTIVES

Table 1.3-5

AIR SERVICE TO THE TOP DOMESTIC O&D MARKETS

Rank	City/Airport Name	Airport Code	Miles	Haul	O&D Passengers Regional Total	Scheduled Departures Percentages (%)					
						LAX	ONT	SNA	BUR	LGB	PSP
1	Oakland	OAK	337	S	3,773,020	44.6%	17.5%	18.4%	19.4%	0.0%	0.0%
2	Las Vegas	LAS	235	S	3,354,420	55.5%	14.3%	11.5%	16.1%	0.0%	2.6%
3	San Jose	SJC	308	S	2,915,990	47.9%	14.0%	24.0%	14.2%	0.0%	0.0%
4	San Francisco	SFO	338	S	2,740,820	58.3%	0.0%	23.7%	13.9%	0.0%	4.1%
5	Phoenix	PHX	367	S	2,551,840	43.1%	18.4%	16.5%	11.4%	4.7%	5.9%
6	Sacramento	SMF	375	S	2,273,140	35.5%	30.5%	10.1%	23.9%	0.0%	0.0%
7	Seattle	SEA	955	M	2,263,440	54.8%	12.9%	21.9%	10.3%	0.0%	0.0%
8	New York - John F. Kennedy	IFK	2,467	L	1,803,260	75.5%	3.6%	0.0%	0.0%	20.9%	0.0%
9	Chicago OHare	ORD	1,740	M	1,663,210	74.2%	0.0%	21.0%	0.0%	4.8%	0.0%
10	Newark	EWR	2,447	L	1,289,770	82.3%	0.0%	17.7%	0.0%	0.0%	0.0%
11	Portland	PDX	834	M	1,314,130	50.0%	16.7%	16.7%	16.7%	0.0%	0.0%
12	Honolulu	HNL	2,551	L	1,177,600	85.1%	5.0%	5.0%	5.0%	0.0%	0.0%
13	Denver	DEN	860	M	1,174,560	56.2%	20.8%	16.9%	6.1%	0.0%	0.0%
14	Salt Lake City	SLC	590	S	1,117,720	64.1%	15.9%	20.0%	0.0%	0.0%	0.0%
15	Dallas/Fort Worth	DFW	1,247	M	1,117,400	42.1%	18.9%	18.2%	9.1%	9.4%	2.4%
16	Atlanta	ATL	1,940	L	892,540	64.6%	14.3%	21.1%	0.0%	0.0%	0.0%
17	Boston	BOS	2,604	L	824,520	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
18	Baltimore	BWI	2,322	L	765,900	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
19	Detroit Wayne County	DTW	1,971	L	731,980	88.9%	0.0%	11.1%	0.0%	0.0%	0.0%
20	Minneapolis/St. Paul	MSP	1,533	M	705,940	65.6%	13.7%	20.6%	0.0%	0.0%	0.0%
21	Washington, D.C. Dulles	IAD	2,281	L	694,680	84.2%	0.0%	0.0%	0.0%	15.8%	0.0%
22	Reno	RNO	392	S	661,830	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
23	Orlando	MCO	2,209	L	653,770	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
24	Philadelphia	PHL	2,395	L	640,580	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
25	Houston Bush Intercontinental	IAH	1,375	M	558,890	57.0%	12.9%	30.1%	0.0%	0.0%	0.0%
Subtotal of Top 25					37,631,200	57.1%	12.8%	16.1%	10.1%	2.5%	1.5%
All Other					16,031,790	89.3%	2.8%	3.3%	0.0%	0.0%	4.7%
Total All Markets					53,662,990	69.7%	8.9%	11.0%	6.1%	1.5%	2.7%

Note: Ranked by O&D Passengers =
 Haul - Short (S) = less than 600 miles =
 Haul - Medium (M) = 600 to 1800 miles =
 Haul - Long (L) = more than 1800 miles =

Source: Department of Transportation, Database, 2000 and OAG data for the month of August, 2002. =

Prepared by Landrum & Brown, 2002.



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Data Source and dates covered?
The chart says it was prepared in 2002, but what year data is this?

From LAWA.org 10 yr summary:
2002--56,223K 1997--60,143K
2001--61,606K 1996--57,975K
2000--67,303K 1995--53,909K
1999--64,280K
1998--61,216K

1.3.4 AIRLINE DEREGULATION AND COMPETITION

Since passage of the Federal Airline Deregulation Act of 1978, airlines must decide which airports they will serve and how much they will charge for this service. As a general rule, airlines will choose airports near the highest concentrations of conveniently located customers. In this deregulated environment, the key to airline success has been to provide a better product than the competition. Convenience, price and frequent flier incentives have been the tools used most frequently in this competition. In air travel, convenience involves two key factors:

- ◆ **Airport Accessibility** – Airport locations and ground transportation options that make an airline's services convenient to the most potential passengers.
- ◆ **Service Frequency** – Flight schedules that most closely match airline service to potential passenger need.

Within this general framework, airlines must make strategic decisions about air service to maximize their investments and gain competitive advantages. Airlines will only provide air service where demand exists. For instance, in regions with multiple airports, airlines tend to concentrate their air service at a single well-located primary airport for economic efficiency. Concentrating service at a dominant airport also facilitates connecting service, which can significantly increase an airline's market share and allow even greater frequencies to more destinations. In particular, international service relies on the availability of domestic connecting flights to a wide range of destinations.

Airlines consider several factors when making decisions about which airports to serve in a region with multiple airports. The key factors include:

- ◆ **Local Passenger Market Potential** – The potential market is based on the airport's location and its accessibility or convenience to passengers.
- ◆ **Network Synergy** – A particular airport may play an important role in a particular airline's air service network, offering opportunities for connecting passenger flows (domestic or international), or encourage competition with other airlines.
- ◆ **Airport Facilities** – A particular airport's ability to accommodate existing and projected demand may be constrained by one or more of the following:
 - ▶ **Airport Infrastructure** – The size, configuration, and condition of the airfield, aircraft parking gates, terminal

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Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 3:18:26 PM
Concentration of air service at a primary airport may be true in medium sized markets, but other major cities such as NY, Chicago, or Washington DC have multiple airports served.

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Author: Denny Schneider
Subject: Note
Date: 7/13/2003 3:33:00 PM
Domestic vs Int'l with LAX having a high O&D rate may not bear the assumptions out.
Ratios of Passenger Traffic at LAX
yr domestic int'l % Int'l
1999 48,465 15,815 25%
2000 49,887 17,416 26%
2001 45,656 15,950 26%
2002 41,379 14,845 26%
source LAWA.org LAX Statistics

facilities, security screening facilities, ground access facilities, cargo facilities, FIS facilities, freight forwarding facilities, fueling systems and other physical infrastructure elements.

- ▶ **Policy** – The airport owner’s policies regarding future airport development and the utilization of existing facilities.
- ▶ **Environmental** – Significant environmental considerations that may limit airport activity or future development.
- ▶ **Airspace** – Airspace limitations due to terrain or interactions with other airports.

In a multi-airport system, where passengers, cargo operators and airlines have alternatives, these factors may cause certain airports the inability to capture their potential market share.

Airlines will establish additional service at secondary regional airports only if the local market generates sufficient demand and adequate facilities exist. In some cases, secondary airports can offer a competitive advantage over a primary airport by reducing airline costs, or by providing more convenient access to and from a Central Business District (CBD) or tourist destination. However, airlines are generally reluctant to serve secondary airports, even under these circumstances, if doing so would dilute their market share or significantly increase operating costs. An airline that attempts to shift service from one airport to another may instead end up losing that share of the market to a competitor.

Passenger demand cannot simply be moved to another airport. In fact, under federal law, it is very difficult for local, regional or federal officials to force airlines to serve one airport over the other. AWA has tried subsidies to encourage airlines to serve outlying Palmdale, with only limited temporary success. The airlines provide service at the airports where demand exists. Without demand from the traveling public, airlines deploy their assets to serve the greatest number of passengers and earn the best return on their investment.

1.3.5 INTERNATIONAL DEMAND

Historically, U.S. international air traffic has been concentrated at three entry points, or gateways. John F. Kennedy International Airport in New York City has dominated the Atlantic air routes; Miami International Airport is the main connecting point for Latin American traffic; and LAX has been the primary gateway to the Asia-Pacific region. As a result of this historic position, the regions around each of the three primary gateway airports have developed

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Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 3:36:13 PM
Recent LA County studies show that Palmdale has a sizeable market that warrants air service.

Table 1.3-7

INTERNATIONAL GATEWAY COMPARISON
U.S. AIRPORTS WITH GREATER THAN 1 MILLION INTERNATIONAL ENPLANEMENTS
CALENDAR YEAR 2000, 1995, and 1990



Rank	Airport	Code	International Enplanements					
			2000		1995		1990	
			2000	Percent (%) Share	1995	Percent (%) Share	1990	Percent (%) Share
1	New York Kennedy	JFK	8,661,911	7.1%	8,152,973	8.1%	7,851,101	7.8%
2	Los Angeles International	LAX	8,193,272	6.7%	6,088,838	6.1%	4,291,889	4.3%
3	Miami International	MIA	7,840,523	6.4%	7,354,534	7.3%	5,162,925	5.1%
4	Chicago O'Hare	ORD	5,118,227	4.2%	3,193,141	3.2%	2,235,167	2.2%
5	Newark International	EWK	4,206,049	3.5%	1,727,741	1.7%	1,195,683	1.2%
6	San Francisco International	SFO	3,733,057	3.1%	2,766,313	2.7%	1,849,922	1.8%
7	Atlanta Hartsfield	ATL	2,815,325	2.3%	1,388,189	1.4%	824,445	0.8%
8	Houston Intercontinental	IAH	2,707,086	2.2%	1,366,437	1.4%	979,354	1.0%
9	Honolulu International	HNL	2,643,679	2.2%	3,018,233	3.0%	2,862,381	2.8%
10	Dallas/Ft. Worth International	DFW	2,194,048	1.8%	1,457,443	1.4%	1,241,025	1.2%
11	Washington Dulles	IAD	1,995,118	1.6%	1,346,921	1.3%	617,399	0.6%
12	Boston Logan	BOS	1,925,914	1.5%	1,430,193	1.4%	1,383,141	1.4%
13	Guam International	GUM	1,414,366	1.2%	1,186,534	1.2%	998,257	1.0%
14	Detroit Wayne County	DTW	1,278,650	1.0%	1,287,421	1.3%	705,352	0.7%
15	San Juan Luis Munoz	SJU	1,037,453	0.8%	972,471	1.0%	1,095,493	1.1%
	Total		55,734,687	45.7%	42,747,382	42.5%	33,293,542	33.1%
	Total US Intl Enp		121,862,000		100,629,954		86,862,892	

Rank	Airport	Code	International Enplanements Excluding Canada					
			2000		1995		1990	
			2000	Percent (%) Share	1995	Percent (%) Share	1990	Percent (%) Share
1	New York Kennedy	JFK	8,377,863	7.5%	8,018,762	8.6%	7,768,382	9.5%
2	Miami International	MIA	7,546,099	6.8%	7,122,674	7.7%	4,938,221	6.0%
3	Los Angeles International	LAX	7,537,717	6.8%	5,628,893	6.1%	3,899,929	4.7%
4	Chicago O'Hare	ORD	3,830,679	3.4%	2,219,132	2.4%	1,540,670	1.9%
5	Newark International	EWK	3,668,656	3.3%	1,435,672	1.5%	927,475	1.1%
6	San Francisco International	SFO	3,246,694	2.9%	2,441,194	2.6%	1,573,427	1.9%
7	Atlanta Hartsfield	ATL	2,533,937	2.3%	1,221,239	1.3%	824,445	1.0%
8	Houston Intercontinental	IAH	2,457,151	2.2%	2,883,630	3.1%	2,718,315	3.3%
9	Honolulu International	HNL	2,439,645	2.2%	1,285,737	1.4%	979,354	1.2%
10	Dallas/Ft. Worth International	DFW	1,871,578	1.7%	1,251,088	1.3%	609,306	0.7%
11	Washington Dulles	IAD	1,791,482	1.6%	1,205,569	1.3%	1,095,316	1.3%
12	Boston Logan	BOS	1,414,366	1.3%	1,186,534	1.3%	998,257	1.2%
13	Guam International	GUM	1,385,011	1.2%	911,716	1.0%	865,124	1.1%
14	San Juan Luis Munoz	SJU	1,007,453	0.9%	972,471	1.0%	1,085,881	1.3%
15	Detroit Wayne County	DTW	932,968	0.8%	750,762	0.8%	306,748	0.4%
	Total		59,041,290	45.1%	38,535,273	41.5%	30,131,850	36.7%
	Total US Intl Enp excluding Canada		111,053,258		92,898,000		82,166,000	

Rank	Airport	Code	Transborder (Canada Only) Enplanements					
			2000		1995		1990	
			2000	Percent (%) Share	1995	Percent (%) Share	1990	Percent (%) Share
1	Chicago O'Hare	ORD	1,287,548	11.9%	974,009	12.6%	694,497	10.4%
2	Los Angeles International	LAX	655,555	6.1%	459,945	5.9%	391,950	5.9%
3	Boston Logan	BOS	540,993	5.0%	518,477	6.7%	517,017	7.7%
4	Newark International	EWK	537,393	5.0%	292,099	3.8%	268,208	4.0%
5	San Francisco International	SFO	486,373	4.5%	325,119	4.2%	276,495	4.1%
6	Dallas/Ft. Worth International	DFW	402,566	3.7%	251,874	3.3%	145,709	2.2%
7	Detroit Wayne County	DTW	345,682	3.2%	536,659	6.9%	398,614	6.0%
8	Miami International	MIA	294,433	2.7%	241,660	3.1%	224,704	3.4%
9	New York Kennedy	JFK	284,048	2.6%	134,211	1.7%	82,719	1.2%
10	Atlanta Hartsfield	ATL	281,389	2.6%	166,950	2.2%	0	0.0%
11	Houston Intercontinental	IAH	267,441	2.5%	80,700	1.0%	0	0.0%
12	Honolulu International	HNL	186,528	1.7%	134,603	1.7%	144,066	2.2%
13	Washington Dulles	IAD	123,540	1.1%	95,833	1.2%	8,093	0.1%
14	Guam International	GUM	0	0.0%	0	0.0%	0	0.0%
15	San Juan Luis Munoz	SJU	0	0.0%	0	0.0%	9,612	0.1%
	Total		5,693,397	52.7%	4,212,109	54.5%	3,161,692	47.2%
	Total Transborder Enp		10,798,742		7,731,964		6,696,892	

Source: Department of Transportation (DOT), T3/T100 Combined/NS Form 1-92 Data for Foreign Carrier Enplanements and US Carrier International Enplanements

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 9:12:48 AM

The argument that Gateways are becoming more important because their % of passengers is increasing is spurious. Explain why this same data can not also be explained by the deregulation efforts to concentrate air traffic into specific hubs.

The Immigration and Naturalization Service (INS) records show that New York is the dominant gateway for travel from the U.S. to the Atlantic Region (Europe, Middle East, and Africa). Miami is the dominant gateway to Latin America (Central and South America and the Caribbean), although Los Angeles is the primary gateway to Central America. Los Angeles is the primary gateway to the Asia-Pacific Region, followed closely by Honolulu. Due to the expansion of international air service at mid-continent airports, New York and Miami lost market share between 1995 and 2000 to their respective world regions. In contrast, Los Angeles' market share of the Asia-Pacific Region increased between 1995 and 2000. Detailed tables of INS international passenger data for 1995 and 2000 are presented in Appendix C.

1.3.6 REGIONAL ECONOMIC CONTRIBUTION

An important function of a gateway airport is to serve both local O&D passengers and connecting passengers with quality air service. The value to the region is better international air service than could be justified based on O&D passengers alone. With 50 percent connecting passengers, an airline can operate twice as many flights as the local market alone could support.


The value of a single international flight can be several times greater than the average domestic flight. LAX Master Plan Alternative D would result in employment gains by 2005 that equal those projected for the other LAX Master Plan alternatives. However, by 2015, Alternative D would yield slightly lower economic contributions due to productivity gains made during the time period. There is a direct correlation between the number of passengers served and the character of the passengers (domestic vs. international) at LAX and the airport's contribution to the local and regional economy.

LAX's international gateway role is crucial to the economies of Los Angeles and Southern California. The international gateway role is threatened in the future by limited facilities at LAX and the other regional airports. Except for Ontario, the other airports in Southern California would have limited market strength and facilities to supplement LAX's role. Other competing U.S. cities and regions stand to benefit from this limitation because of their growing market base and their available or planned infrastructure.

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Author: Denny Schneider
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Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 7:30:24 PM

 What documentation exists to demonstrate this strong statement?

2 Alternative D Development and Refinement

Alternative D was developed as a new alternative in response to public comment on Master Plan Alternatives A, B, C, and the No Action/No Project Alternative. **Figure 2.0-1** presents the relationship between Alternative D and the Master Plan alternatives described in the 2001 documents.

To ensure that the communities' full range of priorities were represented, Alternative D would be developed to offer a regional airport development alternative for LAX. Alternative D would be designed to serve approximately 78 MAP, which is similar to the activity level identified in the scenario adopted by SCAG for LAX. The Alternative D design would encourage other airports in the region to develop facilities to accommodate regional demand beyond the level served at LAX. In the short term, LAX would continue to serve as the region's predominant airport for international passenger and cargo operations due to the specialized facilities developed over time to serve the international demand.

In response to increased security threats, Alternative D would protect all airport users and critical airport infrastructure from security threats, incorporate Transportation Security Administration (TSA) recommendations, avoid concentrations of people in public areas, enhance on-airport law enforcement presence and surveillance capabilities, and enhance emergency response. Protection of people is paramount in all areas of the airport. The facilities in the CTA and the surrounding ground access network have been identified as infrastructure components critical to airport operations. The objective of Alternative D is to provide a facility that can continue to operate under the highest security levels with minimal impacts to the passenger processing experience. The facilities in the CTA and the surrounding ground access network have been identified as infrastructure components critical to airport operations. Refer to **Appendix I** for a detailed assessment of the security and safety features of Alternative D.

As a result, the ground access network would be redeveloped to limit vehicle access to the CTA and to remove vehicle parking from this area. All facilities would be designed to minimize vulnerability of people to security threats. Passengers and employees would access the CTA via the Landside Automated People Mover (APM) system that would be developed as part of Alternative D.

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The limitation of growth at LAX is an impetus to growth in other regional airports ONLY outside of those owned/operated by LAWA.

Four new terminals would be developed as part of Alternative D. The new terminals would be located in the area currently occupied by the CTA parking structures and would be capable of 100 percent automated Explosive Detection System (EDS) baggage screening. The advanced planning and design for the four new terminals would be coordinated with the TSA. As the TSA develops new airport security standards, LAWA would work to incorporate these standards to the greatest extent possible.

The project would include new Aircraft Rescue and Firefighting (ARFF) facilities to increase fire response capabilities and a new police headquarters with convenient access to airport facilities. These new facilities would enable increased coordination between emergency response teams. The increase in support facilities and the improved coordination capabilities would enhance the safety and security of LAX.

Between the runways on the north and south airfields, Alternative D would provide parallel taxiways to reduce the potential for runway incursions. In addition, the airfield reconfigurations would provide unrestricted movement for New Large Aircraft (NLA) on the north airfield and in the areas around the terminal. The airfield modifications for Alternative D would maintain the existing capacity and would improve the level of service at LAX by reducing delays and enhancing the safety and security of passengers and aircraft at LAX.

As part of the terminal and infrastructure reconfiguration, Alternative D would include modifications of the ground access or landside system. Consolidated parking and curbside areas at a new Ground Transportation Center (GTC) would improve the landside level of service at LAX. All rental car facilities at the airport would be in one location, referred to as the Consolidated Rental Car Facility (RAC). improve passenger access to these services. In addition, a new Intermodal Transportation Center (ITC) would provide a more efficient connection from the existing Metropolitan Transportation Authority (MTA) Green Line light rail to the CTA.

The No Action/No Project Alternative depicted in **Figure 2.0-2**, was developed by LAWA to describe changes that would occur at LAX without the Master Plan.

The descriptions of the Alternative D facilities contained in this section refer to, and are compared to, the No Action/No Project Alternative. The primary components of the Alternative D plan are shown in **Figure 2.0-3** and would include changes to the existing airfield, the existing terminal facilities and the ground access system. **Appendix H** contains development sketches and original concepts demonstrating the evolution of the Alternative D concept.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/13/2003 7:38:45 PM

Why do Explosive Detection System (EDS) baggage screening in the CTA instead of at the initial point of check in? Isn't the objective of closing off the CTA to preclude bombs inside the CTA?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 7/13/2003 7:37:13 PM

How would emergency facilities be easily accessible to both LAX and the GTC since they are separated by uncontrolled public space?

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 7/13/2003 7:40:35 PM

Have any incursions occurred on this side in the past five years? What grades--ie A, B, C, D? What percentage of these would NOT have been precluded by the separation--ie operator error?

Sequence number: 4

Author: Denny Schneider

Subject: Highlight

Date: 7/13/2003 7:41:22 PM

T

Sequence number: 5

Author: Denny Schneider

Subject: Note

Date: 7/13/2003 7:44:38 PM

How can airfield mods improve level of service without adding capacity?
If the purpose on the north side is to support NLA how is it explained that the north runways are insufficient for fully loaded takeoffs?

Sequence number: 6

Author: Denny Schneider

Subject: Highlight

Date: 7/13/2003 7:44:39 PM

T

Sequence number: 7

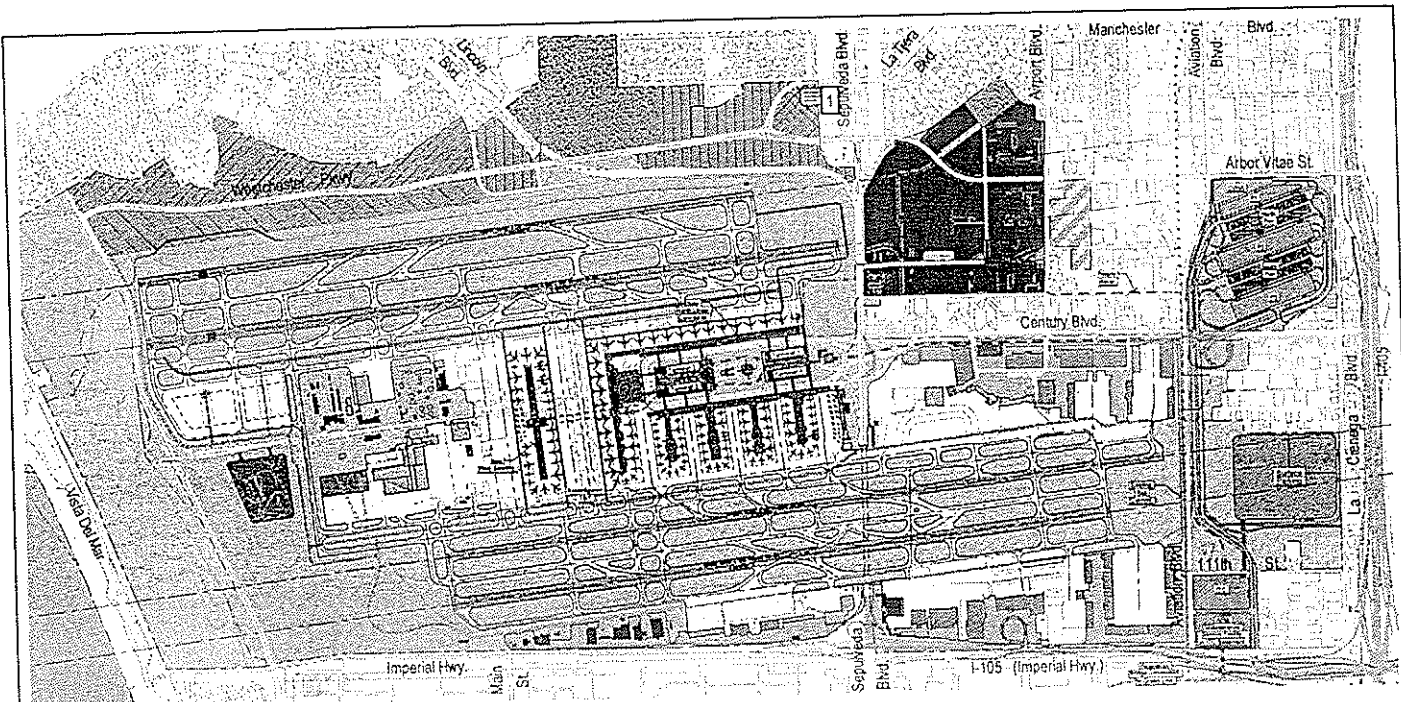
Author: Denny Schneider

Subject: Note

Date: 7/13/2003 7:50:24 PM

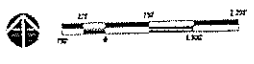
Although the RAC will have many of the rental agencies in one place, won't some still be "off site?" There are better ways to connect the Green Line to the CTA wherever it is placed.





Legend

- | | | | |
|---|--|--|--|
| <ul style="list-style-type: none"> --- Airport Property Boundary Line ▨ El Segundo Blue Butterfly Preserve ▨ Airfield/Airport Open Space ▨ Runways ▨ Taxiways/Aircraft Aprons ▨ Existing Terminal Buildings ▨ Existing Cargo Building ▨ Existing Maintenance Facility | <ul style="list-style-type: none"> ----- Existing Light Rail Trunk ▨ Existing Ancillary Facility ▨ Existing Roadways ▨ Existing Commercial Use ▨ Existing OS/Airport Use ▨ Existing Employee Parking ▨ Existing Fuel Farm ▨ Proposed Terminals | <ul style="list-style-type: none"> ----- Existing MTA Right-of-Way ▨ Proposed Cargo Building ▨ Proposed Maintenance Facility ▨ Proposed Ancillary Facility ▨ Proposed Airside Service Roads ▨ Proposed Public Parking ▨ Proposed Commercial Vehicle Staging Area ▨ Proposed Employee Parking ▨ Airport Landside Parking | <ul style="list-style-type: none"> --- Proposed People Mover ▨ Proposed Rental Car Facility ▨ High Density Mixed Use (Hotel, Office, Retail) ▨ Medium Density Commercial (Hotel, Office, Retail) ▨ R/D Business Park ▨ Airport Related ▨ Golf Course/Open Space/Recreation ▨ ASMP Acquisition Area |
|---|--|--|--|



Prepared by: Lockum & Soren
 Draft: December 19, 2002

Los Angeles International Airport Master Plan

2015 Alternative D Enhanced Safety and Security Plan

Figure
 2.0-3

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/13/2003 8:00:11 PM

All D calls for high density mixed use called for west of Sepulveda between LaTijera and Westchester Parkway adjacent to residential areas!

2.1 AIRSIDE FACILITIES - ALTERNATIVE D

The airfield modifications for Alternative D would improve the level of service, reduce delays, reduce the potential for runway incursions and consequently enhance the safety and security of passengers and aircraft at LAX. Alternative D in 2015, as shown in Figure 2.0-3, would maintain the existing four-runway system with modifications to the north and south airfield runways. Center taxiways would be constructed between the runways on the north and south airfield to reduce the potential for runway incursions.

The Boeing 747-400 was used as the design aircraft (Group V), with operational and modified Group VI solutions for the anticipated operation of limited numbers of the NLA. Figure 2.1-1 highlights each of the Alternative D airside improvements that are described in the following sections. Refer to Chapter III, Section 3.2.6 of the LAX Draft Master Plan (January 2001), for a complete description of the modified Group VI aircraft design standards.

2.1.1 NORTH AIRFIELD FACILITIES

- ◆ **Extend Runway 6L/24R:** Runway 6L/24R would maintain its current location; however, it would be extended approximately 1,495 feet to the west for a total length of approximately 10,420 feet. This would be used primarily as an arrival runway in both east and west flow, with occasional departures. This is similar to the way Runway 6L/24R is used today. This runway is shown remain at 150 feet wide through the 2015 horizon of the Master Plan because it is not envisioned to be fully reconstructed in that time. However, a benefit-cost analysis may later determine that this runway should be widened to 200 feet during its life-cycle reconstruction. The basis of this widening would be assessed in relation to the number of Group VI operations taking place at LAX in the future. Discussions with Airbus representatives indicate that a 150-foot wide runway with 50-foot wide paved shoulders for jet blast protection is adequate for the operation of the planned Airbus A380 (a design Group VI representative aircraft also referred to herein as a NLA).
- ◆ **Relocate, Extend and Widen Runway 6R/24L:** Runway 6R/24L would be reconstructed approximately 340 feet south of the existing runway centerline to allow for the construction of a new parallel taxiway between the runways. Runway 6R/24L would be extended approximately 135 feet west and approximately 1,280 feet to the east. The total runway length would be approximately 11,700 feet long and 200 feet wide. Runway 6R/24L would be used primarily as a departure runway.

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Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 8:03:24 PM
Group VI runway spacing criteria have not been finalized by the FAA. Will the criteria call for a change in these runways in another 5 years?

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 7/13/2003 8:00:11 PM
T

Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 7/13/2003 10:33:23 PM
WOW another runway change potentially done NOT in the present budget estimate! Will it be 50' north or south?

- ◆ **New Parallel Center Taxiway:** A new taxiway would be constructed between Runways 6L/24R and 6R/24L to reduce the potential for runway incursions and enhance the safety of operations at LAX; currently, there is 700 feet between runways. The new taxiway would be used to access both Runways 6L/24R and 6R/24L. The new taxiway would be a 10,420- by 100-foot full-length, modified Group VI parallel taxiway located 520 feet north of relocated Runway 6R/24L and 520 feet south of Runway 6L/24R. The new taxiway would be used to access both Runways 6L/24R and 6R/24L including two high-speed exit taxiways in west flow, and two high-speed exit taxiways in east flow, spaced to minimize the runway occupancy time reduce airfield and airspace delays for passengers at LAX. Constructing the taxiway would require the demolition of Terminals 1, 2, 3 and the north concourse of the Tom Bradley International Terminal (TBIT). A linear concourse would west of TBIT be constructed to replace some of the lost gates. Section 2.2 contains a complete description of terminal changes.
- ◆ **Relocate and Widen Taxiway E:** Taxiway E would be relocated 340 feet south of its current location and would be located 400 feet south of the realigned Runway 6R/24L. Taxiway E would be widened to 100 feet.
- ◆ **Extend, Widen and Realign Taxiway E17:** Taxiway E17 would be realigned and extended north approximately 1,085 perpendicular to the centerline extended off Runways 6L/24R and 6R/24L.
- ◆ **Relocate, Extend and Widen Taxiway D:** Taxiway D would be relocated approximately 370 feet south (at the intersection with Taxiway Y), and would be approximately 770 feet south of realigned Runway 6R/24L. The taxiway would be extended approximately 7,105 feet from the intersection of Taxiway S west to Taxiway E17, and would be 100 feet wide. The proposed new separations and pavement width would meet full Group V taxiway standards and would also provide modified Group VI separation for taxiing aircraft approaching the departure ends of Runway 6R/24L.
- ◆ **Service Roads:** Portions of the service road network at the west end of the north airfield would be removed to allow for the westward extension of Runways 6R/24L and 6L/24R.

2.1.2 SOUTH AIRFIELD FACILITIES

- ◆ **Existing Runway 7L/25R:** This runway would not be modified for Master Plan Alternative D.
- ◆ **Relocate and Widen Runway 7R/25L:** Runway 7R/25L would be moved approximately 50 feet south of the existing Runway 7R/25L centerline to allow for the construction of a new parallel taxiway between the south airfield runways. The runway would be 11,096

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/14/2003 1:19:53 PM
The graphic doesn't show taxiway E17. Where is this?

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/14/2003 1:22:24 PM
Where is taxiway D? Only 100' Group V? Why not make it Grp VI modified at least so it doesn't have to be done twice?

Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 7/14/2003 1:23:29 PM
Would removal of this service road complex make parking VIP aircraft on the north impractical?

ALTERNATIVE D DEVELOPMENT AND REFINEMENT

feet long and 200 feet wide. Runway 7R/25L would be used primarily as an arrival runway. Because this project is considered early in the Master Plan development sequence, an operational plan for Group VI aircraft would be developed in conjunction with the Federal Aviation Administration (FAA) Air Traffic Controllers, pilots and airline representatives to ensure safe and efficient movement of these airplanes on the ground. The goal would be to minimize airfield disruption while providing safe taxiway paths for NLA.

- ◆ **New Parallel Center Taxiway:** A new 11,096-foot long by 100-foot wide full-length Group V parallel taxiway would be constructed between Runways 7L/25R and 7R/25L to reduce the potential for runway incursions and enhance the safety of operations at LAX. The taxiway would be located 400 feet north of Runway 7R/25L and 400 feet south of Runway 7L/25R. The new taxiway would have four high-speed exit taxiways in west flow and two high-speed exit taxiways in east flow. This taxiway is proposed to be constructed 100 feet wide to provide operational areas for Group VI aircraft prior to the completion of the north airfield development. One proposed approach for Group VI movement on the redesigned south airfield would be to use this taxiway for arriving aircraft to taxi into position for crossing the inboard runway. To allow continued runway operations during a taxiway crossing, a taxiway bypass west of 7L/25R and 7R/25L outside of the Runway Safety Area (RSA)¹ from Taxiway A to Taxiway B may be required.

¹ Runway Safety Area (RSA) – A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, or excursion from the runway.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/14/2003 1:25:16 PM



Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/14/2003 1:57:34 PM

This statement differs from verbal briefings in that we were told all NLA operations are on the north side.

Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/14/2003 1:58:46 PM



Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/14/2003 1:59:21 PM

They may be installing an end around taxiway on the south complex!

2.1.3 APPROACH MINIMUMS

Table 2.1-1 outlines the minimum weather conditions for operations to each runway.

Table 2.1-1
ALTERNATIVE D - LOWEST APPROACH MINIMUMS

Runway	West Arrivals		East Arrivals	
	Decision Height	Visibility (SM)	Decision Height	Visibility (SM)
6L/24R	CAT IIIb	RVR 06	200 feet	1/2 mile
6R/24L	200 feet	1/2 mile	200 feet	RVR 18
7L/25R	200 feet	1/2 mile	200 feet	RVR 18
7R/25L	CAT IIIb	RVR 06	200 feet	1/2 mile

2.1.4 FAA RUNWAY DESIGN AND LAYOUT RECOMMENDATIONS

Improvements to the south airfield runway and taxiway layout were designed using current FAA guidelines and recommendations for airfield safety areas and zones. The proposed Runway Protection Zones (RPZ)² and RSA meet the FAA's current recommended dimensions. In addition to expanding the airports safety areas and zones² Declared Distances would be implemented to make the best use of the airport's constrained site.

FAA's established mechanism for allowing existing constrained airports to continue operating unimpeded is through the declaration of safe aircraft operating parameters known as Declared Distances.

Declared Distances would be particularly beneficial for LAX Master Plan Alternative D because the airport would satisfy FAA design standards, control project costs, and minimize the physical impacts of airport reconstruction on its neighbors. Guidance on the application of this methodology is contained in FAA Advisory Circular (AC) 150/5300-13 - Airport Design. Appendix 14 of this AC states:

"The use of Declared Distances for airport design shall be limited to cases of existing constrained airports where it is impracticable to provide the RSA, the Runway Object Free

² RPZ - Runway Protection Zone - An Area off the runway end to enhance the protection of people and property on the ground.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/14/2003 2:02:17 PM
What is RVR 06 and RVR 18 visibility?

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/14/2003 2:09:30 PM
What are the "declared distances" to be used to make use of the constrained site? Highlighted below are the four values. Is this used to define how near buildings may be placed? If so, what are the values?

Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/14/2003 2:03:10 PM
T

Area (ROFA)³, and the RPZ in accordance with the design standards in Chapters 2 and 3 [of AC 150/5300-13].”

The general principal in the application of Declared Distances is the independent treatment of each of the four aircraft runway performance distances:

- ◆ Take-Off Run – The distance to accelerate from brake release to lift-off, plus safety factors.
- ◆ Take-Off Distance – The distance to accelerate from brake release past lift-off to start of takeoff climb, plus safety factors.
- ◆ Accelerate Stop Distance – The distance to accelerate from brake release to V₁⁴ and then decelerate to a stop, plus safety factors.
- ◆ Landing Distance – The distance from the threshold to complete the approach, touchdown, and decelerate to a stop, plus safety factors.

The Airport Layout Plan (ALP) is used to specify the available runway length for each runway in each direction of use. FAA reviews and approves the ALP and publishes Declared Distances in its Facility Directory for use by pilots and airline dispatchers. The following are the four types of Declared Distances:

- ◆ Take-Off Run Available (TORA) – The length of runway declared available and suitable for satisfying takeoff run requirements.
- ◆ Take-Off Distance Available (TODA) – The TORA plus the length of any remaining runway or clearway beyond the far end of the TORA available for satisfying takeoff distance requirements.
- ◆ Accelerate Stop Distance Available (ASDA) – The length of runway plus stopway declared available and suitable for satisfying accelerate-stop distance requirements.
- ◆ Landing Distance Available (LDA) – The length of runway declared available and suitable for satisfying landing distance requirements.

Under LAX Master Plan Alternative D, clearways⁵ would be identified off of five of the eight runway ends. The identification of clearways

³ Runway Object Free Area (ROFA) – An area on the ground centered on a runway centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

⁴ For turbojet aircraft, “V₁” is the maximum speed during takeoff that the pilot may abort the takeoff and stop the airplane within the accelerate-stop distance.

⁵ A “clearway” is a clearly defined area connected to and extending beyond the runway end available for completion of the takeoff operation of turbo jet-engined airplanes. The Clearway is a plane, extending out and up from the runway end with a slope of no greater than 1.25%. The clearway plane is required to be 500 feet wide and has a practical length of no greater than 1,000 feet. No object or terrain may penetrate the clearway plane.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/14/2003 2:06:45 PM

T


Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 7/14/2003 2:09:30 PM

T


Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 7/14/2003 2:10:51 PM
 Does this "clearway" define the area for 25L where the cargo buildings are along Aviation and Century? What values are acceptable?

ALTERNATIVE D DEVELOPMENT AND REFINEMENT

allows for the increase of an aircraft's gross takeoff weight without extending the physical runway pavement. This would result in airport cost savings through the reduction of airport reconstruction impacts while allowing aircraft operators to maximize their aircraft utilization.

On the North Airfield, Runway 6L/24R would have a physical pavement length of 10,420 feet. The west end of the runway would have a 1,000 foot displaced threshold in order to provide the recommended 1,000 foot Runway Safety Area. A 500-foot clearway would extend off of the west end of the runway increasing Runway 24R TODA while a 1,000-foot clearway would extend from the east end increasing TODA for aircraft departing Runway 6L. 

Also on the North Airfield Runway 6R/24L would have a physical pavement length of 11,700 feet. Both runway ends would have displaced thresholds of 1,000 feet to accommodate the recommended 1,000-foot RSA. A 300 foot clearway would extend from the west end of the runway increasing TODA for Runway 24L to 12,000 feet.

On the South Airfield, Runway 7L/25R would have a physical pavement length of 12,091 feet. Runway 7L/25R is the only runway at LAX that would not be modified under Master Plan Alternative D. The east end of the runway would have a displaced threshold of 957 feet. The 25R arrival threshold displacement allows the runway's approach path to clear Air Freight Building #3 (Building 415 on the Sheet 3 of the ALP Package). A 1,000-foot clearway would be extended from the west end of the runway allowing for increased TODA for westbound departures from the runway. 

Also in the South Airfield, Runway 7R/25L would have a physical pavement length of 11,096 feet. Runway 7R/25L does not have displaced thresholds at either end. A 1,000-foot clearway would be identified at the west end of the runway allowing increased TODA for westbound departures from the runway.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/14/2003 2:14:43 PM

Does the TODA of 500' on west and 1000' on east make 24L adequate for NLA? The "apparent" runway would be equivalent to 12,000'

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 7/14/2003 2:16:30 PM

The statement is that there is a 1000' clearway on the west end for 25L but isn't that blocked by the new employee parking structure?

2.2 TERMINAL/PASSENGER PROCESSING FACILITIES - ALTERNATIVE D

The passenger processing facilities for Alternative D consists of four major distinct types of facilities each serving its own varying purpose. Those facilities include the redeveloped CTA, the GTC, the ITC, and a RAC. The redeveloped CTA would be the primary passenger check-in and processing center and serve as the transition point to and from the new landside facilities.

The GTC, ITC, and RAC facilities are designed to accommodate a specific type of activity, and to distribute the landside demand over a wider geographic area. A more detailed description of each facility is included below.

Consistent with Alternatives A, B, and C the LAWA FlyAway program would be expanded under Alternative D.

RECONFIGURED CENTRAL TERMINAL AREA


The existing CTA would be reconfigured for Alternative D. The new terminal buildings and modifications to existing terminal buildings would be developed to meet all TSA recommendations and directives and provide the highest level of passenger safety and convenience. The CTA reconfiguration would prohibit private and commercial vehicle access to the area, eliminating the threat of vehicular blast at the curbfront, which exists today in the CTA. All public parking facilities in the CTA would be relocated, further eliminating the current threat of blast from parked or moving vehicles adjacent to the terminal facilities.

2.2.1 NEW TERMINALS 1 THROUGH 4

Four new terminals (Terminals 1 through 4) would be provided within the CTA as indicated in **Figure 2.2-1**. The new terminals, designated Terminals 1, 2, 3, and 4, would provide the highest level of passenger security and convenience available. These facilities would incorporate TSA directives to the greatest extent possible, including 100 percent EDS screening of all checked bags. The EDS system would be fully automated, utilizing the most current EDS equipment. The system would separate bags that fail the initial screening process to an isolated blast proof room for further investigation before integration with any outbound baggage matrix.

The existing parking garages currently occupy the CTA land envelope identified for the new passenger and baggage processing facilities (terminals). The new terminals would be multi-level

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/14/2003 2:22:03 PM

 Passenger convenience seems to be enabling the passenger to exercise by toting all luggage from the GTC to the CTA.

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 7/14/2003 2:20:31 PM

T

passenger processing facilities replacing all ticketing, baggage claim, ¹FTS facilities, ²inbound/outbound baggage sortation, screening and distribution systems. The new terminals would also contain the APM system (discussed further in Section 2.4), platforms and new secondary passenger security screening areas. The new terminals would be designed to meet current dimensional criteria for large international terminals. Current CTA deficiencies such as inadequate ticket lobby depths, baggage claim circulation, undersized security screening areas, and insufficient passenger queue space would be eliminated.

The existing initial sorting and outbound/inbound baggage systems at Terminals 4 through 7 and Concourse 8 would be reconfigured to support delivery of bags to and from apron areas. ³New baggage ⁴functions would be provided in the new terminal facilities and in the landside facilities. **Figures 2.2-2 and 2.2-3** depict a conceptual illustration of the new CTA facility.

The new terminals and reconfigured CTA would be connected to the GTC, ITC, and RAC via the APM. The landside components of Alternative D are described in Sections 2.3 and 2.4.

⁵A baggage tunnel running below the existing Lot C area and located below the public right-of-way east of Airport Boulevard would connect the new terminals to the GTC. This tunnel would allow passengers to check baggage at the GTC. Passengers arriving at LAX could use the system to re-check their baggage back to the GTC. ⁶

The new terminals would be equipped with video surveillance systems monitoring all activity, particularly at secondary passenger screening areas. ⁷Any security breach would immediately be compartmentalized allowing only a portion of a facility to be evacuated and searched so passengers can be re-screened. ⁸The entire new terminal area can be evacuated to the exterior without any disruption to any airport operation.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/16/2003 9:13:28 AM
What's an FIS facility?

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 7/16/2003 9:11:36 AM
T

Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/16/2003 9:13:28 AM
T

Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/16/2003 9:14:03 AM
What are the new baggage functions in the new terminal facilities?

Sequence number: 5
Author: Denny Schneider
Subject: Highlight
Date: 7/16/2003 9:15:20 AM
T

Sequence number: 6
Author: Denny Schneider
Subject: Note
Date: 7/16/2003 9:25:21 AM
A baggage tunnel is to be built despite recent statements to the contrary! Will luggage check in be at GTC or not?

Sequence number: 7
Author: Denny Schneider
Subject: Highlight
Date: 7/16/2003 9:26:58 AM
T

Sequence number: 8
Author: Denny Schneider
Subject: Note
Date: 7/17/2003 10:36:10 PM
How is compartmentalization accomplished? The illustrations show open areas. Where is the evacuation plan showing where passengers will be evacuated to the central area?
Will they be disbursed onto the airfield?

Table 2.2-1

ALTERNATIVE D - COMPARISON OF EXISTING AND PROPOSED TERMINAL FACILITIES

	Existing (1996)		2015	
	Nominal	NBEG ^{1/}	Nominal	NBEG ^{1/}
TOTAL NOMINAL GATES (DOMESTIC AND INTERNATIONAL)				
Commuter (Group I)	45	18.0	12	4.8
Commuter (Group II)	0	0.0	20	14.0
Narrowbody (Group III)	34	34.0	40	40.0
Boeing 757 (Group IIIa)	10	11.0	23	25.3
Widebody (Group IV)	38	57.0	30	42.0
Boeing 747/Airbus A340 (Group V)	38	64.6	22	39.6
New Large Aircraft (Group VI)	0	0	6	13.2
Total Nominal Gates	165	184.6	153	178.9
TOTAL INTERNATIONAL GATES				
Narrowbody (Group III)	7	7.0	17	17.0
Boeing 757 (Group IIIa)	1	1.1	11	12.1
Widebody (Group IV)	8	12.0	22	30.8
Boeing 747/Airbus A340 (Group V)	41	69.7	22	39.6
New Large Aircraft (Group VI)	0	0.0	6	13.2
Total International Gate	57	89.8	78	112.7
TERMINAL FUNCTION AREAS				
Departure Lounge	360,000 sf.		416,000 sf.	
Concession	209,000 sf.		579,000 sf.	
Public Space	932,000 sf.		1,706,000 sf.	
Federal Inspection Service	399,000 sf.		636,000 sf.	
Airline	1,503,000 sf.		2,135,000 sf.	
Non-Public	236,000 sf.		407,000 sf.	
Mechanical	358,000 sf.		676,000 sf.	
Total Terminal - Gross Area	3,997,000		6,550,000	

^{1/} To standardize the definition of "gate" and to provide a consistent means for evaluating apron utilization, the Narrow Body Equivalent Gate (NBEG) index was developed. This index converts the gate requirements of diverse aircraft - from small commuters to new large aircraft - so they are equivalent to the apron capacity of a typical narrow body aircraft gate. The amount of space each aircraft requires is based on maximum wingspan; the aircraft is classified according to FAA Taxiway Design Groups.

Source: Hirsch and Associates, 2002

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 9:18:19 AM

Explain why the number of gate types handling larger aircraft does not increase capacity to handle passengers and cargo. Since airline space is being increased about 60% explain how it will limit to existing capacity. What are the present gate configurations? This is based on 1996 data. What about all of the upgrades implemented since?

2.2.7 AIRCRAFT GATES

A comparison of the existing number of gates to those proposed in Alternative D is contained in **Table 2.2-2**. Alternative D would provide a total of 153 contact and commuter gates in 2015. The 2015 gate facilities are shown on **Figure 2.2-4**. There are more gates available in 2005 (163) but these include the remote jet and commuter gates, which offer a lower level of service than the contact gates. The remote commuter gates are located in two locations, the United maintenance ramp and to the east of the American Airlines low bay hangar. These facilities are accessed via shuttle buses from Terminal 7 and 4 respectively. The facilities have limited amenities in terms of holdrooms, concessions, and airline club lounges.

The remote jet gates are located at the west pad facility at the west end of the airport north of World Way West. The west pad facility is a complex of 19 aircraft parking positions, 9 of which have remote boarding gate structures and 10 positions without. These facilities are used primarily for international flights and are scheduled for use on a regular basis. Passengers and their carry on baggage are transported to and from the aircraft via a LAWA operated shuttle bus. The remote boarding facilities do not contain any concessions, holdrooms or restroom facilities.

Alternative D would require the use of fewer gates to achieve the same level due to the higher utilization rates of contact gates at a level of service that exceeds the No Action/No Project Alternative. The number of existing gates was reduced from 165 (Table 2.2-1 Existing 1996) to 163 (Table 2.2-2 Existing 2002) due to the consolidation of four narrowbody domestic gates into two Group V international gates.

Table 2.2-2

ALTERNATIVE D
EXISTING VS. PROPOSED AIRCRAFT GATES

Gates	Existing (2002) Gate Positions	2015 Gate Positions
Commuter	32	32
Narrowbody (Group III)	51	40
Boeing 757 (Group IIIa)	12	23
Widebody (Group IV)	43	30
Boeing 747/Airbus 340 (Group V)	25	22
New Large Aircraft (Group VI)	0	6
Total Nominal Gates	163	153

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 9:21:46 AM

Despite the call for removal of the west pad gates, please explain why these gates can not be reestablished. If these west pad gates are used to segregate VIP aircraft where will these aircraft be parked in the new alignment?

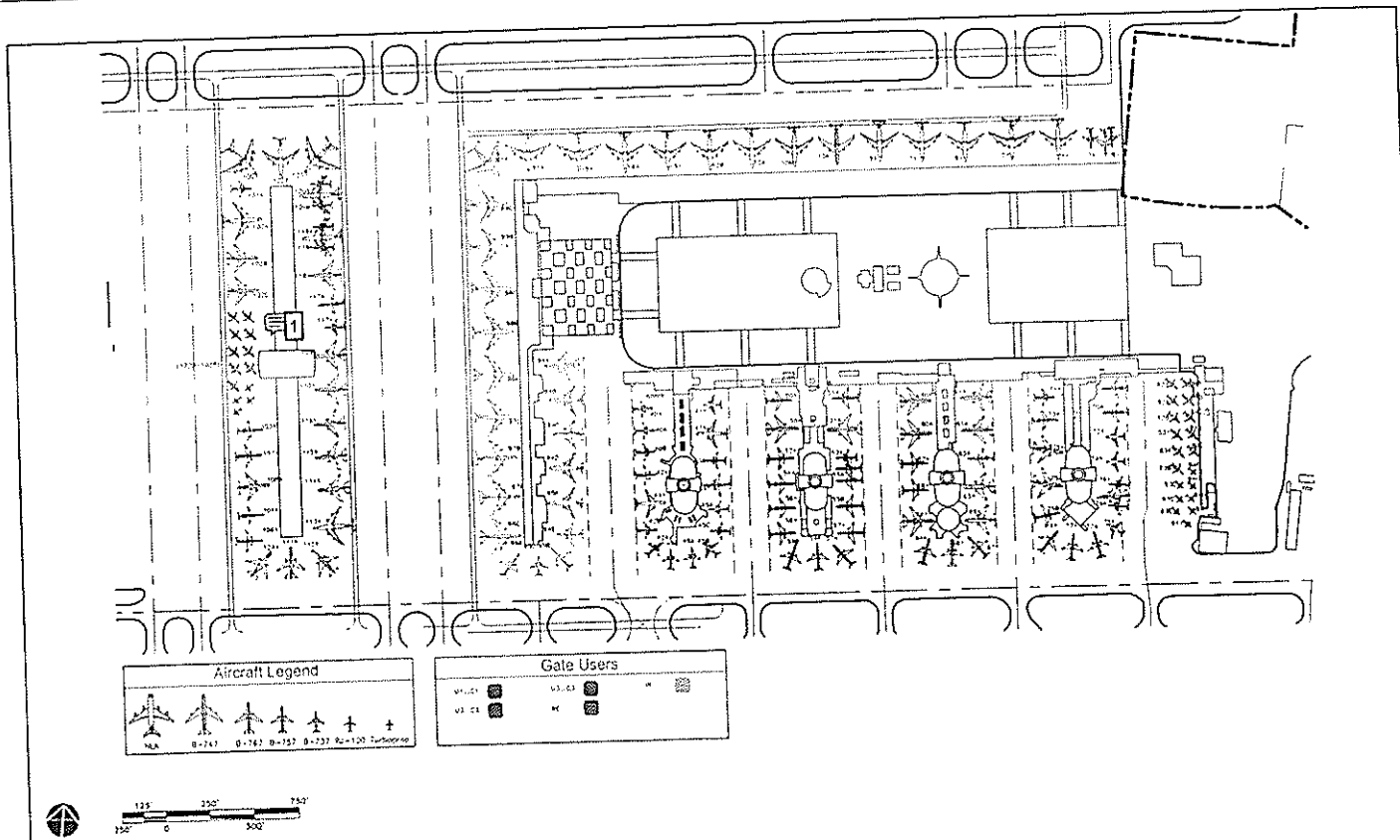
Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 9:31:32 AM

Why did the gate position mix change between 1996 and 2002 to reduce the group V size and increase the Group III narrow body aircraft gates if the industry is going toward larger aircraft? What area of the airport was downgraded?



Prepared by: Landrum & Brown
 Draft: July 21, 2002

Los Angeles International Airport Master Plan

2015 Alternative D
 Gate Layout and Utilization

Figure
 2.2-4

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 9:36:22 AM

If most of the commuter gates are added on the back of the western terminals will Southwest be moved there? If commuter flights are more frequent, won't moving these gates to the far end of the runways make them less accessible?

ON-AIRPORT GROUND TRANSPORTATION FACILITIES

The on-airport landside system would be composed of three primary facilities: the GTC, ITC, and RAC facilities.

2.2.8 GROUND TRANSPORTATION CENTER (GTC)

The new GTC would be created north of Century Boulevard and south of Arbor Vitae Street, between Aviation and La Cienega Boulevards. This facility, in conjunction with the ITC, would serve all commercial and private vehicular traffic for departing and arriving passengers at LAX.

The GTC is designed to provide a conventional airport landside environment for air passengers at a separate location from the CTA. The layout is also designed to address a variety of safety and security issues as well as improve the landside system that currently exists in the CTA. Alternative D would separate the commercial and private vehicle landside components from the passenger terminal facilities and gates in the CTA. This would eliminate the threat of blast in close proximity to large congregations of queuing passengers at functions such as ticketing and baggage claim. As the primary pick-up and drop-off point for the airport, all vehicles approaching the GTC would be closely monitored by video surveillance. The access roadway is designed to provide a single access point to the GTC. While the threat of a vehicular blast can never be fully eliminated, limiting large congregations of passengers by moving ticketing, security screening, and baggage claim to the CTA would improve passenger safety and security.

Passengers would be subjected to a first level security screening process at the GTC. It is anticipated that the process would include a random checking of baggage and passengers using sniffing dogs, video surveillance systems, and other security devices. Second level passenger security screening would occur at the CTA; however, the GTC would be designed to accommodate second level security screening at any time.

The following major functions are anticipated to be included the GTC:

- ◆ Short-term and long-term parking
- ◆ E-kiosk check-in
- ◆ Curbside interface for buses, private autos, taxis, limos, etc.
- ◆ Skycap baggage check-in
- ◆ First level passenger security screening
- ◆ APM interface
- ◆ Baggage re-claim (optional for re-checked bags)
- ◆ Compressed Natural Gas (CNG) fueling station

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/21/2003 9:39:53 AM



Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 9:41:25 AM

The statement is made that the GTC will be designed for "second level" screening. How will this be accomplished since there is presently no way to ensure fully controlled delivery of either passengers OR baggage from the GTC to the CTA. Similarly, explain how the ITC will be modified to provide this same level 2 screening. If this capability is "designed in," why isn't it utilized?

Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 9:45:58 AM

If re-checked bags are made available at the GTC how will they be controlled? How will they be transported in a fully controlled manner along non-contiguous airport site?

Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 9:42:08 AM

Why is the CNG station being placed in an area near all of the passengers?

While the CTA is anticipated to be redeveloped as a complex split by the APM into four terminal facilities, and as the identity for the Gateway to Los Angeles, the GTC would be a facility that primarily serves O&D passengers. The GTC would be divided into two parallel passenger-processing facilities, called "piers", with adjacent parking facilities and a commercial vehicle holding area. These pier structures would provide an orientation point for passengers to access the APM, which is connected to the CTA. The architectural design intent for the GTC is to create partially climate controlled open-air structures to help diffuse potential blast impacts at the curbside by eliminating glass curtain walls.

Passengers would enter or exit vehicles with their baggage at a multi-lane GTC curbside in front of each pier. Two piers flanked by multi-level parking structures would be provided. Due to space limitations and the demand for curbside interface, these facilities are anticipated to be developed as multi-level structures with enplaning/departures functions on the upper level and deplaning/arrivals functions on the lower level. The APM would be located at an interstitial level between the departures and arrivals level. Parking structures serving each curbside would be directly adjacent and clearly visible, with convenient parking entrances for vehicles directly from the curb lanes. Access to both parking and the APM would be provided via interstitial bridges and ramps, which would facilitate passenger movement with a minimum of level changes, and roadway crossings. Both the north and the south piers would have two, bi-level curb frontages, one on each side of the pier building. Therefore, each pier building face would have an upper level curb for departures and a lower level curb for arrivals.

Both departing (Skycap checked) and arriving (re-checked from the CTA) baggage would move between the GTC and the CTA via secured baggage tunnels, which may contain high-speed baggage systems (such as bulk Destination Coded Vehicles (DCVs)). A common-use outbound baggage sort system is anticipated to be located on the lower level of the new CTA terminals to provide for 100 percent EDS baggage screening.

2.2.8.1 DEPARTURE LEVELS (GTC)

Passengers may arrive via one of several modes: Private auto, bus, taxi, limousine, etc., and enter the GTC from either the parking structures or the upper level curbside. They then move into the upper level of the GTC where e-ticketing/check-in and Skycap check-in facilities would be available. Passengers that do not use Skycap baggage check-in may carry baggage on the APM to the CTA. Bags carried by passengers on the APM would need to be checked by the appropriate airline in the CTA. No airline agents are initially anticipated to be located at the GTC. Since most passenger

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 9:49:24 AM

☐ Apart from moving the potential for a car bomb impacting check in gates, how will a similar multi-level structure at Manchester Square protect all of the people who are checking in?

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 7/21/2003 9:46:26 AM



Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 9:47:17 AM

☐ How will this transport be done without baggage tunnels that are very questionable in cost and safety?

Sequence number: 4


Author: Denny Schneider

Subject: Note

Date: 7/21/2003 9:51:40 AM

☐ If baggage is being checked for explosives in the CTA but is being checked by skycaps in the GTC, how will bag matching be accomplished? Why do two checks of baggage instead of one?

processing and congregating would occur in the CTA and not the GTC, it is anticipated that passenger assembly would be limited to the APM platform.

Each pier would be signed by carrier on the upper level curbside similar to traditional terminal facilities; however, any curbside would be able to accommodate departing passengers since all passengers would be destined to the APM station for access to the new terminal facilities in the CTA. The departure level of each ground transportation pier would provide flight information, e-ticketing kiosks, public restroom facilities and limited concession space. Before boarding the APM, departing passengers would access the APM station through multiple high capacity vertical circulation cores and  ramp system capable of accommodating all departing passengers, their carry-on baggage as well as baggage to be checked. It is also assumed that luggage carts would be allowed on the APM and highly utilized in the transfer of people and baggage. One conceptual illustration of the GTC departure level is depicted in Figure 2.2-5.



2.2.8.2 ARRIVALS LEVEL (GTC)

Arriving passengers would board the APM from their carrier's assigned station at the CTA and transported to a specific pier within the GTC. Each airline would be assigned to a specific pier/arrivals curbside. Trains leaving the CTA would stop at two stations within the GTC; one station within each pier.

Passengers arriving at the GTC from the CTA via the APM leave the APM at the interstitial level station where they may access parking and curbside (including private auto pick-up, buses, limos, taxis, etc.) and potential baggage reclaim facilities. Arriving passengers wishing to access parking would move from the APM station to the parking structures via interstitial level bridges which would be located between the upper and lower levels of the roadways at the GTC. This arrangement would eliminate the need for passengers to cross active roadways. Arriving passengers needing to claim re-checked baggage move one level down from the APM station using a high capacity vertical circulation core and ramp system to baggage reclaim areas where re-checked baggage may be retrieved. Passengers would then access either the parking structures via the interstitial bridges, or proceed directly out to the arrivals (deplaning) curbside where buses, taxis, limos, and private auto access would be available.



Meeters and greeters would be either encouraged or directed to short-term parking facilities designed to allow passengers to conveniently find their parties. Meeters and greeters would be allowed to use the APM to meet their parties at the main terminal in

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/21/2003 9:53:23 AM

Will a tunnel be used or will all passengers be given carts to carry their luggage on the automated people mover? How much help would be available to people with their luggage? What about people with children, elderly, or disabled?

Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 9:57:54 AM
 Does this mean that people will retrieve their luggage on arrival in the CTA and then recheck their bags to the GTC? How will this massive exercise be accomplished?

the reconfigured CTA or would also be allowed to meet their parties within the arrivals level lobby of the individual piers. Passenger conveniences such as restrooms and public seating areas would be provided to allow people to wait for their parties' arrival via the APM.

2.2.8.3 APM LEVEL (GTC)

Each pair of piers as shown in **Figure 2.2-6** would share an APM station located at a level between the departure and arrival levels. Further refinement and development would determine the exact location of the APM. The APM platform would be designed in a manner which helps diffuse potential blast impacts at the curbside and protect passengers.

The GTC complex would have a pedestrian concourse that would provide passage between all curbside piers, APM stations, parking structures and the commercial vehicle holding area. The pedestrian concourse/transfer level would be equipped with proper signage, information, and passenger conveniences such as power walks and restrooms. In addition, a limited number of concessions may also be provided at this level.

One additional feature of the GTC would be the placement of the commercial vehicle holding/staging area at the far northern end of the site along Arbor Vitae Street. Commercial vehicles would use the arrivals and departures curbside on each pier's north side. Both private and commercial vehicles would use the two curbs on the north side of each pier, whereas only private vehicles would use the curbs on the two piers' south sides. Signage within the CTA and onboard the APM trains would direct the commercial vehicle patrons to the correct station stop at each pier. One conceptual illustration of the GTC interior views is depicted in **Figure 2.2-7**.

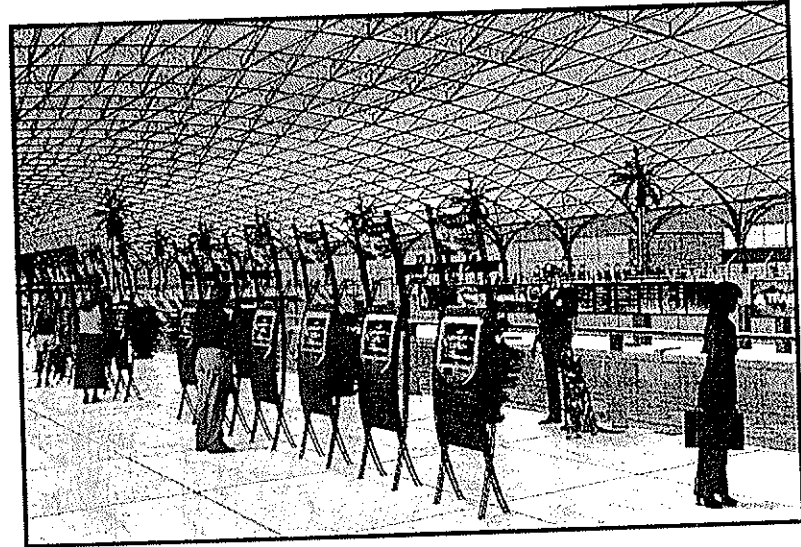
Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 7/21/2003 9:59:55 AM

One of the arguments for the GTC was that there would be rapid movement of people out of the area. If seating and reception areas are created for meeter and greeters where is this rapid movement going to be facilitated?



View of GTC curbside



View of E-ticket kiosks at GTC Departure Level



Prepared by: Landrum & Brown
Draft, June 2003

Los Angeles International Airport Master Plan

Alternative D GTC Departure Level Views

Figure
2.2-5

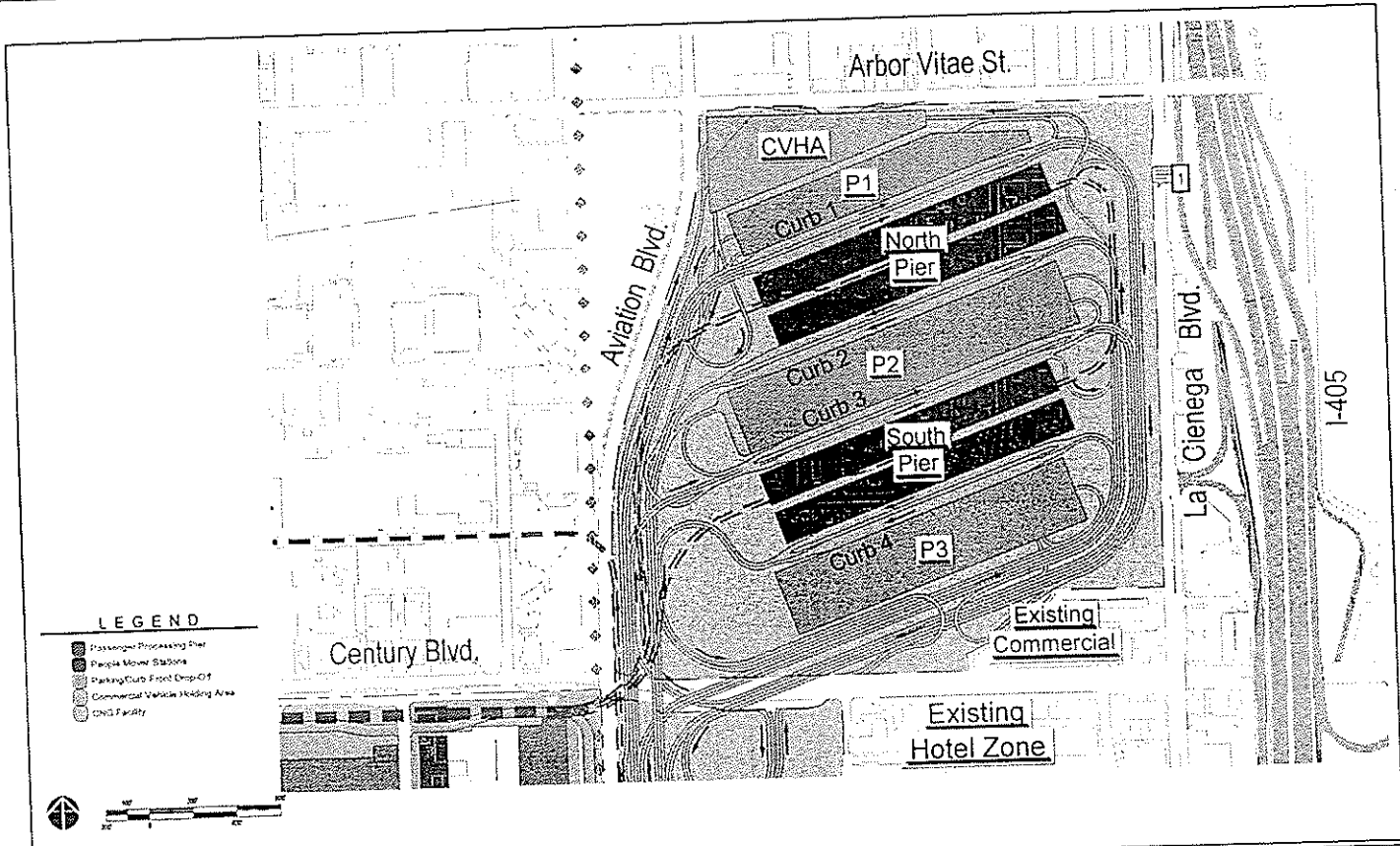
Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 10:01:15 AM

How many languages will the kiosks be capable of handling? Will there be anyone to help people in this area or will it be fully automated?



Prepared by: Langan & Brown
 Date: July 31, 2002


Los Angeles International Airport Master Plan

Alternative D
 Ground Transportation Center (GTC)

Figure
 2.2-6

2.2.9 INTERMODAL TRANSPORTATION CENTER (ITC)


An ITC would be located at the northeast corner of Imperial Highway and Aviation Boulevard, and would provide airport access for Green Line and chartered bus passengers. The ITC, like the GTC would be a partially controlled open-air structure to help diffuse blast impacts from the adjacent parking structure. All vehicles approaching the ITC and entering the parking structure would be monitored using video surveillance systems. The primary ITC elements would be:

- ◆ APM and MTA Green Line access 
- ◆ Short-term parking
- ◆ Chartered bus access

The ITC would serve the premium short-term parking needs of the airport. Internal to the facility would be a curbside for pick-up/drop-off of passengers prior to parking their vehicles. The first level of the ITC would provide flight information, e-ticketing kiosks, public restroom facilities, and concession space. It is anticipated that passenger processing at the ITC would include a random checking of baggage and passengers using sniffing dogs, video surveillance systems, and other security devices. Second level security screening would occur at the CTA; however, the ITC would be designed to accommodate second level security screening at anytime. The ITC would also provide a curbside that would specifically accommodate large buses, such as charter and tour buses. An enclosed pedestrian connection with power walks would cross over Imperial Highway and under I-105 to connect to the MTA Green Line station at Aviation Boulevard. MTA regional buses would also be accommodated at the Green Line station. An illustration of the ITC interior views is depicted in Figure 2.2-8.

2.2.10 CONSOLIDATED RENTAL CAR FACILITY (RAC)

RAC facilities in Alternative D would be located on a consolidated campus that is bordered by Nielsen Park to the north, Airport Boulevard to the east, 98th Street to the south and Sepulveda Boulevard to the west in existing Lot C. Primary elements of the consolidated RAC would be:

- ◆ APM interface
- ◆ RAC drop-off
- ◆ RAC pick-up
- ◆ Ready/return and Quick Turnaround Area (QTA) facilities 
- ◆ RAC storage and maintenance support

Vehicle access would be provided from the north, east and south. The facility would include a direct pedestrian bridge to the APM system. A customer service facility would be provided adjacent to the

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 10:11:52 AM

If charter bus access is set up in this facility, will public transportation buses also be in this facility? If they are, what holding facilities will there be to aid travellers? How will baggage be handled? What provisions for people travelling with children, elderly, or disabled?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 10:14:42 AM

What levels of traffic increase are anticipated on Aviation Blvd., the eastern boundary? How will directions to access to this area be facilitated since it is not near the freeway? Will the traffic be increased along La Tijera, how much? or via Manchester Blvd, how much?

APM station and the ready/return garage. The ready/return garage would consist of a four-level facility that would accommodate 9,000 ready/return spaces.



Customers picking up vehicles would walk across the APM platform to the second level of the customer service building, where they would complete their transactions and proceed to the garage for their vehicles. The walking distance from the customer service building would be minimized to each side of the garage. They would then exit out of the west side of the garage onto 96th Street or east out of the garage onto Airport Boulevard southbound. Rental car returns would enter on the east side of the garage off Airport Boulevard into the ready/return garage.

A common-use QTA would be located adjacent to the ready/return garage. Cars would exit down the northeast side of the garage, circulate through the QTA and then queue into the garage on the northwest side of the QTA facility. The QTA facility would include fueling, vacuuming and car wash facilities.



Based on preliminary program requirements as identified in **Table 2.2-4**, the RAC would provide adequate space to accommodate the rental car operators at LAX. However, these estimates are subject to refinement and would require analysis of each rental car company's operations to determine accurate space and operational requirements. An illustration of the RAC exterior view is depicted in **Figure 2.2-9**.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 10:16:00 AM

How close to the runway clear zone area will this 4 story rental facility be placed?


Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 7/21/2003 10:16:00 AM

Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 10:18:04 AM


This facility will be for the "on-site" rental agencies; how will it integrate with the "off-site" ones? What % of agencies will be on vs off site? What % of rental cars will be on vs off site?

TABLE 2.2-4

**RENTAL CAR FACILITY PLANNING
PRELIMINARY PROGRAM REQUIREMENTS**

	Units	Acres
<u>Ready/Return and Customer Service</u>		
Ready/Return Parking (spaces)	9,000	62.50
Customer Service Building (square feet)	150,000 	3.44
Bus Plaza (square feet)	82,300	1.89
Landside APM Station (square feet)	30,000	.69
<u>Exclusive Use Service Centers</u>		
Storage/Overflow Parking (spaces)	17,100	83.36
Car Wash (bays)	20	0.41
Fueling/Vacuum (stations)	80	0.69
Queuing lanes (includes car wash and fuel/vacuum)	20	1.05
Maintenance Buildings (square feet)	120,000	2.75
<u>Open Space (Landscape Requirements)</u>	N/A	23.88
Total Program Requirements	N/A	180.66

Notes:

1. The total number of ready/return spaces was determined based on comparison of the top five airport car rental markets.
 2. Acreage estimates for ready/return were based on 350-square foot/car for ready spaces and 200-square foot/car for return spaces. Total acreage includes 10 percent for internal circulation.
 3. Acreage estimates for storage spaces based on 200-square foot/car for storage spaces and include 10 percent for internal circulation.
 4. Customer service building includes exclusive and common use space for RAC agencies, lobby/circulation, mechanical/security and unassigned/expansion areas.
 5. Customer service and maintenance buildings square footage estimate based on comparable markets with a consolidated rental car facility/customer building.
 6. The number of storage spaces was determined by multiplying the total number of ready/return spaces by 1.9.
 7. Maintenance buildings include all space for service buildings, maintenance bays and employee parking.
 8. Landscaping estimated to be 15 percent of the total site. 
- Source: Landrum & Brown, February 2002

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 10:20:26 AM

As the Bus Plaza is being left at Lot C how will bus riders move from the bus to the trains?

Sequence number: 2

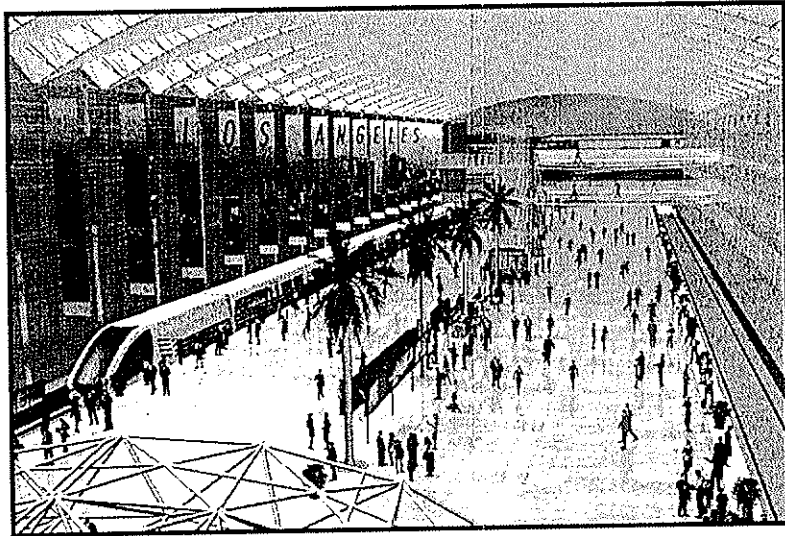
Author: Denny Schneider

Subject: Note

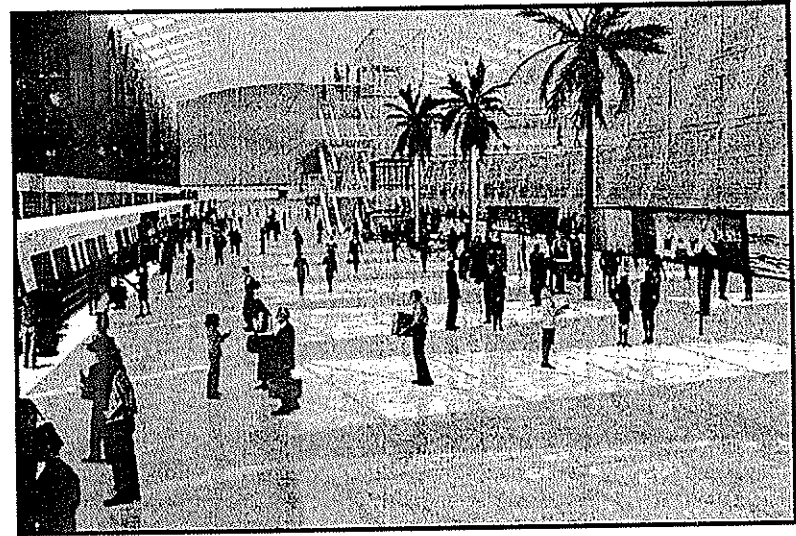
Date: 7/21/2003 10:23:42 AM

As Lot C is in the Westchester-Playa del Rey Community Plan area, will the 15% landscaping meet it's requirement for this application?

Will any of the area require rezoning? What are they and how much?



Overhead View of ITC Interior



View of ITC Automated People Mover Platform



Prepared by: Landrum & Brown
 Draft: June 2003

Los Angeles International Airport Master Plan

Alternative D ITC Interior Views

Figure
 2.2-8

Sequence number: 1

Author: Denny Schneider


Subject: Note

Date: 7/21/2003 10:29:51 AM

The views of the ITC show very large open spaces and long, open areas. Will there be any moving sidewalks or other support for people who can't walk long distances? The illustration is populated with a small number of people. What numbers are anticipated to arrive at one time? If, for instance 5 buses and a train arrive at the same time will people be able to drive carts holding luggage? I note that there are no carts for luggage visible. Where and how will they be disbursed and controlled?

2.3 GROUND ACCESS AND PARKING – ALTERNATIVE D

2.3.1 OVERALL LANDSIDE APPROACH

Modifications to the landside system in Alternative D would enhance the safety and security of the airport by protecting the airport's critical infrastructure components. Alternative D eliminates the threat of vehicular blast in close proximity to congregations of queuing passengers at functions such as ticketing and bag claim. Alternative D decentralizes ground access and creates four landside access points and a controlled airport road connected directly to the local freeway system to mitigate the existing city/street traffic congestion leading to the single access point on the CTA roadway.  Discussed in Section 2.2, the new system would be composed of four primary facilities: the CTA, GTC, ITC, and RAC. These facilities are depicted in **Figure 2.3-1**.

The landside surface transportation approach and methodology for Alternative D consists of decentralizing the vehicular traffic associated with the airport over a large geographic area. Decentralizing the vehicle traffic creates an improved level of service compared to the existing operation in the CTA. The existing roadway access system is congested. The CTA curbside, Sepulveda tunnel, Sepulveda/I-105 interchange, and Sepulveda/Century Boulevard interchange are existing landside impediments to customer convenience. The Landside APM is a key element linking several facilities to the CTA. In addition, the new access system provides the opportunity to control and monitor all access into the CTA, GTC, ITC, and the RAC.

This section provides a description of the overall landside access and parking system for Alternative D.

2.3.2 ON-AIRPORT ROAD ACCESS

Alternative D meets the overall roadway access demand for the airport by distributing the majority of vehicles serving the airport to the GTC, ITC, and RAC, which are linked to the CTA via the APM. Alternative D allows for direct on-airport access via eastbound Century Boulevard, southbound La Cienega Boulevard, northbound Aviation Boulevard, and Imperial Highway. The existing on-airport roadway access to the CTA would be limited. See Section 2.3.2.4 for a detailed description of the access plan to the CTA. **Figure 2.3-2** provides a depiction of the ground access plan to the passenger processing facilities. A description of the access to each facility is provided below.

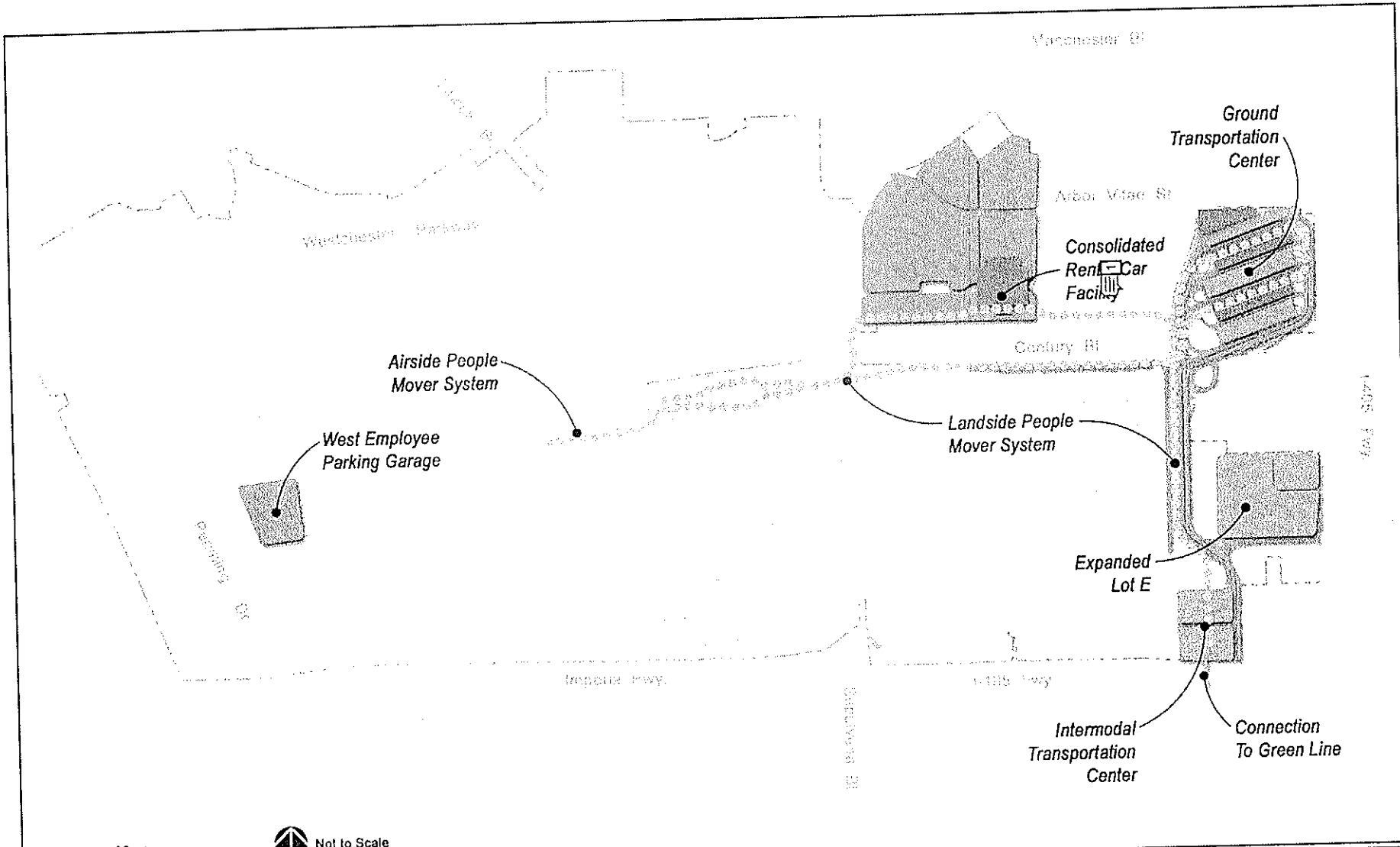
Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 10:31:48 AM

The illustration shows primary access off the 105 freeway; how will this increased traffic be handled? This same 105 freeway stretch is expected to handle the increased truck traffic from an increase of 1M-2M annual tons of cargo. How will this be integrated with the auto traffic?



Prepared by: Landrum & Brown
Draft: July 31, 2002

Los Angeles International Airport Master Plan

Alternative D
Traffic and Ground Access Modifications

Figure
2.3-1

Sequence number: 1

Author: Denny Schneider

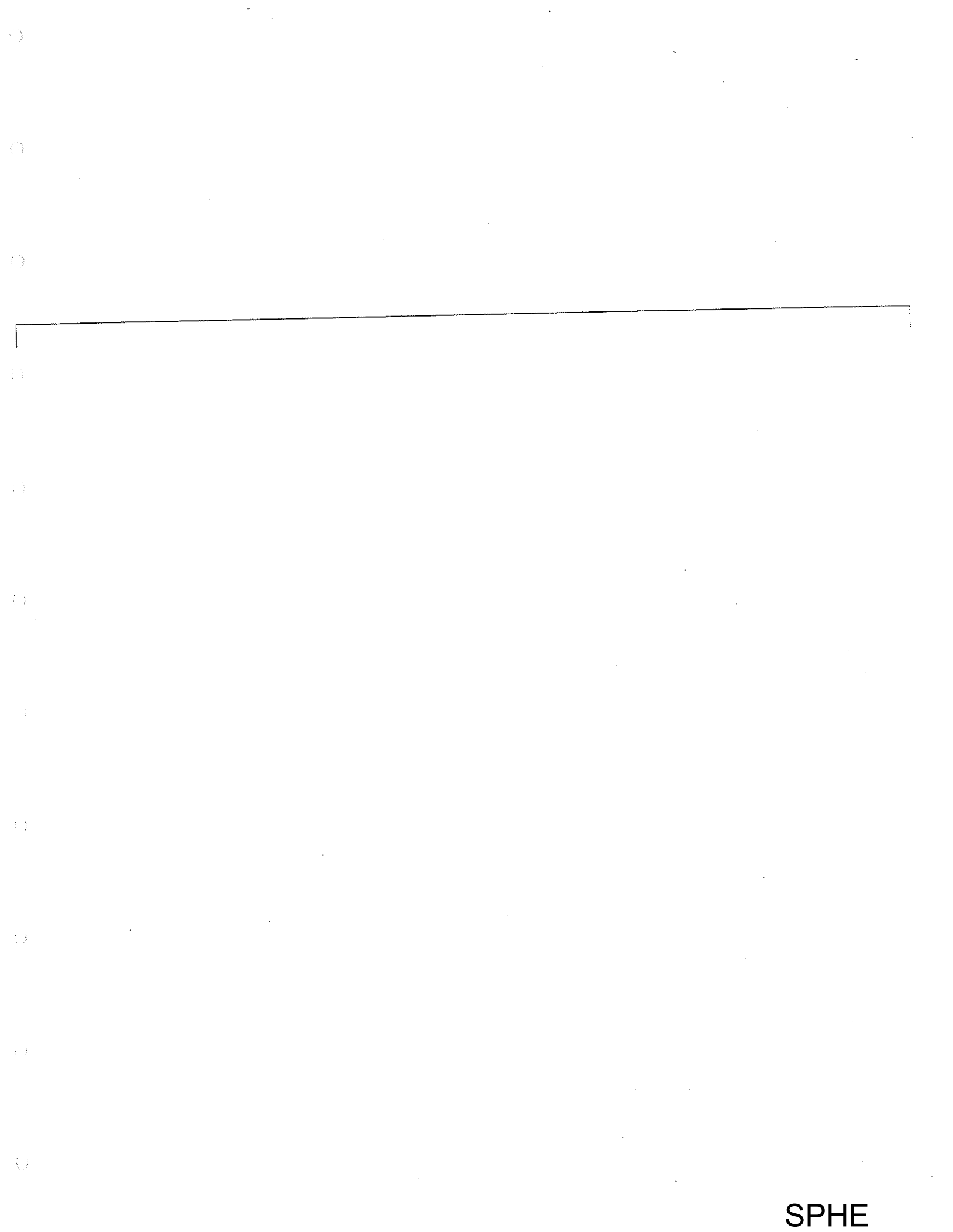
Subject: Note

Date: 7/21/2003 10:39:21 AM

Entry points to the APM are not yet defined. What are they and how will the non-LAX owned parking be accommodated? What about hotels and other local business access?

Why will the APM not provide interference on it's N-S path for the south runway complex as it was the stated reason why the Green Line was not extended.

How will employees get to the West Parking garage and then to LAX functions? How will this consolidated lot be used to deliver employees when the Northside Project is implemented?



Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 7/21/2003 10:46:52 AM

The orange, dedicated road appears to have an access from Century east of Aviation. There are several other yellow streets (assumed to be the existing ones) that do not show any ramping to the dedicated streets. Will these be underpasses? What is done to preclude these streets being used to interrupt the dedicated ones by a truck bomb?

Sequence number: 2
Author: Denny Schneider
Subject: Note

Date: 7/21/2003 10:49:41 AM

The verbally briefed Lennox Blvd. connections are not shown. Does this mean that they will NOT be used? If they are, how will it be integrated into this. The LaCienega access is shown below what is now Lot D. How will the increased levels of traffic in this area be handled since many people will get off at LaTijera, LaCienga, and Manchester to take advantage of the LaCienega entrance. How will traffic from these arrive?

ALTERNATIVE D DEVELOPMENT AND REFINEMENT

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 10:51:07 AM

Employees would be required to leave their building and go a block or two to escort each car?!! Has this increased loss of work time been accounted for? How much is this anticipated to cost?

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 12:15:59 PM

What about VIP Limos, etc for entry to the CTA? How will these be accommodated? Will VIPs be required to access via the GTC whereas Flyaway buses will go into the CTA? Will Flyaway buses be diverted to the ITA so that only the emergency and cleared vehicles will enter the CTA roadway system?

for passenger drop off. Commercial vehicle traffic on the lower level would be restricted to Curbs 1 and 3, which would be designated for passenger pick-up. A direct connection between the holding area and the two commercial curbs would be provided via a separate connector ramp.

A commercial vehicle holding area would be provided adjacent to the GTC for staging of taxis, door-to-door vans, limousines, and other commercial vehicles. Commercial vehicles would access this lot using the main entrance road to the GTC and the entrance located near the intersection of Arbor Vitae Street and Aviation Boulevard. The commercial vehicle holding area would provide a location for parking and queuing of commercial vehicles prior to and after deployment to the GTC curbs. The holding area limits the amount of time that commercial vehicles are driving around on area roadways waiting to pick up passengers. By providing a place for commercial vehicles to stage, it reduces traffic congestion to surrounding communities and roadways.

The single approach multi-lane roadway system allows a greater opportunity to monitor all vehicles, approaching the GTC. An illustration of the approach to the GTC from the primary entrance road is provided in **Figure 2.3-3**. The use of video surveillance systems to monitor activity and the ability to pre-screen vehicles before they approach the GTC would be an integral part of the security of this facility. The roadway security plan would extend beyond the on-airport roadways to the surrounding regional highway and arterial roadway network. This would provide for additional time and distance to identify and preview potential vehicle hazards. Vehicles that are to be inspected would be directed into a vehicle checkpoint area for inspection. Multiple checkpoint locations would be incorporated into the final ground access plan. For a more detailed description of the GTC functions, refer to Section 2.2.

2.3.2.3 INTERMODAL TRANSPORTATION CENTER (ITC)


Access to the ITC would be provided from the east and west sides of the facility. The ITC would be accessible via 111th Street and Imperial Highway along a proposed at-grade roadway. Traffic signals would be provided at these intersections and at the entrance/exit to the ITC. On the west side of the ITC, cars and buses would be allowed to exit directly onto Aviation Boulevard at-grade, with a traffic signal provided at this location.

The ITC would also provide curbside for charter, regional and other bus activity. For a more detailed description of the ITC functions, please refer to Section 2.3 of this document.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/21/2003 12:35:24 PM




Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 12:35:03 PM

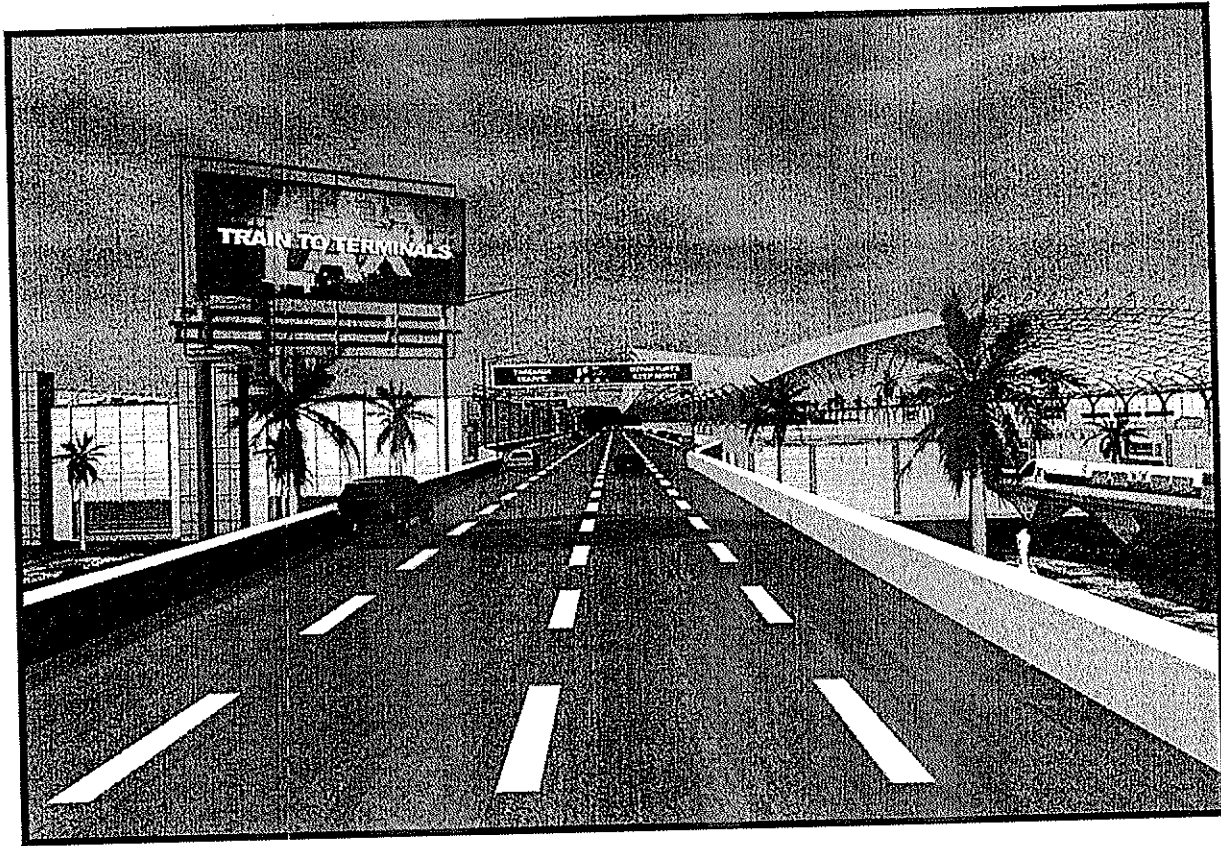
 If commercial vehicles will enter via Arbor Vitae and Aviation how will they get to the GTC? Is there a planned off ramp of the 405 at Arbor Vitae or will traffic get off at La Tijera and Manchester? The present holding area is quite large. What is the comparison of present to planned areas?

Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/21/2003 12:37:05 PM



Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 12:39:41 PM

 During "rush hours" this is one of few N-S roads. It already backs up significantly. How will all of the larger commercial vehicles be accommodated? Aviation is extensively used by cargo trucks at present. How and where will these truck (and the many additional ones) be diverted?



Prepared by: Landrum & Brown
Draft: June 2003

Los Angeles International Airport Master Plan

Alternative D Landside Approach to the GTC

Figure
2.3-3

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 12:45:51 PM

What direction is the view? If this is west, then I assume the ITA is on the left and GTC on the right. The distances shown on the illustration is much greater. How will the parking be invoked to allow short travel distances? How will baggage be handled to get from the Green Line to the ITC and then to the APM?

2.3.2.4 CONSOLIDATED RENTAL CAR FACILITY (RAC)

The RAC significantly improves passenger convenience by locating **all off-airport rental car facilities into one central location.** The consolidated RAC facility would include a direct pedestrian bridge to the APM system. All passengers would access the RAC facility to and from the CTA by using the Landside APM system. This has the distinct advantage of eliminating all rental car busses from the arterial roadway network. Primary vehicle access to the consolidated RAC facilities would be via Airport Boulevard and 98th Street.

Passengers returning their vehicles from the south and the east would access the facility via a left turn from northbound Airport Boulevard to westbound 98th Street. Passengers returning their vehicles from the northwest would access the facility via a right turn from southbound Airport Boulevard near 98th Street via a new dedicated ramp into the facility. There would be two primary exits ramps from the facility. One exit ramp would be onto southbound Aviation Boulevard and the other would be to westbound 98th Street. **Figure 2.3-4** depicts the location of the RAC Facility.

2.3.2.5 AIR CARGO ROADWAY

The cargo roadway network would provide direct access for cargo vehicles from the surrounding arterial street network. This would reduce congestion on the arterial roadway network. There are four separate cargo complexes in Alternative D that require direct access off of the arterial roadway network:

- ◆ Century Cargo Complex: Access to the Century Cargo Complex would be accommodated from Century and Aviation Boulevards. In total there are seven access points to the Century Cargo Complex, six from Century Boulevard and one from Aviation Boulevard.
- ◆ Imperial Cargo Complex: Access to the Imperial Cargo Complex would be accommodated from Imperial Highway and Aviation Boulevard.
- ◆ South Cargo Complex East: Access to the South Cargo Complex would be accommodated from Imperial Highway.
- ◆ South Cargo Complex West: Access to the South Cargo Complex West would be accommodated from Imperial Highway and I-105.

2.3.3 OFF-AIRPORT PUBLIC ROAD ACCESS

Alternative D would include a series of improvements to the off-airport transportation network; it would accommodate the shift in traffic patterns associated with the relocation of the primary passenger destination from the CTA to the GTC and the ITC. Various

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 12:47:05 PM

ALL rental car companies will be located here? Which will and which will not? What is the percentage of cars NOT covered by this facility?

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 7/21/2003 12:45:51 PM

T

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 12:49:53 PM

If the access to this facility is Airport and 98th then is it anticipated that Arbor Vitae will become a main access road? Will most traffic travel from the north along Airport from La Tijera and/or Manchester? Please provide detail flow information.

Sequence number: 4

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 12:51:08 PM

Westbound 98th would require an exit on Sepulveda. Is it the plan to divert all rental car traffic via LaTijera and Sepulveda? How much traffic is involved and how will it be accommodated?

Sequence number: 5

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 12:58:53 PM

General cargo traffic notation: How will this cargo traffic get out of the area? Will it all be directed to the 105 Fwy? What about N-S destinations?

intersection improvements would be made to the off-airport transportation network to accommodate the shift in traffic patterns from the CTA to the GTC and ITC areas. Alternative D proposes that one northbound lane would be added on La Cienega Boulevard from 111th Street to Arbor Vitae Street, and one southbound lane would be added from Arbor Vitae Street to 104th Street. The intersection of La Cienega Boulevard and Lennox Boulevard would be designed to restrict traffic from traveling between Lennox Boulevard and the on-airport roadways. These improvements are strategically designed to improve those intersections that would experience the primary increase in traffic as a result of the plan.

2.3.4 TRANSIT

The existing MTA Green Line station is located at the southeast corner of Aviation Boulevard and Imperial Highway. Alternative D would provide an enclosed pedestrian connection with moving walkways between the Green Line station and the ITC. The walkway would cross above Imperial Highway and below I-105 freeway. Transit users would access the CTA from the ITC via the APM system. The MTA Green Line station would also serve as the destination for airport bound passengers that would be using the future rapid bus line from downtown Los Angeles.

2.3.5 PUBLIC PARKING


Public parking would be provided in three separate locations: GTC, ITC, and in an expanded Lot B. Parking locations and number of stalls is depicted in **Figure 2.3-5**. In the GTC, three garages would provide approximately 7,515 stalls. Parking Garage 1 (P1) would have five levels. Parking Garages 2 and 3 (P2, P3) would each have three levels. Of the 7,515 GTC stalls provided, 4,253 would be priced for short-term parking, while the remaining 3,262 stalls would be priced for long-term parking. The parking structures in the GTC would be designed to help diffuse blast impacts from surrounding vehicles.

The parking facilities at the ITC would provide approximately 9,127 stalls, with all stalls priced for short-term parking. These stalls would be provided in three separate levels within the ITC.

The surface lot north of 111th Street would be incorporated into Lot B and would provide 5,470 long-term parking stalls. A shuttle bus would transport people between this lot and the ITC for access to the CTA via the APM.


Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/21/2003 12:59:59 PM

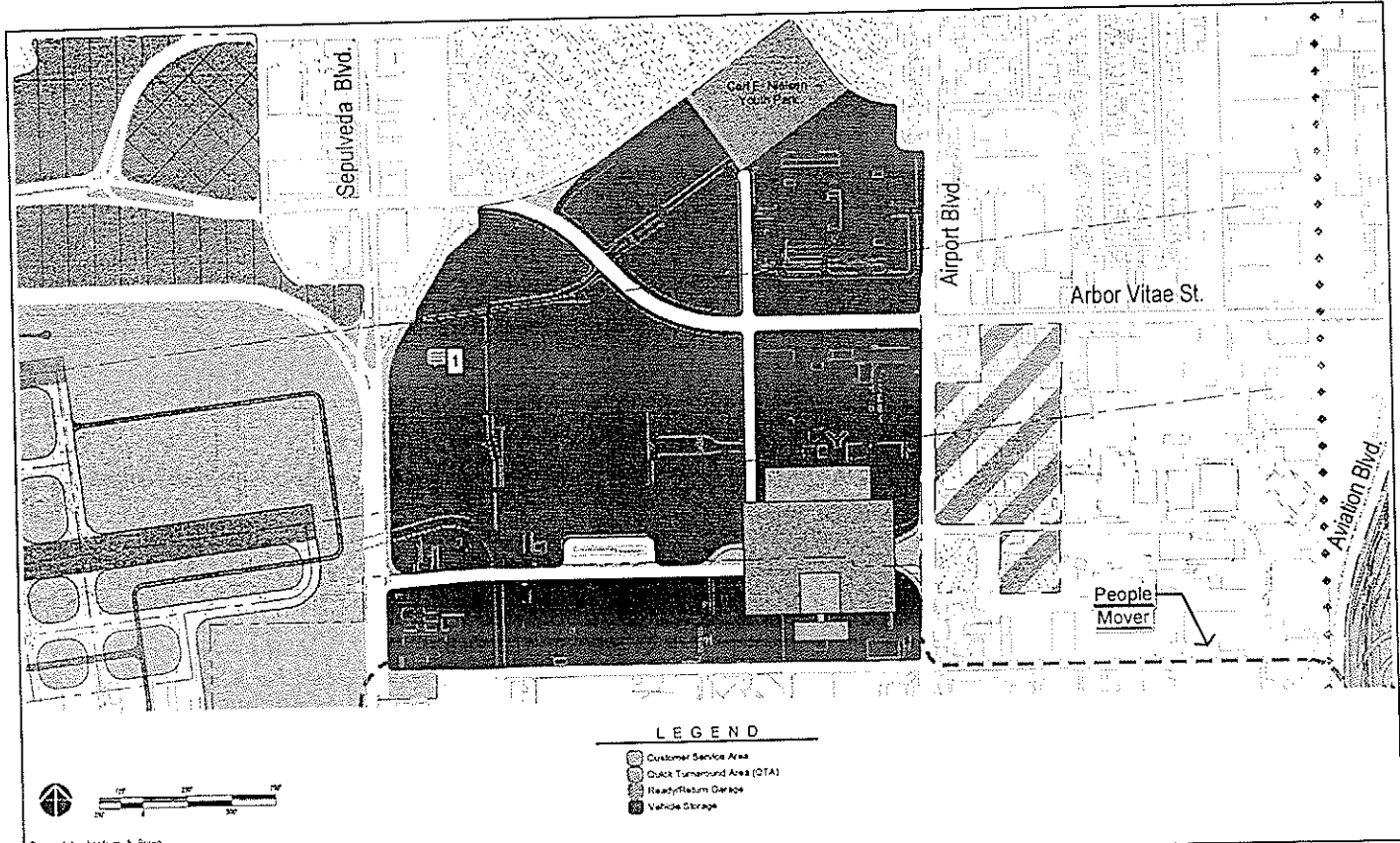


Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 1:03:04 PM
 Transit users access the CTA from the ITC via APM. What accommodations for baggage?

Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/21/2003 1:03:04 PM



Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 1:04:21 PM
 If the Green Line is the Rapid Bus from Downtown, why not send it to the Bus Terminals, or better yet, put all of them in one place!



LEGEND

- Customer Service Area
- Quick Turnaround Area (OTA)
- Ready/Return Garages
- Vehicle Storage

Prepared by: London & Brown
 Date: July 31, 2002

Los Angeles International Airport Master Plan

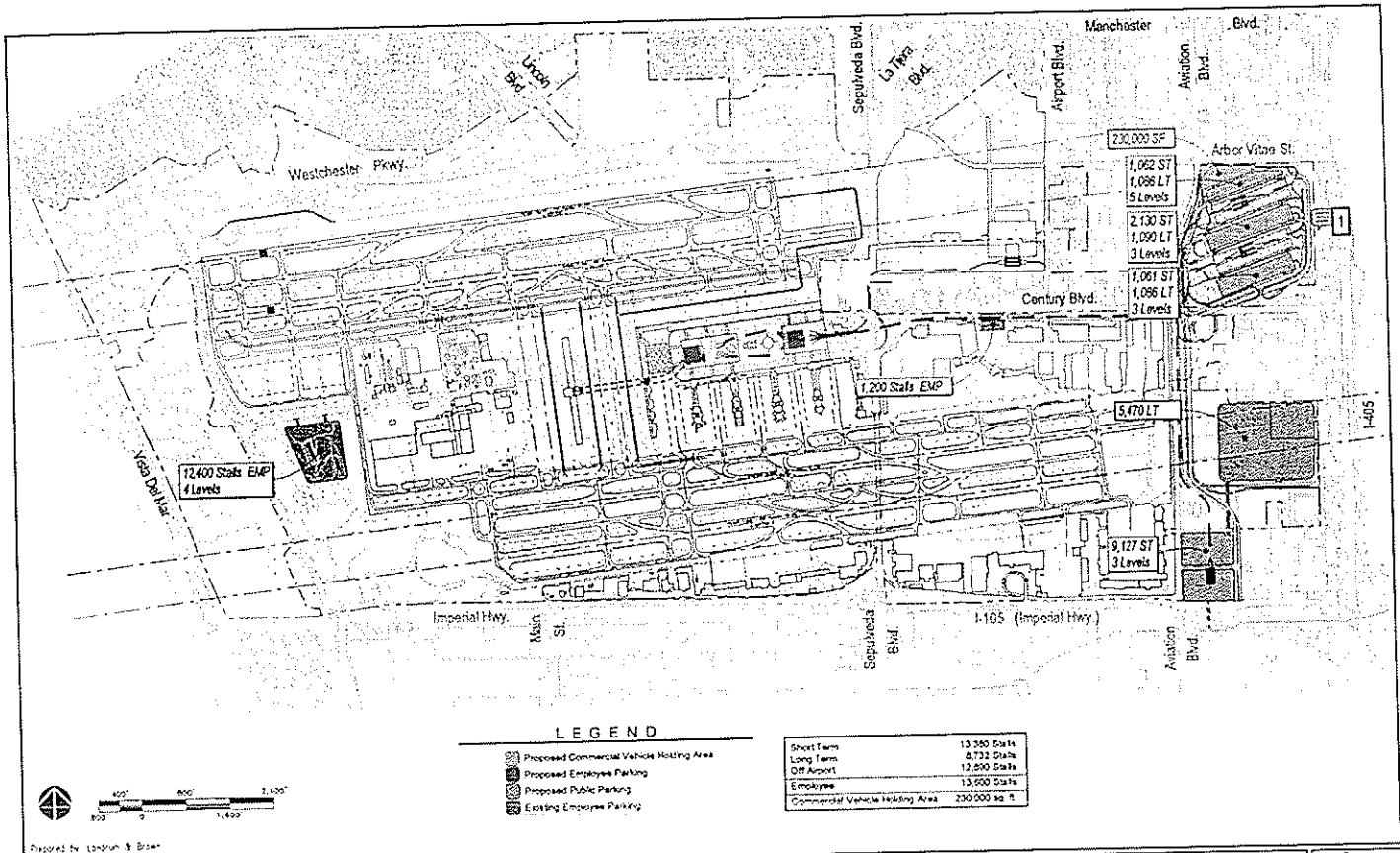
Alternative D
 RAC Facility

Figure
 2.3-4

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 1:31:19 PM

This drawing of the RAC shows the center line of the runways. How far off center must the area be clear since the RAC is to be several stories high?

Again if 98th St is to be the west bound exit, how will the traffic be accommodated on Sepulveda, La Tijera, and the local streets on the cars' venture back to the freeways.



Prepared by Longmire & Brown
 Date: July 31, 2002

Los Angeles International Airport Master Plan

Alternative D
 Parking Plan

Figure
 2.3-5

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 1:35:48 PM

This map, Figure 2.3-5 shows parking stalls owned by LAWA. What about all of the private, commercial parking? How will it be supported to reorient to the new accesses and how will it be accommodated? How does this compare with existing parking?

ALTERNATIVE D DEVELOPMENT AND REFINEMENT

Table 2.3-1 compares the parking stalls available in Alternative D to the existing conditions.

Table 2.3-1

ALTERNATIVE D – SUMMARY OF PUBLIC PARKING FACILITIES

Lot	Existing Conditions	Alt. D 2015
CTA Toll booth	7,294	NA
CTA Metered	1,147	NA
Lot B	4,838	NA
Lot C	8,147	NA
GTC	NA	7,515
ITC	NA	9,127
East Surface Lot	NA	5,470
Total	21,426	22,112
Off-Airport Stalls	12,500	12,890
TOTAL	33,926	35,002

NA – Not Applicable
 Source: Landrum & Brown, Inc.

2.3.6 EMPLOYEE PARKING

Alternative D employee parking would be provided in two locations: the West Employee Parking Garage and the existing garage on the southeast corner of Avion Drive and Century Boulevard. Both locations are shown in Figure 2.3-5.

A 12,400-stall garage would be constructed on the west side of the airport, south of World Way West. Employees would access this lot via World Way West by way of Pershing Drive. The new employee garage would be designed to help diffuse blast impacts from surrounding vehicles. It would be designed with a security-screening checkpoint for all employees using the garage. Employees parking in this garage would be shuttled on World Way West or on the Airport Operations Area (AOA) to their places of employment.

The existing garage on the southeast corner of Avion Drive and Century Boulevard would provide approximately 1,200 stalls. Employees would access this parking garage via Century Boulevard. Employees parking in this garage would be shuttled to the RAC Landside APM station for access to the CTA, GTC, or ITC.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 1:38:29 PM

According to these gross numbers the statement that no new parking is being added is FALSE. How do these numbers associate with the map on 2.3-5? Where do all the non-LAWA owned parking come into the equation?
Is the mix of long and short term parking about the same or is it being changed? What are new comparison numbers?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 7/30/2003 3:27:49 PM

The East Surface lot appears to be an expanded Lot B. Where do the extra spots come from? Is this to include the spaces from the present Proud Bird? Is the Proud Bird being removed or will it be staying? If so, what parking will be for the Proud Bird? Is it double used--LAX & Proud Bird?

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 5:00:40 PM

In addition to the two employee lots isn't there employee parking in the NW corner of Lot C?

Sequence number: 4

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 5:03:55 PM

How will the employee entrance be screened at the CTA? Why would employees be shuttled away from LAX to take a people mover back?

2.4 AUTOMATED PEOPLE MOVER - ALTERNATIVE D

Alternative D would include two people mover systems: a Landside APM system and an Airside APM system. The Landside system would become the primary connections between the landside facilities and the terminal facilities at LAX. The Airside system would connect the TBIT and the new West Satellite Concourse. The APM system would be continually monitored by security personnel utilizing video surveillance to identify potential threats. Redundancy would be an integral part of assuring the continued operation of the system in the event of a mechanical failure or threat. The CTA would be able to be accessed by passengers through a busing operation should it be necessary. Figure 2.4-1 depicts the alignment of these systems.

2.4.1 LANDSIDE AUTOMATED PEOPLE MOVER SYSTEM

The Landside APM would be the primary mode of transportation for passengers and employees to access to the CTA. The system would provide service between the CTA and the GTC, ITC, and RAC. The Landside APM would also provide a continuous connection between the MTA Green Line and the CTA.

2.4.1.1 LANDSIDE SYSTEM ROUTES

To balance the passenger loads, two Landside APM routes were designed to operate independently, with one route serving only the CTA and GTC and a second route serving the CTA, RAC, and ITC. Although a direct non-stop route connecting the ITC and CTA is desirable, it would require a fourth pair of guideways, which cannot be accommodated in the CTA.

2.4.1.1.1 CTA-GTC Route

Riders on CTA-GTC route would include arriving and departing passengers who: (a) are dropped off or picked up by third parties, (b) park in the airport GTC parking garage, (c) use commercial transportation to arrive or depart at the airport, and (d) airport employees. Meeters/greeters and airport visitors would also park at the GTC and ride the Landside APM to and from the CTA.

The CTA-GTC route would connect six stations, the four stations in the CTA and the two in the GTC. Starting in the CTA in Terminal 3, trains would go to the Terminal 4 station, then to the station in the South Pier of the GTC, then to the station at the North Pier and then return to the CTA to stations in Terminal 1 and Terminal 2. The train would return along this route in the opposite direction on the other track. The route is highlighted in Figure 2.4-2. By repeating the route in the opposite direction, the Landside APM system would allow passengers to board the Landside APM at any station and go to any station without concern about being on the correct side.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 5:14:43 PM
On the second, extensive APM route from the ITC & RAC how long will it take? What additional stops are contemplated to accommodate the hotels, businesses, and rental car activities.

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 7/21/2003 5:14:44 PM

Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 5:21:25 PM
Since the train is going on one side of the CTA and then to the GTC and completing the circle, if you got on the "A" train instead of the "B" it could take an enormous time to get to the might take to get to a particular terminal without a major walk. What is to be done to preclude this?

The proposed CTA-GTC route would have two guideways, providing redundancy and allowing for the most direct trip for all passengers. If there is a failure at a station, or at one point along the guideway, failure management switches would permit bypass loops or shuttle routes to be implemented for the system to carry at least half the normal capacity.

Traveling from a west CTA station to the first GTC station would take about 5 minutes. The train length would be varied by operating period to meet the fluctuating passenger loads, so that the operating headway (time between trains) would remain at approximately 2 minutes during all periods, resulting in an average waiting time of 1 minute. Thus the total typical trip between the CTA and GTC would be less than 6 minutes.

2.4.1.1.2 CTA-RAC-ITC Route

Riders on this route would include arriving and departing air passengers who are: (a) parking at the ITC, (b) using the Green Line light rail transit system or regional buses to the ITC station (c) parked in the long-term surface lot west of La Cienega Boulevard and are shuttled by buses to and from the ITC, (d) charter bus users, and (e) airport employees. Meeters and greeters who park at the ITC or use the Green Line would also ride this route.

Arriving air passengers renting cars would ride the system from the CTA to the RAC, and passengers returning rental cars would ride the system to the CTA to catch a flight. Airport users going to or from the hotels and other businesses along 98th Street could take this route and use connecting shuttle buses at the RAC station. A potential collector APM serving these hotels and the RAC station might be part of the future development in the Century Boulevard corridor.

The CTA-RAC-ITC route would run from a western station between the new landside Terminals 2 and 3 to a second CTA station between Terminals 1 and 4, then on to the RAC and ITC. There, trains would reverse and return to the CTA stations via the RAC. This would give direct service to the RAC users and service to the ITC with one intermediate stop. The route described is highlighted in **Figure 2.4-3**. In addition, airport and airline employees working in the CTA would take the Landside APM after being shuttled by a bus to the RAC station from the employee parking lot.

The scheduled travel time between the western CTA station and the ITC would be about 7.5 minutes. Again, the train length would varied by operating period and the operating headway would remain about 2 minutes during all periods, resulting in an average wait time of 1 minute. A typical trip time between the ITC and western CTA station, including headway, would be less than 9 minutes.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 5:27:50 PM

Taking a bus from the parking to an APM station means that luggage must be dragged by the traveller at each point. What accommodations are established to reduce this burden?
Any "future" mentioned in this plan must not be done as part of this proposal AND IS NOT PART OF THE \$9billion estimate. Is this a way to run a railroad by allowing the inconveniences of having to change conveyances?

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 7/21/2003 5:24:42 PM

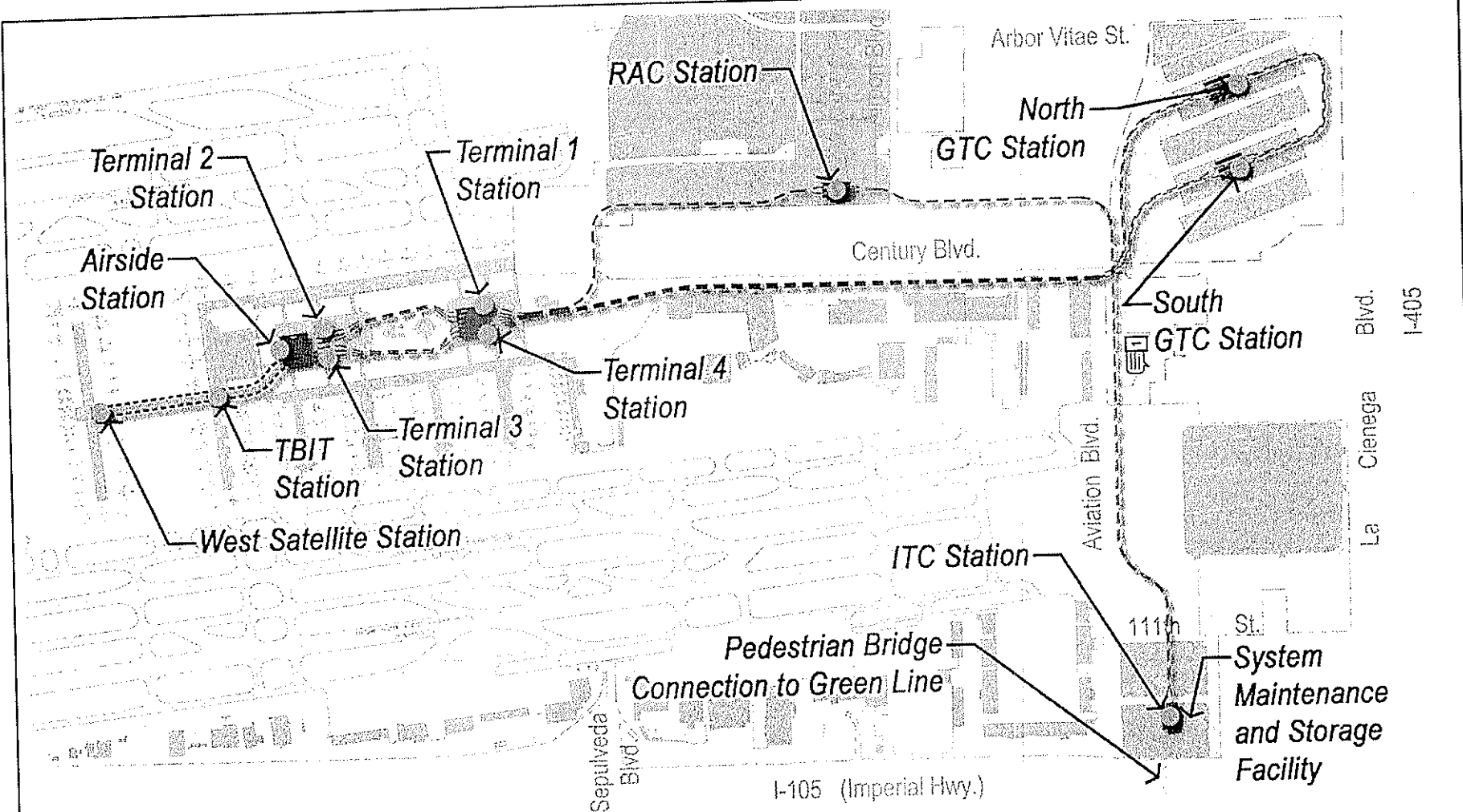
T

Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 5:31:24 PM

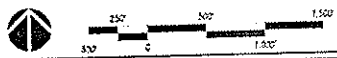
The routes established require purchase of the lands behind all of the hotels. This use is in conflict with the proposed W-PdR Community Plan which calls for use of this area as a walkable support area for travel related businesses and local retail business.

Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/21/2003 5:33:27 PM

How many stops between the ITC and CTA? If none, how fast will this have to travel to go the approximately 3+ miles in 7.5 minutes.



Prepared by: Landrum & Brown
Draft, July 31, 2002



Legend

- Proposed APM Station
- Proposed APM Alignment

Los Angeles International Airport Master Plan

Alternative D
Automated People Mover Systems

Figure
2.4-1

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/21/2003 7:26:41 PM

There are no stops noted. Verbal statements have been made about stops not yet assigned. What are the stops to be implemented and why? Signage, etc.

2.4.1.2 LANDSIDE SYSTEM CAPACITY

The Landside APM capacity requirements were developed based on the number of passengers that would be riding the system in the peak period. The results of the analysis determined that three pairs of guideways would be required to serve the CTA. Combining the GTC and RAC riders would overload a CTA-RAC-GTC route, and a route serving the CTA-ITC would operate well below capacity.

The CTA-GTC route would be designed to carry up to 13,500 passengers per hour per direction (pphpd) in the peak hour with full baggage loads, and 19,500 pphpd with carry-on baggage in a six-car train. The RAC-CTA link capacity would be about 8,700 pphpd in the peak hour. The RAC-ITC link would carry 9,600 pphpd in the peak hour. Capacities on these two links of this route vary due to different baggage characteristics of the ITC and RAC riders.

2.4.1.3 LANDSIDE SYSTEM STATIONS

Landside APM stations would be designed as flow-through stations to separate passengers entering and exiting the trains. This station layout would minimize cross flow of passengers and congestion at the train doors. It would also shorten the station dwell time and would best accommodate baggage carts as passengers travel between airside and landside facilities. **Figure 2.4-4** depicts typical station layout options. The flow-through option at the top of the figure would be the station layout for the landside system.

Station widths would be adequate to accommodate passenger queuing at platform doors and vertical circulation elements. Station lengths would be based on the ultimate train length, which could be up to 300 feet long, plus circulation space. Vertical circulation would be provided to accommodate level changes between the stations and ticketing, baggage claim and curbside. Elevators, escalators, ramps and stairs would be used for vertical circulation.

2.4.1.4 LANDSIDE SYSTEM ALIGNMENT

Both Landside APM routes would be designed to minimize interference with existing facilities, and with existing and planned roadways. The two routes would include three pairs of guideways at-grade in the CTA. As the CTA-GTC guideway transitions out of the CTA, it would be elevated above Sepulveda Boulevard and continue elevated for the remainder of its route. This guideway would run along Century Boulevard to Aviation Boulevard and turn north into the GTC complex. **Figure 2.4.5** depicts potential APM views from Century Boulevard.

The CTA-RAC-ITC guideway would run north along Sepulveda Boulevard and then east along 98th Street to the RAC station. From

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 11:28:51 AM


What is the peak number of passengers in an hour? How does this relate to 78 MAP? What about if there's 100 MAP?

78 MAP/365= 213,700 peo. per day
with 50% over nominal in an hour it is 11,870 people

the RAC station, the guideway would continue along 98th Street and turn south along Aviation Boulevard. As the guideway approaches the ITC, it would split into an upper and lower pair of guideways. The upper guideways would serve the ITC station and the pedestrian link to the MTA Green Line. The lower guideway would serve the Landside APM maintenance and storage facility.

Approximately six traction power substations with a footprint area of approximately 50 by 50 feet would be located along the guideway at 5,000-foot intervals.

2.4.1.5 FLEET, MAINTENANCE AND STORAGE REQUIREMENTS

Assuming a typical 40-foot rubber-tired Landside APM vehicle, up to 189 cars could be needed to meet the 2015 demand. At the peak hour, approximately 11 trains would be running between the CTA and GTC and 7 trains between the CTA, RAC, and ITC. 

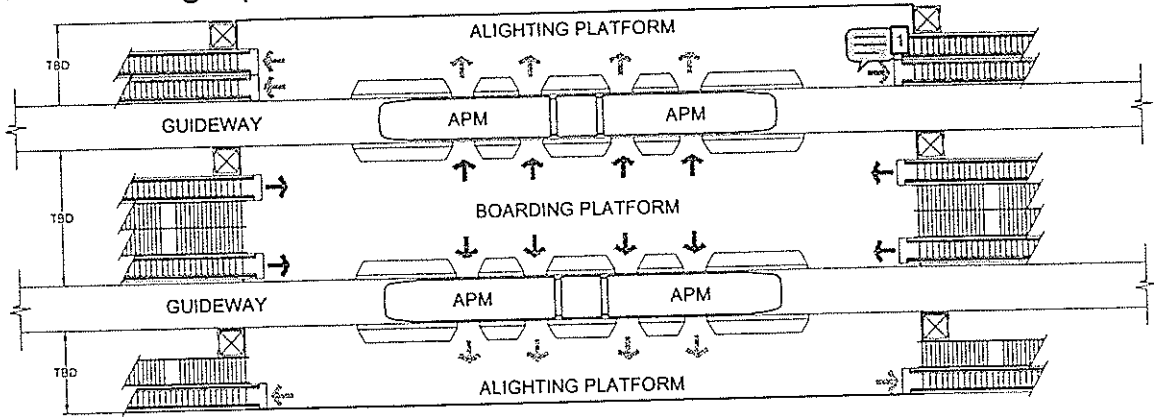
The Landside APM maintenance and storage facility would be in the basement of the ITC. It would contain vehicle maintenance, open shops, spare parts, tool and equipment storage and a cleaning area. Other functions of the facility include central control, offices, a traction power substation, loading dock with a shipping/receiving area and staff facilities.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/23/2003 11:58:17 AM

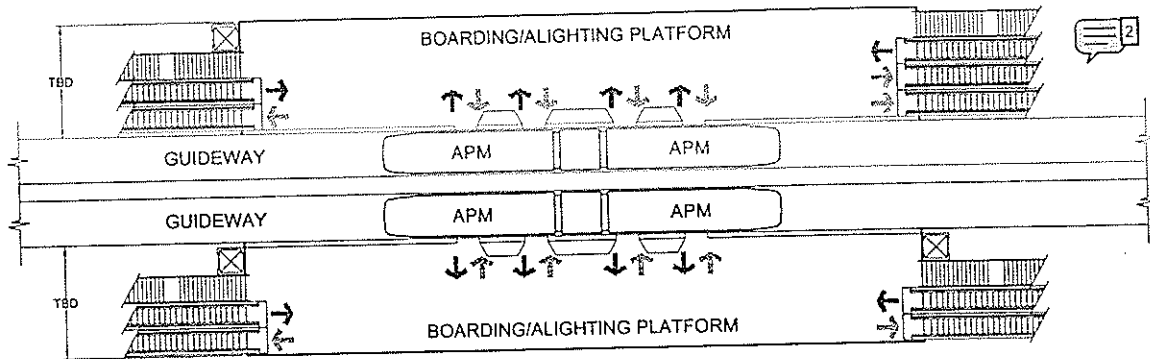
How many cycles per hour are assumed? How many stations are in the assumption? How many people does a car handle?

If each 40' car carries about 50 people standing (the illustration has 6-7 shown) filled then one 6 car train is about 300 people. If I assume 11 trains x 2 cycles per hour plus 7 trains x 1.5 cycles per hour the max hourly capacity would be about 99000 people?! 189 cars x 300 = 56,700 people

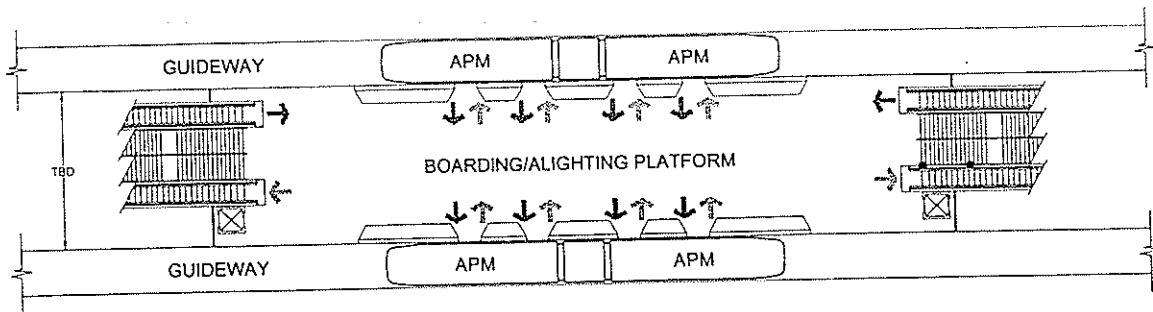
Flow-Through (Center-Side Platform) Configuration - CTA Stations



Side Platform Configuration - GTC Stations



Center Platform Configuration - ITC Stations



Source: Lea+Elliot - 2000
 Prepared by: Landrum & Brown
 Draft: December 12, 2002

Los Angeles International Master Plan	Automated People Mover Typical Station Design	Figure 2.4-4
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Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 11:51:30 AM

How high would these APM stations be? Handicap access? Where will the screening be accomplished in this station? How will luggage be handled? How will the carts be accommodated? If an elevator is present, how many people with luggage will it handle for full evacuation? Where will the luggage and people screening be done to detect bombs, etc?

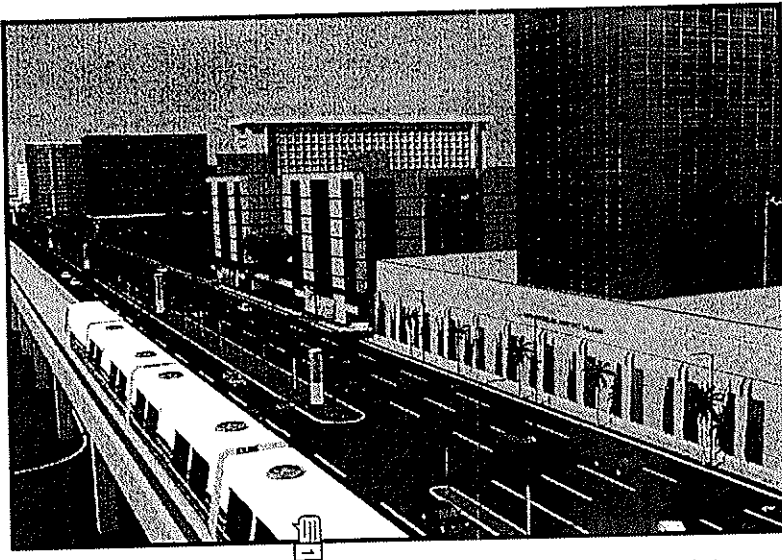
Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 11:52:29 AM

Are the platforms may be wider than large buildings? Where will they be placed?



Overhead View of ITC Automated People Mover along Century Blvd.



Interior View of Automated People Mover

Prepared by: Landrum & Brown
Draft: June 2003

Los Angeles International Airport Master Plan

Alternative D Automated People Mover View


Figure
2.4-5

Sequence number: 1


Author: Denny Schneider

Subject: Note

Date: 7/23/2003 12:01:05 PM

 Does this picture imply that the APM is moving buildings to accommodate the APM? If so, which ones and how many?


2.4.2 AIRSIDE AUTOMATED PEOPLE MOVER SYSTEM

The Airside APM system would be the primary means of access to the West Satellite Concourse. The Airside APM would consist of a dual lane shuttle system, with two trains connecting the CTA with the TBIT and the West Satellite Concourse. This 3-station system would be located in a tunnel, passing under the apron, taxiways and buildings with stations located beneath the facilities being served. This system would be used for access to/from aircraft gates and the CTA. Arriving passengers would use the system to reach baggage claim and public meet/greeter areas. Depending upon the final configuration and location of FIS facilities, the Airside APM could also transport passengers headed to customs from the West Satellite Concourse to the CTA and TBIT. 

2.4.2.1 AIRSIDE SYSTEM ROUTES

The route would be designed as a short distance system with two trains operating in separate guideways to allow for low headways and high capacities. Riders would include ticketed passengers departing to/arriving from gates in the TBIT or the West Satellite Concourse, as well as the employees working in these facilities. This system would be in the "secure" area of these facilities.

2.4.2.2 AIRSIDE SYSTEM CAPACITY

Depending on peak ridership, the trains could be up to six cars long, but would probably not be longer than four cars. Based on travel distance and speed, the trains would operate with headways of approximately 2.7 minutes. This would result in an average wait time of about 1.4 minutes and an average trip time just over 4 minutes. Using maximum length trains, this system could carry up to 9,000 passengers in a peak hour. 

In this short distance and dual lane shuttle configuration, cable systems could be a viable alternative to self-propelled vehicles. An operating speed of 25 to 30 miles per hour has been assumed, which is within the range of both cable propelled systems and lower-speed self-propelled systems.

2.4.2.3 AIRSIDE SYSTEM STATIONS

Because this system is located entirely underground, access to and from the stations platforms would require significant vertical circulation elements. Elevators, escalators, ramps and stairs would be provided at every station. Station widths would be adequate to accommodate passenger queuing at platform doors and vertical circulation elements. Station lengths would depend on train length,

Sequence number: 1
Author: Denny Schneider
Subject: Note

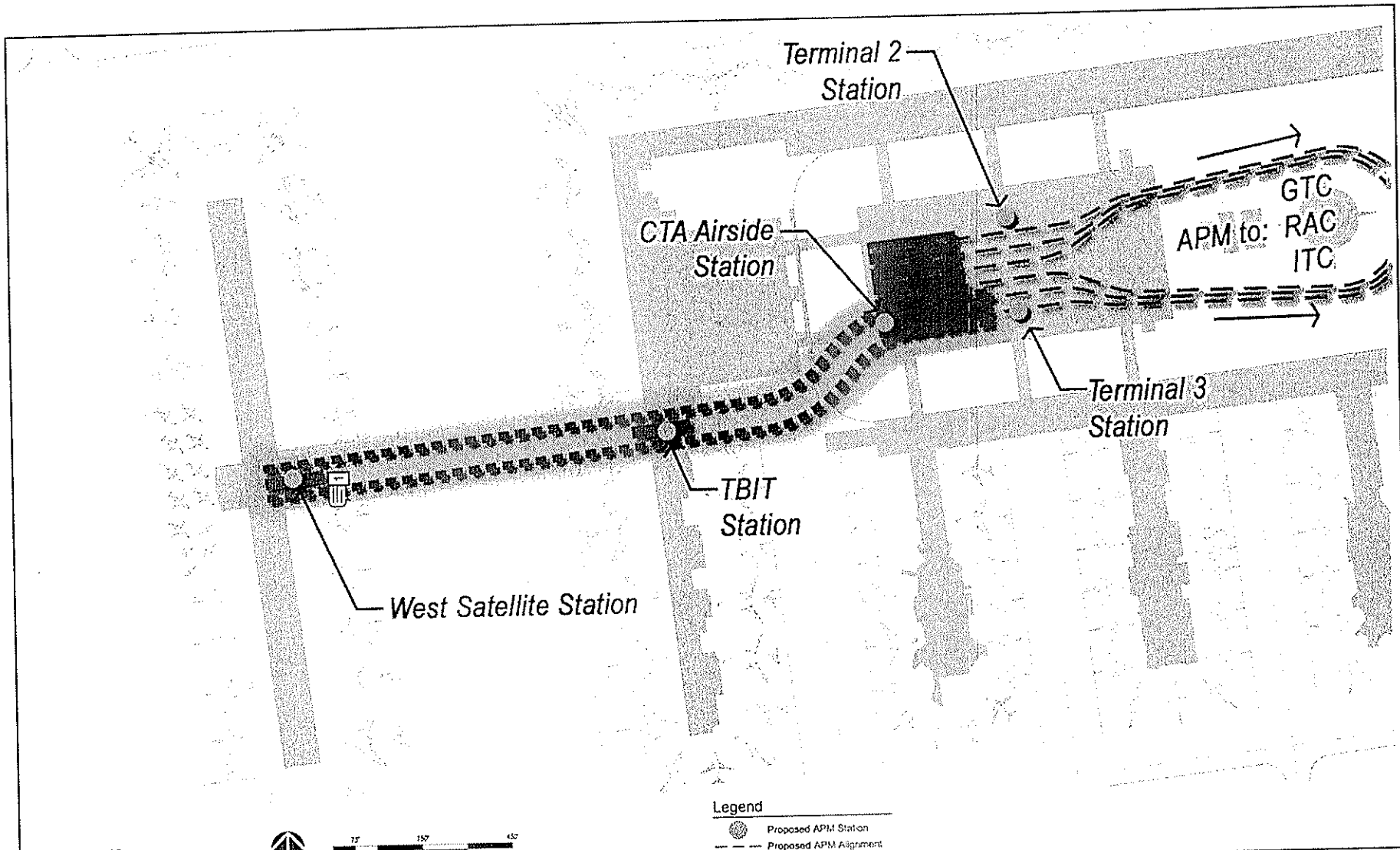
Date: 7/23/2003 12:13:06 PM

If a single set of APM lines are going to the West Satellite Concourse, what kind of internal transportation will facilitate movement from one end of the terminal to the other?
Since it is to be at a different level, how will people be moved from one level to another? Since people may need carts to carry luggage (not everything is always checked), how will this be done?

Sequence number: 2
Author: Denny Schneider
Subject: Note

Date: 7/23/2003 12:15:24 PM

Will these APM cars be the same as the other system? How will they be maintained? If the western end maintenance facility is insufficient how will more cars be brought in?



Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 12:17:15 PM

If most of the commuter gates are consolidated all the way in the back, isn't this causing more people to ride this airside APM and making it less convenient?

2.5 CARGO FACILITIES— ALTERNATIVE D

The Alternative D Cargo plan would provide approximately 2,342,000 square feet of cargo building space, which would include mostly existing cargo facilities and some new and reconfigured cargo facilities. The Alternative D cargo facilities would accommodate approximately 3.1 MAT of cargo by 2015. The amount of sort space available for cargo carriers would be fully utilized by the year 2015 and would likely limit processing capability beyond 3.1 MAT.

Alternative D would retain all cargo facilities in the Imperial Cargo Complex and South Cargo Complex East, and remove buildings in the South Cargo Complex West and Century Cargo Complex. The removed buildings would be replaced with newer cargo facilities and would provide a more traditional and efficient ramp area layout at each of the facilities. The four cargo complex areas, and the existing and proposed cargo buildings within those areas, are depicted in Figure 2.5-1 and summarized below. New cargo security requirements are currently being developed by TSA. Further accessibility restrictions would likely be required of the cargo facilities located at airports like LAX. LAWA would incorporate any new TSA requirement into the cargo facilities as those standards are developed. The new standards may or may not require additional building space.

- ◆ **Century Cargo Complex:** Would consist of nine existing buildings and one new building constructed on the site of a building that would be demolished. The Century Cargo Complex would provide approximately 953,000 square feet of cargo building space and 173,000 square feet of mail sort space on approximately 2,110,000 square feet of real estate. Mail sort facilities are excluded from the cargo space utilization calculations to be consistent with the analysis provided for the other Master Plan alternatives.
- ◆ **Imperial Cargo Complex:** Would remain in its present condition with eight buildings, totaling approximately 498,000 square feet on 1,649,000 square feet of real estate.
- ◆ **South Cargo Complex West:** Would consist of four buildings, of which, two are existing and two are new. One of the new buildings would be built on the site of the existing Imperial Terminal while the other would be built on the site of the existing LAWA Police Lost and Found facility. The Imperial Terminal and LAWA Police Lost and Found facility would be demolished. This complex would provide approximately 199,000 square feet in four buildings on approximately 1,189,000 square feet of real estate.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/23/2003 12:18:11 PM



Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/23/2003 12:24:06 PM

This assumes almost a 4% growth per year! How will the facilities be upgraded to accommodate this? Where will these facilities be placed? How will the increased truck traffic be accommodated, and where will it go?

Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/23/2003 12:24:06 PM



Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/23/2003 12:56:42 PM

If the subject buildings are there by FAA height requirement waiver now, will these new buildings also be waived? What is the basis of the waivers? If new TSA/FAA standards are added to require additional building space where does LAWA intend to put them? Will an EIR be done or another incremental improvement be used?

Sequence number: 5
Author: Denny Schneider
Subject: Highlight
Date: 7/23/2003 12:53:20 PM



- ◆ **South Cargo Complex East:** Seven buildings would be retained totaling approximately 692,000 square feet on 2,874,000 square feet of real estate.

Table 2.5-1 provides a summary of the total cargo space organized by cargo complex. Table 2.5-2 provides a detailed list of new or redeveloped cargo facilities and existing cargo facilities that would remain.

A limited amount of automobile parking would be provided for the cargo complexes to serve customers and staff. A ratio of approximately one stall per 1,000 square feet of building area would be provided on site. Additional parking at the ratio of 0.5 stalls per 1,000 square feet of building would be provided in the airport employee parking areas and accessed via airport shuttles.

The Alternative D cargo facilities would encompass 2,342,000 square feet of building area (excluding mail facilities) and 3,386,000 square feet of apron area on approximately 197 acres of real estate. The new and reconfigured cargo space would account for approximately 6 percent of the total 2,342,000 square feet of cargo building space available at the airport. See Section 3.2.4 for a discussion on cargo space utilization and the cargo processing capabilities at LAX under Alternative D.

Public parking, some employee parking, landscaping, circulation space, and other support for cargo operations would be provided within the site boundaries (depicted with dashed lines on Figure 2.5-1).

Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 7/23/2003 1:08:07 PM
Table 2.5-1 shows allocation of cargo space. This paragraph in 2.5 says 6% more will be built while the table totals amount to 7% and it is not clear about mail cargo. Why do these figures differ? Which is correct?

Sequence number: 2
Author: Denny Schneider
Subject: Note

Date: 7/23/2003 1:05:26 PM
Earlier in 2.5 the 2.3 M sq ft cargo space was used. This says that the mail cargo is not included in this number so the actual number is greater. What is the total cargo space to be created and maintained? 2.5 also speaks of 3.39 M sq ft of apron space. What about access roads and control areas? How will this be integrated into the airport and external roadways? Who will pay for it and how?

Table 2.5-2

ALTERNATIVE D - NEW/RECONFIGURED AND EXISTING CARGO FACILITIES BY COMPLEX

New Cargo (NC) Facilities			Existing Cargo (EC) Facilities to Remain		
1. Century Cargo Complex Bldgs.			1. Century Cargo Complex Bldgs.		
NC	55,000	sf.	EC	176,000	sf.
NC		sf.	EC	158,000	sf.
NC		sf.	EC	153,000	sf.
NC		sf.	EC	0	sf.
NC		sf.	EC	130,000	sf.
NC		sf.	EC	52,000	sf.
NC		sf.	EC	57,000	sf.
NC		sf.	EC	70,000	sf.
NC		sf.	EC	102,000	sf.
NC		sf.	EC	57,000	sf.
Total	55,000	sf.	Total	898,000	sf.
2. Imperial Cargo Complex Buildings			2. Imperial Cargo Complex Buildings		
NC		sf.	EC	35,000	sf.
NC		sf.	EC	49,000	sf.
NC		sf.	EC	78,000	sf.
NC		sf.	EC	112,000	sf.
NC		sf.	EC	65,000	sf.
NC		sf.	EC	52,000	sf.
NC		sf.	EC	71,000	sf.
NC		sf.	EC	36,000	sf.
NC		sf.	EC	36,000	sf.
Total		sf.	Total	498,000	sf.
3. South Cargo Complex Bldgs.			3. South Cargo Complex Bldgs.		
NC	39,000	sf.	EC	0	sf.
NC	60,000	sf.	EC	0	sf.
NC		sf.	EC	53,000	sf.
NC		sf.	EC	47,000	sf.
Total	99,000	sf.	Total	100,000	sf.
4. South Cargo Complex East Bldgs.			4. South Cargo Complex East Bldgs.		
NC		sf.	EC	64,000	sf.
NC		sf.	EC	135,000	sf.
NC		sf.	EC	178,000	sf.
NC		sf.	EC	200,000	sf.
NC		sf.	EC	51,000	sf.
NC		sf.	EC	18,000	sf.
NC		sf.	EC	46,000	sf.
NC		sf.	EC	46,000	sf.
Total		sf.	Total	692,000	sf.

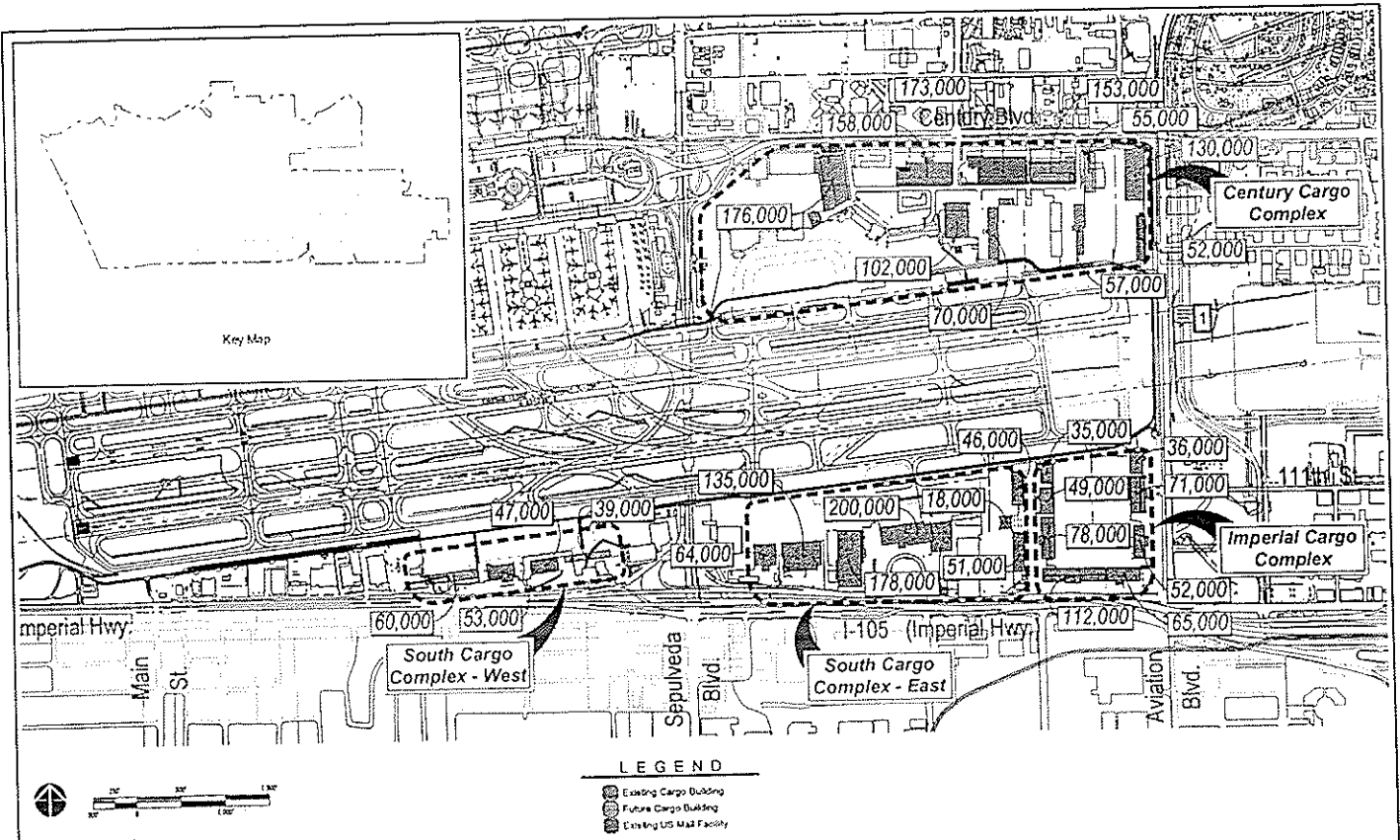
Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 1:09:38 PM

Table 2.5-2 lists many items without a sf number. Why? What should be listed?



Prepared by London & Brown
 Date: December, 2001

Los Angeles International Airport Master Plan

Alternative D Cargo Development Areas

Figure
 2.5-1

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 1:13:45 PM

What proportion of cargo is handled in each complex presently and what is anticipated for Alt D? Is some more accessible than other? Is there adequate truck access to each area for the anticipated amount of MAT handled? How will the trucks be routed away from LAX and where are they going?

2.6. ANCILLARY FACILITIES - ALTERNATIVE D

The ancillary facilities in Alternative D are depicted on **Figure 2.6-1** and summarized below. All areas are based on facility footprint measurements.

2.6.1 AIRLINE MAINTENANCE

Alternative D would require the removal of the existing American Airlines, TWA and US Airways maintenance complexes on the west side of the airport (551,000 square feet of building space). Two existing facilities on the west side of the airport and south of World Way West would be retained (612,000 square feet of building space). One existing 164,000-square foot facility would be retained on the west side of the airport, north of World Way West. In addition, two new facilities totaling approximately 300,000 square feet would be located on the west side of the airport, south of World Way West. Five existing maintenance facilities totaling 292,000 square feet located south of Century Boulevard, east of Sepulveda, and west of Airport Boulevard, would be retained. Total airline maintenance facilities would encompass 1,368,000 square feet of building space in Alternative D.

2.6.2 GROUND RUN-UP ENCLOSURE (GRE)

Alternative D would include two new 90,000-square foot Ground Run-up Enclosures (GRE) at the airport. A GRE is a three-sided open-air structure designed to absorb noise associated with aircraft engine tests. A GRE would reduce noise impacts to surrounding communities impacted by aircraft engine tests. A GRE is capable of reducing the standard noise signature by 15 to 18 dBA. Today, all run-ups are conducted on the ramp area near the maintenance facilities. **Figure 2.6-2** depicts a typical GRE. One GRE would be located on the west side of the airport, south of World Way West and east of the airline maintenance complex. An additional GRE would be located on the east side of the airport, south of the existing Delta airlines maintenance facility.

2.6.3 FUEL FARM

The overall fuel farm site footprint would be reduced from 662,000 square feet to 591,000 square feet to accommodate the north airfield modifications for Alternative D, described in Section 2.1. The fuel farm would retain its existing capacity and would remain at its existing location on the west side of the airport, north of World Way West. On-site modifications would be required due to the redevelopment of the north airfield complex.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/23/2003 1:16:12 PM

Is all of the maintenance area presently utilized? When maintenance space is vacated will it be used for cargo? If so, how will access be coordinated and controlled?

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/23/2003 1:21:05 PM

How would aircraft be moved to the GRE? Is it convenient to ALL of the maintenance areas? How do the enclosures impact low frequency noise dissemination in addition to "standard noise signature?" 18 dBA from 90 dBA still leaves a major amount of noise. What are the specific angles and locations of these units. Has a noise projection for single event noise been made? What areas are impacted?


Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/23/2003 1:17:25 PM





Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/23/2003 2:14:18 PM



If the fuel farm remains the same capacity, how will it handle the expanded requirements for fuel?

2.6.4 LOS ANGELES WORLD AIRPORTS ADMINISTRATION AND MAINTENANCE


LAWA administrative offices would remain in the existing 42,000-square foot facility at the former airport traffic control tower and the 40,000-square foot facility on the west side of the airport, north of World Way West. 

The existing LAWA maintenance yard and storage facilities are comprised of three complexes totaling 135,000 square feet. These facilities would remain in the existing location on the west side of the airport, north of World Way West. These buildings serve maintenance, storage and administrative functions.  Consolidation of these facilities and/or reconfiguration may be considered as the existing facilities reach the end of their useful life. 

2.6.5 FEDERAL AVIATION ADMINISTRATION (FAA)

The FAA tower facility would not be affected by Alternative D. The existing 13,000-square foot air traffic control tower is located in the CTA.  A security-screening checkpoint would be developed on the Park One site, adjacent to Terminal 1, for employees within the CTA.  FAA employees may be required to screen through this facility prior to gaining access to the FAA tower.

2.6.6 FLIGHT KITCHENS

The two existing flight kitchens located north of Imperial Highway and east of Main Street would remain, providing a total of 98,000 square feet. Existing airline catering located in airline maintenance facilities would be relocated and incorporated into the new airline maintenance facilities. In addition, there are currently 90,000 square feet of flight kitchens located off-airport which would not be affected by Alternative D. 

2.6.7 GROUND SERVICE

Six existing ground handling facilities, totaling 158,000 square feet, located north of Imperial Highway and east of Main Street, would be retained. Additional ground handling functions would be located on the apron and in the terminal area.

2.6.8 GENERAL AVIATION

Alternative D would accommodate two general aviation facilities that encompass 265,000 square feet. The existing 144,000-square foot facility north of Imperial Highway and east of Sepulveda Boulevard would remain. A new 121,000-square foot facility would be located north of Imperial Highway and west of Sepulveda Boulevard.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 2:24:39 PM

Why are the administrative offices remaining in the same? These were supposed to be moved to the Northside Development some time ago? WHEN LAWA moves these facilities what will be put in their place?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 2:26:58 PM

What about the maintenance facilities east of LAX off LaCienega off Lot 8? Are these facilities being replaced or moved? What will be put in place of these buildings?

Sequence number: 3

Author: Denny Schneider

Subject: Highlight

Date: 7/23/2003 2:28:05 PM

T

Sequence number: 4

Author: Denny Schneider

Subject: Highlight

Date: 7/23/2003 2:28:17 PM

T

Sequence number: 5

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 2:28:05 PM

We've heard verbally that this check facility will also be used for walk in traffic. How will baggage and screening be handled?

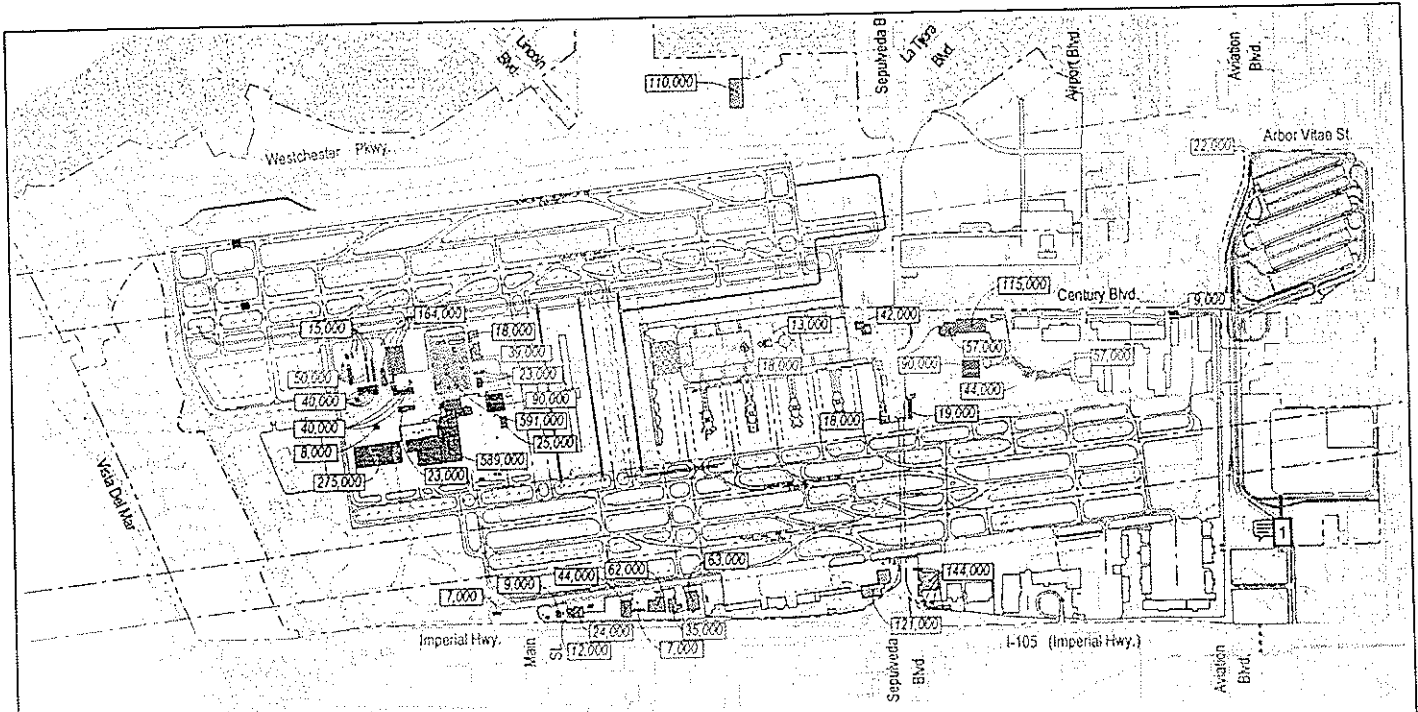
Sequence number: 6

Author: Denny Schneider

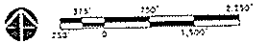
Subject: Note

Date: 7/23/2003 2:29:05 PM

T



Note: All numbers rounded to nearest 1,000 s.f.



Prepared by: London & Brown
 Draft: May 31, 2001

Legend

- Aircraft Maintenance Hangars
- Flight Kitchen
- Airport Police
- Fuel Farm
- Aircraft Rescue and Fire Fighting (ARFF)
- General Aviation
- Central Utility Plant (CUP)
- Ground Handling Services
- City of Los Angeles Fire Station
- Ground Run-Up Enclosure (GRE)
- Compressed Natural Gas and/or Liquid Natural Gas (CNG/LNG)
- Los Angeles World Airport (LAWA)
- Federal Aviation Administration (FAA)
- United States Coast Guard

Los Angeles International Airport Master Plan

**Alternative D
 Ancillary Facilities**

Figure
 2.6-1

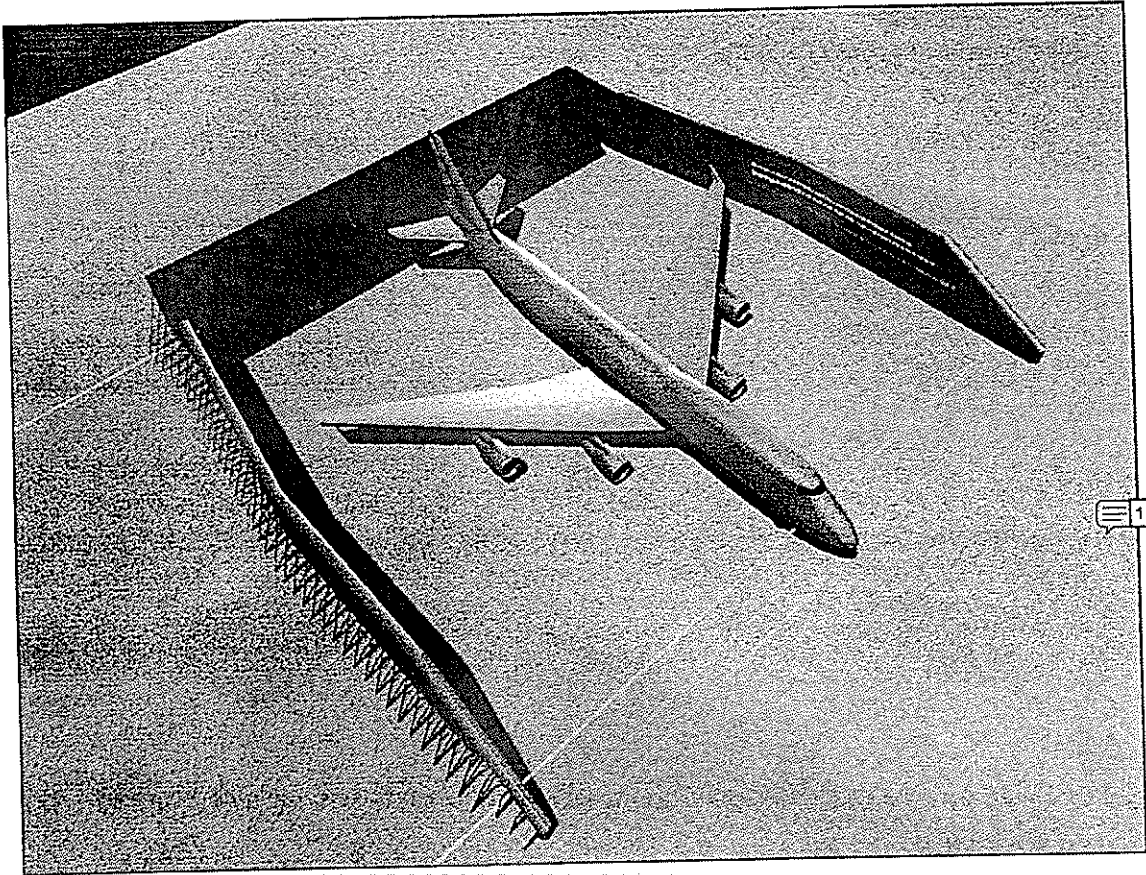
Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 2:45:10 PM

This drawing shows that the Proud Bird remains. Is this true? If not, what will be located here?



Prepared by: Lindrum & Brown
Draft: 12/1/02

Los Angeles International Airport Master Plan

Typical Three-Sided Ground Run-up Enclosure

Figure
2.6-2

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 2:47:50 PM

At what angle will these enclosures be placed?

**2.6.9 AIRCRAFT RESCUE AND FIREFIGHTING
(ARFF)**

Fire Station 51 and 80 would be expanded to accommodate the future ARFF requirements and increase response capabilities at LAX. Fire Station 51, located west of Sepulveda Boulevard and south of Century Boulevard, would remain at its current location and be expanded from 9,000 square feet to 18,000 square feet. Fire Station 80 would be expanded from 14,000 square feet to 18,000 square feet and relocated due to the construction of the new Taxiways S and Q. This new ARFF facility would be located east of the fuel farm and north of the U.S. Coast Guard facility. The 9,000-square foot Fire Station 95, at the southeast corner of Century Boulevard and International Road between Airport and Aviation Boulevards, would remain the same.



2.6.10 AIRPORT POLICE

The existing LAWA police headquarters, located on West 96th Street and west of Sepulveda Boulevard, would be removed and relocated to accommodate Alternative D.

A new 110,000-square foot airport police headquarters facility would be built at the northwest corner of Westchester Parkway and Emerson Avenue to accommodate the increased staffing levels due to enhanced safety and security requirements. The new facility would provide convenient access to the airport. The new facility would be located across the street from the newly relocated City of Los Angeles Fire Station No. 5 to facilitate easy communication between members of the emergency response team. The Police Lost and Found function would be located in the new LAWA police headquarters facility. Additional police substations would be located in both terminal and landside facilities to further enhance public safety, security, and police responsiveness.

2.6.11 UNITED STATES COAST GUARD

The existing 39,000-square foot U.S. Coast Guard facility, including the apron and helicopter landing area, would remain in its existing location on the west side of the airport, north of World Way West.

2.6.12 CENTRAL UTILITY PLANT

The existing 18,000-square foot central utility plant would remain in its current location within the CTA. A security-screening checkpoint would be developed on the Park One site, adjacent to Terminal 1, for employees within the CTA. Central utility plant employees may be required to screen through this facility prior to gaining access to the plant.

Sequence number: 1

Author: Denny Schneider

Subject: Note


Date: 7/23/2003 2:54:02 PM



How would these fire stations have easy access to Manchester Square, the RAC, or ITC? How will these fire stations coordinate with the new City FD in the Northside

Development shown in figure 2.6-1?

How will disaster victims be transported and to where?

**2.6.13 COMPRESSED NATURAL GAS/LIQUID
NATURAL GAS FACILITIES**

The existing LAWA Liquefied Natural Gas/Compressed Natural Gas (LNG/CNG) facility would remain in its present location. It consists of a core facility of approximately 8,000 square feet located on an approximately 131,000-square foot (3-acre) site at 7350 World Way West. Access to the LNG/CNG facility would be controlled by a security checkpoint along World Way West adjacent to the new employee-parking garage. 

The 22,000-square foot off-airport CNG facility, located south of 104th Street and east of Aviation Boulevard, would be removed and space would be provided for  new 22,000-square foot facility at the southeast corner of Arbor Vitae Street and Aviation Boulevard.  Access to the new CNG facility would be controlled via the security monitoring systems along the GTC entrance roadway. A remote security gate may be developed on the entrance road to the facility to control access.

**2.6.14 TRANSPORTATION SECURITY
ADMINISTRATION (TSA)**

Alternative D would accommodate and facilitate the needs and directives of the TSA at LAX. At this point, the requirements of the newly formed TSA are continually evolving. LAWA officials are currently working with the TSA to determine and accommodate the needs of the administration. Alternative D was designed to be flexible in accommodating all existing and future federal security requirements.

2.6.15 SUMMARY


A detailed list of all ancillary facilities and associated building area is provided in **Table 2.6-1**.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 2:56:21 PM

 An LNG electrical generating facility was approved for the American Terminal. Where is this identified in the plan?

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 7/23/2003 2:56:21 PM




Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 2:59:47 PM

 What amount of CNG will be stored there? This is located at the NW corner of Manchester Square. Will access be only from Arbor Vitae/Aviation or from within the GTC entrances? How will security be maintained? What level of traffic is this expected to generate and of what type?

2.7 LAND ACQUISITION – ALTERNATIVE D

Major infrastructure projects like the LAX Master Plan often require the purchase of property in order to construct new facilities. Every effort was made during the planning of Alternative D to limit property acquisition to the minimum area required to implement the plan. Alternative D would require a combination of full and partial parcel acquisitions, as well as easements across certain parcels in the project area.

The Master Plan alternatives would require various amounts of property acquisition to provide space for airport facilities and improvements. Various businesses and other properties would need to be acquired under Alternative D. The land acquisition and easement areas are depicted in **Figure 2.7-1** and summarized in **Table 2.7-1**. In addition, **Table 2.7-2** provides a more detailed description of each parcel. Figure 2.7-1 contains reference numbers for each parcel that are keyed to the map reference number appearing in the first column of Table 2.7-2.

The timely acquisition of property is a key element to the Master Plan Alternative D phasing schedule. All land acquisition identified within this section would need to be completed in the first five years after the Record of Decision for the EIR/EIS. Section 2.8 and Section 2.10 provide the sequence for acquisition activities to accommodate this schedule.

LAWA is in the process of acquiring the Airport/Belford and Manchester Square areas east of, and adjacent to, the airport under the Aircraft Noise Mitigation Program (ANMP). Some residents in those areas approached the airport staff and requested that their properties be acquired rather than soundproofed. Should the ANMP land acquisition for the Airport/Belford and Manchester Square areas not be completed by the time the Master Plan is approved, the City of Los Angeles would use the most appropriate and practical measures available (e.g., voluntary acquisition, leasing, and/or public condemnation⁶), to ensure that the designated areas are vacated to accommodate the Construction Sequencing Plan for the selected Master Plan alternative. Land purchases or LAWA terminated ground leases associated with Master Plan Alternative D are listed below.

- ◆ Approximately 77 acres² of property.

⁶ These measures would be available to be used for all build alternatives to pursue any needed acquisition that cannot be obtained through negotiations.

² Excludes LAWA-owned on-airport properties.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/23/2003 3:02:58 PM
T

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/23/2003 3:07:02 PM
Who will decide what to condemn and when?

LAX Master Plan Addendum

- ◆ Institutional uses on approximately 6 acres including the former Community Aviation College (now Hollywood Cinema Production Resources Training School) and the Westchester Neighborhood School.
- ◆ Acquired commercial property with approximately 36 businesses including light industrial, office, retail, and one hotel.
- ◆ Approximately 3,676 remote, off-airport parking spaces.
- ◆ Approximately 9 acres of rental car space.
- ◆ Approximately 147,000 square feet of freight/warehousing building space.

Easements would be required over property owned by the Atchison, Topeka and Santa Fe Railway and four private property owners.

Table 2.7-1

ALTERNATIVE D - SUMMARY STATISTICS OF ACQUISITION AREAS

Area	Total No. of Bus.	Parcel Acreage	Building (sf.)				No. of Hotel Rooms	Airport Parking Stalls
			Light Industry	Office	Retail	Residential		
B	19	52.46	0	145,581	16,550	0	0	3,456
C	0	0.60	0	0	0	0	0	0
D	10	6.79	1,722	0	104,888	0	154	0
E	9	16.63	225,298	95,026	0	0	0	220
F	0	0.38	16,748	0	0	0	0	0
Total	38	76.86	243,768	240,607	121,538	0	154	3,676

Note: Equivalent to Tables V-3.15, V-3.23, and V-3.31 in Chapter 5 of the Draft LAX Master Plan and Tables A-3, B-3, and C-3 in Appendix P of the Draft LAX Master Plan.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/23/2003 3:12:47 PM

Does this include lands north of Arbor Vitae? Are all of the other 36 businesses within Manchester Square? If 3676 private parking spaces are removed, are they being replaced? The 9 acres of rental car space is also west of Manchester Square. What is it's use? Does the easements of the MTA line along Aviation and 4 property owners preclude future extension of the Green Line? If not, why not. How will the future Green Line extension be protected? What is planned for these properties that are not inside Manchester Square?

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/23/2003 3:20:55 PM

This table assumes all of residential areas of Manchester Square and Belford Area are already procured. Since they are not included in this table, what is the anticipated cost for procurement of these housing units?

2.8 RELOCATION - ALTERNATIVE D

2.8.1 PRELIMINARY PROPERTY ACQUISITION AND RELOCATION PLAN

This section describes how the LAX Master Plan would relocate residences and business in accordance with applicable statutes designed to minimize community disruption, limit adverse economic impacts and protect human rights. A final relocation plan would be developed during Master Plan implementation. Applicable statutes include the Federal Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended in 1987 (hereinafter the Uniform Act), and the regulations implementing the Act (49 Code of Federal Regulation (CFR) Part 24). These regulations require the project sponsor to compensate landowners and tenants fairly for the acquisition and to assist in their relocation. The regulations support relocating businesses to nearby areas to maintain the economic and employment benefits to the economy.

2.8.1.1 RESIDENTIAL USES

At this time it is anticipated that no residential properties would be acquired under Alternative D. However, if necessary, all procedures for residential acquisition and relocation would be identical to those now employed by the LAWA Residential Acquisition Program conducted under the Airport Noise Abatement Plan in accordance with the Uniform Act.

2.8.1.2 BUSINESS USES

Similar to residential owners, business property owners would be compensated for their property and/or provided relocation assistance in accordance with the Uniform Act. This can be a time consuming and complicated process. In addition to the value of the land and buildings, the value of the business itself must be appraised and evaluated. Each business would be evaluated separately and individual negotiations would occur.

2.8.1.3 LAX NORTHSIDE AND MANCHESTER SQUARE

Alternative D of the LAX Master Plan calls for the development of the LAX Northside Plan as currently entitled and modified with reduced traffic activity. All businesses identified for acquisition or relocation in Alternative D can be accommodated either on LAX property, or in the surrounding business community within the City of Los Angeles. At this time, without a final relocation plan, it is impossible to say precisely which businesses would relocate to the LAX Northside and what their space needs would be. However, it is possible to provide a preliminary list of businesses that would be compatible to relocate to

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 3:39:32 PM

When will business be relocated into the Northside Development? Is there a building schedule for this? What is it?

Table 2.8-2

ALTERNATIVE D - SUMMARY OF AIR FREIGHT USES IN ACQUISITION AREA

Area	Total No. of Bus.	Parcel Acreage	Building (sf.)				No. of Hotel Rooms	Airport Parking Stalls
			Light Ind.	Office	Retail	Residential		
A1*	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
A2*	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
B	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
C	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
D	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
E	4	9.88	146,867	n/a	n/a	n/a	n/a	n/a
F	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
G	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
I	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total	3	9.88	146,867	0	0	0	0	0

*A1 - Commercial

*A2 - Residential

Note: Equivalent to Tables A-1, B-1, and C-1 in Appendix P of the Draft LAX Master Plan

2.8.1.6 BUSINESSES REQUIRING RELOCATION ASSISTANCE

All office, hotel, retail, commercial and light industrial uses acquired under this alternative can be relocated to the LAX Northside Development or absorbed in the local community.

To address these specific properties and to facilitate all business relocations to LAX Northside, the Relocation Plan envisions the establishment of a Business Relocation Program under the auspices of the LAWA Business Development Bureau. This program would administer compliance with the provisions of the Uniform Act and other regulations and would provide assistance to individual business owners.

2.8.1.7 SURVEY OF OWNERS, RESIDENTS AND BUSINESS OPERATORS

A face-to-face survey of every affected property owner would be conducted as soon as possible to determine attitudes toward acquisition and special needs.

Such a survey was conducted as the first step in the development of the Relocation Plan for the Airport/Belford and Manchester Square areas. A similar survey of business owners is essential to determine the willingness to relocate to the LAX Northside and the potential costs, time frames and special needs.

2.8.1.8 UTILITY RELOCATIONS

The acquisition areas contain a variety of above- and below-ground utility lines and facilities. Investigation and planning for these relocations would be required to complete the work on time.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 3:48:42 PM

There are additional businesses along Aviation between 102nd and 104th. Is this land already owned by LAWA? When was it procured? How will these businesses be relocated (or will they)?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 7/23/2003 3:45:28 PM

These area E businesses are located adjacent to the cargo area off Aviation. If they are moved to Northside Development how will they interface with their cargo areas? What security be implemented in the Northside Development area?

Sequence number: 3

Author: Denny Schneider

Subject: Highlight

Date: 7/23/2003 3:48:42 PM

T

Sequence number: 4

Author: Denny Schneider

Subject: Note


Date: 7/23/2003 4:03:08 PM

What are the results of the Relocation Plan survey? In order to state that no residences are to be purchased implies that there is a 100% expected sales.

2.8.1.9 WESTCHESTER SOUTHSIDE DEVELOPMENT

Alternative D of the LAX Master Plan identifies the LAX Northside Development as the baseline for additional development north of the airport.

2.8.1.10 SEQUENCE OF ACQUISITION

Master Plan property acquisition would need to be completed in the first stage of Master Plan implementation. Relocation sites would need to be available before the acquired property can be vacated and redeveloped. The land acquisition process can take many years and it is recommended that certain planning actions, categorically exempt from the California Environmental Quality Act (CEQA) and categorically excluded from National Environmental Policy Act (NEPA), be undertaken at the earliest possible time.  A detailed acquisition and phasing plan would be developed in conjunction with the preparation of the Final EIS/EIR.

2.8.1.11 FINAL RELOCATION PLAN

The final Relocation Plan would be developed and approved in concert with the Master Plan and EIS/EIR as they progress through the LAWA and City of Los Angeles' approval process.

2.8.2 RELOCATION ASSISTANCE

The Uniform Act, as amended, governs the relocation of individuals and businesses displaced by projects paid for in whole or part with federal funds. Since Alternative D requires the purchase of property in order to complete construction of the project, the Uniform Act establishes minimum standards for relocation assistance and compensation as follows:

- ◆ Relocation advisory and financial assistance shall be available for individuals and businesses that must relocate as a result of the public acquisition of property; and
- ◆ Basic standards and requirements for appraisals and acquisition shall be followed in acquiring real property.

The provisions of the Uniform Act are set forth in the Code of Federal Regulations, 49 CFR Part 24, for federal and state agencies that are either acquiring the property or providing the financial assistance to do so. In order to comply with Federal, State and City of Los Angeles regulations, LAWA would establish a relocation assistance program with the following components:



Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 7/23/2003 4:06:01 PM

Phase one of the Master Plan implementation as presented at the LAX Working Group was far less than the 5 years indicated to be used for procurements. How is this reconciled?

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 7/23/2003 4:06:01 PM

T

2.9 COLLATERAL DEVELOPMENT- ALTERNATIVE D

The LAX Northside Development Plan would develop approximately 340 acres of airport-owned land for various uses in Alternative D.

The LAX Northside Development would be compatible with and serve the needs of the Westchester residential community. A Village Area would be developed as a new town center. The Village Area would be pedestrian oriented and heavily landscaped to provide an attractive and prosperous commercial center for the residents and airport visitors. On the east end, the project would include about 1,360,000 square feet of office space, 650,000 square feet of hotel use (1,000 rooms) and 100,000 square feet of retail/restaurant space. This new Village Area would be the proposed new town center to serve the Westchester residential community.

The LAX Northside Development would include a business park with additional office, retail and hotel space, which would be located east of the existing golf course. The business park would house compatible airport facilities and light industrial uses relocated from the acquisition areas. The proposed development would likely include 1,580,000 square feet of office space, 870,000 square feet of hotel use (1,400 rooms) and 130,000 square feet of retail/restaurant uses. The LAX Northside Development would also include 1,170,000 square feet of research and development business park use and 750,000 square feet of airport related uses.

The original LAX Northside Development (see **Figure 2.9-1**) provided entitlements for 4.5 million square feet of development, subject to a limitation on the total number of daily vehicle trips (a "trip cap"). Alternative D includes a proposed reduction in the existing trip cap included in the original LAX Northside Development. The reduced trip cap would limit the amount of total daily traffic generated by the LAX Northside Development to a level comparable to that associated with the Westchester Southside Development proposed under Alternatives A, B, and C. The total development of the subject property shall not generate more than 3,152 project-related outbound vehicle trips in the a.m. peak hour, and 3,040 project-related outbound vehicle trips in the p.m. peak hour, resulting in a reduction of 50 percent from the approved LAX Northside trips of 6,340 in the a.m. and a reduction of 57 percent from the approved LAX Northside trips of 7,000 in the p.m. The amount of trips generated by a project shall be based on the trip generation rates used in the June 2003 Supplement to the Draft EIS/EIR transportation analysis and on square footages of the proposed development, under the LAX Northside Development. Estimates of the number of trips generated by specific projects shall be made prior to issuance of building permit and shall be documented so that the total number of trips generated

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/27/2003 10:41:38 AM

Why is the 1983 EIR and Plan for the Northside development acceptable to use to go forward whereas the Palmdale and Ontario airport plans from the same time frame are being redone before any progress is to be made?

Explain how the densities of the Northside Plan is compatible with the Westchester-Playa del Rey Community Plan.

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 7/27/2003 10:43:55 AM

Explain why this large number of trip generations is still acceptable given the numerous added area projects since reviewed in 1983. This plan was predicated on expanding several arteries. How and when will this be accomplished?

by ongoing development is monitored and reviewed for consistency with the maximum allowable number of a.m. and p.m. peak trips described above for each new on-site development. The precise square footage and allocation of land uses associated with LAX Northside under Alternative D have not been identified, but would include a mix of office park, hotel, retail/restaurant, and research/development (R/D) business park uses, similar to the original LAX Northside Development.

A summary of the LAX Northside Development is identified below in **Table 2.9-1**.

Table 2.9-1

LAX NORTHSIDE DEVELOPMENT

Office	1,580,000 sq. ft.
Hotel (1,400 rooms)	870,000 sq. ft.
Retail/Restaurant	130,000 sq. ft.
R/D Business Park	1,170,000 sq. ft.
<u>Airport Related</u>	750,000 sq. ft.
Total Development	4,500,000 sq. ft.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 7/27/2003 10:45:36 AM






Where is the fire station recently approved to be built in this development area? Is it considered part of the 3/4 million sq feet of airport related? If not, what is to be moved into this area--especially since other areas note that the airport administration is to remain in its present locale.



2.10 CONSTRUCTION SEQUENCING PLAN - ALTERNATIVE D

The following is a general overview of the sequence of activities that would be required to complete the phased development of Alternative D. Construction on a large scale can cause vehicle and pedestrian congestion, increasing security vulnerability. Planning of each construction phase would include actions to alleviate vulnerabilities. This narrative establishes a phasing and sequencing plan broken down into three distinct phases. This sequencing plan was developed independent of financial, operational and existing lease constraints. The chronology for these facilities is depicted in an order that is consistent with the priorities established by the LAWA staff. **Figure 2.10-1** graphically depicts the Phase I projects associated with Alternative D.

Phase I

1. Reconstruct and recrown Runway 7R/25L approximately 50 feet to the south, construct new full-length parallel taxiway between Runways 7R/25L and 7L/25R, and relocate Nav aids associated with Runway 7R/25L. 
2. Redevelop the Continental City lot into a new ITC containing 9,127 parking stalls. This facility would provide short-term parking and would contain a physical link to the existing Green Line transit station at the corner of Aviation Boulevard and Imperial Highway. The link would provide power-assisted moving walkways to assist passengers transferring to and from the Landside APM system.
3. Reconfigure the existing long-term parking lot west of and adjacent to La Cienega Boulevard (southeast surface parking). This facility would contain approximately 5,470 parking spaces. Passengers using this lot would be shuttled to the ITC via a busing operation and transferred to the Landside APM for transit to the CTA. 
4. Relocate existing off-site utility infrastructure impacted by development program.
5. Construct a baggage tunnel from the site of the future GTC to the existing CTA. 
6. Construct a new access roadway system east of Aviation Boulevard including Century Boulevard overpasses. These roads provide access to and from the ITC and GTC. 
7. Construct a new RAC facility in the general location of the existing long-term parking lots C and D. A 150,000-square foot 

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/30/2003 4:07:37 PM

General question about construction costs: Since many of the stated items for work are still nebulous how has this been priced? What is the range of pricing?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 7/30/2003 3:49:23 PM

Based on the number of parking places for short term outside of GTC (9127+5470) vs GTC (7515), explain how the plan is to push for more foreign O&D in preference to commuter will be accommodated,

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 7/30/2003 4:01:24 PM

If this is not a "concrete" item was it priced into the \$9 billion or is this added on if done? Is the expense of this item justified? How will this be done before land is purchased? Are all of the geological studies finished? How long will they take? Safety of this tunnel?

Sequence number: 4

Author: Denny Schneider

Subject: Note

Date: 7/30/2003 4:03:48 PM

Similar to other Phase I project items, how will this be done before land is purchased? Is this a joint project with CalTrans and MTA as well as LAWA and DOT? What Project level EIRs will be done? What are and when will the details of this project become available?

Sequence number: 5


Author: Denny Schneider


Subject: Note

Date: 7/30/2003 4:05:13 PM

As with the other Phase I, how will the RAC be done before lands are purchased? The RAC facility appears to need some of the area between 98th and 96th streets.



customer service center including a 9,000-stall, four-level ready/return parking garage would be located north of 98th Street. This project would be completed in two phases. Upon the completion and opening of the GTC, the public parking component of Lot C would be transferred to the GTC, and a series of maintenance facilities and vehicle storage lots would be distributed to the north of the service center. In the period between the completion of the RAC service facility and the opening of the GTC, rental car companies would shuttle vehicles from the existing lots to the new customer service/ready return garage. 

8. Construct the West Employee Parking Garage containing 12,400 parking stalls. A consolidated employee security screening facility could be developed as part of this project. Shuttle buses would transport employees between this lot and their respective employer locations.
9. Demolish the existing parking structures in the CTA, relocate necessary utilities and complete site preparation for new terminal facilities. 
10. Construct off-site roadway improvements required for Alternative D as per the approved Transportation Improvements Phasing Plan for Alternative D of the Master Plan.
11. Construct four new terminals in the area currently occupied by the parking garages in the CTA.
12. Construct a new above ground Landside APM from the CTA to the GTC, ITC, and RAC. An associated Landside APM maintenance facility and test track would be located in the basement of the ITC.
13. Install new baggage security and distribution systems in the CTA and the GTC, including linkage between the two facilities.
14. Construct the GTC north of Century Boulevard and south of Arbor Vitae Street, between Aviation and La Cienega Boulevards. This would also include the construction of three new parking garages containing a total of approximately 7,515 parking spaces. A new commercial vehicle staging area would be developed north of the northern-most parking structure at the GTC.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/30/2003 4:09:29 PM

During construction how will access to Lot C be maintained? If access will be moved, what evaluations of traffic patterns have been made? What mitigation for these changes has been proposed?

Sequence number: 2

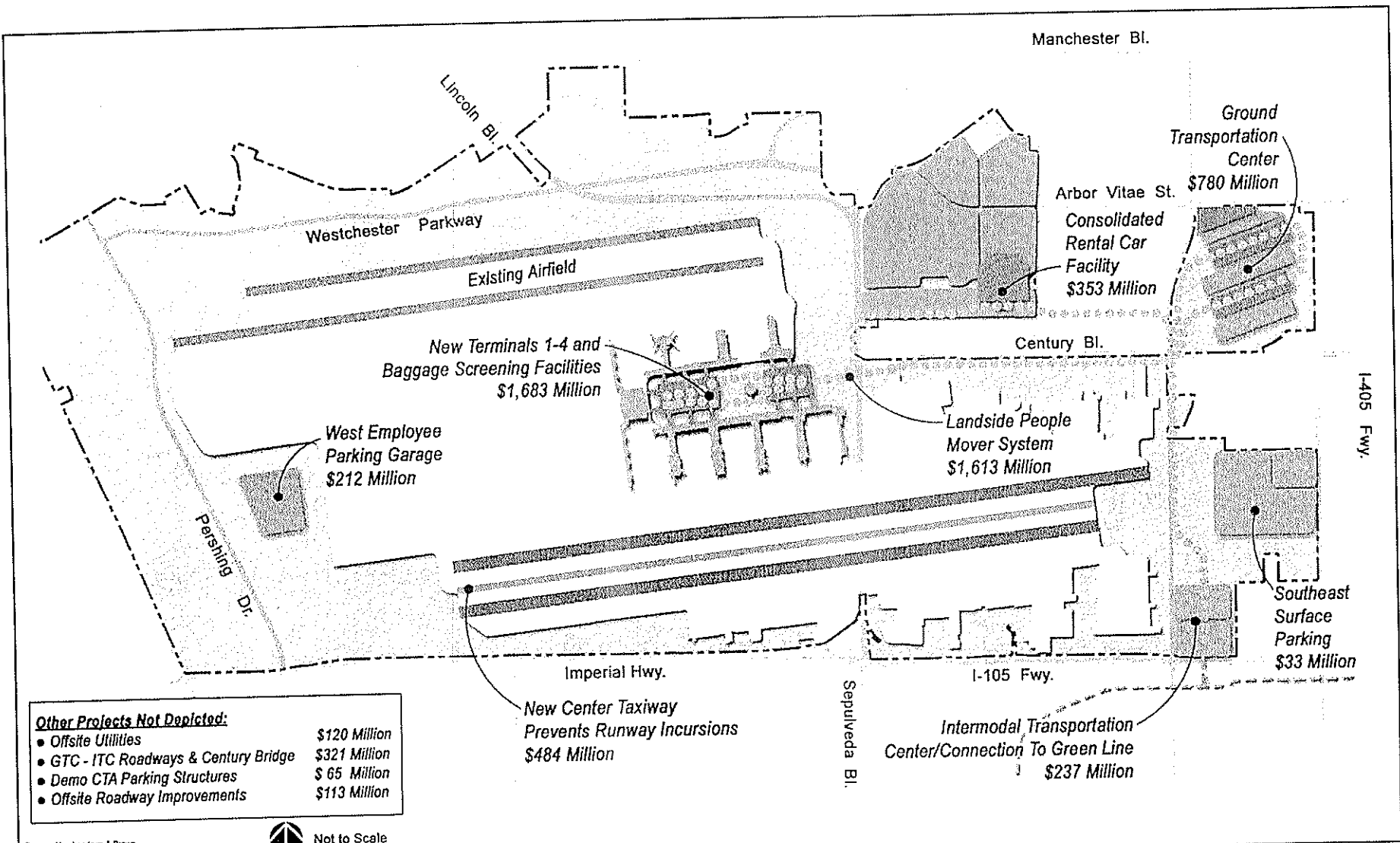
Author: Denny Schneider

Subject: Note

Date: 7/30/2003 6:35:18 PM

How will the APM be fully operational from the GTC before the CTA structure parking is demolished? Aren't drop off points in the CTA needed for APM use? If this is

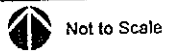




Other Projects Not Depicted:

• Offsite Utilities	\$120 Million
• GTC - ITC Roadways & Century Bridge	\$321 Million
• Demo CTA Parking Structures	\$ 65 Million
• Offsite Roadway Improvements	\$113 Million

Prepared by: Landrum & Brown
 Draft: July 31, 2002



<p>Los Angeles International Airport Master Plan</p>	<p>Alternative D Phase I Projects</p>	<p>Figure 2.10-1</p>
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Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 7/30/2003 6:51:07 PM

Phase I project cost estimated at:

Tem 1-4 & Baggage Scr	1683
West Employee Parking	212
South Complex Center Taxiway	484
Ground Transportation Ctr	780
Consolidated Rental Car	353
Landside People Mover	1613
Intermodal Transp Center	237
Southeast Surface Parking	33
Offsite Utilities	120
GTC-ITC Roadways & Century	321
Demo CTA Parking Structures	65
Offsite Roadway Improvements	113
Phase I total from fig 2.10-1	\$6014

location of airport facilities to accommodate projected air traffic demand. Thus, airport facility planning is a local government function. Local agencies plan for efficient and compatible airports and surrounding land use in their communities with the least amount of external impacts on people and the environment.

The starting place for the facility design concept for Alternative D was to design basic airport and ground access facilities that enhance airport safety and security while retaining the ability to serve aviation activity equivalent to the projected No Action/No Project level while reducing the impacts associated with the No Action/No Project Alternative. This design approach was an iterative process that reapplied projected market forces to the constrained facilities to forecast the changes that would likely occur at LAX if this policy and the associated facilities were developed. Finally, the airport and ground access facilities were refined, as necessary, to best reflect the forecast for the constrained market changes.

The most constraining component of an airport defines the practical capacity² of the entire airport. An airport is a complex system made up of components through which passengers and aircraft flow in a sequential order. Aircraft arriving at the airport pass through the airspace, land on the runways, travel on the taxiways and proceed to the terminal gates to unload and reload passengers. Once loaded and ready for departure, the aircraft pass through these same components in reverse order.

Passengers move through the system in a similar set of sequential steps. Departing passengers travel on local roadways and on-airport roads, arrive at the terminal from the curbside, parking, or other shuttle facility, are processed in the terminal and proceed to the designated aircraft gate for boarding. Arriving passengers generally proceed through these steps in reverse order upon arrival at an airport. Exceptions for arriving passengers include domestic connecting passengers who board other flights, international arrivals who move through FIS facilities and baggage claim before they connect to other flights or use ground transportation facilities.

Each component of the airport system, the airfield, terminal passenger facilities and the curbside, has an operational or passenger capacity that is a function of the physical characteristics of the component. The annual passenger level served by the overall airport system is related to the hourly capacity of its weakest component. The relationship between hourly aircraft operations,

² The "unconstrained aviation demand forecast profile" refers to both the volume and manner in which airline operations are conducted.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/30/2003 8:59:43 PM

This section describes what a constraint is, but not what they are. How were market forces taken into consideration with regard to development of a real regional solution? The assumptions should be enumerated in a concise, direct way. Page 3-4 says that they are in Chapter 3 of the 2001 document. This is another level of action for the document that we are told is self contained.

airport activity profile. It is reasonable to compare historical aviation activity statistics among several airports; however, it is of little value to compare forecast levels of passenger and cargo activity without knowing the above listed market factors for each airport in the comparison. [An extensive historical record and forecasting effort to define each of these parameters and their application at LAX was undertaken as a part of the LAX Master Plan (see Chapter 3 of the Draft LAX Master Plan, January 2001). It is from this body of information that detailed design day forecasts have been developed for each of the LAX Master Plan alternatives.]

A projected design day and annual performance measure of total passengers and total cargo has been computed for each Master Plan alternative. Alternative D has a passenger and cargo activity level that is determined by the ability of facilities in that alternative to serve the unconstrained market demand. Figure 1.2-1 summarizes the Master Plan alternatives and their corresponding activity levels. The No Action/No Project Alternative is limited by the capacity of the curbside in the CTA where passengers are dropped-off and picked-up in front of the existing terminals. The resulting annual passenger performance measure of this alternative is approximately 78.7 million. Alternatives A and B include a fifth runway and were designed to serve the 2015 passenger demand forecast. Alternative A and B would accommodate approximately 97.9 MAP.⁴ Alternative C's projected annual passenger activity level served is limited by the capacity of the four-runway system and is forecast to be approximately 89.6 million. [The constrained activity profiles for Master Plan Alternatives A, B, and C are discussed in Chapter V of the Draft LAX Master Plan in Section 3.3.2. Extensive analysis is included in that document, establishing the levels of passengers that each alternative is designed to accommodate. Alternative D was designed to accommodate approximately the same level of passenger activity as the No Action/No Project Alternative.]

3.3 2015 ALTERNATIVE D ACTIVITY

The following sections discuss the activity levels associated with Alternative D in 2015. The plans have been developed to provide gate facilities that would promote a regional solution to air travel for the Los Angeles region.

⁴ The "unconstrained aviation demand forecast profile" refers to both the volume and manner in which airline operations are conducted.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 7/30/2003 9:00:19 PM



Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 7/30/2003 9:04:10 PM

The constraint value is stated as 78.7 MAP. The reported value in other areas is 78 whereas in others 78.9. Why are these different and what is the significance of how they were determined to justify the v values. In the cases of the other alternatives the numbers differ from the widely reported values on the LAWA website.

Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 7/30/2003 9:04:10 PM



Sequence number: 4
Author: Denny Schneider
Subject: Note
Date: 7/30/2003 9:05:41 PM

Not sure if this is a reference to the 2001 document. If it is, this other document has been demonstrated to be questionable in the past.

Sequence number: 5
Author: Denny Schneider
Subject: Note
Date: 7/30/2003 9:08:37 PM

The statement is made that Alt D was designed to accommodate approximately No Action/No Project, but which version of Alt D? There are numerous alternative tacts discussed in this plan. Which one is the one that limits to NANP? Is there a common constraint that is the limiting factor? What is it and how is it justified?

Sequence number: 6
Author: Denny Schneider
Subject: Note
Date: 7/30/2003 9:11:18 PM

What does the statement "developed to provide gate facilities that would promote a regional solution to air travel" really mean?

3.3.1 AIRCRAFT ACTIVITY

Alternative D peak hour aircraft operations activity was projected based on the capacity of the existing four-runway system at LAX in usual operating conditions. Given that the airport was operating with high peak hour delays and a significant number of cancelled flights during poor weather conditions in 1996, peak hour operations in the 2015 activity scenario were projected not to exceed the 1996 levels. However, operations were projected to increase in other hours as warranted by market demand.

The resulting total daily aircraft operations are forecast to be the same as the No Action/No Project Alternative and less than Alternative C. This difference in total operations is due to the fact that Alternative D would not be designed to accommodate the same level of cargo activity as Alternative C (and the other build alternatives). It is also projected that design day cargo aircraft operations levels would be below the unconstrained forecast operations demand.

3.3.2 PASSENGER ACTIVITY

As stated previously, Alternative D would be designed to accommodate the same design day aircraft operations as the No Action/No Project passenger level. The passenger activity that would be expected in 2015 with Alternative D was determined based on the design of the Alternative D gate facilities and the projected airline response to the constrained facilities. The following sections describe the steps taken to develop the Alternative D constrained design day forecast schedule.

A passenger capacity analysis was conducted to allow aircraft size (as measured by enplanements per departure) to increase beyond 1996 and 2000 levels without significantly exceeding the 2015 unconstrained forecast enplanements per departure for each air service region. This enabled the enplanements per departure ratios for the domestic and international fleet to grow to a level between the 2010 and 2015 Master Plan forecast. The average commuter fleet size (again measured by enplanements per departure) was able to grow to the 2015 unconstrained forecast level. On average, the proportion of air carrier and commuter operations results in an enplanements per departure ratio similar to the No Action/No Project Alternative. The ability to increase aircraft size, thereby increasing passenger levels, was limited by the number and type of gates available under the Alternative D terminal design. By comparison, Alternative C was designed to test the limit of the market to serve passenger and cargo demand within the constraint of a four-runway system at LAX. Gate space is provided in Alternative C as necessary to accommodate the projected increase in average fleet size that serves both the

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Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/30/2003 9:15:09 PM

☞ If peak activity of runway operations was based on visual operating conditions, how much capacity is added by IFR and/or the new GPS controlled flight path maintenance? What if the technology improves even more? Is capacity that much greater?

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 7/30/2003 9:11:49 PM

☞

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 7/30/2003 9:19:24 PM

☞ An assumption was made that the airport operated with high peak hour delays and significant number of cancelled flights during poor weather. Why is this appropriate for LAX? What are the peak hours and how many are there? How many hours of peak activity/capacity can be sustained at LAX?

Sequence number: 4

Author: Denny Schneider

Subject: Note

Date: 7/30/2003 9:26:11 PM

☞ Why is the assumption of total daily aircraft operations remaining the same valid? Alt D is presumed to be less cargo than C. Why assume that cargo capacity will increase at all? Any increase in facilities needs to be added to a new plan since it is fixed as is from the 1982 one. What is the basis of the statement that "the design day cargo aircraft operations levels would be below the unconstrained forecast?" Cargo is projected to go from present levels of 2 MAT to 3.5 MAT. This can't happen without increased cargo handling facilities being built.

Sequence number: 5

Author: Denny Schneider

Subject: Note

Date: 7/31/2003 11:29:32 AM

☞ Explain how the aircraft mix combination remains comparable relating to ratios of commuter vs other air operations since the gate mix is being changed significantly toward larger aircraft.

international and domestic markets. As the projections in the following section indicate, the design of Alternative D would encourage airlines to choose the most efficient use of the gate facilities at LAX and supplement high-frequency domestic service at other airports in the region.

3.3.3 AIR SERVICE CHANGES

Alternative D is projected to meet 87 percent of the unconstrained 2015 O&D passenger demand forecast and 82 percent of the 2015 international passenger demand forecast. **Figure 3.3-1**, **Figure 3.3-2**, and **Figure 3.3-3** present a comparison of forecast air service operations between the No Action/No Project, Alternative D, and unconstrained demand at LAX. The forecast of air service changes at LAX, as a reaction to the airport facilities available under Alternative D, is based on the following projections and expectations:

- ◆ High priority would be given by the airlines to accommodating O&D passengers. However, it would still be important to maintain a minimum level of connecting passengers to maintain LAX's role as a hub and an international gateway. Accommodating O&D passengers would be maximized to the extent possible within these guidelines; resulting in 87 percent of the 2015 unconstrained O&D demand forecast being accommodated in Alternative D. The projected number of Alternative D O&D passengers as a percent of total passengers would be similar to the forecast for Alternative C.
- ◆ Commuter operations would likely be reduced from 1996 levels, consistent with the forecasts for No Action/No Project Alternative and Alternative C, in order to maximize the number of passengers that could be served with a limited number of operations. It is also projected that some of the forecast commuter O&D demand would be served by domestic air carrier flights.
- ◆ Domestic air carrier connecting passengers would decrease from 2015 forecast levels to reflect the projected loss of connecting passengers from commuter flights.
- ◆ The domestic air carrier hourly profile would be de-peaked and service would be reduced from 2015 unconstrained forecast levels in the Central, Eastern, and Asia-Pacific regions to reflect the projected response from the airlines to the airfield constraints. The airlines would adjust their schedules to allow for more profitable and less flexible international operations to be scheduled at peak periods. Time zone and airport operating restrictions at international destinations in both Asia

Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 7/31/2003 10:14:24 PM

How is the projected percentage of O&D passengers remaining the same whether capacity is increased by alt C, alt D, or no action since the push by this upgrade plan is to change the mix?

and Europe place limitations on the arrival and departure times for flights to these world regions.



- ◆ The percentage of domestic and international air carrier O&D passengers would increase as the airlines attempt to serve the unconstrained forecast O&D demand with fewer operations. As a result the projected percentage of connecting passengers would decrease.
- ◆ The average aircraft size would increase from existing levels without significantly exceeding the unconstrained forecast seats per departure for each air service component. This is reflective of the already large fleet size serving LAX. 
- ◆ Cargo operations would be equivalent to those forecast in the 2015 No Action/No Project Alternative. 
- ◆ Total general aviation activity would remain at 1996 and 2000 levels and operations would move out of peak hours to avoid excessive arrival and departure delays.

Table 3.3-1 contains a comparison of the resulting 2015 Alternative D aviation activity forecast, the actual 1996 and 2000 aviation activity, the unconstrained 2015 forecast and the forecasts for the other Master Plan alternatives. The corresponding aircraft operations and passenger activity profiles are contained in Appendix F.

3.3.4 CARGO ACTIVITY

The Alternative D cargo activity is determined by the amount of cargo sort space available to process cargo tonnage. This sort space would be measured in square feet of cargo building space. The Alternative D cargo facilities would be sized to accommodate approximately 3.1 MAT, which is the total cargo volume forecast in the constrained No Action/No Project Alternative.

The effective constraint on cargo activity in Alternative D would be the lack of sufficient cargo building space to process the unconstrained cargo activity forecast. The most effective representation of this constraint is illustrated by the utilization rates, or tons per square foot, for the available warehouse space. A common benchmark in the industry is to process approximately 0.9 to 1.0 annual ton of cargo for each square foot of cargo warehouse space available. Higher space utilization rates, ranging from 1.1 to 1.42 annual tons per square foot, are expected for domestic and express cargo, with lower space utilization rates, ranging from 0.5 to 0.6 annual ton per square foot, expected for international freight due to the added time associated with customs clearing and fewer available flights.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/31/2003 10:16:22 PM

☒ If the statement "average aircraft size would increase from existing levels without significantly exceeding the unconstrained forecast seats..." were true why is the gate mix changing dramatically toward greater utilization of wide body aircraft?

Sequence number: 2


Author: Denny Schneider

Subject: Note

Date: 7/31/2003 10:23:23 PM

☒ Explain how the cargo operations would be equivalent to No Action. We are told that cargo is currently highly utilized. Without an unauthorized increase of facilities the magnitude of cargo increase forecast by by Alt D can't occur.

ALTERNATIVE D CONSTRAINED ACTIVITY

The space utilization rate (excluding air mail) calculated for Alternative D is 1.22 tons per square foot. This rate is based on 2.3 million square feet of cargo building space and approximately 3.1 MAT of cargo. It is the weighted average of the domestic and express cargo (approximately 2.09 tons per square foot) and international cargo (approximately 0.8 tons per square foot). Based on current cargo activity, the split is 32 percent domestic and 68 percent international. 

The cargo space utilization rates for Alternative D exceed both the industry benchmark rates and the high utilization rates already experienced at LAX. Improvements in cargo technologies and building efficiencies would be needed to realize the future utilization rates projected for Alternative D. If regional air cargo demand forecasts are achieved, additional cargo demand pressure will be placed on other regional airports to process a greater proportion of the regional cargo activity closer to the source of the demand.

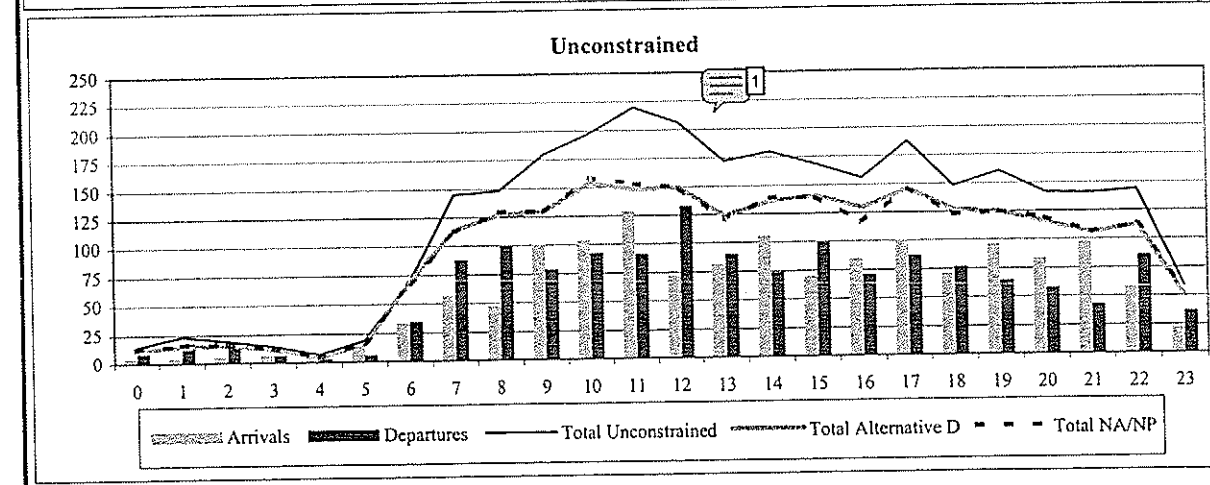
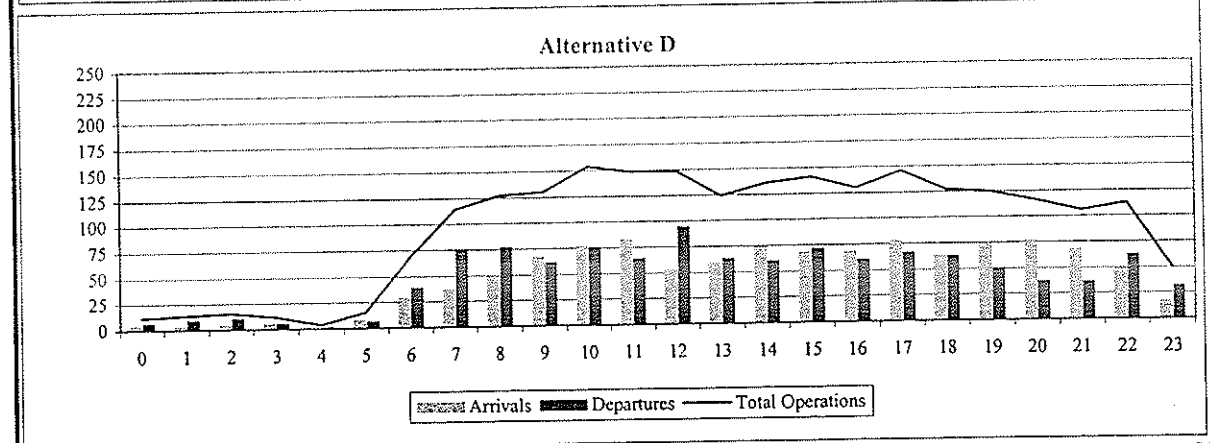
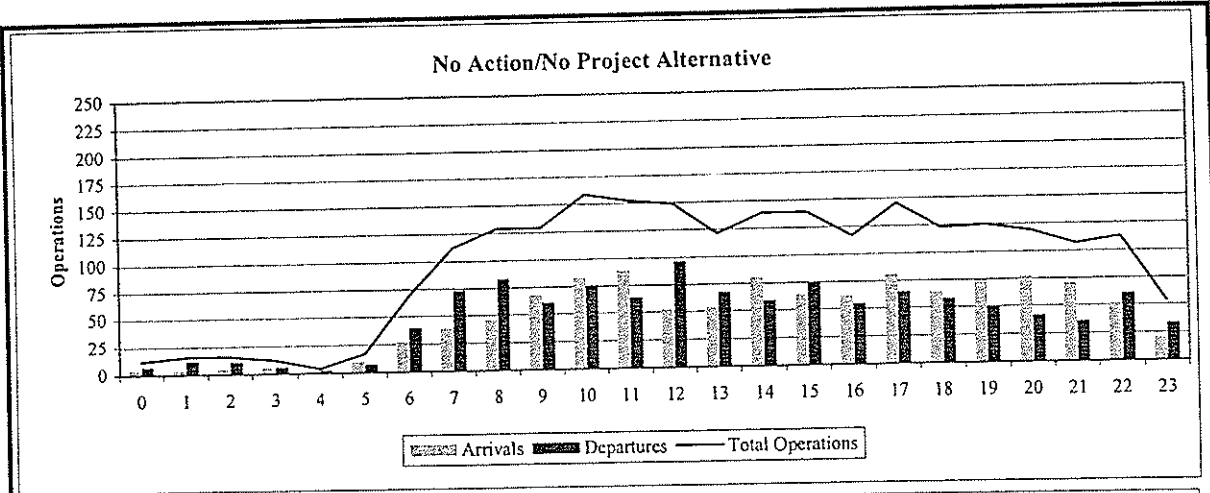
Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/31/2003 10:25:55 PM

Explain how cargo space growth will occur in the No Action scenario. Is there anything done differently by Alt D to change the split of 32/68 domestic/international cargo?



Prepared by: Landrum & Brown
 Draft: April 21, 2003

**Los Angeles International Airport
 Master Plan**

**Design Day
 Hourly Operations**

**EXHIBIT
 3.3-1**

Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 7/31/2003 10:34:11 PM

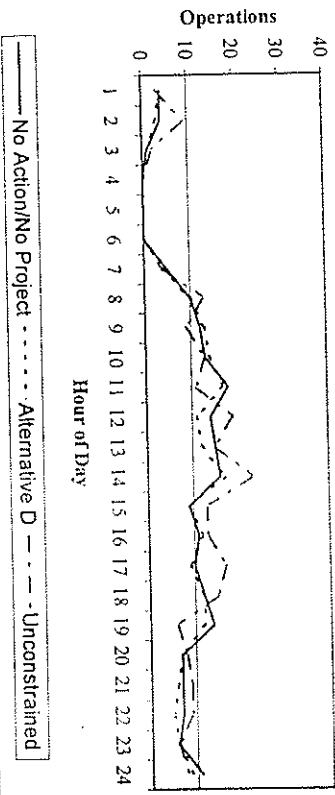
Explain the derivation of the unconstrained totals for operations. Why is there more capacity at the peak hour of 11A? How does this differ from FAA defined operations that includes aircraft movements' impact on calculated totals?

Sequence number: 2
Author: Denny Schneider
Subject: Note

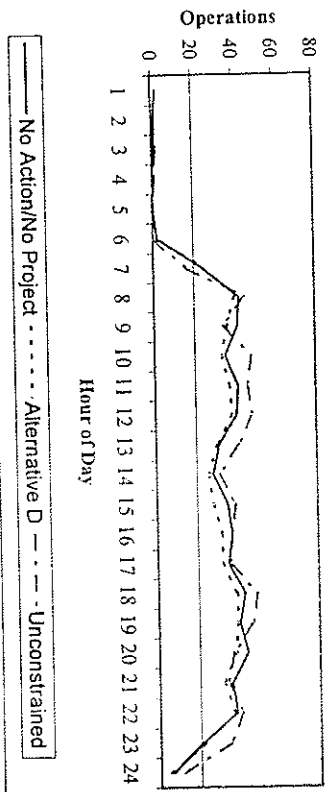
Date: 7/31/2003 10:30:21 PM

If we accept the number of operations in this chart and note that the passengers/cargo per op will increase in the All D option mix, then it is not likely that we will have equal capacity. Explain how the assumptions justify the conclusions that D and No Action result in the same passenger and cargo totals.

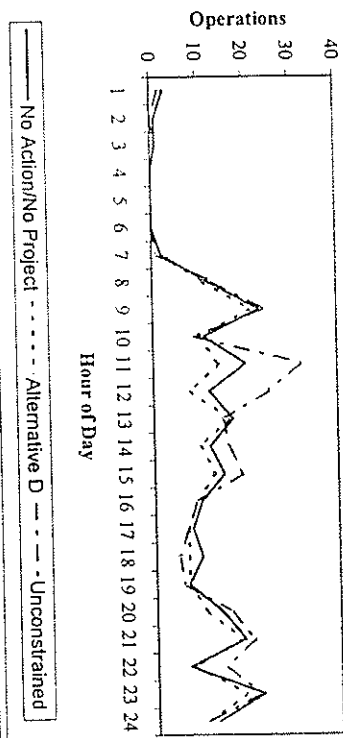
U.S. Central Time Traffic



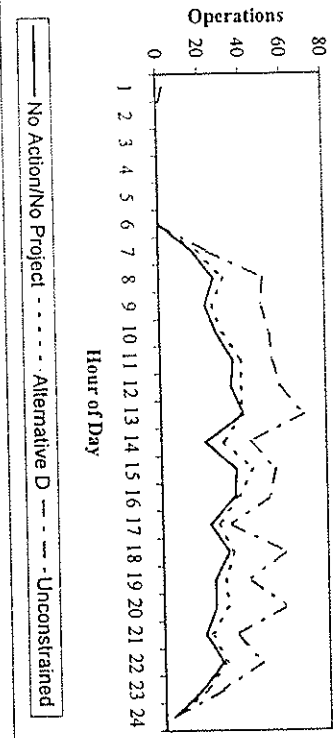
U.S. Pacific/Mountain Time Traffic



U.S. Eastern Time Traffic



Commuter Traffic



Prepared by: Landrum & Brown
Draft: May 3, 2002

Los Angeles International Airport
Master Plan

Hourly Distribution of Domestic Operations
by Geographic/Time Zone Regions

Figure
3.3-2



Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 7/31/2003 10:37:12 PM

The totals on this domestic operation chart separated by time zone origination appears to be equal to the totals shown on the other charts which also presume to include foreign carriers. How is this possible and why?

1997. Physical conditions were represented as they existed in 1997 and in more current years when feasible and appropriate, to provide more up-to-date information.

- ◆ **Adjusted Environmental Baseline:** This baseline comprises the same on-airport historical airport activity (1996) and physical facilities (1997) as in the Environmental Baseline - Existing Conditions, but it includes off-airport land use activity and regional traffic development anticipated for the planning years of 2005 and 2015. Except for these two factors, the Adjusted Environmental Baseline Conditions are identical to the Environmental Baseline - Existing Conditions. This scenario was developed in accordance with CEQA guidelines, to satisfy the CEQA need for determining project impacts.

A.1.2 BASELINE UPDATE

In considering an updated comparison of the Draft EIS/EIR baseline year, 2001 constitutes an anomalous year due to the September 11, 2001 terrorist attacks on the World Trade Center and Pentagon. Those events had a profound impact on aviation as almost all domestic aviation activity after September 11, 2001 was driven downward by those events. In response to the attacks, Congress approved the Aviation and Transportation Security Act. The Act required that all security checkpoints be non-privatized and operated by federal employees hired by the newly formed Transportation Security Administration (TSA) and 100 percent baggage screening be performed at all commercial airports by newly purchased Explosive Detection System (EDS) machines. LAX coordinated with the TSA to meet Congress' deadlines for federally operated security checkpoints (November 2002) and 100 percent baggage screening (December 2002). The heightened level of security at checkpoints also required the increase in the number of passenger through lanes. This was accomplished by purchasing additional Electronic Trace Detection (ETD) machines which allowed more efficient passenger processing.

- ◆ Since LAX traffic is projected to eventually fully recover, 2001 baseline-related data tends to overestimate project impacts for many disciplines.
- ◆ Further, although the typical month for the design day schedule (August) would be unaffected by September 11, 2001, the ratio of peak month activity to annual activity is exceptionally high, due to the overwhelming fourth quarter decline in activity. This tends to underestimate environmental impacts for many disciplines.

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 8/1/2003 3:55:56 PM



Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 8/1/2003 4:00:14 PM
What are the off-airport land use and regional traffic development that was anticipated?



For these reasons, the use of 2001 data as representative of current comparison conditions is inappropriate.

The most recent "normal" year for which a complete dataset is available is 2000. That year is evaluated in this report as the basis for consideration and comparison of how "current" conditions have evolved to some extent from the baseline conditions analyzed in the Draft EIS/EIR. The report also assesses whether the passage of time from the publication of the Draft EIS/EIR has had any material effect on the nature of the "No Action/No Project" alternative.

This change in aviation activity is discussed in detail in the following sections of this memorandum.




A.2 ACTIVITY CHANGES

A.2.1 NATIONAL TRENDS (1996 to 2000)


- ◆ In the five-year period between 1995 (a year for which FAA annual data was readily available) and 2000, total enplanements of U.S. commercial airlines increased from 544.9 million to 660.6 million, an increase of 21.2 percent. During this same period, domestic traffic grew from 496.3 million to 605.8 million, or 22.1 percent. International traffic for U.S. airlines grew from 48.6 million to 54.8 million, a 12.8 percent increase. The cause of this commercial airline passenger increase is largely attributed to the continued growth of the U.S. economy; the Gross Domestic Product (GDP) grew from \$7.5 trillion in 1995 to \$9.2 trillion in 2000. During this period the average annual economic growth rate (as determined by GDP) remained over 3 percent; an indicator that passenger traffic should increase at a similar rate. In fact, as measured in constant dollars, the GDP grew at an Average Annual Rate of 4.1 percent between 1995 and 2000. 
- ◆ A number of trends were apparent in commercial air travel during the 1996 to 2000 period, the most noteworthy being the continued keen competition among airlines. A number of "low-fare" airlines initiated service and while some failed, others were more successful. One of the original "low-fare" airlines, Southwest, continued to expand during the period at a faster rate than most other airlines. The "full-service" airlines such as American, Delta, and United also continued to offer innovative service and expand their route systems to blanket the country and the world. Airline alliances between domestic carriers and foreign flag airlines slightly lowered costs for the members of each alliance. 

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/1/2003 4:06:45 PM
Why were national trends used instead of actual data for LAX?

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 8/1/2003 4:12:27 PM
The use of the economic data for this period appears to be selective comparisons to result in reduced impacts. Economic conditions in the 1990's appears to be far more positive than presently seen; therefore the growth seen is very optimistic, not the opposite as justified by xxxxxxxxxx.

- ◆ Another reason the number of air passengers continues to expand is that the average cost to fly (ticket price or "yield" in airline language) continued to decline from 1996 to 2000. One reason for the decline in fares was the use of newer and more efficient aircraft, as well as the continued reduction in airline ticket sales and distribution costs. Therefore, as the costs of operation to the airlines continues to decline, the airlines have chosen to pass these economics on to the passengers in the form of lower rates. 
- ◆ Turboprop aircraft continue to be replaced by regional jet aircraft. Passengers perceive this type of aircraft as providing a safer, quicker and more pleasant experience. Regional/commuter passenger traffic grew during the 1996 to 2000 period at approximately twice the rate of all air passengers, partially as a result of this trend. 
- ◆ Air cargo traffic also continued to grow during the 1995 to 2000 period. Revenue Ton Miles (a ton of air cargo flown 1 mile) increased from 23.2 trillion in 1995 to 30.1 trillion in 2000. International traffic grew at about twice the rate of domestic air cargo, but both benefited as consumers and businesses continued to insist upon "just-in-time" delivery of goods. 

A.2.2 REGIONAL TRENDS

- ◆ In the period from 1996 through 2000, the roles of the airports in the Los Angeles Basin remained constant. In 2000, LAX continued to serve as the dominant air service airport with almost 70 percent of the domestic enplanements and virtually all of the international enplanements in the region, serving 67.3 million annual passengers (MAP) or 76.0 percent of the regional total; up from 74.3 percent in 1996. It is expected that the market share will decrease over time, however, the number of passengers using LAX will continue to increase. In 2000, a total of 150 destinations were served from LAX: 84 domestic; 5 transborder (Canadian); and 61 other international. John Wayne (SNA), Ontario (ONT), and Burbank-Glendale-Pasadena (BUR) airports augment the air service of LAX. In 2000, SNA served 7.8 MAP, representing 8.8 percent of the region's traffic; down from 9.4 percent in 1996. Physical and policy constrained to limit growth at SNA. The cities served from SNA and ONT are principally western U.S. markets and select mid-continent hub airports. ONT gained international service to Canada and Mexico during the period and likely has the most potential of the secondary airports to accommodate future growth. ONT passenger traffic increased to 6.8 MAP in 2000, yet its market share fell from 8.0 percent in 

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 10:04:39 AM

The airlines ticket price reduction is identified as an altruistic action, but the realistic cause is that the demand is down with each airline bidding for the remaining passengers.

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 10:07:27 AM

As regional jets gain more of the market, why are the gate types moving away from this aircraft type? Could it be that LAWA is making a bid to replace most commuter traffic with NLAAs?

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 10:13:44 AM

Whereas cargo continues to grow does it make sense to concentrate it in only one location? Much of the cargo is not for use in the Westside of LA, but throughout greater LA and the rest of the US. Disbursement of cargo to the areas of goods use would improve the system; Ontario is near the rail lines that cross all of the USA.

Sequence number: 4

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 10:30:34 AM

To use the Mayor Hahn analogy, trend impacts changed since Sept. 11. Economy of scale was the dominant reason give for concentration. Now the opposite is true. The risks need to be spread and the cargo destinations are becoming more disbursed.

APPENDIX A - EXISTING BASELINE COMPARISONS ISSUES - 1996 to 2000

1996 to 7.6 percent in 2000. Passenger traffic at BUR declined slightly between 1996 and 2000, dropping its market share to 5.4 percent. The only BUR market east of the Mountain Time zone is Dallas/Fort Worth.

Palm Springs (PSP) and Long Beach (LGB) continued to serve a very limited passenger air carrier role in the region. PSP traffic increased from 1.1 MAP to 1.3 MAP, but its market share remained at 1.4 percent. PSP offered service to 13 domestic and 2 transborder destinations in 2000. Despite its relatively convenient location, scheduled air service at LGB expanded to six markets in 2000 from one in 1996. LGB's market share remains at less than 1 percent.

Oxnard (OXR) and Palmdale (PMD) have historically provided only commuter flights to LAX. There has been no scheduled service from PMD since April 1998.

Table A-1, Passenger and Operations Comparison, 1996 vs. 2000, presents the passengers and aircraft operations at the region's airports in 1996 and 2000.

Table A-1
Passenger and Operations Comparison, 1996 vs. 2000

	Passengers (000s)			Market Share	
	1996	2000	AAG ¹	1996	2000
Primary					
LAX	57,975	67,303	3.8%	74.3%	76.0%
Secondary					
SNA	7,308	7,773	1.6%	9.4%	8.8%
ONT	6,253	6,756	2.0%	8.0%	7.6%
BUR	4,838	4,749	-0.5%	6.2%	5.4%
PSP	1,115	1,281	3.5%	1.4%	1.4%
LGB	435	638	10.0%	0.6%	0.7%
Commuter					
Other ²	140	111	-5.6%	0.2%	0.1%
Total Region	78,064	88,611	3.2%	100.0%	100.0%
	Aircraft Operations			Market Share	
	1996	2000	AAG	1996	2000
Primary					
LAX	763,866	767,473	0.6%	32.1%	35.6%
Secondary					
SNA	468,811	387,862	-4.6%	19.7%	18.0%
ONT	154,314	155,501	0.2%	6.5%	7.2%
BUR	184,803	160,769	-3.4%	7.8%	7.5%
PSP	90,585	96,103	1.5%	3.8%	4.5%
LGB	477,364	379,399	-5.6%	20.0%	17.6%
Commuter					
Other ²	242,699	206,319	-4.0%	10.2%	9.6%
Total Region	2,382,442	2,153,426	-2.3%	100.0%	100.0%




¹ = AAG = average annual compound growth rate from 1996 to 2000. =

² = Other = Imperial County, Oxnard, and Palmdale. Van Nuys is not included. =

Source: =Landrum & Brown, 2002. =

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/2/2003 6:19:53 PM

Since 1996 several military base closures have facilitated conversion of military airports to commercial use. These are not even shown in the commercial airports.

- ◆ Growth at many of the regions' airports continued to be limited by caps on daily or annual air carrier aircraft operations, the maximum number of terminal gates, and voluntary/involuntary operating curfews. Terminal congestion and roadway delays also continued to influence future demand and the allocation of demand among the regional airports. 
- ◆ The wholesale use of regional jets has not been experienced in the Los Angeles Basin, even though regional jets have been deployed at airports across the country for most flights under 300 miles, except for the densest markets. Turboprop aircraft have become almost extinct at many airports. Regional jets are highly desired by the traveling public over turboprop aircraft due to the availability of cabin service and lavatory facilities, reduced cabin noise, and a perception of safer operation. Most regional jets are configured with 50 seats, although models range from 36 to 70 seats. Regional jets are also frequently used to replace small narrow body aircraft in markets where demand is lower. Often the use of regional jets in place of narrow body aircraft in 'thin demand' markets results in better air service due to an increase in the number of daily scheduled departures. Even so, there was no scheduled service on regional jets from LAX in 2000 and the number of regional jet departures at the other regional airports had dropped 64 percent since 1996. 
- ◆ Turboprop and prop aircraft represented a smaller percentage of the regional fleet in 2000 compared to 1996. Wide body (twin-aisle) aircraft maintained their share of the regional fleet between 1996 and 2000. The workhorse class of aircraft in the region remains the narrow body (single-aisle) jet. Narrow bodies can be as small as 60 seats (Fokker F28) or as large as a single class Boeing 757 with 226 seats. Narrow body jets expanded their share of the fleet between 1996 and 2000. The reduction in small turboprop/prop and regional jet aircraft operations and the increased use of narrow body jets, resulted in an increase of 11 percent in the average number of seats on scheduled aircraft, from 120 to 133 seats in the region (125 to 137 at LAX). 
- ◆ This increase in average gauge (seats per departure) means more passenger seats are available for the same number of aircraft operations. In the region, PSP provides the most vivid example. Scheduled departures declined 13 percent in the 1996 to 2000 period while gauge increased 30 percent, resulting in an increase of departing seats of 13 percent.
- ◆ At the same time that the average gauge was increasing, the length of the average scheduled flight segment from the regional airports also increased. The average length of haul

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 6:22:16 PM

Why didn't LAWA do more to disburse regional operations since it owns Ontario and Palmdale where the two areas WANT MORE SERVICE?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 6:26:55 PM

The statement is made that no scheduled service regional jets were at LAX in 2000. In the past two years, however, at LAX-Community Noise Roundtable meetings it is reported that many, if not most, of the turboprops have been replaced by regional jets.

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 6:33:56 PM

What data calls for changing the mix from the single aisle jets? There is a substantial shift of gates capable of handling wide body jets in Alt D.

increased by 20 percent between 1996 and 2000, from 864 miles to 1,038 miles (1,025 to 1,208 miles from LAX).

A.2.3 COMPARISON OF 2000 TO 2001 AND BEYOND

Although 2001 has not been used as an update comparison year for the LAX Draft EIS/EIR, it is useful to acknowledge trends that were observed prior to the September 11, 2001 terrorists attacks to analyze how traffic is recovering and to determine the impact of the recession that began in 2001.

Nationwide Impact of September 11, 2001 and Economic Recession

◆ Following September 11, 2001, air travel declined at most U.S. airports; in addition, the economic recession exacerbated the schedule cuts. For the industry as a whole, revenue passenger miles declined 32 percent in September 2001 compared to the previous year. Compared to 2000, traffic decreased 26 percent in October and 20 percent in November. During the holidays (December 20 to January 2) traffic declined 12 percent compared to the holiday season a year ago.¹ As shown in **Figure A-1**, Revenue Passenger Miles (RPM) Percent Decrease from 2000 to 2001, all of the top 10 carriers experienced decreases in traffic in the fourth quarter of 2001, with the exception of Southwest Airlines.

◆ While individual airports have been affected differently, activity at most airports appears to be recovering. A review of individual airport statistics shows that the industry averages reflect a wide range of airport traffic fluctuations (see **Table A-2**, Los Angeles International Airport Scheduled Seats Comparison). The cost reduction measures of the airlines have disproportionately affected certain airports, while other airports recovered quickly and are now back to pre-September 11, 2001 activity levels. Particularly hard hit have been the large coastal airports such as LAX, which had much overlap in competing airline service to certain markets, and small spoke airports, which often were marginally profitable. Many of the small "spoke" airports have seen commercial jet service downsized

¹ Air Transport Association, 2002.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 6:36:49 PM

This delineation of passenger miles after 9-11-01 indicates a significant drop in all but Southwest Airlines. Southwest Airlines flies mainly narrow body aircraft. Explain why these are the aircraft gates in Alt D that are being removed/quantity reduced.

LAX Master Plan Addendum

Table A-2

Los Angeles International Airport Scheduled Seats Comparison

Airport	Oct. 2000	Oct. 2-01	% Change	Nov. 2000	Nov. 2001	% Change	Dec. 2000	Dec. 2001	% Change	4th Qtr. 2000	4th Qtr. 2001	% Change
	4,406,081	3,810,709	-14%	4,215,074	3,252,728	-23%	4,315,706	3,370,679	-22%	12,936,861	10,434,116	-13%
Los Angeles	4,880,266	4,454,867	-9%	4,676,453	4,230,071	-10%	4,914,997	4,448,148	-9%	14,471,716	13,133,086	-9%
Atlanta	4,780,695	4,292,850	-10%	4,502,294	3,875,978	-14%	4,524,287	3,997,774	-12%	13,807,276	12,166,602	-12%
Chicago O'Hare	3,726,451	3,390,620	-9%	3,572,906	2,989,952	-16%	3,647,821	3,104,921	-15%	10,947,178	9,485,493	-13%
Dallas	2,509,486	2,136,469	-15%	2,381,886	1,851,036	-22%	2,428,865	1,906,440	-22%	7,320,237	5,893,945	-19%
San Francisco	2,396,459	2,064,914	-14%	2,166,686	1,801,937	-17%	2,318,026	1,904,789	-18%	6,881,171	5,771,640	-16%
Denver	2,045,648	1,954,886	-4%	1,968,768	1,815,493	-8%	1,979,085	1,843,911	-7%	5,993,501	5,614,230	-6%
Las Vegas	2,175,078	1,840,511	-15%	2,039,701	1,770,854	-13%	2,113,274	1,920,284	-9%	6,328,053	5,531,649	-13%
Minneapolis/St. Paul	2,494,108	2,303,396	-8%	2,430,814	2,085,060	-14%	2,522,930	2,184,204	-13%	7,447,852	6,572,660	-12%
Phoenix	2,257,048	1,926,221	-15%	2,121,612	1,833,949	-14%	2,152,071	1,922,251	-11%	6,530,731	5,682,421	-13%
Detroit	2,050,422	1,907,168	-7%	1,960,027	1,894,287	-3%	2,046,730	1,905,424	-7%	6,057,179	5,706,879	-6%
Houston	2,288,354	1,864,310	-19%	2,176,061	1,744,107	-20%	2,234,558	1,761,195	-21%	6,698,973	5,369,612	-20%
Newark (NY)	1,962,049	1,824,676	-7%	1,961,020	1,754,514	-11%	2,096,790	1,874,930	-11%	6,019,859	5,454,120	-9%
Miami	2,175,674	1,797,702	-17%	2,085,352	1,549,996	-26%	2,085,094	1,635,924	-22%	6,346,120	4,983,622	-21%
JFK (NY)	1,645,671	1,419,785	-14%	1,631,827	1,549,996	-7%	1,690,840	1,368,898	-19%	4,968,338	4,090,781	-18%
Orlando	2,106,568	1,979,913	-6%	1,969,741	1,825,583	-7%	2,013,880	1,868,048	-7%	6,090,189	5,673,544	-7%
St. Louis	1,801,724	1,627,103	-10%	1,647,797	1,421,858	-14%	1,713,312	1,536,013	-10%	5,162,833	4,584,974	-11%
Seattle	2,037,499	1,685,085	-17%	1,922,928	1,339,534	-30%	1,919,561	1,433,715	-25%	5,879,988	4,458,334	-24%
Boston	1,930,095	1,607,064	-17%	1,911,283	1,353,519	-29%	1,951,072	1,415,390	-27%	5,792,450	4,375,973	-24%
LaGuardia (NY)	1,826,653	1,720,934	-6%	1,733,576	1,595,531	-8%	1,761,015	1,661,241	-6%	5,321,244	4,977,706	-6%
Philadelphia	1,659,916	1,693,700	2%	1,612,216	1,526,498	-5%	1,684,132	1,616,374	-4%	4,956,264	4,836,572	-2%
Charlotte	1,310,568	1,121,686	-14%	1,302,659	983,527	-24%	1,309,068	1,030,953	-21%	3,922,295	3,136,166	-20%
Honolulu	1,520,855	1,338,575	-12%	1,429,907	1,360,428	-5%	1,465,517	1,372,660	-6%	4,416,279	4,071,663	-8%
Cincinnati	1,362,603	1,291,930	-5%	1,251,334	1,080,769	-14%	1,246,745	1,093,917	-12%	3,860,682	3,466,616	-10%
Washington Dulles	1,192,295	1,129,137	-5%	1,129,148	1,102,587	-2%	1,203,556	1,157,346	-4%	3,524,999	3,389,070	-4%
Salt Lake City	58,542,266	52,184,211	-11%	55,801,070	47,341,894	-15%	57,338,932	49,335,429	-14%	171,682,268	148,861,534	-13%
Top 25 Total												

Note: Seats shown represent arrival seats.
Source: Official Airline Guide, 2001.


Sequence number: 1

Author: Denny Schneider

Subject: Note



Date: 8/2/2003 6:42:43 PM


Where in this document does it draw any inferences of cause of aircraft seat reduction? Since CA is continuing to experience a serious economic downturn and has not yet turned around, explain what future will look like for various economic conditions.

- ◆ In spite of the aforementioned events and economic downturns, air travel has followed a general upward trend since the 1960s, increasing by an average of over 10 percent annually. An analysis of the major events mentioned above shows that declines in air travel (or very limited growth) were typically followed by robust recovery. The general longer-term growth trend holds true despite these temporary dips. While none of these events is comparable to what occurred on September 11, 2001, the trends observed from these occurrences can provide insight into the future. The new millennium brings a recession and a new "war against worldwide terrorism" that presents its unique set of uncertainties. However, if aviation history provides any guidance, the current downturn will be offset by a pronounced rebound. 

- ◆ Two of the nation's major air carriers, US Airways and United Airlines, filed for bankruptcy protection in the second half of 2002. Most of the major airlines were losing money before the events of September 11, 2001 due to reductions in business travel brought on by the economic recession. The protracted duration of the recession has led many industry observers to believe that full-fare business travel may never return to the levels experienced in the 1990s. Business travel has experienced a fundamental shift to advance purchase tickets, extending trips to take advantage of lower fares that require Saturday night stays, and conducting more meetings via video conferences.

LAX Activity 2000 to 2001

- ◆ Prior to September 11, 2001, the number of passengers served at LAX was relatively constant with 2000 levels; after the terrorist attacks, LAX was one of the disproportionately affected airports in the U.S. LAX passenger traffic declined by 25 percent for the fourth quarter of 2001 compared to the same period in 2000. As shown in **Figure A-4**, 2000 and 2001 Total Passenger Comparison, LAX is showing gradual recovery; traffic was down 33 percent in September, improving to a decrease of 20 percent in December. During January and February 2002, passenger traffic was down only 17.5 percent, compared to the same two months in 2001. 


In October of 2001, the airlines introduced regional jet service at LAX. The introduction of regular regional jet service was likely a reaction to reduced passenger demand following September 11, 2001 and the demise of United Shuttle. 

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 6:52:53 PM

The assumption of major rebound is possibly right, but not supported. The proportion of business travel is changing with the advent of the internet, teleconferencing, etc. What proportion of the passenger travel demand does this represent? It has been 3 years since 2000 and the increases are not being seen at LAX--except for cargo. More definitive explanation of the future needs should be provided.

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 6:54:51 PM

One explanation for the sharp decline at LAX might be the high profile concentration of air traffic for all of Southern California and the fear of terrorist attack. Explain how expanding the capacity at LAX will alleviate this reduction.

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 6:58:39 PM

This paragraph notes that Jan-Feb of 2002 was ONLY down 17.5% compared to the same period in 2001. A reduction of less magnitude is still in the wrong direction. This is far from a rebound. Explain why this continued decrease is a positive sign that a rebound is occurring.

Sequence number: 4

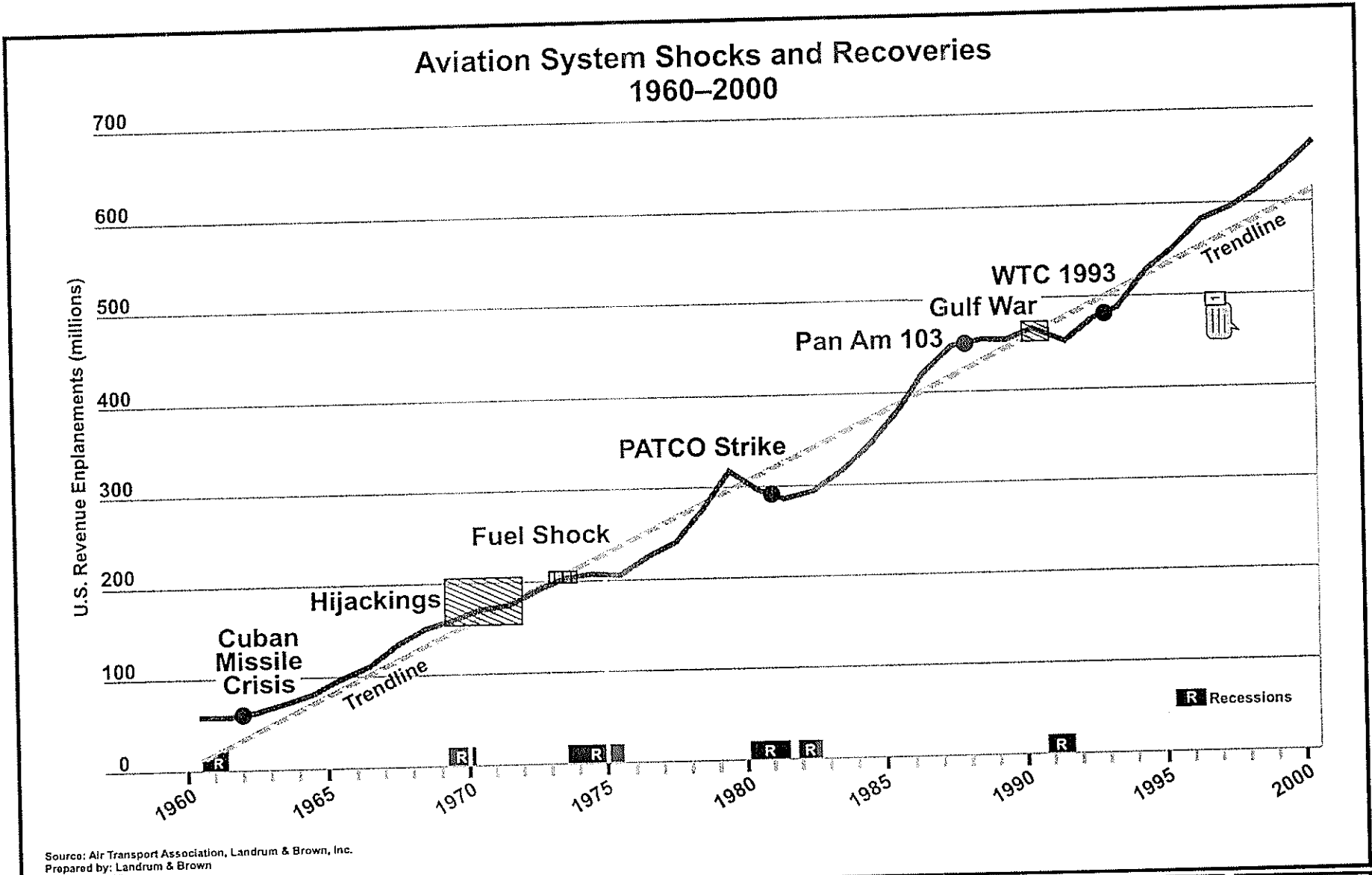
Author: Denny Schneider

Subject: Note

Date: 8/2/2003 7:00:35 PM

This observation that regional jet service was introduced in 2001 is not addressed several pages earlier which noted that no scheduled regional jet service exists at LAX. How is this justified?





Los Angeles International Airport
Master Plan

40-Year United States Historical Aviation Traffic

Figure
A-3

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 7:03:09 PM


Since this was being prepared in 2003, why not include more recent data?


Regional jets continued to operate at LAX into 2002. In August of 2002, regional jets were scheduled to serve 13 markets, with over 59 flights per day.⁶ In 2000, all but two of these markets (Fresno and Santa Barbara), were exclusively air carrier markets and were not served by commuter aircraft. It is expected that regional jet activity at LAX will continue to increase in the future.

A.2.4 AVIATION AT LAX

In support of the baseline year comparison update for various environmental impact analyses, a year 2000 design day flight schedule was developed. This schedule was developed based on LAX Air Traffic Control Tower (ATCT) daily airport operations counts, LAWA traffic statistics, radar data, and the Official Airline Guide (OAG) published schedule of arrivals and departures.

Background Assumptions in the 2000 Design Day Schedule

The ATCT daily activity counts from January through December 2000 were used to define the volume of annual operations that correspond to the design day. The daily counts were reviewed to identify the peak activity month and to compare fluctuations in activity volumes by day of the week. August was identified as the peak month with 68,871 total operations. Operations for the Peak Month Average Weekday (PMAWD) in August were calculated to be 2,277. 

The daily operations counts for all weekdays in August were reviewed to identify the day that would serve as the base for the preparation of the flight schedule. Wednesday was considered a good candidate day because it is a "busy" day, has a good representation of international activity, and is not likely to be affected by potential peculiar service patterns such as Monday or Friday. Wednesday, August 16, 2000, was selected as the representative day for air carrier and commuter activity for the 2000 design day flight schedule. The OAG schedule for this day was then modified as follows: 

- ◆ United Shuttle typically scheduled more flights each day than would actually operate. Forty (40) flights were removed to adjust for this (737-300 and 737-500 aircraft only). The number of flights to remove was determined by comparing the number of actual flights to scheduled flights from the OAG.

- ◆ Saturday is the typical peak day for international operations. To fully reflect international service, 12 international flights from the

⁶ & Official Airline Guide, August 14, 2002.



Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 8:10:11 PM

Is the number of "operations" FAA or LAX counts? FAA includes all aircraft movements--ground or *to* and landings whereas LAWA is only take offs and landings. How does this value of 2277 compare with the theoretical max? If I assume 1.5X average hourly rate this is about 140+ during peak time.

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 8:06:26 PM

If the development of a typical day was to be in August, why wasn't August 2001 also calculated? This was the highest values prior to Sept 11. Then a Peak Month Average Weekday could be more appropriately compared for 2002 trending as well.

Saturday, August 19, 2000 OAG schedule were added to the design day schedule.

- ▶ Three charter flights were added to represent typical operations.

August 3, 2000 was selected as a representative day for all-cargo operations. This was the busiest day of the month for cargo operations. Design day cargo operations increased from 76 in 1996 to 117 in the 2000 design day schedule.

- ◆ August 3, 2000 was also used for general aviation operations. The hourly distribution of general aviation operations was adjusted to correspond to the average hourly distribution for general aviation operations for August. Design day general aviation activity remained at 104 operations in 2000.

Highlights of the 2000 Design Day Schedule

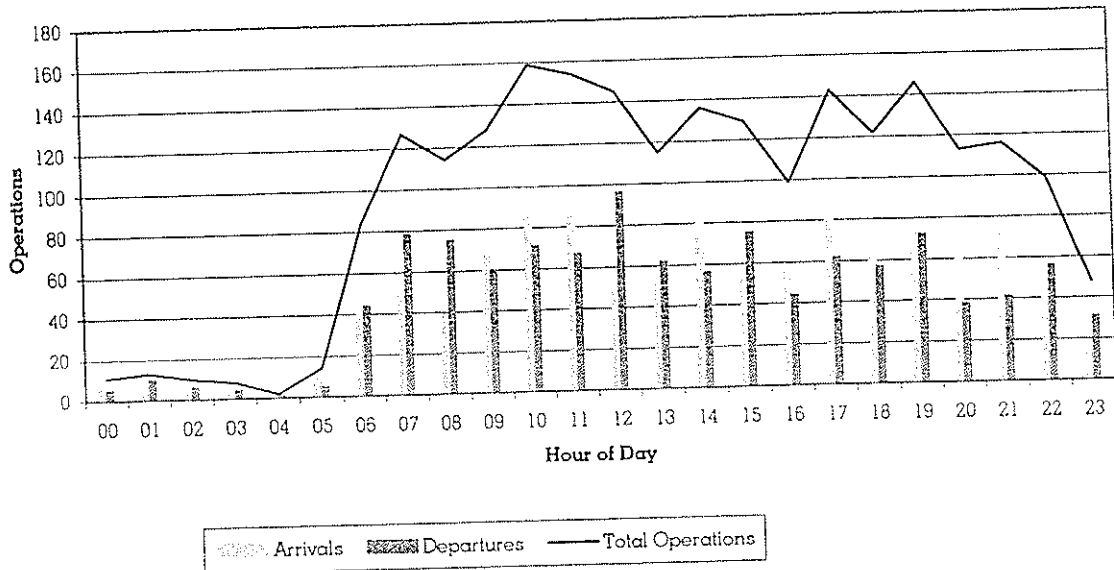
The resulting 2000 flight schedule totaled 2,275 operations, some 40 more than the 1996 baseline schedule and an increase of slightly more than 1 percent. Commercial passenger operations remained similar to the levels observed in 1996 (2,055 in 1996, 2,054 in 2000). The principal increase in design day operations from 1996 to 2000 was in all-cargo activity, which mainly occurs in off-peak hours.

Several changes occurred between 1996 and 2000 in the level of activity for each air service category, primarily in the level of commuter activity. **Table A-3**, 1996 and 2000 LAX Design Day Activity, shows the number of design day operations and passengers for each air service category in the 1996 and 2000 schedules. **Tables A-4**, Hourly Forecast Design Day - Arrival Operations By User - Year 2000, **A-5**, Hourly Forecast Design Day - Departure Operations By User - Year 2000, and **A-6**, Hourly Forecast Design Day - Total Operations By User - Year 2000, show the hourly distribution of the 2000 schedule by region. Commuter activity was somewhat lower in 2000 than it was in 1996, while domestic air carrier and international traffic was higher.

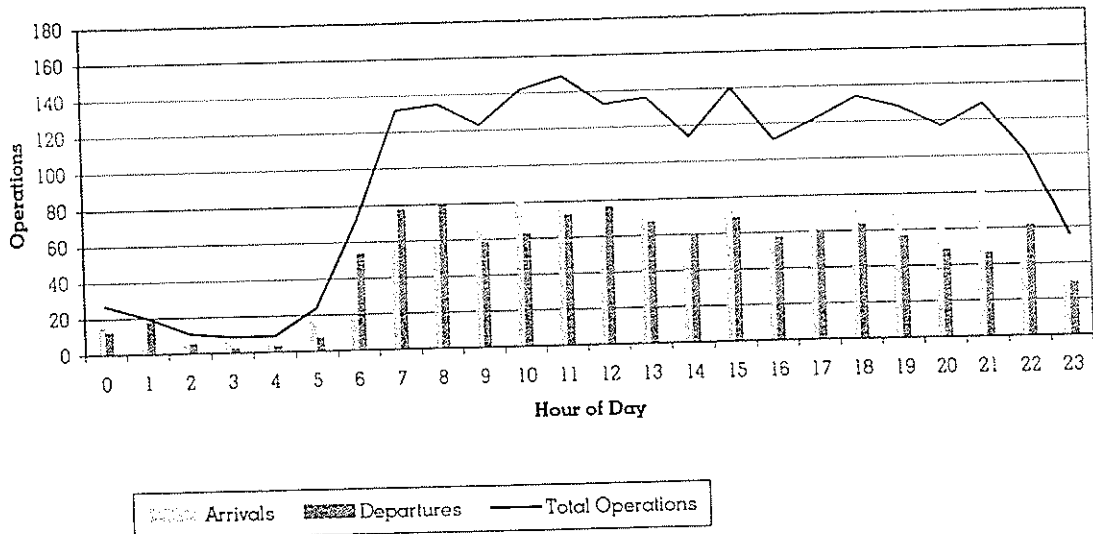
Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/2/2003 8:19:57 PM

Of the 117 cargo operations of the "design day" in 2000 were these pure cargo versus cargo in the cargo hold? The subsequent paragraph implies that these are pure cargo. It would be appropriate to do additional monitoring of cargo flights since this component continues to increase while the others remain decreased.

Baseline 1996



Baseline 2000



Source: 1996 and August 16 & 19, 2000 Official Airline Guide, Air Traffic Control Tower counts, and radar data.
 Prepared by: Landrum & Brown
 Draft: 5/3/02

Los Angeles International Airport

Design Day Hourly Operations

Figure A-5

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 8:34:26 PM

Since there were all of these changes in hourly takeoffs/landings why was the reduction of number of flights not reflected in a change in noise contours? Explain why the shift to evening takeoffs in landings didn't change the noise contours or CNEL calculations.

LAX Master Plan Addendum

Table A-8

Hourly Design Day Arrival Operations By Airline - Year 2000

Time	2T	AA	AC	AM	AN	AS	AV	BA	BR	CA	CM	CO	CP	CZ	DL	F9	FI	GA	HA	HP	IN	IL	IM	JR	KL	LC	MX	N7	NK	NW	NZ	OZ	QF	SR	SY	TA	TW	TZ	UA	US	VS	WN	YX	Total			
00:00-01:00	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	0	1	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	
01:00-02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
02:00-03:00	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
03:00-04:00	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
04:00-05:00	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	17	
05:00-06:00	0	2	0	0	0	0	0	0	0	3	0	1	0	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	5	0	0	2	0	0	19		
06:00-07:00	0	2	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	28	0	0	8	1	0	0	55	
07:00-08:00	0	7	0	0	0	1	0	0	0	4	0	0	0	0	2	0	0	0	0	1	0	1	5	0	0	0	1	2	0	0	2	0	0	0	0	0	0	0	18	0	0	5	0	0	0	56	
08:00-09:00	0	16	0	0	0	2	0	0	0	2	0	1	0	0	0	0	5	0	0	3	0	2	0	0	0	0	1	1	0	1	0	0	0	0	0	0	1	0	21	2	0	7	0	0	65		
09:00-10:00	0	13	1	1	0	5	0	0	0	0	1	0	0	5	0	0	3	1	2	2	1	0	1	0	0	2	0	0	3	0	0	1	0	1	0	2	1	25	1	0	10	0	0	0	80		
10:00-11:00	0	13	0	1	0	1	0	0	0	3	0	1	1	0	3	1	0	3	1	2	2	1	0	0	1	1	0	0	3	0	0	0	0	0	0	0	0	0	27	2	0	9	1	0	0	77	
11:00-12:00	0	13	2	1	0	2	0	0	0	0	3	0	0	4	0	0	4	0	1	2	3	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	20	1	0	5	0	0	0	57		
12:00-13:00	0	8	1	1	0	4	0	1	0	0	1	0	1	0	3	0	0	2	0	1	4	1	0	1	1	0	1	0	1	1	0	1	1	0	1	1	0	18	1	0	9	0	0	0	69		
13:00-14:00	0	15	0	1	0	3	0	0	0	1	0	2	0	0	1	1	0	2	0	1	4	1	0	1	0	0	0	0	2	1	0	0	0	0	0	0	1	0	16	1	0	6	0	0	54		
14:00-15:00	0	11	1	0	0	0	0	0	0	3	0	1	0	0	2	0	0	4	0	1	4	0	0	2	0	1	0	0	0	0	1	1	0	0	0	0	1	15	1	0	8	1	0	0	54		
15:00-16:00	1	11	0	0	0	2	0	0	0	3	0	1	0	0	1	0	0	2	1	1	0	0	0	0	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	19	1	0	7	0	0	62	
16:00-17:00	1	13	0	1	0	3	0	0	0	2	0	3	0	0	5	0	0	4	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	21	1	1	7	0	0	0	71	
17:00-18:00	0	17	1	0	0	3	0	1	0	4	0	1	0	1	2	0	0	3	0	1	2	0	0	0	1	1	0	2	1	0	0	0	0	0	0	0	2	0	19	2	0	8	0	0	0	72	
18:00-19:00	1	14	1	0	0	4	0	0	0	2	0	2	0	0	4	1	0	3	0	1	2	0	0	2	0	0	1	1	0	1	1	0	1	0	0	0	0	1	0	22	1	0	7	0	0	69	
19:00-20:00	0	14	1	1	1	2	0	0	0	3	0	1	0	0	4	0	0	2	0	3	3	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2	25	0	0	9	1	0	0	83	
20:00-21:00	0	17	2	2	0	1	0	0	1	2	0	2	0	0	5	0	0	2	2	1	1	0	1	1	0	0	5	0	0	1	0	0	0	0	0	0	1	0	8	3	0	6	0	0	0	41	
21:00-22:00	0	3	1	0	0	4	0	0	0	4	0	1	0	0	1	1	0	2	0	1	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	5	0	0	2	0	0	27	
22:00-23:00	0	2	1	0	0	1	0	0	0	2	1	2	0	0	2	0	0	3	0	1	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	5	0	0	2	0	0	0	27
23:00-24:00	0	2	1	0	0	1	0	0	0	2	1	2	0	0	2	0	0	3	0	1	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	5	0	0	2	0	0	0	27
TOTALS	3	202	13	9	1	43	0	3	2	60	1	24	2	1	50	4	1	51	5	26	34	6	1	9	2	5	16	5	1	25	5	2	6	1	1	2	13	5	350	18	2	123	4	1,137			

Source: Official Airline Guide, Air Traffic Control Tower counts, and radar data, August 16 & 19, 2000.

SPHE

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 8:52:22 PM

What is the current distribution? How would these charts look broken down by types of aircraft and gate requirements?

APPENDIX A - EXISTING BASELINE COMPARISONS ISSUES - 1996 to 2000

Table A-11 (1 of 2)

HOURLY DESIGN DAY ARRIVAL OPERATIONS BY AIRCRAFT TYPE YEAR 2000

TIME	Air Carrier Operations																															
	100	300	310	319	320	332	340	342	727	72Q	72S	733	734	735	737	738	73G	73S	741	742	744	747	74E	74M	752	757	762	763	767	772	777	
00:00 - 01:00	0	0	0	1	1	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	
01:00 - 02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	
02:00 - 03:00	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
03:00 - 04:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	2	0	0	0	
04:00 - 05:00	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	
05:00 - 06:00	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	
06:00 - 07:00	0	0	0	0	0	0	0	0	0	3	0	12	0	5	0	1	1	0	0	0	0	3	0	0	0	3	0	0	1	0	0	
07:00 - 08:00	0	0	0	0	1	0	0	0	0	0	10	0	3	0	1	1	0	0	0	0	1	1	0	0	0	8	1	1	1	0	2	
08:00 - 09:00	1	0	1	0	4	0	0	0	0	0	7	3	2	0	1	1	0	0	0	0	4	1	0	0	0	9	2	3	1	0	0	
09:00 - 10:00	0	0	0	4	7	0	0	0	0	0	10	0	3	1	1	3	1	1	1	0	0	3	2	0	0	8	3	4	2	0	0	
10:00 - 11:00	0	0	0	2	2	0	0	0	0	0	12	0	2	0	0	3	0	0	0	0	0	6	0	0	0	9	1	0	0	0	1	
11:00 - 12:00	0	0	0	0	5	0	0	0	0	0	1	5	2	5	1	0	2	0	0	0	0	2	2	1	0	0	7	1	3	0	0	1
12:00 - 13:00	1	0	0	1	2	0	0	0	0	1	1	9	1	2	0	0	2	0	0	0	2	1	0	0	0	3	2	1	0	0	2	
13:00 - 14:00	0	0	0	2	3	0	0	0	0	0	7	0	0	0	1	2	1	0	0	0	0	5	2	1	0	0	5	0	0	1	0	0
14:00 - 15:00	0	0	0	1	5	0	0	0	0	0	1	7	2	6	0	0	2	0	0	0	0	1	0	0	1	5	0	3	0	0	1	
15:00 - 16:00	0	0	0	3	3	1	0	0	0	0	0	6	1	5	0	2	0	1	0	0	0	0	0	0	0	4	2	3	0	0	0	
16:00 - 17:00	0	0	0	0	4	0	0	0	0	0	0	6	1	3	0	1	3	0	0	0	0	0	0	0	0	7	1	2	1	1	0	
17:00 - 18:00	1	0	0	3	2	0	0	0	0	1	11	2	3	0	0	0	0	0	0	0	2	0	0	0	0	5	2	2	2	0	1	
18:00 - 19:00	0	0	0	1	3	0	1	0	0	0	2	9	1	2	0	0	4	1	0	0	0	2	0	0	0	14	5	2	1	0	0	
19:00 - 20:00	0	0	0	0	8	0	0	0	0	0	9	0	2	0	2	1	1	1	0	0	0	0	0	0	0	11	2	4	0	0	1	
20:00 - 21:00	0	0	1	2	2	0	0	0	0	0	2	7	0	6	0	0	5	0	0	1	1	1	0	0	0	11	1	0	0	0	0	
21:00 - 22:00	0	1	0	1	3	0	0	0	0	1	0	3	2	6	0	0	3	0	0	0	2	0	0	0	0	6	0	1	0	0	0	
22:00 - 23:00	1	0	0	1	2	0	0	0	0	1	1	0	0	1	0	0	4	1	0	0	0	0	0	0	0	6	0	1	0	0	0	
23:00 - 24:00	0	0	0	0	5	0	0	0	0	0	1	13	135	15	58	2	10	39	7	2	2	43	11	2	1	2	126	26	32	10	1	9
TOTALS	4	1	2	22	63	1	1	1	1	15	13	135	15	58	2	10	39	7	2	2	43	11	2	1	2	126	26	32	10	1	9	

Source: Official Airline Guide, Air Traffic Control Tower counts, and radar data, August 16 & 19, 2000.



Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/2/2003 9:08:08 PM

It would be appropriate to make these comparisons for several key years to see actual trends. The data for 1996 should be compared with 2000 and also 2002. Do these tables include cargo?

Table A-14

Design Day Passenger Factors Summary

Region	1996 Assumptions			2000 Assumptions		
	O&D	Connecting	Load Factor	O&D	Connecting	Load Factor
Domestic						
Pacific	72.76%	27.24%	71.84%	68.10%	31.90%	73.51%
Central	72.76%	27.24%	71.84%	68.10%	31.90%	73.51%
Eastern	72.76%	27.24%	71.84%	68.10%	31.90%	73.51%
Commuter ¹	49.24%	50.76%	47.86%	49.24%	50.76%	55.75%
Hawaii	72.76%	27.24%	89.80%	68.10%	31.90%	87.13%
International						
Canada	59.73%	40.27%	76.47%	64.88%	35.12%	78.73%
Mexico	59.73%	40.27%	76.47%	64.88%	35.12%	78.73%
Europe	59.73%	40.27%	76.47%	64.88%	35.12%	78.73%
Asia-Pacific	59.73%	40.27%	76.47%	64.88%	35.12%	78.73%

¹ Based on 2000 domestic and international O&D ratios and 1994 commuter O&D ratios.

Source: Landrum & Brown, 2002.

Table A-15

Design Day Passenger Summary Comparison

Region	1996 Passengers			2000 Passengers		
	O&D	Connectin g	Total	O&D ¹	Connectin g	Total
Domestic						
Central	18,255	6,971	25,226	20,556	9,446	30,002
Eastern	23,392	8,929	32,321	25,613	11,762	37,375
Commuter	3,304	4,291	7,595	3,731	4,501	8,232
Hawaii	9,074	3,442	12,516	7,892	3,588	11,480
Total Domestic:	104,448	43,080	147,528	106,509	51,768	158,277
International						
Canada	1,990	1,364	3,354	3,749	2,071	5,820
Mexico	6,105	4,181	10,286	9,326	5,128	14,454
Europe	4,739	3,226	7,965	6,974	3,816	10,790
Asia-Pacific	10,350	7,029	17,379	17,004	9,300	26,304
Total International:	23,184	15,800	38,984	37,053	20,315	57,368
Total Passengers:	127,632	58,880	186,512	143,562	72,083	215,645

¹ Based on 2000 domestic and international O&D ratios and 1994 commuter O&D ratios.

Source: Landrum & Brown, 2002.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/2/2003 9:14:08 PM

According to the load factor comparisons the loading is increasing. Based on the new Alt D approach of restricting gates instead of the present traffic constraint then more flights will bring in more people based on an equal number of flights. Explain how the load factor and frequency, as well as size of aircraft will not increase capacity given a fixed number of gates. Note that Alt D already calls for a mix of gates that increases the size of aircraft.

Table A-17

1996 and 2000 LAX Annual Activity

	Passengers		Operations	
	1996	2000	1996	2000
Domestic Air Carrier	41,182,037	47,008,533	386,733	436,988
Commuter	2,759,991	2,918,282	233,832	172,770
International	14,032,531	17,376,367	91,641	101,033
Cargo	N/A	N/A	23,682	37,270
General Aviation	N/A	N/A	27,978	19,412
Total	57,974,559	67,303,182	763,866	767,473

Source: LAWA records and air traffic control tower counts, 2000.

A.2.5 LAND USE

The Geographic Information Services (GIS) off-airport land use database used in the Draft EIS/EIR has already been updated to reflect year 2000 data. That database identified parcel-level information and consisted of two major components: off-airport land uses and sensitive receptors (non-residential):

Although the original off-airport land-use data was derived in 1994, it was updated in early 2000 with data purchased from TRW.¹⁰

Working with Psomas, PCR and Landrum & Brown cooperatively updated and refined the sensitive receptors database from October 1999 to February 2000. As a result, all GIS land-use and noise grid-point databases are consistent throughout the Draft EIS/EIR.

Through similar research techniques, PCR plans to verify and update the sensitive receptors previously identified in early 2000 (e.g., schools) if needed. Other off-airport land uses could also be updated through the purchase of GIS data from a vendor such as TRW.

A.2.6 GROUND TRANSPORTATION

On-Airport Traffic

Airport-generated vehicle trips are primarily a function of O&D passengers, not connecting passengers. They are measured and analyzed during the peak hour of airport activity, which is 11:00 a.m. to Noon during the airport's peak month/average weekday, which is a Friday in August. As a result, vehicular traffic is only indirectly related to MAP, and the changes in vehicular traffic between years can

¹⁰ PCR communication with Matt Caraway of Psomas, 2002.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 9:24:10 PM

Off-airport land use data updated in early 2000 was using data from what time period? Any data has some lag time between gathering and actual conditions. There has been a substantial change since 1996. What changes have been documented? What are they? There were substantial problems with the numbers of impacted residents in the original 2001 study. How has this been improved? Where in this massive document are the details of this upgraded information?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 8/2/2003 9:27:07 PM

Earlier in the document a Wednesday was chosen as a busy, typical day because Fridays were so variable. Why, here, does the analysis use a Friday?

appear counter-intuitive when comparing to MAP changes during those same years.

To determine the change in airport-generated vehicle trips between 1996/1997 and 2000, Central Terminal Area (CTA) traffic count information was collected from LAWA's in-pavement traffic count program. The peak hour of commuter traffic is from 8:00 a.m. to 9:00 a.m. and from 5:00 p.m. to 6:00 p.m. The 1996 airport peak hour traffic data was collected in August, while the commuter peak hour traffic count data was collected in March 1997. Both inbound and outbound CTA traffic counts were collected at that time.

To obtain year 2000 traffic count information for comparison to the 1996/1997 traffic count data, the corresponding data was obtained for the airport peak hour on Friday, August 4, 11, and 18, 2000. The data was averaged to produce traffic volumes from a representative Friday in August. A similar methodology was used to estimate the inbound and outbound CTA volumes for the commuter peak hours. That data was obtained on March 17 and 24, 2000. The 1996/1997 CTA traffic counts were then compared to the updated (year 2000) traffic counts.

The inbound and outbound CTA traffic volumes fluctuated according to peak hour aviation activity. During the airport peak hour, CTA traffic was approximately 7 percent higher in 2000 (see **Table A-18, CTA Traffic Comparison, 1996 to 2000**). During the morning commuter peak hour, CTA traffic was about 6 percent lower, and during the evening commuter peak hour, it was about 2 percent higher. These trends accurately reflect LAX aviation activity, whose hourly peaking characteristics were adjusting between 1996 and 2000, as discussed in the "Highlights of the 2000 Design Day Schedule" in Section 2.4, *Aviation at LAX*. Although the daily passenger activity increased, the activity occurring during the morning commuter peak hour decreased, as activity shifted to adjacent hours.

Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 8/3/2003 9:12:35 AM

into CTA traffic is not the only airport generated traffic. Many people park in the large, private lots and are shuttled into LAX. Also, rental car and hotel parking traffic exists. Also visits to LAX for people going through LAX is another factor.
Explain why all data was taken on Fridays where as the argument made earlier in this document was for using a Wednesday as the "design day."

Table A-18

CTA Traffic Comparison, 1996 to 2000

Time Period	CTA Traffic ¹		Total
	Inbound	Outbound	
August 1996 Airport Peak Hour ²	5,910	5,380	11,290
March 1997 A.M. Commuter Peak Hour ³	4,100	3,280	7,380
P.M. Commuter Peak Hour ⁴	4,160	4,480	8,640
August 2000 Airport Peak Hour ⁵	6,500	5,600	12,100
March 2000 A.M. Commuter Peak Hour ⁶	3,760	3,170	6,930
P.M. Commuter Peak Hour ⁷	4,390	4,410	8,800

¹ Los Angeles World Airport, LAX AVI traffic count data.

² Peak hour defined as 11:00 a.m. to 12:00 noon.; Source: Update Existing Conditions to 1996, On-Airport Transportation; June 9, 1998; Leigh Fisher Associates.

³ Peak hour defined as 8:00 a.m. to 9:00 a.m.; Source: Update Existing Conditions to 1996, On-Airport Transportation; June 9, 1998; Leigh Fisher Associates.

⁴ Peak hour defined as 5:00 p.m. to 6:00 p.m.; Source: Update Existing Conditions to 1996, On-Airport Transportation; June 9, 1998; Leigh Fisher Associates.

⁵ Average of peak hour traffic on August 4, 11, and 18, 2000.

⁶ Average of peak hour traffic on March 17 and 24, 2000.

⁷ Average of peak hour traffic on March 17 and 24, 2000.

Source: Landrum & Brown, 2002.

Off-Airport Traffic

Off-airport traffic analyses use the Adjusted Environmental Baseline scenario to determine traffic impacts and mitigation under CEQA. The Adjusted Environmental Baseline scenario does not use baseline off-airport traffic conditions. Rather, it combines future off-airport traffic conditions with baseline on-airport traffic conditions. Therefore, the off-airport traffic analysis is only dependant on the baseline year as it pertains to the on-airport traffic, which is discussed above. As a result, unlike the analyses for the other disciplines, which use an existing baseline condition, the potential changes in off-airport conditions that may have transpired since 1996 are irrelevant for the off-airport surface transportation analyses.

However, even though the Adjusted Environmental Baseline Alternative uses only future traffic conditions, the regional traffic facilities that are incorporated into the modeling of these alternatives; roadway lanes, turning lanes, traffic signal improvements, etc. should reflect the most recent changes in the area's road network. Therefore, in coordination with the Los Angeles Department of



Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 9:26:55 AM

Off-airport road changes were determined to only be Lincoln @ Venice by LADOT during the period of 1996 to 2000. What about all of the CalTrans, MTA, and LA Bureau of Public Works projects? Freeway off-ramps at Howard Hughes and La Tijera were improved during this time, for instance. Since the traffic count info is assumed to be based on on-airport instead of baseline why wasn't more recent data used as a "sanity check" since many area changes have been in process since 2000.

Transportation (LADOT), the roadway network facility improvements that were implemented after 1996 were identified. A lane configuration change on Lincoln Boulevard at Venice Boulevard was the only change that took place on off-airport roadways since 1996.

A.3 AIRPORT FACILITY CHANGES

The baseline year used in the current analyses is defined as the airport activity that existed in 1996 and the facilities that existed in 1997, which is the year of the Notice of Intent (NOI)/NOP. The facility changes at LAX which have become operational since 1997 are illustrated on **Figure A-9**, Changes in Existing Conditions 1997 to 2000. These facility changes are briefly summarized below.

A.3.1 AIRPORT PROPERTY

Since 1997, LAWA has acquired property under the Aircraft Noise Mitigation Program (ANMP) in two areas, Manchester Square and the Belford area. The land uses in the property acquisition areas are primarily residential and have remained fairly static. Changes that have occurred between 1997 and 2000 are:

LAWA has acquired approximately 289 units of 2000 total units in Manchester Square, which is bounded by Century Boulevard to the north, Arbor Vitae Street to the south, Aviation Boulevard to the east, and La Cienega Boulevard to the west.

LAWA has acquired approximately 245 of 585 units in the Belford Area, which is bounded by Arbor Vitae Street to the north, 98th Street to the south, Bellanca Avenue to the east, and Airport Boulevard to the west.

Land acquisition for the ANMP is on-going, and LAWA does not intend to use these parcels for aviation purposes in the No Action/No Project Alternative.

A.3.2 AIRFIELD

Since 1997, no changes were made on the north airfield and seven modest modifications were made to the taxiways on the south airfield:

- ◆ New Taxiway A4 was constructed and began operation in 2000. Taxiway A4 connects Runway 7R and Taxiway A and is 100 feet wide.
- ◆ New Taxiway C3 was constructed and began operation in 2000. Taxiway C3 connects Runway 25R to Taxiway B and is also 100 feet wide.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 9:29:19 AM

If 289 units were acquired before 2001 how many are now acquired? I believe 289 was a quoted number in 2002 by Sound Proofing Bureau in meetings outside of the Master Plan considerations. What are the correct numbers and at what dates?

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 8/3/2003 9:29:50 AM

T

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 9:31:30 AM

Manchester Square and Belford areas will not be used for aviation purposes in no action? What do they plan as its purpose. This statement is in conflict with verbal statements made in numerous briefings.

Sequence number: 4

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 9:36:37 AM

As no north airfield changes were identified, when were all of the new gates added subsequent to 1984? Are the added gates west of Bradley considered north side? These gates are noted as 1997 additions in Figure A-9.

A.3.3 TERMINAL

There have been several reconstruction and renovation projects within the existing terminal buildings during the period from 1997 to 2000. These projects focused principally upon adding international arrivals processing facilities or Federal Inspection Services (FIS) facilities and improvements to passenger convenience. ¹ These improvements did not create additional passenger handling capacity. A brief description of the terminal improvements completed between 1997 and 2000 are provided below:

Terminal 1

- ◆ Terminal 1 modifications have been limited to relocations of airline ticket counter positions, airline gate positions, and ATO Office space. Several concessionaires have been replaced and updated with new concession opportunities. In 1996, six commuter aircraft affiliated with US Airways operated out of Gate 14. In 1999, USAir Express and States West (the commuter affiliate of TWA Airlines in Terminal 3) ³ constructed a commuter aircraft facility containing five aircraft parking positions in the TWA maintenance facility west of the Tom Bradley International Terminal (TBIT) for joint-use. This new facility was never utilized and the regional component of these airlines is now being served via United Express as part of the United Airlines Commuter Facility located in the United Maintenance Area. Gate 14 at Terminal 1 is currently being used by Southwest Airlines. There have been various concessions redevelopment within the terminal, which resulted in no new net additional square footage to the terminal building.


Terminals 2, 3, and 5

- ◆ No additional aircraft parking positions or net square footage have been added to Terminals 2, 3, or 5. However, like Terminal 1, airlines have relocated to and within these terminals, and there has been concessions redevelopment in each.

Tom Bradley International Terminal (TBIT)

- ◆ The Tom Bradley International Terminal had a concessions expansion and renovation project completed in 1998, although no aircraft gates or parking positions were added. This project added approximately 15,000 square feet of terminal area, representing a 1.5 percent addition to the existing 993,244 square feet. This area was limited to news and gifts stores, food and beverage concessions and seating areas. As part of this redevelopment the security screening areas were modified to accommodate new passenger circulation. On the arrivals level a


Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 9:39:31 AM

 If a gate renovation was classified as to expedite movement of passengers why was it not concurrently capacity expansion since the gates become available more frequently.

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 8/3/2003 9:36:37 AM



Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 9:42:55 AM

 If a commuter aircraft facility was created "in Terminal 3 containing five aircraft parking positions" why is this not classified as adding capacity?

new Interline Baggage Recheck facility was expanded to provide a better level of service for passengers transferring from international flights to domestic flights.

Terminal 4

- ◆ In 1999, America Airlines constructed a remote commuter apron area with 13 aircraft parking positions in the area immediately east of their low-bay hangar west of the TBIT building. These aircraft parking positions were previously located in the apron area around Gate 46. This provided American Airlines one additional gate position upon the relocation of the commuter aircraft. This terminal is also undergoing a renovation project that will be completed in 2002. The project includes expanding the ticket lobby and baggage claim areas; and adding holdroom seating space, concessions areas, and an FIS processing area to accommodate international flights. A separate environmental analysis done prior to commencement of this project determined that there was no capacity increase inherent in the project.

Commuter Terminal

- ◆ United Airlines commuter operations located in the maintenance area east of Sepulveda Boulevard remained unchanged from its configuration in 1997.

A.3.4 ROADS AND PARKING

The only roadway change at LAX was the realignment of Avion Drive, which provides internal access to the Century Cargo Complex located south of Century Boulevard. The primary circulation roadway (World Way West) and the primary access roads (Lincoln Boulevard, Sepulveda Boulevard, Westchester Parkway/Arbor Vitae Street, Pershing Drive, and Imperial Highway) remain unchanged.

The number of short-term parking spaces in the CTA increased due to the construction of Parking Structure 6. Located adjacent to Terminal 6, the structure was opened in 2000. This hourly/daily-rate garage includes 989 stalls; however, it adds only 686 new spaces to the CTA since it replaced a 295-stall surface parking lot. This parking garage was accounted for in the Draft EIS/EIR as part of the future No Action/No Project alternative.

A.3.5 CARGO

Some changes have occurred in the Century Cargo Complex and the South Cargo Complex East. The existing cargo facilities are concentrated in four areas: the Century Cargo Complex (located between Century Boulevard and the south airfield), the Imperial

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 9:47:59 AM

Again, why is a project that adds ticket lobby and baggage claim areas; and adding holdroom seating space... not an improvement? On what basis does an environmental analysis prior to the project determine "no capacity increase?" If a gate can be used for more flights then it IS capacity enhancement. In some cases this might not be bad, but it must be acknowledged.

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 8/3/2003 9:44:21 AM

T

Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 9:50:08 AM

Weren't there also roadway improvements on the south side to accommodate changes to the cargo facilities?

Cargo Complex (on the northwest corner of Imperial Highway and Aviation Boulevard), the South Cargo Complex West (along Imperial Highway west of Sepulveda), and the South Cargo Complex East (along Imperial Highway east of Sepulveda). Changes that have occurred since between 1997 and 2000 are:


- ◆ Singapore Airlines Cargo Building – New 64,000–square foot building located in the South Cargo Complex East and opened in 1999.
- ◆ Mercury Air Cargo Building – Renovated 176,000–square foot building located in the Century Cargo Complex and opened in 1998.
- ◆ FedEx Expansion – 73,000–square foot expansion of the existing facility located in the South Cargo Complex East and opened in 1999.
 - ▶ Cargo Building A – New 153,000–square foot building located in the Century Cargo Complex replaced Cargo Buildings 5 and 6 and opened in 1999.

All of these cargo changes were accounted for in the Draft EIS/EIR as part of the future No Action/No Project alternative.

A.3.6 ANCILLARY FACILITIES


Two new ancillary facilities have come online between 1997 and 2000:

- ◆ USAir Express and States West (the commuter affiliate of TWA Airlines in Terminal 3) constructed a commuter aircraft facility in 1999 containing five aircraft parking positions in the TWA maintenance facility west of the TBIT for joint-use. This new facility was never utilized by the airlines and is now being used by the LAWA Emergency Coordinator and the LAPD.

- ▶ A new United States Post Office opened in 1999 on the corner of Arbor Vitae Street and Airport Boulevard. 

A.3.7 COLLATERAL FACILITIES

Collateral facility changes focus primarily on the Manchester Square and Belford areas. These changes are discussed in the Airport Property section above.

- ◆ A new 9,000-square foot First Flight Child Development Center was constructed on vacant land in 1997 to 1998. It opened in 1999 and is located at 9320 Lincoln Boulevard. 

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 9:52:27 AM

When the USPS Office was opened in 1999 the old facility was converted to cargo. Why is this cargo expansion not mentioned?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 9:55:43 AM

The First Flight Child Development Center opened at 9320 Lincoln is stated to be part of the Manchester Square and Belford areas. This location is NOT even adjacent to MS or Belford. What other properties were procured by LAWA during this period?

A.4 OPERATIONAL CHANGES

A.4.1 NOISE ABATEMENT

Under FAA guidelines, aircraft noise analysis must be conducted for the average annual day, and not for the design day. The issues presented below recognize this FAA requirement.

Changes in Fleet Mix (Encompassing Stage 2 Phase Out and Conversion to Heavies)

- ◆ Since 1996, heavy aircraft operations increased by only seven per day (351 operations per day in 1996 and 358 operations per day in 2000). Prop aircraft have been reduced from 705 per day in 1996 to 560 in 2000, with a commensurate increase in medium and light jet operations (from 1,021 daily in 1996 to 1,228 per day in 2000). Note that these fleet mix statistics differ from the design day schedule information presented earlier in the "Highlights of the 2000 Design Day Schedule" section of this report. This is due to the fact that the design day schedule is based on the Peak Month Average Weekday and was modified for the analysis to include several heavy international flights that occur on Saturdays, as explained in that section. By contrast, the aircraft noise analysis is based on the Average Annual Day fleet mix.

The "4Q2000" input files used in LAWA's Quarterly Report for the final quarter of 2000 were obtained and served as the basis for the baseline contours for 2000, after quality control checks and insertion of ground noise sources. With the exception of 21 jet aircraft not subject to the phase out provisions of ANCA, the jet fleet was composed of Stage 3 aircraft. Therefore the noise levels would be expected to be reduced from previous years, particularly in those areas principally impacted by noise from departing aircraft. Using this assumption, a comparison of the flight portion of the 2000 contour with the 1996 baseline reveals the following observations (see **Figure A-10**, Comparison of Year 2000 and 1996 Noise Exposure Contours).

- ◆ The noise contours along the approaches to both the north and south runway complexes were somewhat longer under the 2000 baseline condition than they were under the 1996 baseline. This is likely a function of the addition of approximately 200 more jets to the operational mix each day and a shift of traffic to the evening and night hours.
 - ▶ Conversely, the noise contours to the north and south of the airport were narrower under 2000 conditions than in 1996. This is a direct result of the completion of the phase out of

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 10:00:11 AM

Great story line about noise! This report assumes aircraft are coming straight in not spread around the area. Ground contours of the area are not considered for impact to the movement or amplification of noise.

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 10:02:11 AM

The lengthening of the contour is accounted for by addition of 200 more jets. The shift to more evening and night hours is also acknowledged. What remains missing from this is the noise frequency range changes. Much more low frequency noise is being generated.

- ▶ Stage 2 jets, which were noticeably louder on takeoff than are Stage 3 jets. Impact computations have not yet been conducted.

Additional assessments will be completed as impact calculations are prepared.

Changes of Runway Loadings

- ◆ Since 1996, there has been a slight shift of landings from the inboard runways to the outboard runways, and of takeoffs from the outboard to the inboard runways during both the nighttime and 24-hour period. It is unlikely that these shifts will present substantive effects on the shape of the baseline noise contour pattern.

Changes in Time of Day Distributions

- ◆ An evaluation of the distribution of operations between the day, evening and night hours indicates a modest shift of between 2 percent and 4 percent of daytime operations into the evening and nighttime hours among all three primary aircraft groups (heavy jet, medium/light jet, and propeller aircraft). Owing to the penalty on evening and night activity imposed by the CNEL noise metric, this shift may result in a tendency to increase the contour size from 1996 baseline conditions. However, this tendency is likely to be over-shadowed by the contour reduction occasioned by the completion of the conversion from Stage 2 to Stage 3 jets at the end of 1999, particularly along the sidelines of the contour in El Segundo and Westchester. The contour extensions to the east are less changed because the Stage 2 to Stage 3 conversion is less pronounced along flight tracks that are predominantly used for landings.

Changes in Run-Up Activity and Location

- ◆ Ground noise for the baseline condition was estimated based on the assumptions of the future No Project/No Action conditions. 1
Because LAWA no longer maintains records of the ground run-up activity at the airport, ground noise can no longer be based on records of actual activity.

Potential Changes in Land Use Patterns and Availability of 2000 Census for Impact Determination

- ◆ As discussed in the Land Use section above, the land use patterns used as underlays for the noise maps were last updated in 1999 to 2000. 4
The land uses in the impact areas are largely built out, and therefore fairly static. The United States Census for 2000 has become available since the Draft EIS/EIR was released for public

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 10:07:31 AM

It has been theorized that run-up activity still has an impact on surrounding communities. When were the record keeping requirements removed?

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 8/3/2003 10:06:36 AM

T

Sequence number: 3

Author: Denny Schneider

Subject: Highlight

Date: 8/3/2003 10:07:51 AM

T


Sequence number: 4

Author: Denny Schneider


Subject: Note

Date: 8/3/2003 10:09:38 AM


The assumptions that areas are largely built out and static is invalid. The Westchester-Playa del Rey Community Plan Update investigations showed marked increases in population due to increased density from replacement of existing buildings.

review. Year 2000 population and dwelling unit information for the 2000 year have been developed. 

Changes in Traffic Routes With Impacts from Changes in Flight Tracks

- ◆ Although the air traffic routes from LAX have been modified since 1996, the noise contour patterns developed by LAWA for the preparation of the "4Q2000" Quarterly Report do not indicate that areas of the South Bay communities would be affected at noise levels in excess of 60 CNEL. 

Changes in Night Traffic/East Flow Characteristics

- ◆ During 2000, the number of over-ocean arrivals during the late night hours increased by approximately 10 percent. This percentage change did not result in a corresponding reduction of the number of late night arrivals over land. This was because total nighttime landings increased from 129 to 141 nightly.
- ◆ The number of departures to the east at night increased. The Automated Radar Terminal System (ARTS) data files used in the development of the Quarterly contours for 2000 indicate that the number of east departures at night averaged 1.7 per night (614 annually) in 1996, as compared to 2.9 per night (1,069 annually) in 2000. 

A.4.2 AIR TRAFFIC CONTROL

From an airspace and air traffic control perspective, the years between 1996 and 2000 have seen minimal changes:

The combination of five major approach control facilities, four from the immediate Los Angeles metropolitan area and the San Diego facility, have produced little in the way of airspace modifications. The combination of these facilities, completed in late 1996, has not resulted in substantive modification to routes or procedures. The internal coordination among the facilities has been enhanced by the imposition of a single management team; however, airspace boundaries between the five facilities have changed little.

- ◆ There have been six airspace changes since 1996. The two principal changes include an actual change in the airspace structure and a change in how airspace is managed. The first change involved a modification to the Los Angeles Class B airspace that occurred on July 7, 1997. This modification involved an extension of the Class B airspace to the southeast to better contain turbojet and turboprop departures. Since much of this modification took place offshore, there has been little impact on the general aviation operation. A smaller airspace modification

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 10:11:29 AM

There is a statement that the 2000 Census data was not yet available? Since this Addendum was presumably done during 2002-3 why was it not used? How would the Land Use Patterns be modified?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 10:13:50 AM

This statement is one of very few acknowledging changes in air traffic routes ever made in writing. What are they and when were they implemented?

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 10:16:30 AM

An average of 2.9 eastern departures per night! What is the value subsequent to 2000?

occurred in 1998 with the closure of Marine Corps Air Station (MCAS) El Toro. As a result of the relocation of the Marine aviation units to MCAS Miramar, the El Toro Class C airspace was rescinded, thus making additional airspace available east of John Wayne Airport.

A jurisdiction change was made in airspace between the Los Angeles ARTCC (ZLA) and Southern California TRACON (SOCAL). Airspace east of LAX in the vicinity of ARNES intersection was redelegated from ZLA to SOCAL. A new sector was established within SOCAL. This sector is identified as East Feeder. As part of the operating procedures for this sector, a new arrival route (Paradise 4 Arrival) was established. This provided SOCAL an opportunity to fine-tune arrivals from the east and determine, at a much earlier stage, what runway complex would be utilized for the final approach and landing.

Another procedural change has been the elimination of some of the confusion surrounding initial altitude assignments to LAX departures. Depending on enroute traffic offshore, LAX departures were subject to departure restrictions of either 2,000 feet or 3,000 feet. The 2,000-foot restriction has been removed and all departures now climb to 3,000 feet. This has eliminated coordination for the controller and reduced the confusion that sometimes surrounded this procedure.

Air traffic has established a Visual Flight Rules (VFR) route over the eastern boundary of LAX. Los Angeles ATCT controls this route for several hours in the early morning, and the rest of the time the route is controlled by SOCAL. The intent of this route was to allow departures to climb to a higher altitude; however, this has not become reality. The major stumbling block at this point is a debate between the Tower and SOCAL as to how much control tower staffing is required to make this procedure effective. This must be solved in order to get LAX departures climbing as rapidly as possible.

Runway incursions have plagued LAX for the last seven years, with the airport ranking among the highest in the nation for runway incursions. As a result, a new approach to the control of arriving aircraft has evolved. Prior to 1996 SOCAL often assigned runway complexes convenient to where the arrival aircraft would park. This often resulted in an overloaded south runway complex. The concern for runway incursions and the establishment of the East Feeder Sector at SOCAL has resulted in a more balanced runway assignment for arriving aircraft. Though this sometimes has a negative impact on the ground movement of aircraft, it provides airborne efficiencies.

Technological advancements have not materialized to the point that airspace capacity has been enhanced. The Center-Terminal Automation System (CTAS) has been installed at SOCAL, but it is not

Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 8/3/2003 10:22:37 AM

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 10:28:12 AM
 Runway incursions is noted as a significant problem. What types have occurred and are they resolvable by runway change only or are they mainly person error related?

7
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Appendix B

2000 BASE AIRSIDE SIMULATION ASSUMPTIONS AND RESULTS


The airside performance of existing conditions at Los Angeles International Airport (LAX) was originally defined by the Master Plan based on 1994 aircraft activity. Due to changes in the volume and characteristics of aircraft operations at LAX between 1994 and 1996, the airside performance baseline was updated to reflect 1996 activity in 1998. The airside performance baseline was updated again in 2002 to reflect 2000 conditions.

The assumptions and results of the 1994 airside performance analysis are documented in Chapter II of the Draft LAX Master Plan - Existing Conditions Working Paper. The 1996 airside performance analysis is documented in Appendix D of the Draft LAX Master Plan. This appendix presents the assumptions and results of the 2000 baseline airside performance analysis for LAX.

B.1 OPERATING ASSUMPTIONS

Airside performance was defined in terms of aircraft taxi time, delay, and throughput, using simulation modeling. The FAA's SIMMOD model was used for the simulations. The assumptions about the LAX operating environment are the same as those used in the 1994 and 1996 airside simulations including the following:

- ◆ Primary Runway Operating Configurations
- ◆ Noise Abatement Procedures
- ◆ Airspace Operating Assumptions
- ◆ Airfield Operating Assumptions

These assumptions are described in detail in Chapter II of the Draft LAX Master Plan. 

The design day schedule used for the 2000 baseline simulations was developed based on actual operations from August 16, 2000. This day was selected as representative of the Peak Month Average Weekday (PMAWD) in 2000. The 2000 design day schedule assumptions and activity are described in Appendix A - Existing Baseline Update Document - 1996 to 2000.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 10:35:54 AM

Operating assumptions are stated to have been the same for 1994, 1996, and 2000 simulations. The assumptions are not in this document, but instead are Chapter II of the Draft LAX Master Plan.

Table B-2
Los Angeles International Airport Master Plan

PEAK HOUR THROUGHPUT - YEAR 2000

Configuration	Annual Use	Peak Arrival Throughput Hour				Hour
		Arrivals	Departures	Total		
VFR Visual West Flow	69.70%	82	64	146	10:00-11:00	
VFR ILS West Flow	15.49%	70	68	138	10:00-11:00	
VFR East Flow	5.71%	70	68	138	10:00-11:00	
Average VFR	90.90%	79	65	144		
IFR West Flow	9.10%	69	63	132	12:00-13:00	
All Weather Average	100.00%	78	65	143		
		Peak Departure Throughput Hour			Hour	
		Arrivals	Departures	Total		
VFR Visual West Flow	69.70%	52	77	129	08:00-09:00	
VFR ILS West Flow	15.49%	53	72	125	08:00-09:00	
VFR East Flow	5.71%	53	72	125	08:00-09:00	
Average VFR	90.90%	52	76	128		
IFR West Flow	9.10%	67	73	140	15:00-16:00	
All Weather Average	100.00%	54	76	129		
		Peak Total Operations Throughput Hour			Hour	
		Arrivals	Departures	Total		
VFR Visual West Flow	69.70%	76	71	147	11:00-12:00	
VFR ILS West Flow	15.49%	69	71	140	15:00-16:00	
VFR East Flow	5.71%	69	71	140	15:00-16:00	
Average VFR	90.90%	74	71	145		
IFR West Flow	9.10%	67	73	140	15:00-16:00	
All Weather Average	100.00%	74	71	145		

Note: East flow throughputs are assumed to be equivalent to VFR ILS west flow.
Source: SIMMOD simulation output

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 10:49:27 AM

If the peak hour is 10-11 and people arrive about 2 hours early, then traffic is from 8-10 AM -- during the AM rush hour traffic...

Appendix C

LOS ANGELES REGION'S SECONDARY AIRPORTS

The following sections discuss the existing conditions and published plans for each of the secondary airports in the Los Angeles Region. **Figure 1.3-1**, located in Section 1.3 of this document depicts the following facilities in their geographic location.

C.1 ONTARIO INTERNATIONAL AIRPORT

Ontario International Airport (ONT), owned by the City of Los Angeles and operated by LAWA, is located approximately 35 miles east of downtown Los Angeles. About one-third of the airport's 1,463 acres is available for future expansion. The airport is well located within the regional ground transportation system, lying between the I-10 Freeway on the north and the SR-60 Pomona Freeway on the south; it is also accessible via a well-developed system of arterial and local roadways. ONT has two parallel runways, both of which are capable of accommodating large jet aircraft, but are too closely spaced to permit independent aircraft arrivals. The 26-gate terminal was designed to allow for future expansion that could add 13 more jet gates.

ONT's air service has grown over the past 15 years as development in the region has expanded into the eastern end of the Los Angeles region, known as the Inland Empire, and air travel demand in the area has correspondingly increased. ONT served 6.8 MAP in 2000. Scheduled passenger service remains predominantly short-haul (68.7 percent) in 2002, but medium-haul now represents 27.6 percent and long-haul 3.7 percent. ONT is the only secondary airport to offer international non-stop air service. ONT offers service to two Mexican cities: Guadalajara and Hermosillo. Service to Hermosillo was added in 2002.

An update of the master plan for Ontario is currently underway. The ONT master plan will recommend the needed improvements to meet the projected demand. The local community supports the airport's growth, and Ontario has the potential to capture a much larger share of total regional demand.

The draft demand passenger forecast for the ONT master plan update includes both regionally unconstrained and constrained scenarios. The unconstrained forecast represents the demand generated within the airport's catchment area. The regionally constrained scenario assumes that other airports in the LA region will be constrained to capacities less than their collective shares of regional demand. Collectively, LAX, Long Beach, John Wayne, and





Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 12:00:18 PM

If the "secondary" airports will reach capacity at approximately the time that Alt D would be completed then there would be no reasonable option to accommodate growth at that time. What in the forecast suggests to start growth improvements at the "secondary" airports NOW?

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 8/3/2003 11:53:52 AM

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Urban airports are expected to reach their capacity and/or policy limitations between 2010 and 2015.

The regionally constrained scenario assumes that local passenger demand in excess of the capacity of the other airports in the region would flow, in part, to ONT. Even if ONT captures a larger share of the local LA region O&D demand, significant passenger activity would still be lost to airports outside of the LA region. Some connecting passengers would be routed over other domestic hubs and international gateways in other cities.

Through 2010, the regionally unconstrained and the regionally constrained forecasts for ONT are identical. O&D traffic at ONT is forecast to increase significantly between 2010 and 2015, when other regional airports would no longer be able to accommodate growth.

The ONT master plan forecast presents projected activity levels for years 2010, 2020, and 2030. The regionally constrained scenario projects passenger demand to be 9.9 MAP in 2010 and 25.4 MAP in 2020. An interpolation of passenger demand between 2010 and 2020 results in an activity level of 15.9 MAP in 2015¹. This 2015 activity level represents an increase of approximately 4.1 MAP over the regionally unconstrained scenario.

Just as LAX today serves a larger percentage of regional demand than the demand generated within its catchment area, under the regionally constrained scenario ONT is forecast to absorb a portion of the unserved demand from the constrained airports in the region beginning between 2010 and 2015. This level of captured passenger demand is forecast to reach approximately 11 MAP in 2020 and 13 MAP in 2030.

The ONT master plan forecast assumes that the percentage of domestic connecting passengers would be maintained at the historical level of 6 to 7 percent throughout the forecast horizon. International passengers are forecast to increase from 40,447 in 2002 to 1.9 MAP by 2030.

The regionally constrained scenario is recommended for use in future planning for ONT. Should the capacity issues at other LA region airports be resolved, planned improvements at ONT could be scaled back or not implemented.

¹ Since the ONT forecast does not present interim year passenger data for 2015, an interpolation was performed to calculate the 2015 value. The interpolation assumed a constant average annual compound growth rate between 2010 and 2020 of 9.8 percent. The 2010 forecast of 9.9 MAP, increased for each of 5 years at 9.8 percent results in an activity level of 15.9 MAP in 2015. Growing the 2015 interpolated forecast of 15.9 MAP each year for 5 years results in the 2020 forecast demand of 25.4 MAP.



Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 8/3/2003 11:54:00 AM

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Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 12:13:58 PM

The statement, "LAX today serves a larger percentage of regional demand than the demand generated within its catchment area..." acknowledges that people are being forced to travel beyond the reasonable distance to get to LAX. What is being done to remedy this?

Sequence number: 3
Author: Denny Schneider
Subject: Highlight
Date: 8/3/2003 12:10:01 PM

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Sequence number: 4
Author: Denny Schneider
Subject: Highlight
Date: 8/3/2003 12:13:58 PM

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C.2 JOHN WAYNE AIRPORT-ORANGE COUNTY

About 28 percent of the region's 2015 domestic O&D demand (23.8 MAP) will be located within John Wayne Airport-Orange County's 60-minute access zone, but only 5.6 MAP in its catchment area. The airport served 7.8 MAP in 2000. The airport has only one relatively short air carrier runway (and a general aviation runway), limited facilities, significant environmental constraints, and severe policy restrictions. A court order issued in 1985 restricts passenger activity to 8.4 MAP and caps daily air carrier operations until 2005. The Orange County Board of Supervisors and the Newport Beach City Council adopted an amendment to this settlement agreement that will add 6 terminal gates and allow annual passenger activity to grow to 10.8 MAP through 2015. The FAA has agreed to the amendment of the 1985 settlement agreement that continues limits on the number of daily commercial operations. Based on these factors, the airport is expected to continue to provide service primarily to short-haul markets (59.6 percent in 2002), with limited service to major medium- and long-haul markets (32.6 percent and 7.8 percent in 2002, respectively).



C.3 BURBANK-GLENDALE-PASADENA AIRPORT

Burbank's catchment area is the second largest in the region, with 17.7 percent of the region's 2015 domestic O&D demand (14.9 MAP). Approximately 24 million domestic air travelers are projected to originate their trips within the 60-minute access zone in 2015. However, the forecast that was prepared as part of the recently completed Part 161 study shows Burbank with an activity level of only 7.2 MAP in 2020. The forecast took into account the physical constraints of the airport's infrastructure and the policy constraints of the governing body that owns the airport. The forecast found that the airport has environmental, physical, and policy constraints that will severely limit its ability to fully serve the demand potential of its market area. Scheduled passenger service remains almost exclusively short-haul (68.7 percent) and medium-haul (17.0 percent) in 2002, with only 1.3 percent of scheduled departures destined for a long-haul market (Honolulu).



C.4 LONG BEACH AIRPORT

Approximately 43 percent of the region's domestic O&D market is projected to fall within Long Beach's 60-minute access zone by 2015, making it the airport most accessible to the greatest number of the region's O&D passengers after LAX. However, the catchment area for Long Beach overlaps the 60-minute access zones for LAX and

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Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 12:17:17 PM

What about cargo for the area? What does the evaluation and constraints say about cargo? Can a significant increase in cargo also occur? If not, why not?


Sequence number: 2

Author: Denny Schneider


Subject: Note

Date: 8/3/2003 12:29:22 PM

Does the review of this airport usage reflect policy of the airport, of the airlines serving it, or physical constraints? If policy changes were to be invoked, could Burbank airport serve more medium and long-haul passengers? What can be done to accommodate this? What about cargo at this airport?

John Wayne Airport, both of which have more extensive existing airline service. Long Beach's potential to attract additional passenger activity is further constrained by the current City of Long Beach policy limiting air carrier flights to 41 per day. With new service by jetBlue Airways and renewed interest from American Airlines, the airport will be close to its policy limit of air carrier flights in early 2003. The airport's scheduled service in 2002 is split fairly evenly among short-haul (25.0 percent), medium-haul (32.6 percent), and long-haul (42.4 percent) destinations. 

C.5 PALM SPRINGS INTERNATIONAL AIRPORT

This airport is located 105 miles from Los Angeles in Riverside County, at the edge of the Los Angeles region, and is a resort destination--not an alternative arrival location for Los Angeles. Palm Springs' scheduled air service is limited to commuter aircraft (89.3 percent) and only 3.6 percent of departures bound for destinations east of the Pacific and Mountain Time zones. Palm Springs served 1.3 MAP in 2000. 

C.6 OXNARD AIRPORT

Oxnard Airport is located approximately 65 miles from downtown Los Angeles. Oxnard's catchment area in 2015 is forecast to contain 3.9 MAP in 2015. The airport consists of a single short runway with limited terminal, parking, and ground access facilities. The airport's only scheduled air service is to LAX. Increased air service at Oxnard will depend primarily on local demand and the willingness of airlines to establish service to other markets. In addition, the airport sponsor has no plans to improve airport facilities, thus limiting the airport's potential to provide direct service to most markets. About 80,000 passengers used the airport in 2000.

C.7 PALMDALE REGIONAL AIRPORT

Palmdale Regional Airport is located on land leased from the Air Force at the Palmdale Production/Test Installation Air Force Plant No. 42, a military installation. This facility is separate and apart from the adjacent 17,000 acres purchased by the City of Los Angeles in the 1960s for future airport development. Civilian use of the Plant 42 airfield is permitted under a joint use agreement with the Air Force. The airfield includes two air carrier-length runways. The terminal facilities on the Plant 42 property consist of one 9,000-square foot terminal with two aircraft parking positions. The airport is approximately 61 miles from the Los Angeles Central Business District with access from State Route 14 (no direct freeway access is provided).

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 12:31:22 PM

Same basic question about Long Beach as the others; must this be constrained and how can it be modified? What about cargo handling and infrastructure to address this?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 12:33:44 PM

As business expands in the inland Empire Palm Springs Airport will become a closer alternative for the eastern based businesses. Being near a major rail line, this could also become useful for cargo. What needs to be done to facilitate growth here?

Table C-20
Scheduled Seats to the Region's Top Domestic O&D Markets
CY 1995

Rank	City / Airport Name	Airport Code	Miles	Haul	O&D	Scheduled Seats Percentages					
					Passengers Region Total	LAX	ONT	SNA	BUR	LGB	PSP
1	Oakland	OAK	337	S	3,952,010	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2	Las Vegas	LAS	235	S	3,278,060	72.3%	9.8%	17.9%	0.0%	0.0%	0.0%
3	San Francisco	SFO	338	S	2,985,880	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
4	Phoenix	PHX	367	S	2,807,150	69.0%	9.9%	15.0%	4.7%	0.0%	1.4%
5	San Jose	SJC	308	S	2,480,650	47.2%	14.9%	24.3%	2.8%	6.9%	3.8%
6	Sacramento	SMF	375	S	2,198,370	87.8%	0.0%	12.2%	0.0%	0.0%	0.0%
7	Seattle	SEA	955	M	1,972,100	88.6%	0.0%	11.4%	0.0%	0.0%	0.0%
8	New York - John F. Kennedy	JFK	2,467	L	1,673,200	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
9	Honolulu	HNL	2,551	L	1,365,740	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10	Chicago O'Hare	ORD	1,730	M	1,319,420	98.3%	1.2%	0.5%	0.0%	0.0%	0.0%
11	Portland	PDX	834	M	1,197,810	66.1%	10.4%	10.0%	11.9%	0.9%	0.7%
12	Salt Lake City	SLC	590	S	1,188,240	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
13	Denver	DEN	860	M	1,000,930	68.1%	11.5%	17.1%	0.0%	0.0%	3.3%
14	Newark	EWR	2,447	L	948,540	47.1%	16.8%	15.6%	20.5%	0.0%	0.0%
15	Dallas/Ft. Worth	DFW	1,247	M	849,070	68.9%	3.9%	22.3%	0.0%	2.3%	2.5%
16	Boston	BOS	2,604	L	809,620	62.8%	12.7%	9.1%	12.8%	0.0%	2.7%
17	Reno	RNO	392	S	694,980	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
18	Atlanta	ATL	1,940	L	659,410	50.0%	21.5%	8.5%	13.0%	5.0%	2.0%
19	Tucson	TUS	451	S	576,860	87.0%	0.0%	13.0%	0.0%	0.0%	0.0%
20	Washington, D.C. Dulles	IAD	2,281	L	573,860	58.8%	10.0%	20.7%	6.9%	0.0%	1.7%
21	Albuquerque	ABQ	677	M	535,980	57.1%	7.3%	16.3%	14.7%	0.0%	4.6%
22	Miami	MIA	2,342	L	529,180	50.0%	11.4%	25.2%	12.7%	0.0%	0.7%
23	Philadelphia	PHL	2,395	L	505,770	65.4%	13.6%	20.4%	0.0%	0.0%	0.6%
24	Minneapolis/St. Paul	MSP	1,533	M	493,740	37.1%	26.9%	11.4%	24.6%	0.0%	0.0%
25	Detroit Wayne County	DTW	1,971	L	483,280	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Subtotal of Top 25					35,079,750	63.6%	12.2%	12.4%	10.0%	0.4%	1.2%
All Other					13,686,810	91.6%	1.9%	3.4%	0.5%	0.0%	1.8%
Total All Markets					48,766,560	72.1%	9.1%	9.7%	7.1%	0.3%	1.4%

Notes: Ranked by O&D passengers.
Haul - Short (S) = less than 600 miles
Haul - Medium (M) = 600 to 1800 miles
Haul - Long (L) = more than 1800 miles

Source: Department of Transportation, Data Base Products, 1995 and OAG data for CY 1995.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 2:03:09 PM

How could this be for CY 1995 and the previous chart Table C-19 be for CY 2000 with exactly the same number of O&D passengers?

Table C-21
International O&D Enplanements for Airports with Greater than One-Half Million International O&D Enplaned Passengers
CY 2000, 1995, and 1990

Rank	Airport	Code	2000		1995		1990	
			O&D Enp	% Share	O&D Enp	% Share	O&D Enp	% Share
1	New York Kennedy	JFK	2,896,834	6.6%	2,545,700	7.9%	2,642,640	9.6%
2	Los Angeles International	LAX	2,779,253	6.3%	2,296,470	7.1%	2,412,200	8.7%
3	Miami International	MIA	2,551,529	5.8%	2,374,340	7.3%	1,924,340	7.0%
4	San Francisco International	SFO	2,247,720	5.1%	1,524,860	4.7%	1,587,600	5.7%
5	Newark International	EWR	2,078,962	4.7%	970,370	3.0%	757,600	2.7%
6	Chicago O'Hare	ORD	1,931,159	4.4%	1,403,640	4.3%	1,129,930	4.1%
7	Boston Logan	BOS	1,537,516	3.5%	1,157,030	3.6%	1,141,550	4.1%
8	New York La Guardia	LGA	1,416,886	3.2%	1,125,790	3.5%	1,126,220	4.1%
9	Atlanta Hartsfield	ATL	1,175,671	2.7%	699,160	2.2%	462,200	1.7%
10	Orlando International	MCO	1,146,412	2.6%	813,880	2.5%	532,180	1.9%
11	Dallas/Ft. Worth International	DFW	1,129,275	2.6%	801,890	2.5%	566,190	2.0%
12	Houston Bush Intercontinental	IAH	979,681	2.2%	575,430	1.8%	475,620	1.7%
13	Las Vegas McCarran	LAS	954,975	2.2%	440,760	1.4%	221,380	0.8%
14	Seattle/Tacoma International	SEA	922,209	2.1%	582,670	1.8%	616,590	2.2%
15	Detroit Wayne County	DTW	879,687	2.0%	583,530	1.8%	479,480	1.7%
16	Philadelphia International	PHL	788,403	1.8%	569,720	1.8%	498,620	1.8%
17	Minneapolis/St. Paul	MSP	745,352	1.7%	502,280	1.6%	373,420	1.4%
18	Washington Dulles	IAD	724,635	1.7%	528,680	1.6%	408,360	1.5%
19	Denver International	DEN	707,935	1.6%	469,780	1.5%	343,050	1.2%
20	Honolulu International	HNL	665,411	1.5%	1,055,810	3.3%	970,050	3.5%
21	San Juan Luis Munoz	SJU	640,028	1.5%	467,130	1.4%	368,100	1.3%
22	Washington Reagan National	DCA	629,562	1.4%	492,870	1.5%	572,780	2.1%
23	Guam International	GUM	595,880	1.4%	688,140	2.1%	373,810	1.4%
Total			30,124,977	68.8%	22,669,930	70.0%	19,983,910	72.3%
US Total			43,796,321	100.0%	32,363,780	100.0%	27,629,350	100.0%

Source: Department of Transportation (DOT), Transborder and International 10% Origin & Destination Survey

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 2:09:31 PM

A premise is that LA would lose O&D to another international airport if LAX doesn't expand. Only one airport, SFO, is capable of accepting passengers at a west coast destination that could travel semi-conveniently to Southern California. Explain how these other airports could possibly become more convenient in place of another SoCal destination.

Table C-22
INS Enplaned Passengers Traveling from the U.S. to International Destinations
By World Region (excludes Canada)

Gateway City	CY 2000 International Enplanements						Total		
	Atlantic	Region % Share	Latin	Region % Share	Pacific	Region % Share			
New York	8,931,499	34.7%	2,806,348	14.7%	684,223	5.4%	12,422,070	12,422,070	0
Miami	1,340,973	5.2%	6,405,475	33.4%	729	0.0%	7,747,177	7,747,177	0
Los Angeles	1,769,824	6.9%	2,068,717	10.8%	3,788,387	29.9%	7,626,928	7,626,928	0
Chicago	2,626,245	10.2%	710,261	3.7%	625,036	4.9%	3,961,542	3,961,542	0
San Francisco	1,187,901	4.6%	338,251	1.8%	1,741,314	13.8%	3,267,466	3,267,466	0
Atlanta	1,506,172	5.8%	988,874	5.2%	66,572	0.5%	2,561,618	2,561,618	0
Honolulu	1,321	0.0%	222	0.0%	2,542,621	20.1%	2,544,164	2,544,164	0
Houston	536,362	2.1%	1,882,156	9.8%	68,979	0.5%	2,487,497	2,487,497	0
Washington, D.C.	1,662,330	6.5%	90,654	0.5%	128,731	1.0%	1,881,715	1,881,715	0
Dallas/Ft. Worth	475,059	1.8%	1,194,036	6.2%	204,700	1.6%	1,873,795	1,873,795	0
Guam	0	0.0%	301	0.0%	1,458,091	11.5%	1,458,392	1,458,392	0
Boston	1,400,137	5.4%	13,323	0.1%	176	0.0%	1,413,636	1,413,636	0
San Juan	37,690	0.1%	1,005,670	5.3%	0	0.0%	1,043,360	1,043,360	0
Detroit	609,559	2.4%	77,368	0.4%	285,989	2.3%	972,916	972,916	0
Orlando	685,387	2.7%	152,845	0.8%	6	0.0%	838,238	838,238	0
Seattle	263,858	1.0%	329	0.0%	362,635	2.9%	626,822	626,822	0
Philadelphia	559,113	2.2%	56,070	0.3%	27	0.0%	615,210	615,210	0
Minneapolis	382,473	1.5%	5,253	0.0%	177,249	1.4%	564,975	564,975	0
Charlotte	256,897	1.0%	211,983	1.1%	68	0.0%	468,948	468,948	0
Fort Lauderdale	9,891	0.0%	391,564	2.0%	23	0.0%	401,478	401,478	0
Cincinnati	298,859	1.2%	15,086	0.1%	0	0.0%	313,945	313,945	0
Pittsburgh	289,750	1.1%	2,187	0.0%	0	0.0%	291,937	291,937	0
Sanford	240,211	0.9%	5,585	0.0%	318	0.0%	246,114	246,114	0
Anchorage	8,781	0.0%	198	0.0%	240,784	1.9%	249,763	249,763	0
Phoenix	66,311	0.3%	163,528	0.9%	0	0.0%	229,839	229,839	0
Baltimore	126,963	0.5%	57,380	0.3%	0	0.0%	184,343	184,343	0
San Jose	0	0.0%	73,592	0.4%	70,337	0.6%	143,929	143,929	0
Portland	0	0.0%	0	0.0%	139,905	1.1%	139,905	139,905	0
Denver	93,150	0.4%	26,753	0.1%	0	0.0%	119,903	119,903	0
San Antonio	0	0.0%	103,816	0.5%	0	0.0%	103,816	103,816	0
Subtotal	25,366,716	98.5%	18,847,825	98.4%	12,586,900	99.4%	56,801,441	56,801,441	0
US Total	25,750,057		19,151,880		12,657,894		57,559,831	57,559,831	0
% of US Total	98.5%		98.4%		99.4%		98.7%		

Source: INS Records

Sequence number: 1


Author: Denny Schneider

Subject: Note

Date: 8/3/2003 2:11:41 PM

The percentages on this chart only have nominal significance for a total number of passengers. A different, better percentage to view would be that of percentage from the region.

Table D-1
2015 Activity Comparison

	Commercial Passenger Operations								
	Domestic				Intl.	Total Commercial	Cargo	GA and MI	Total
	Air Carrier	Commuter	Hawaii	Total					
Design Day Operations									
2005 Alternative D	1,113	435	51	1,599	380	1,979	117	82	2,178
2008 Alternative D	1,075	516	52	1,643	415	2,058		104	2,279
2013 Alternative D	975	532	53	1,560	498	2,058		104	2,279
Design Day Passengers									
2005 Alternative D	140,819	7,476	14,491	162,786	74,567	237,353			
2008 Alternative D	137,942	9,822	14,726	162,490	82,647	245,137			
2013 Alternative D	134,982	11,937	14,702	161,621	101,137	262,758			
Design Day Enplanements/Departure									
2005 Alternative D	126.52	17.19	284.14	101.80	196.23	119.94			
2008 Alternative D	128.32	19.03	283.19	98.90	199.15	119.11			
2013 Alternative D	138.44	22.44	277.40	103.60	203.09	127.68			
Annual Operations									
2005 Alternative D	379,900	148,300	17,000	545,200	136,300	681,500	36,100	27,400	745,000
2008 Alternative D	367,000	176,300	17,400	560,700	149,200	709,900	36,100	35,000	781,000
2013 Alternative D	333,200	182,800	17,600	533,600	179,600	713,100	36,000	35,000	784,100
Annual Passengers									
2005 Alternative D	41,978,500	2,276,000	4,284,200	48,538,700	22,272,500	70,811,200			
2008 Alternative D	41,118,900	2,995,900	4,469,200	48,584,000	24,694,300	73,278,300			
2013 Alternative D	40,334,500	3,664,900	4,598,200	48,597,600	30,266,500	78,864,100			


Note: Canadian passengers and operations are included in the international totals.

Prepared by: Landrum & Brown
Draft: June 2003


Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 2:26:59 PM

The 3 cargo values can't be the same if it is assumed that cargo will increase from 2 MAT to 3.5 MAT! If the assumption is larger aircraft, how will LAX handle these aircraft.

D.1 2005

A 2005 activity profile for Alternative D was developed for use in the airside simulations. The output of the 2005 Alternative D airside simulations was used to provide input to the SEIS/EIR noise analysis. 

The Alternative D activity profile was developed based on the capacity of the alternative in 2005. Runway 25L would be closed for construction in 2005 and LAX would consist of a three-runway airfield. No new gate facilities would be constructed by 2005 with Alternative D and the available gate facilities would be the same as the No Action/No Project Alternative.

If Alternative D had four runways in 2005, its capacity and resulting activity profile would be equivalent to the No Action/No Project Alternative. The No Action/No Project Alternative would have the ability to accommodate 71.2 MAP and 779,500 annual operations. 

With only three runways available, airfield capacity would be reduced. It is assumed that the airlines would choose to not schedule a portion of the commuter activity in response to the constraint. In addition, it is assumed that general aviation activity would be reduced from the 2005 No Action/No Project Alternative levels in response to the delays and congestion that would result from the closure of Runway 25L/7R.

The capacity of a three-runway airfield was determined through an iterative process that involved testing the 2005 No Action/No Project activity profile against the three-runway airfield using the FAA's Airport and Airspace Simulation Model (SIMMOD). This testing process determined the hourly profile of activity that could be accommodated on a three-runway airfield at reasonable delay levels. Delays were permitted to increase beyond the maximum range of 10 to 15 minutes per operation (the range used in the development of the 2015 activity profiles for Alternative D and the other Master Plan alternatives) because the runway closure would be a temporary condition. It is assumed that the airlines would accept higher delays on a temporary basis in order to serve demand. See Appendix E for a discussion on the airside simulation assumptions for 2005.

Based on the capacity of a three-runway airfield, Alternative D in 2005 would have the ability to accommodate 70.8 MAP and 745,000 annual operations.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 2:37:44 PM

Where is the back up data for these interim periods? What is the aircraft mix assumed? What changes are assumed to get each interim value? How is the noise analysis used with regard to flight track noise? What assumptions of runway use, alternative routes, etc. are part of the noise analysis? What about topological and weather conditions? Does the increase of aircraft operations add pollutants which makes the noise conditions worse?

Sequence number: 2

Author: Denny Schneider

Subject: Note


Date: 8/3/2003 2:47:25 PM

The statement that 2005 Alt D conditions are NOT equivalent to NANP. In the earlier portion of this Appendix D it calls for closure of 25L. NANP doesn't have this closure in place.
At this point no air-field gates or other runway action is supposed to have occurred. This means that at a minimum the often repeated 78 MAP inherent value for NANP applies, not 71.2. Whenever the north runway work is started then there will be a temporary change to account for the reduced number of runways.
Since the current constrain is traffic at Century and Sepulveda not air or gate ops, the theoretical capacity of LAX would actually go up because this constraint would be eliminated.


D.2 2008

A 2008 interim year activity profile was developed for Alternative D to assist in the landside modeling for the SEIS/EIR. The following sections present the capacity constraints associated with Alternative D in 2008 and the expected impact on air service.


D.2.1 AIRCRAFT OPERATIONS CAPACITY CONSTRAINTS

Alternative D consists of a four-runway airfield in 2008. Similar to the 2015 case, the 2008 Alternative D peak hour aircraft operations activity was defined based on the capacity of the existing four-runway system at LAX in visual operating conditions. Peak hour operations in the 2008 activity scenario were assumed not to exceed the levels observed in 1996 and operations were permitted to increase in other hours as warranted by market demand. 

D.2.2 PASSENGER CAPACITY CONSTRAINTS

There would be no new gate or landside facilities constructed by 2008 with Alternative D. The level of passengers that could be expected in 2008 with Alternative D was therefore determined based on the ability of the existing ramp to accommodate larger aircraft and the ability of the existing landside facilities to accommodate a higher level of origin and destination (O&D) passengers. Alternative D in 2008 would have the ability to accommodate the 2008 unconstrained forecast fleet size by making use of the remote west pad for aircraft parking. The existing landside facilities would have the capacity to process the activity generated by the runways and gates. 

D.2.3 CARGO CAPACITY CONSTRAINTS

The cargo facilities available in 2008 for Alternative D would be equivalent to the those available in 2015. Therefore, cargo activity for Alternative D in 2008 was assumed to be equivalent to 2015 Alternative D cargo levels (3.1 million annual tons). 

D.2.4 AIR SERVICE IMPLICATIONS

The air service impacts of the above constraints for Alternative D in 2008 are summarized below:

- ◆ High priority was given to accommodating O&D activity. By limiting the amount of connecting activity, Alternative D would be

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 2:56:32 PM

Why was the 2008 scenario assumption that 1996 levels would not be exceeded for peak hour ops? What is the basis of this?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 3:03:22 PM

What is the theoretical capacity of NANP at this point since it is indicated that Alt D in 2008 will use the remote west pads.

Sequence number: 3



Author: Denny Schneider

Subject: Note

Date: 8/3/2003 3:04:52 PM

Alt D talked about upgrading and adding cargo facilities in the south and west areas. How is the capacity equivalent at the intermittent times?

able to accommodate 100 percent of the 2008 unconstrained forecast O&D demand.

- ◆ Commuter operations were reduced (from 1996 levels) consistent with the No Action/No Project Alternative and Alternative C. In order to maximize the number of passengers that could be served with a limited number of operations, it was assumed that some commuter service would be replaced by air carrier service. It was also assumed that commuter connecting service through LAX would decrease in order to meet 100 percent of forecast O&D demand. This results in 38 percent of forecast commuter connecting passengers not being served at LAX in 2008. 
- ◆ Air carrier connecting activity was decreased from 2015 forecast levels to reflect the loss of connecting passengers from commuter flights.
- ◆ The domestic air carrier hourly profile was de-peaked and service was reduced from 2015 forecast levels in the Central, Eastern, and Pacific regions to reflect the response from the airlines to the airfield constraints. It is assumed the airlines would adjust their schedules to allow for more profitable international operations to be scheduled at peak periods. 
- ◆ It is assumed that the percentage of domestic and international air carrier O&D passengers would increase as the airlines attempt to serve the unconstrained forecast O&D demand with fewer operations. As a result the percentage of connecting passengers would decrease.
- ◆ The average aircraft size was increased from existing levels without significantly exceeding the 2008 unconstrained forecast seats per departure for each air service component.
- ◆ General aviation activity was maintained at 1996 and 2000 levels, although activity was moved out of peak hours.

Alternative D would have the ability to serve 73.3 MAP and 781,000 annual operations in 2008. Alternative D would meet 100 percent of the unconstrained 2008 forecast O&D passenger demand and 90 percent of the 2008 forecast international passenger demand in 2008. Cargo facility constraints would prevent Alternative D from reaching the forecast 2005 annual cargo tonnage demand level in 2008.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 4:00:49 PM
How is the commuter ops going to be limited?

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 4:04:55 PM
Isn't there a difference between peaks of domestic and international? If the peaks differ, then they're not mutually exclusive and there is no expectation that the airlines will reduce operations.


E.1.1.2.1 2015 Terminal Facilities

In Alternative D, due to the relocation of Runway 24L and its associated parallel taxiways, existing Terminals 1, 2, 3, and Tom Bradley International Terminal (TBIT) north concourses would be demolished and reconfigured into one east/west linear facility with a total of 18 gates. TBIT would be expanded to accommodate aircraft on the west side of the terminal. A new West Satellite Concourse would be constructed west of TBIT and would contain 43 aircraft gates. In total, there would be 32 commuter positions and 121 jet positions in 2015.

E.1.1.2.2 2005 Terminal Facilities

None of the new terminal facilities would be constructed by 2005. Therefore, the 2005 terminal facilities would be identical to the No Action/No Project Alternative (see Appendix J of the Draft LAX Master Plan for a description of the No Action/No Project terminal facilities). Gates located at the terminal would include 3 commuter positions and 112 jet positions. There would be 29 remote commuter positions and 19 remote jet positions.

E.1.1.3 CARGO AND GENERAL AVIATION AREAS

In 2015, one building in the South Cargo Complex would be removed to make room for a proposed general aviation facility. There would be a total of two general aviation facilities in Alternative D. The existing facility north of Imperial Highway and east of Sepulveda Boulevard would remain and a new facility would be located north of Imperial Highway and west of Sepulveda Boulevard. 

This development would not be completed by 2005. Therefore, the 2005 cargo and general aviation facilities would be identical to the No Action/No Project Alternative.

E.1.2 DESIGN DAY ACTIVITY

Design day flight schedules were developed for Alternative D for 2005 and 2015. The methodology and assumptions for assigning gates to the flights are discussed in Section 3 of this appendix. Detailed profiles of hourly aircraft operations for Alternative D are contained in Appendix F. The resulting design day operations are summarized in **Table E-1**. For a detailed discussion of the methodology and assumptions used to derive the design day schedules see Section 3 of the Draft LAX Master Plan Addendum and Appendix D.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 4:42:25 PM

Why are two general aviation facilities being built. If the objective is to push toward larger aircraft why is another GA being built?

Table E-1
DESIGN DAY ACTIVITY SUMMARY COMPARISON

	Design Day Operations	
	2005	2015
Air Carrier	1,113	975
Commuter	435	532
Hawaii	51	53
Total Domestic	1,599	1,560
International	380	498
Total Commercial	1,979	2,058
Cargo	117	117
GA and MI	82	104
Total	2,178	2,279

Note: Canadian passengers and operations are included in the international totals

Commercial operations would be lower in 2005 than in 2015 due to the closure of Runway 25L. Without the use of Runway 25L in 2005, the airlines would most likely choose to schedule fewer flights than they would with four runways available. It is assumed that fewer commuter flights would be scheduled as a result of the temporary runway closure. In addition, general aviation activity is assumed to be lower due to the congestion that would result from the runway closure. If Runway 25L was open, the 2005 No Action/No Project schedule would serve as the 2005 Alternative D schedule.

In 2015, Alternative D would have the same number of total commercial operations as the No Action/No Project Alternative and Alternative C (refer to Chapter V, Section 3.3.2 of the Draft LAX Master Plan for a description of the activity associated with the final iteration alternatives). Alternative D cargo and general aviation operations would be the same as the No Action/No Project Alternative.

E.1.3 AIRCRAFT GATE ASSIGNMENTS

Flights in the design day schedules were classified into general airline groups for the purpose of assigning the aircraft to the gates and allocating passengers to the terminal area. Similar to the other alternatives, the airline groups were formed by classifying the airlines in the schedule according to operating characteristics, while maintaining the dominance of some single carriers at LAX. The airline groups are listed in Appendix A of the Draft LAX Master Plan. The resulting layout, gate size, and airline allocation for Alternative D

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 4:49:16 PM

This assumes that the movement of 25L will be done with/without Alt D. Where is this written? What documentation authorizes and approves this construction?

Similarly in the next paragraph of E.1.2 where is the authorization for expansion of cargo facilities?

for 2015 and 2005 are illustrated in **Figures E-3 and E-4** respectively. Alternative D in 2005 maintains the same gate layout used for the No Action\No Project schedule.



Table E-2 shows the number of gates that can be accommodated in Alternative D in 2015. See Appendix A, Section 3.1 and 3.2 of the Draft LAX Master Plan for the gate layouts and number of gates that can be accommodated in the final iteration alternatives. Alternative D provides fewer gates than the No Action/No Project Alternative (153 compared to 163), however the Alternative D layout would include 6 NLA positions. Alternative C also has six NLA positions but can accommodate more passengers than Alternative D with 168 total gates at a larger overall size.

All flights in the 2005 and 2015 design day schedules for Alternative D were assigned to a gate to determine future terminal loadings and to simulate airside operations. Aircraft gate assignments were made based on the user allocation and maximum gate size assumptions. Ranges of minimum intergate times, dependent on airline group, were assumed between gate uses. The minimum intergate times used in the other alternatives (see Appendix A of the LAX Draft Master Plan) were also applied in this alternative.

The results of the Alternative D gate assignments are illustrated on **Figures E-5 and E-6**. The utilization of each gate throughout the day is shown by solid flight bars that mark the total time that a flight occupies the gate. Upside down triangles at the beginning and end of each bar denote an arrival and departure operation, respectively. The absence of a triangle indicates a tow operation. The aircraft type is displayed on the flight bar, as space permits. The flight bars are color coded by airline group.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 4:50:53 PM

If the gate layout will be according to the type of aircraft, how many of the airlines will have to move their operations to be in multiple terminals based on the layout of the gate capacity types?

The assumptions used for the Alternative D simulations are described in this section.

E.1.4.1 RUNWAY OPERATING CONFIGURATIONS

Simulations were conducted for the three primary¹ runway operating configurations at LAX at the 2005 and 2015 levels of activity:


- ◆ West Flow Visual Approaches (Visual)
- ◆ West Flow VFR Instrument Approaches (ILS/LDA)
- ◆ West Flow IMC (IFR)

The anticipated use of the runways for arrivals and departures under each operating plan for the final iteration alternatives and Alternative D in 2015 and 2005 is shown in **Figures E-7** and **E-8**.

All alternatives with four runways would operate like the existing airfield. This is the case for 2015 Alternative D, Alternative C, and the No Action/No Project Alternative. The primary use of the runways is assumed to be arrival operations on the outboard runways 24R/6L and 25L/7R and departure operations on the inboard runways 24L/6R and 25R/7L. Simultaneous approaches to the outboard and inboard runways are conducted only in west flow under visual approach procedures.

In 2005, Alternative D would have only three runways due to the temporary closure of Runway 25L for construction. The north runways, 24R/6L and 24L/6R would operate similar to the assumptions used in the four runway cases. Runway 24R/6L is assumed to be primarily an arrival runway, and Runway 24L/6R a departure runway. Runway 25R/7L would be operated as a mixed operations runway with both arrivals and departures.

E.1.4.2 AIRSPACE OPERATING ASSUMPTIONS

Airspace routes for Alternative D would be the same as the No Action/No Project Alternative and Alternative C. Airspace arrival routes were defined from each arrival fix to the runway ends and departure routes were defined from each runway to each departure fix. Routes were also defined for local traffic from Ontario, Santa Ana, Santa Barbara and Burbank Airports. 

¹ East flow performance was not modeled due to its low annual occurrence. Rather, east flow performance was estimated based on previous simulations.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 5:06:22 PM

If there is a substantial difference (388' movement south) between NANP and Alt D runways on the north side why is it assumed that the patterns to approach will be the same?
Also, if cargo will be increased and moved along with a different mix of aircraft for various airlines how will the "efficient" runway be used to assure landing nearest the gates?

E.1.4.2.1 West Flow

Figure E-9 illustrates the primary airspace routes from and to the airspace fixes as well as the local airports for west flow. Existing patterns at Santa Monica, Hawthorne, and El Monte Airports are included in these illustrations as a reference. These locations were identified as the most likely to be impacted by changes to the LAX airspace.

The routes correspond to anticipated patterns under instrument approaches. In visual procedures, the north approach may be intercepted about 5 or 6 nautical miles closer to the airport. The arrival routes in Alternative D would be the same as the No Action/No Project Alternative where an addition of a second Civet outer fix has been incorporated.

E.1.4.2.2 East Flow

Figure E-10 illustrates the primary airspace routes from and to the airspace fixes as well as the local airports for east flow. The east flow airspace assumptions are similar to that of the west flow. The east flow performance was estimated based on the performance of the west flow ILS configuration and final iteration simulated east flow cases (see Appendix J of the Draft LAX Master Plan) and the east flow airspace was not modeled for Alternative D.

E.1.4.3 AIRFIELD OPERATING ASSUMPTIONS

For the simulation of Alternative D in 2005 and 2015, assumptions were made about the direction traffic would flow on the taxiways and about how flights should be gated within the simulation. These assumptions are discussed in the following sections.

E.1.4.3.1 Taxi Flows

The anticipated flow of aircraft between the runways and the terminal gates assumed for the 2015 and 2005 simulation analysis is illustrated in **Figures E-11 and E-12** respectively. These taxi flows are based on the visual west flow operating plan. These general routings are applicable to all of the west flow operating plans. The anticipated taxi flows for east flow are shown in **Figures E-13 and E-14**. The east flow condition was not simulated for Alternative D, rather performance was estimated based on previous simulations.

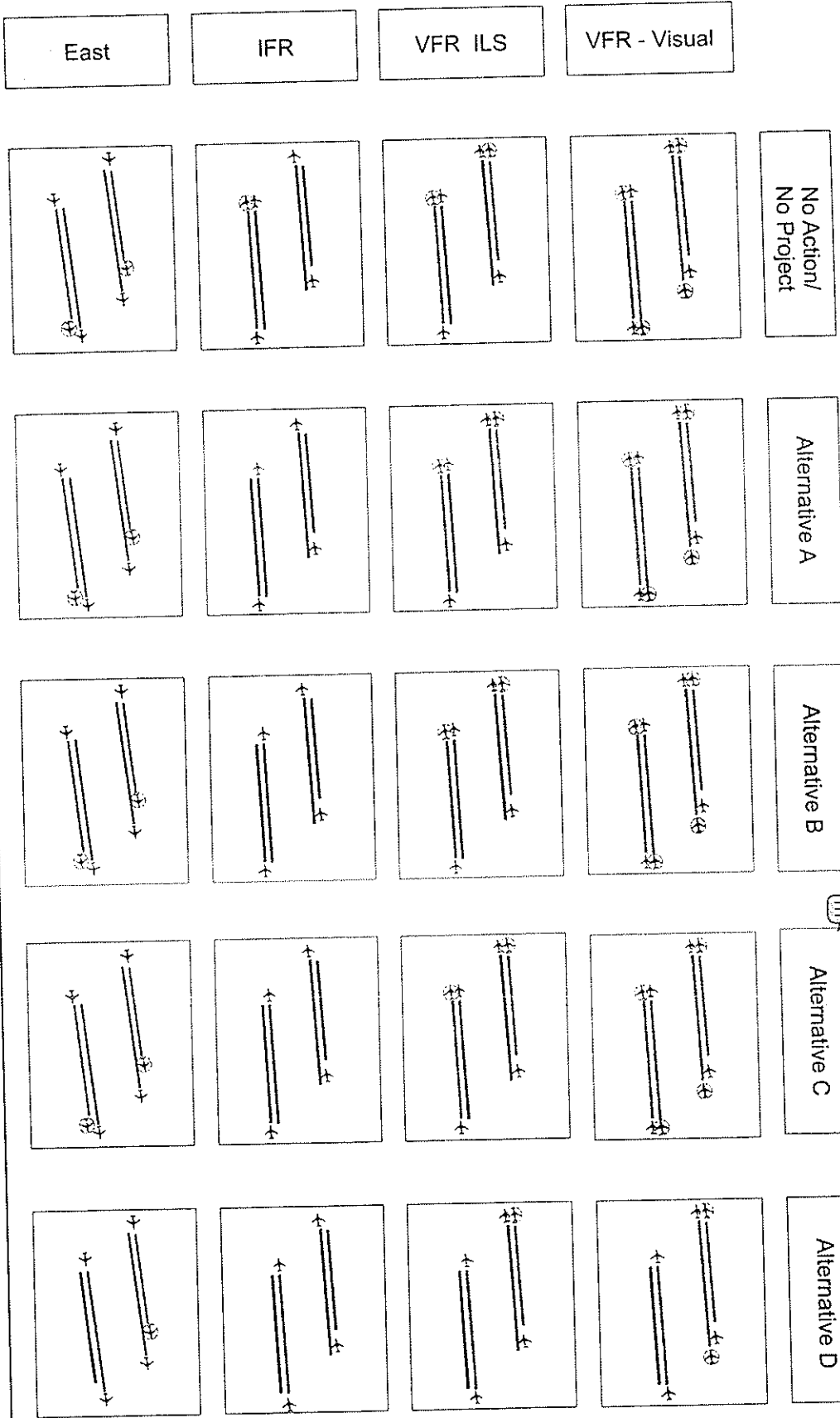
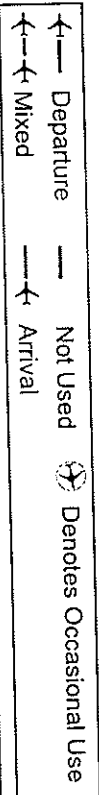
Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 8/3/2003 5:15:59 PM
T

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 5:17:54 PM
How was the noise model completed without this modeling? Was it assumed that the 90% of the flights in the other direction were sufficient? If there are changes in the flight paths going east and/or west is it not important to note them even if it doesn't push the noise over the 65 CNEL threshold?

Los Angeles International Airport
 Master Plan

2005 Airside Alternatives
 Runway Operating Plans

Figure
 E-8

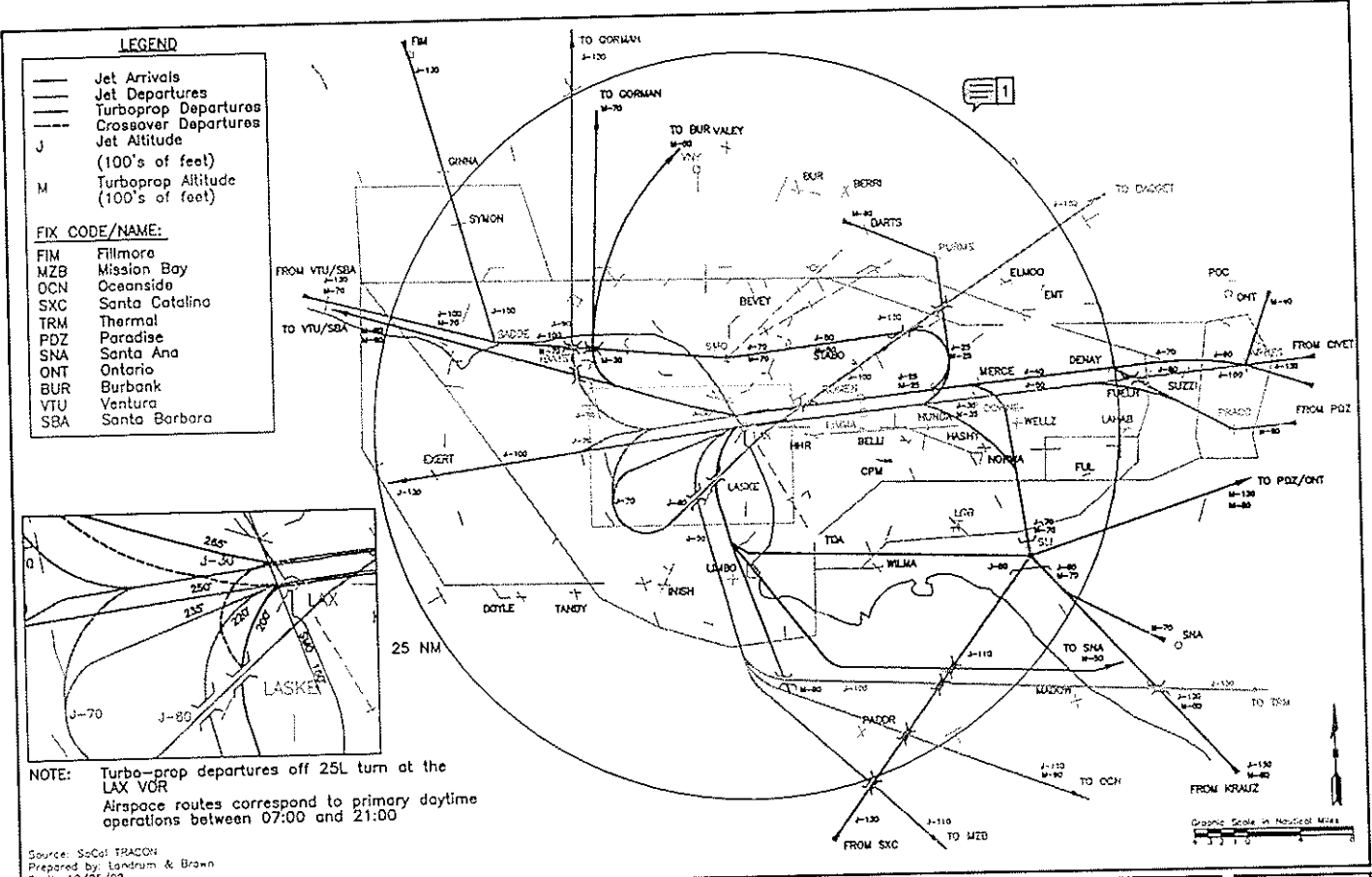


Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 8/3/2003 5:34:10 PM
One important flow is not shown; night time ops which take off and land over ocean. Why is this not addressed? What impacts will this have on the models and noise or pollution impact predictions?

Sequence number: 2
Author: Denny Schneider
Subject: Note

Date: 8/3/2003 5:27:31 PM
In eastern ops the north takeoffs make a hard left to the north which is not shown. The south side turns slightly to the south for spacing. These general flows doesn't help with the analysis of impact on local communities or areas as much as 10-15 miles out where aircraft are already on descending approaches at 3000' and less. Where are these analyses in this report document? How are the impacts taken into consideration and at all mitigated? This is especially true for eastern ops when takeoffs are done exclusively over highly populated areas instead of an ocean.



Los Angeles International Airport Master Plan

Generalized West Flow Primary Airspace Routes Alternative D

Figure E-9

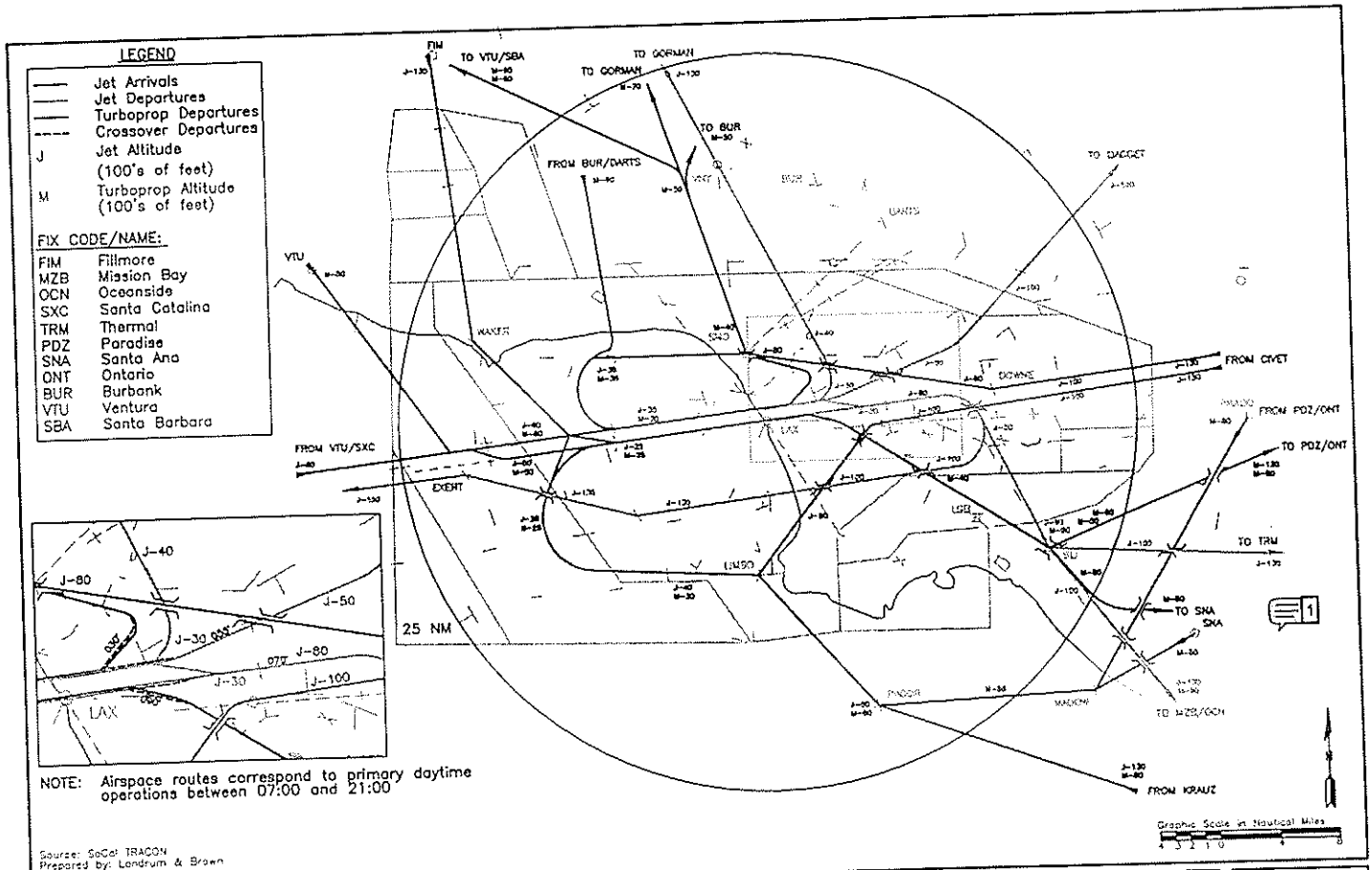
Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 5:30:42 PM

There are several variations to the routes shown on this diagram. How are they taken into consideration for this analysis?



Los Angeles International Airport Master Plan

Generalized East Flow Primary Airspace Routes Alternative D

Figure E-10

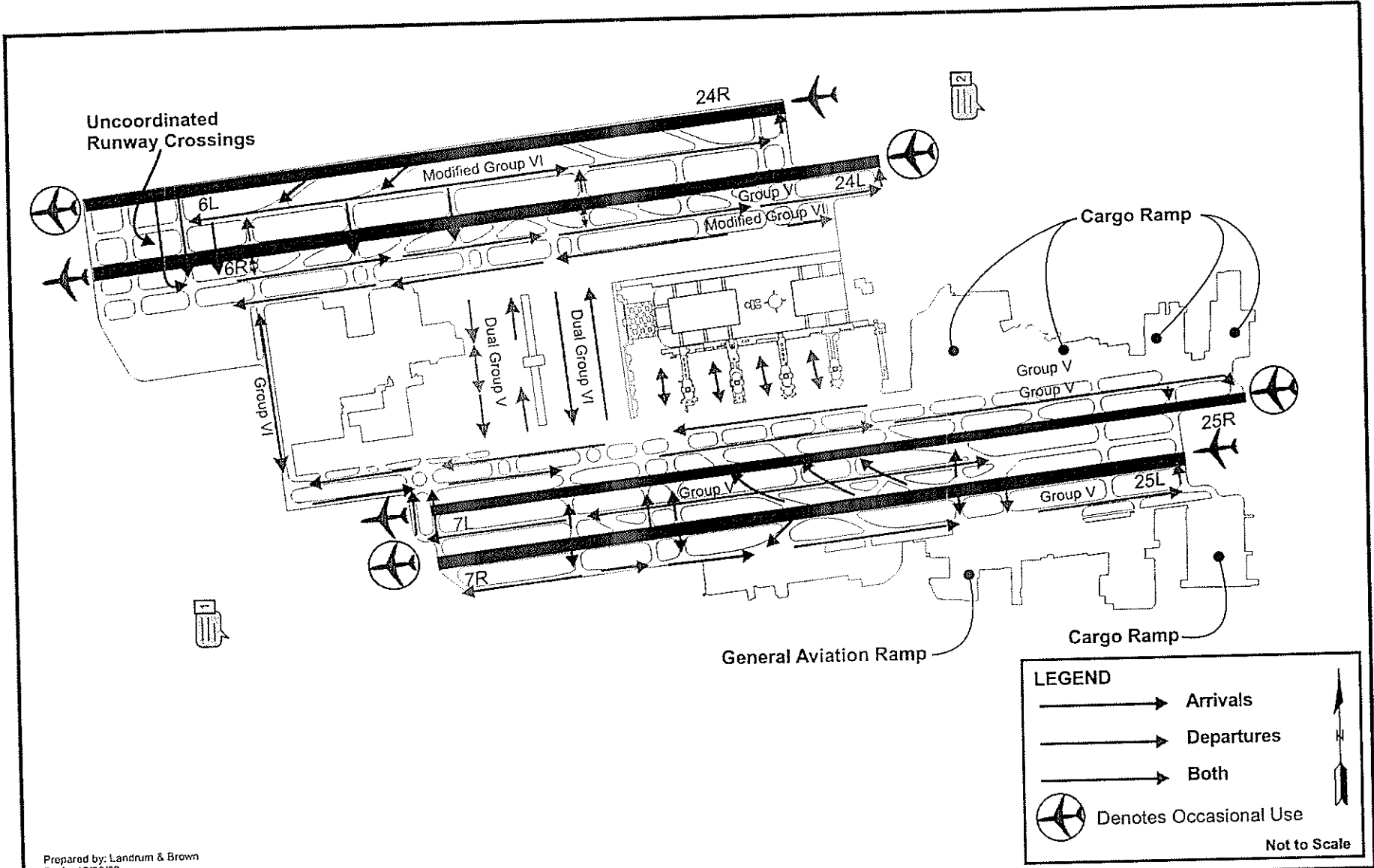
Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 5:31:51 PM

in eastern ops the southern pathway shows straight out to Downey. In actuality more planes turn south to go west after takeoff.



Los Angeles International Airport
Master Plan

2015 Alternative D
West Flow Primary Airfield Taxi Routes

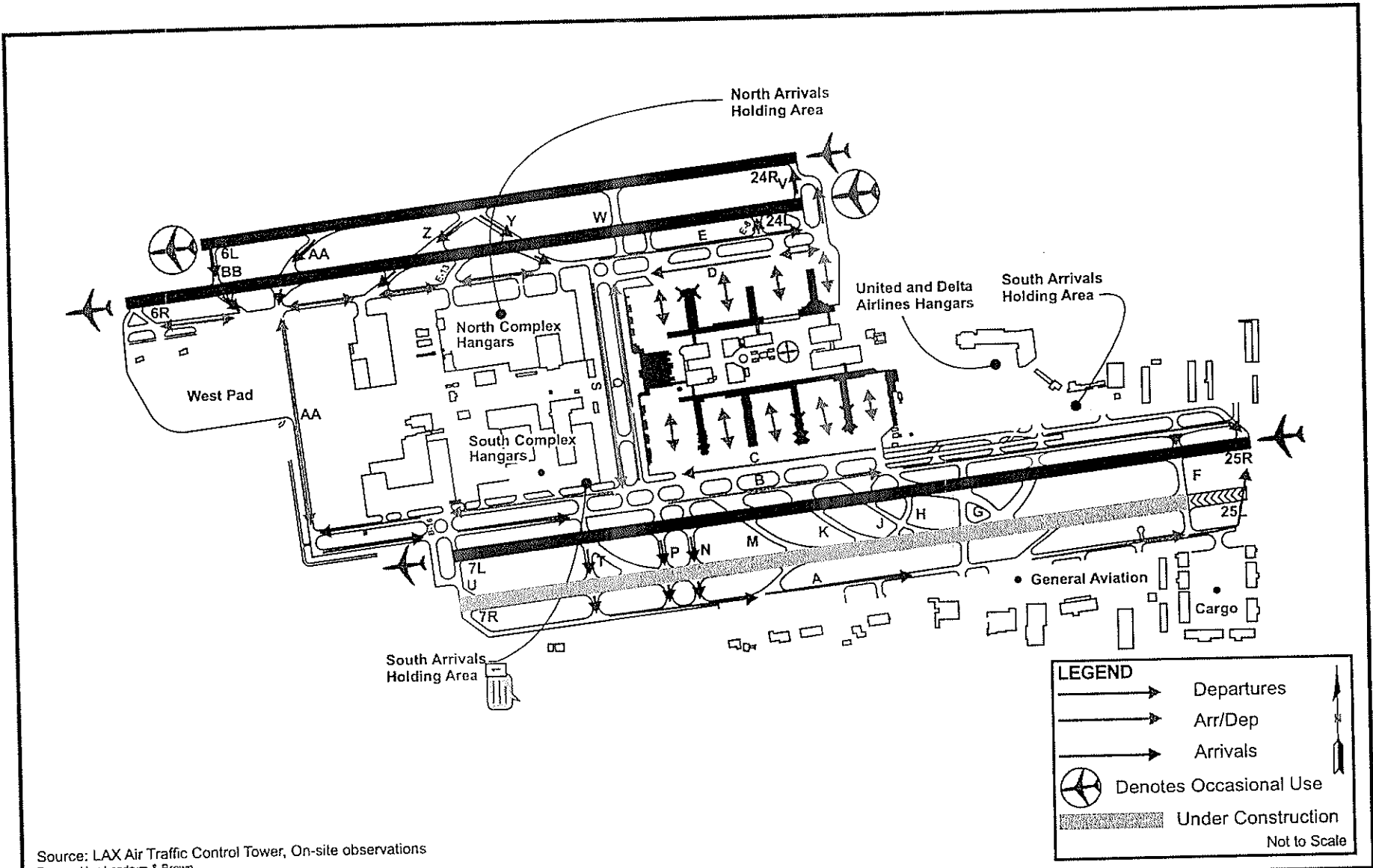
Figure
E-11

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 5:41:16 PM

Do the taxiway directionals change with a change in direction of ops? If safe spacing between the runways requires a taxiway distance, why are the dual direction taxiways on the side of the runways nearest the terminals not an even greater spacing? Will they be dual directional, but not be allowed to be used in both directions at the same time?

Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 5:37:21 PM

What is an uncoordinated runway crossing? With all the rationale used to justify the runway movements to reduce incursions how is it justified that those crossings are not managed?



Los Angeles International Airport
Master Plan

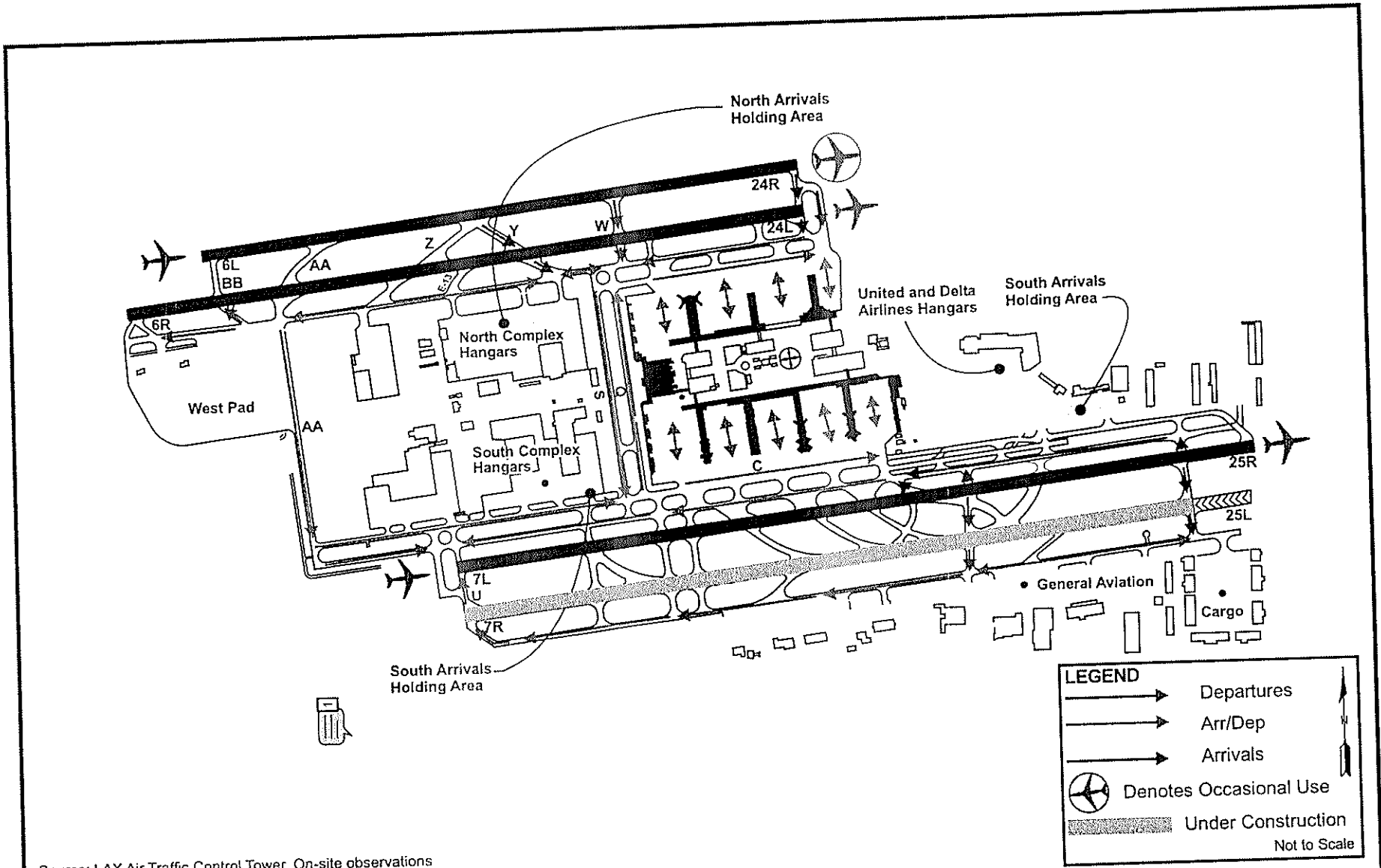
2005 Alternative D
West Flow Primary Airfield Taxi Routes

Figure
E-12

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 5:46:09 PM

While this is under construction on 25L the taxiways appear to be using a method similar to the end around studied at Ames. If this is found to be effective will it continue to be used?

Where are the floating terminal pads going to be utilized? How will busses be routed to avoid the aircraft?



Source: LAX Air Traffic Control Tower, On-site observations
 Prepared by: Landrum & Brown
 Draft: 12/30/02


LEGEND	
	Departures
	Arr/Dep
	Arrivals
	Denotes Occasional Use
	Under Construction
Not to Scale	

**Los Angeles International Airport
Master Plan**

**2005 Alternative D
East Flow Primary Airfield Taxi Routes**

**Figure
E-14**

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 5:48:12 PM

 This applies to all of the figures depicting aircraft ground movements. None take into consideration the night time ops condition of take-offs and landings to the west.

runways was used for arrivals and departures in the VFR visual west flow configuration.

The runway use in 2015 is similar to Alternative C. As shown, Civet and Filmore traffic is split between the complexes due to the high number of flights originating from these fixes. All four runways were used for arrivals and departures in the VFR visual west flow configuration.

In general, arrivals from any fix would be able to reach any of the available approaches as needed, in order to balance demand and minimize delay. Departure traffic to the Thermal outer fix was primarily assigned to the south runways. As needed, Thermal departures were diverted to Dagget and assigned to the north or south runways to balance departure demand and minimize delay. Departures to Exert outer fix were assigned primarily to the north runways but were diverted to the south runways, as needed to minimize delay.

E.1.5.2 AIRCRAFT DELAY AND TAXI TIME

The average annual all weather delay for Alternative D and the final iteration alternatives is summarized in **Table E-3** and illustrated in **Figure E-17** for 2015.

Table E-3

2015 ALL WEATHER AVERAGE DELAY AND FLIGHT CANCELLATIONS

<u>Alternative</u>	<u>Average Delay</u>	<u>Cancelled Flights</u>
No Action/No Project	13.34	29
Alternative A	9.86	45
Alternative B	10.88	26
Alternative C	13.82	46
Alternative D	11.56	28

Note: Delay is expressed in minutes per operation

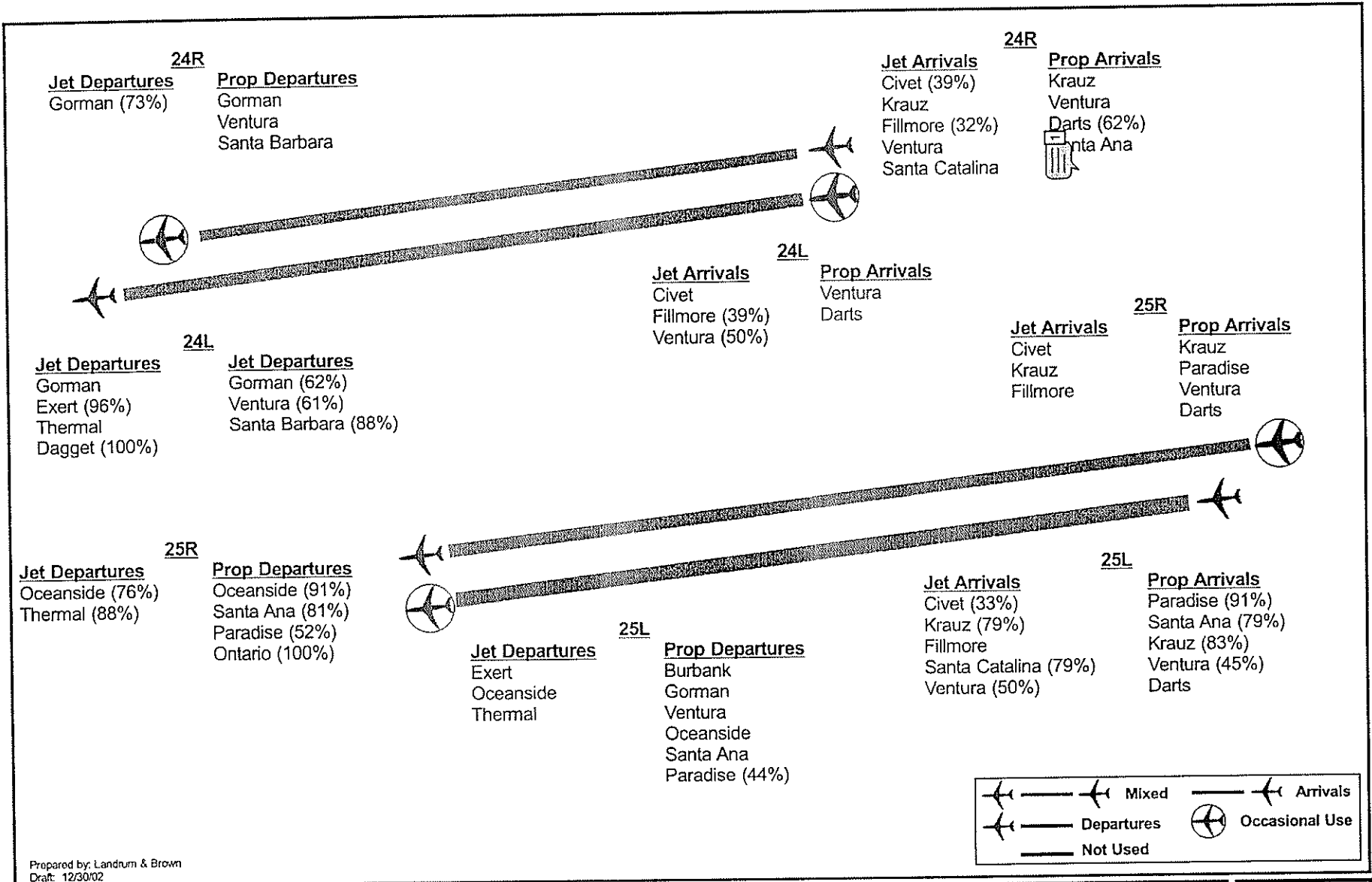
As in the final iteration analysis, flow control and flight cancellations were modeled in cases that result in excessive arrival airspace delays. In these cases the flight schedules were submitted through a flow control process before running the airside simulations in the SIMMOD model. Flights were cancelled, as needed, in order to process all arrivals prior to midnight. Alternative D in 2015 would require flight cancellations during non-visual configurations.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 5:51:57 PM

Is the assumption that flights would be cancelled to process arrivals prior to midnight? This doesn't happen now at night or during switchover from westerly to eastern ops.

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 8/3/2003 5:50:51 PM

T



Los Angeles International Airport
Master Plan

Runway Use
2015 Alternative D

Figure
E-15

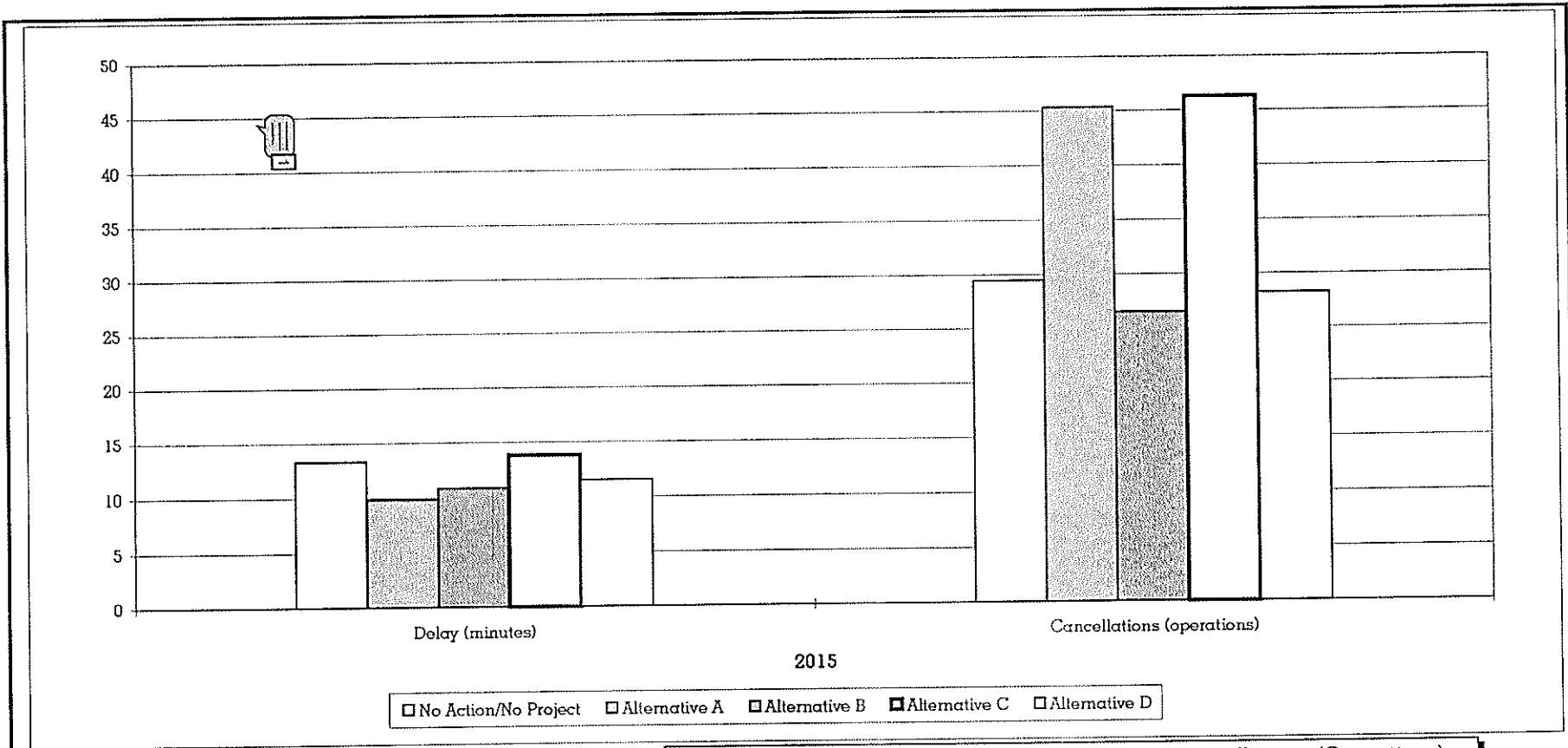
Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 5:56:50 PM

What do the percentages mean? I.E. on 24R and 24L Krauz is listed without % whereas on south complex 25R has no % yet 25L shows 79%?? Explain what these mean and how they were determined. Also how are these factored into the model to determine pollution patterns and noise patterns.



Note: Based on 2015 performance with cancellations.
 Source: SIMMOD simulation output
 Prepared by: Landrum & Brown
 Draft: 05/18/00

Alternative	Delay (minutes)	Cancellations (Operations)
No Action/No Project	13.34	29
Alternative A	9.86	45
Alternative B	10.88	26
Alternative C	13.82	46
Alternative D	11.56	28

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 5:58:52 PM

What is assumed in NANP? In several areas NANP included south runway changes despite nothing in writing approving it.

What about night time ops impact?

APPENDIX E - ALTERNATIVE D AIRSIDE ANALYSIS

Table E-6

**PEAK HOUR THROUGHPUT ALTERNATIVE D
(Peak 3 Hour Average)**

2015 Alternative D				
<u>Configuration</u>	<u>Annual Use</u>	<u>Peak Arrival Operations</u>	<u>Peak Departure Operations</u>	<u>Peak Total Operations</u>
VFR Visual West Flow	69.70%	75	76	144
VFR ILS West Flow	15.49%	66	73	135
<u>VFR East Flow</u>	<u>5.71%</u>	<u>66</u>	<u>73</u>	<u>135</u>
Average VFR	90.90%	73	76	142
<u>IFR West Flow</u>	<u>9.10%</u>	<u>64</u>	<u>69</u>	<u>131</u>
All Weather Average	100.00%	72	75	141

2005 Alternative D				
<u>Configuration</u>	<u>Annual Use</u>	<u>Peak Arrival Operations</u>	<u>Peak Departure Operations</u>	<u>Peak Total Operations</u>
VFR Visual West Flow	69.70%	69	69	132
VFR ILS West Flow	15.49%	63	69	129
<u>VFR East Flow</u>	<u>5.71%</u>	<u>63</u>	<u>69</u>	<u>129</u>
Average VFR	90.90%	67	69	131
<u>IFR West Flow</u>	<u>9.10%</u>	<u>65</u>	<u>68</u>	<u>118</u>
All Weather Average	100.00%	67	69	130

Notes:
 1 Peak hour throughput for arrivals, departures, and total operations may not correspond to the same hour.
 2 East flow performance is assumed to be equivalent to ILS west flow.
 Source: SIMMOD simulation output

Table E-7

2015 ALL WEATHER AVERAGE PEAK HOUR THROUGHPUT

<u>Alternative</u>	<u>Peak Hour Operations</u>		
	<u>Arrivals</u>	<u>Departure</u>	<u>Total</u>
No Action/No Project	73	75	140
Alternative A	92	85	172
Alternative B	91	86	172
Alternative C	73	71	138
Alternative D	72	75	141

Note: Peak hour throughput for arrivals, departures, and total operations may not correspond to the same hour.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 6:05:33 PM

The average peak hour throughput values are close for several alternatives. What is the statistical significance values?

E.2 ALTERNATIVE D ADDITIONAL INTERIM YEAR AIRSIDE ANALYSIS


The DEIS/EIR required the analysis of additional interim years for Alternative D. The year 2008 was determined to be the peak traffic year for construction and airport traffic, thereby requiring design day flight schedules with gate assignments for the traffic modeling (but not airside simulations). The year 2013 was defined as the peak emissions year for air quality analyses in the DEIS/EIR. The facilities available and the resulting activity levels in 2013 would be similar to 2015. Therefore, airside performance was estimated for 2013 based on the 2015 analysis in order to provide data for the air quality modeling. Detailed simulations were therefore not necessary for 2013.

The following sections discuss the 2008 and 2013 Alternative D analysis. For a detailed discussion of the interim year activity refer to Appendix F.

E.2.1 2008 ALTERNATIVE D

By 2008, the construction in the south airfield would be completed and a parallel taxiway between the south runways would be open. The north airfield facilities would remain unchanged from the existing airfield.

No new terminal facilities would be available in 2008 with Alternative D. The NLA would be required to park at the remote gates in the west pad area. Alternative D in 2008 would retain the existing cargo and general aviation facilities.

A design day flight schedule was developed for Alternative D in 2008.  The methodology and assumptions used to derive the design day schedule are discussed in Appendix D. A detailed profile of hourly aircraft operations for Alternative D in 2008 can be found in Appendix F. Alternative D would have the ability to serve 73.3 MAP and 781,000 annual operations in 2008.

As discussed in Section 1.3 of this appendix, flights in the design day schedules were classified into general airline groups for the purpose of assigning the aircraft to the gates and allocating passengers to the terminal area. The resulting layout, gate size, and airline allocation for Alternative D in 2008 are shown in **Figure E-18**.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 8:16:31 PM

Explain how the capacity in 2008 would only be 73.3 MAP since the south runways would be completed and widened with new taxiways while none of the gates are removed.

Table G-5
 Los Angeles International Airport Master Plan
 2015 ALTERNATIVE D ALL WEATHER AVERAGE
 AVERAGE HOUR QUEUE LENGTH



<u>Hour</u>	<u>24L</u>	<u>24R</u>	<u>25L</u>	<u>25R</u>	<u>6L</u>	<u>6R</u>	<u>7L</u>	<u>7R</u>
0	0.472	0.000	0.000	0.472	0.000	0.029	0.029	0.000
1	0.472	0.000	0.000	0.668	0.000	0.029	0.043	0.000
2	0.584	0.000	0.472	0.472	0.000	0.037	0.029	0.029
3	0.472	0.000	0.472	0.472	0.000	0.029	0.029	0.029
4	0.349	0.000	0.123	0.000	0.000	0.000	0.000	0.029
5	0.349	0.000	0.472	0.000	0.000	0.000	0.000	0.029
6	0.607	0.000	0.820	0.472	0.000	0.036	0.029	0.029
7	1.523	0.747	0.798	1.177	0.000	0.214	0.081	0.076
8	4.464	0.844	0.615	4.726	0.029	0.216	0.245	0.029
9	3.094	0.523	1.981	3.960	0.000	0.191	0.125	0.075
10	4.441	0.581	1.463	4.463	0.000	0.134	0.165	0.071
11	1.553	0.862	2.144	7.275	0.029	0.086	0.354	0.029
12	3.749	0.959	1.631	5.157	0.057	0.193	0.070	0.019
13	8.089	1.605	2.107	8.036	0.078	0.300	0.306	0.114
14	3.355	0.426	0.942	4.207	0.029	0.159	0.056	0.039
15	3.769	0.813	0.772	4.265	0.114	0.187	0.105	0.043
16	4.627	1.017	1.747	1.546	0.029	0.101	0.051	0.088
17	2.721	2.019	0.809	2.046	0.029	0.217	0.038	0.044
18	2.155	0.387	1.267	1.244	0.000	0.054	0.071	0.041
19	1.325	0.891	0.901	0.970	0.000	0.059	0.040	0.037
20	1.252	0.653	1.524	1.585	0.057	0.094	0.033	0.218
21	0.725	0.400	0.441	0.639	0.019	0.038	0.039	0.043
22	1.958	1.278	0.460	1.103	0.000	0.069	0.037	0.024
23	0.860	0.000	0.426	1.092	0.000	0.119	0.062	0.029
MAX	8.089	2.019	2.144	8.036	0.114	0.300	0.354	0.218

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 8:43:00 PM

What do these queue length charts mean? Is it number of aircraft? Is it minutes? what...

Table G-6 (2 of 6)
 Los Angeles International Airport Master Plan
 2015 ALTERNATIVE D ALL WEATHER AVERAGE
 DELAY AND TAXI TIME BY RUNWAY

Runway	Hour	Arrivals					Departures				
		Arr Count	Total Taxi	Avg Taxi	Total Delay	Avg Delay	Dep Count	Total Taxi	Avg. Taxi	Total Delay	Avg Delay
6R	0	0.7423	4.8173	6.4897	0.0000	0.0000	0.7423	7.8879	10.6263	2.0413	2.7500
6R	1	0.0571	0.4850	8.4944	0.0000	0.0000	0.1142	1.2410	10.8667	0.0000	0.0000
6R	2	0.0571	0.5363	9.3917	0.0000	0.0000	0.3997	5.0412	12.6125	0.2570	0.6429
6R	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0571	0.7123	12.4750	0.0000	0.0000
6R	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6R	5	0.2855	2.6456	9.2657	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6R	6	0.6852	5.4203	7.9105	0.0257	0.0375	0.3997	4.2418	10.6125	0.0828	0.2071
6R	7	0.5139	3.5887	6.9833	0.1713	0.3333	1.8272	17.8457	9.7667	11.5399	6.3156
6R	8	0.0000	0.0000	0.0000	0.0000	0.0000	2.2269	23.0378	10.3452	12.7200	5.7120
6R	9	0.0000	0.0000	0.0000	0.0000	0.0000	2.0556	21.8743	10.6413	12.1499	5.9106
6R	10	0.0000	0.0000	0.0000	0.0000	0.0000	1.8843	19.5269	10.3630	8.3918	4.4535
6R	11	0.0000	0.0000	0.0000	0.0000	0.0000	1.8272	18.2578	9.9922	4.6384	2.5385
6R	12	0.0000	0.0000	0.0000	0.0000	0.0000	1.7130	16.3551	10.7210	8.3832	4.8939
6R	13	0.0000	0.0000	0.0000	0.0000	0.0000	1.9414	21.0953	10.6560	18.7697	9.6681
6R	14	0.0000	0.0000	0.0000	0.0000	0.0000	1.7130	18.7003	10.9167	11.9215	6.9594
6R	15	0.0000	0.0000	0.0000	0.0000	0.0000	1.8843	20.6968	10.9848	11.8073	6.2662
6R	16	0.0000	0.0000	0.0000	0.0000	0.0000	1.5988	17.0163	10.6432	6.3210	3.9536
6R	17	0.0000	0.0000	0.0000	0.0000	0.0000	2.2269	23.0070	10.3314	14.9202	6.7000
6R	18	0.0000	0.0000	0.0000	0.0000	0.0000	1.9985	22.7366	11.3768	3.0472	1.5248
6R	19	0.0000	0.0000	0.0000	0.0000	0.0000	1.3133	14.1502	10.7746	2.2345	1.7014
6R	20	0.0000	0.0000	0.0000	0.0000	0.0000	1.4846	14.4189	9.7123	3.1681	2.1340
6R	21	0.0000	0.0000	0.0000	0.0000	0.0000	1.1420	13.1140	11.4833	1.6312	1.4283
6R	22	0.1713	1.2870	7.5132	0.1285	0.7500	1.0849	12.8955	11.7020	1.2001	1.1061
6R	23	0.7994	5.2261	6.5375	2.8712	3.5917	1.4846	15.9043	10.7128	6.5132	4.3872
MAX				9.3917		3.5917			12.6125		9.6681

7C	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	22	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7C	23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
MAX				0.0000		0.0000			0.0000		0.0000

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 8:46:19 PM

Why are the max taxi periods at strange hours (ie 2 AM, 5 AM) for arrivals and more steady, but high all the time for departures?

Appendix H

CONCEPT DEVELOPMENT

H.1 INTRODUCTION

The following figures document the genesis and development of the Alternative D concept. The development of Alternative D was an iterative process that included Los Angeles World Airports (LAWA) senior management, and members of the consulting team.

H.2 INITIAL CONCEPTS

In the initial concept classification category, five (5) concepts were developed (**Figures H-1 through H-5**). These concepts were focused in the area defined as north of Imperial Highway, east of Aviation Boulevard, south of Arbor Vitae, and west of Interstate 405. The intent of the concepts were to:

- 1) Remove private and commercial vehicles from the Central Terminal Area (CTA),
- 2) Create new permanent passenger pick-up and drop-off facilities,
- 3) Increase short and long term parking capacity;
- 4) Provide a direct automated people mover (APM) system to connect to the CTA and the Metropolitan Transit Authority (MTA) Green Line Station.

The initial concepts were developed without consideration given to the following hard constraints:

- 1) Available land (not currently owned by LAWA),
- 2) FHWA coordination requirements,
- 3) Commercial, and industrial property acquisition limitations,
- 4) Environmental processing and mitigation requirements

It was determined through several meetings with LAWA senior management and members of the consulting team that the only viable locations for passenger pick-up and drop-off facilities were identified as Manchester Square and the land envelope defined as the area bounded north of Imperial Highway, east of Aviation Boulevard, south of 104th street, and west of La Cienega Boulevard.



Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/3/2003 8:52:47 PM
Interesting assumptions that were not of consideration. Also, why were the APM developed to the accept Green Line passengers instead of facilitating Green Line going north to a check in facility?

It was concluded that these were the two most viable sites given the following factors:

- 1) Accessibility to the arterial street network,
- 2) Curbfront requirements,
- 3) Building height and use restrictions within the runway protection zone,
- 4) Commercial, and industrial property acquisition limitations



At the completion of the initial concept development it was determined that the land envelope defined as the area bounded north of Imperial Highway, east of Aviation Boulevard, south of 104th Street, and west of La Cienega Boulevard was not feasible because of significant access constraints due to close proximity to the Interstate 405 and 105 interchange and the limited space for queuing, circulation, and storing of vehicles on the surrounding roadways. In addition, the site area has several height restrictions due to FAA airspace criteria.

H.3 ALTERNATIVE DEVELOPMENT

As Manchester Square emerged as the preferred location for passenger pick-up and drop-off facilities, six (6) new alternatives were developed. These alternatives entailed various configurations to accommodate facilities that included:

- 1) Passenger pick-up and drop-off facilities,
- 2) Terminal facilities,
- 3) Parking facilities,
- 4) APM stations,
- 5) Access roadways,
- 6) MTA facility

Alternative 1 (**Figure H-6**) – creates a multi-passenger pick-up and drop-off facility campus around a central parking core. While this concept met the curbfront demand it was determined that a closed ring roadway circulation system was a disadvantage and created similar congestion and vehicular circulation problems that currently exists within the CTA. In addition, the terminal configuration would require multiple APM stations causing longer transit times beyond acceptable standards.

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Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/3/2003 8:54:46 PM

So Manchester Square was decided upon in the initial considerations whereas the southern portion was unacceptable for reasons opposite to MS desirability.

Alternative 2 (**Figure H-7**) – creates a single passenger pick-up and drop-off facility with adjacent parking. To meet the curbside requirement, the facility would need to be three levels. This presented significant issues related to accessibility from arterial streets and vehicular flow within the access system.

Alternative 3 (**Figure H-8**) - attempted to de-centralize the passenger pick-up and drop-off facilities with adjacent parking in order to meet the curbside demand. The concept was deemed inefficient requiring multiple APM stops and considerable land area. Also, it was determined that passenger facilities located in the runway protection zone were not recommended. The de-centralization of facilities also created significant signage and passenger way finding challenges.


Alternatives 4 and 5 (**Figures H-9 and H-10**) - were two similar ideas of a concept to utilize Manchester Square as the primary location for passenger pick-up and drop-off facilities. No parking adjacent to these facilities was associated with this concept. All short and long-term parking would be located north of I-105, south of 104th Street, west of La Cienega Boulevard, and east of Aviation Boulevard. It was determined that separating long and short-term parking facilities from the primary passenger pick-up and drop-off areas was not advantageous.


Alternative 6 (**Figure H-11**) - was based on the ideas generated in Alternatives 4 and 5 including both long and short-term parking facilities associated with the passenger pick-up and drop-off facilities. Commercial and private vehicles would access these facilities with upper and lower level curbsides. In order to get the necessary curbside linear footage, parallel piers were developed. The arrangement was set at an angle to allow for proper turning radii for consistent vehicular flow in and out of the system. Initially the Intermodal Transportation Center (ITC) connecting the MTA Green Line to the APM was located at the corner of Century Boulevard and Aviation Boulevard. Further refinement of Alternative 6 relocated this facility closer to the MTA Green Line at the northeast corner of Aviation Boulevard and I-105.



Alternative 6 was selected to move forward based on its ability to meet the curbside demand on a land envelope large enough to accommodate both parking and passenger facilities that was accessible to the arterial street network and not within a runway protection zone. The concept was refined into Alternative D based on significant landside analysis creating an access system capable of delivering the most efficient vehicular flow in and out of the facilities.




Sequence number: 1
Author: Denny Schneider
Subject: Highlight
Date: 8/4/2003 9:44:01 AM


Sequence number: 2
Author: Denny Schneider
Subject: Note
Date: 8/4/2003 9:46:42 AM
 What was the basis for the refinement to move the APM connection south? How much curb space is needed?

H.4 CTA SECURITY MODIFICATION ANALYSIS

An analysis was conducted which looked primarily at the existing CTA evaluating opportunities which existed for modifications to the infrastructure to accommodate the primary APM component of Alternative D. The intent was to modify the existing CTA terminals to accommodate the need for expanded outbound baggage make-up areas for 100% Explosives Detection System (EDS) screening as well as increased areas for security screening and passenger processing. These options maintained the parking structures in the CTA and the existing road structures. In some cases additional roads were built at a third level to help with vehicular circulation.

While it was determined that the CTA could be modified to accommodate security mandated directives, these approaches failed to address the threat of private and commercial vehicles present to the facilities and gates. In addition, all of the approaches failed to make any significant changes to undersized and aging passenger processing facilities.

Option 1 (**Figures H-12 and H-13**) – shows in plan the components of Alternative D with an additional 50'-0" bay built on to the backside of all terminals to help accommodate the additional areas needed for passenger security screening and the 100% EDS screening of all checked baggage. The APM would be located atop existing parking structures with pedestrian bridges connecting stations with the terminal facilities. 

Option 2 (**Figures H-14 and H-15**) shows a modified CTA, which places new baggage claim facilities on the roof of existing or rebuilt parking garages. A new third level arrivals curb would be located adjacent to baggage claim with the APM at a level above. Moving baggage claim to a new facility would allow the lower level of the CTA to be utilized primarily for 100% automated EDS screening of all checked bags as well as opportunities for expansion of concessions and a limited amount of passenger processing.

Option 3 (**Figure H-16**) is a variation of Option 2 placing the third level arrivals curb on the opposite side of baggage claim in an elevated structure.

Option 4 (**Figure H-17**) is a variation of Option 2 that re-builds all the parking structures with an integrated arrivals hall, and a baggage claim facility at the second level. The existing open space between the existing arrivals curb and parking structures

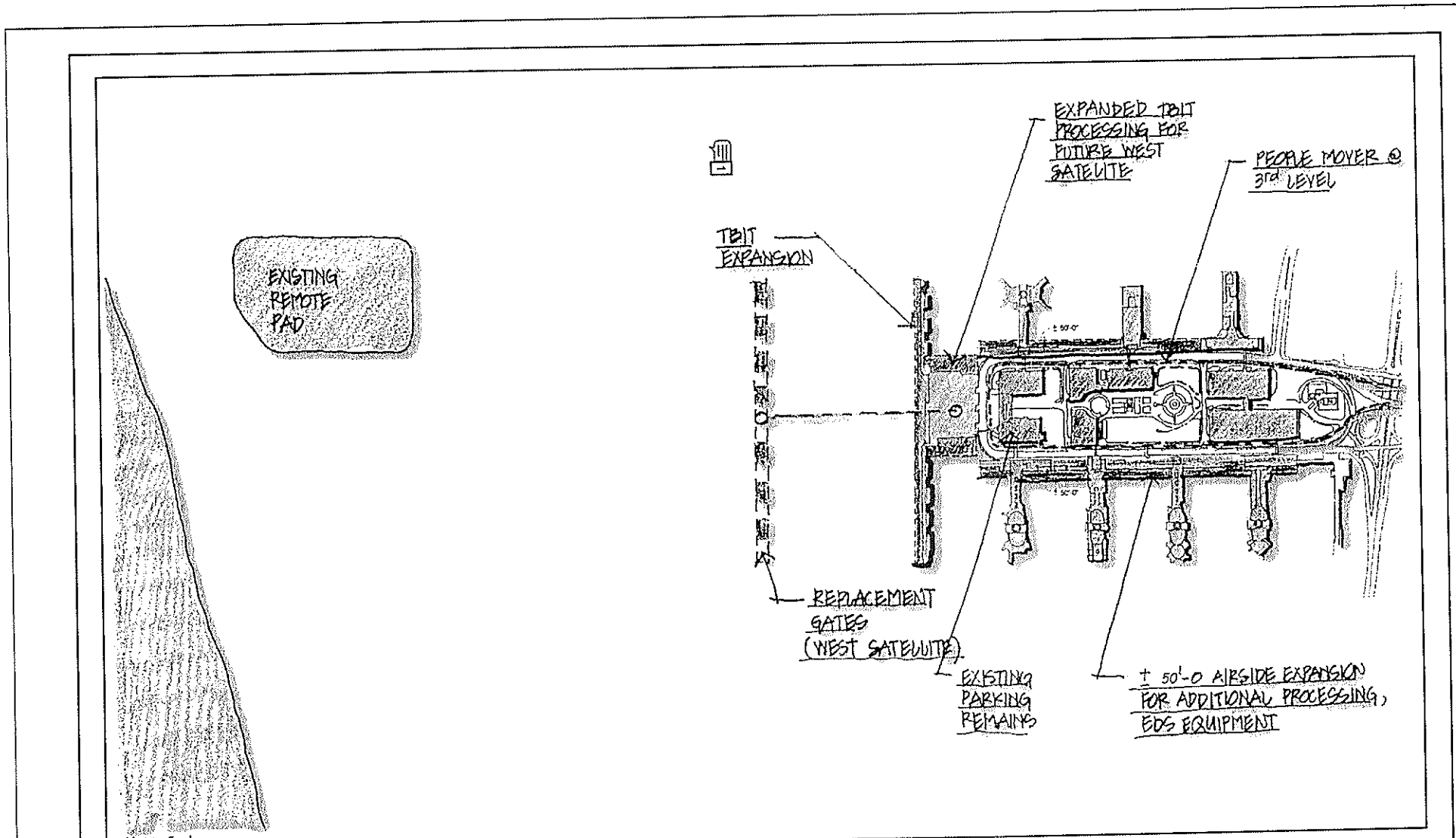
Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/4/2003 9:48:08 AM

Why is the 100% EDS screening being done in the CTA instead of at the time baggage is first checked resulting in a one-time review. This way people will not have to carry all of their luggage from the GTC to the CTA.



Not to Scale
 Prepared by: Landrum & Brown
 Draft: 05/28/03

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/4/2003 9:53:22 AM

This option talked about replacement gates but the north side is shown intact. Was this an accident in the first option that was just overlooked?


would support an expanded second level roadway system for a new arrivals curb.

Option 5 (**Figures H-18 and H-19**) moves the APM to the upper level roadway of the existing CTA. The existing upper level roadway would be maintained for emergency vehicle access. A new departures curb and ticketing hall would be built atop of the reconfigured or rebuilt parking garages.

Option 6 (**Figures H-20 and H-21**) moves the APM to the upper level roadway of the existing CTA. A new ticketing hall and baggage screening system would be built at the second level of the existing or rebuilt parking structures. The upper level roadway access would be maintained for emergency vehicle access. The existing open space between the arrivals curb and the parking structure would support an expanded second level roadway system for a new departures curb. Departing passengers would use an overhead pedestrian bridge to access the gates. The area in the existing terminals previously used for ticketing and airline ticket offices would be converted to concession areas.

Figures H-22 and H-23 show a recommended approach for modifications in the CTA including a renovation of the existing processors for expanded ticketing, security screening, and baggage screening by creating a third level accessible across the roadway system to the APM.

While the CTA can accommodate some changes in its infrastructure to adapt to future security and security related space expansion requirements, the landside will continue to be constrained. All of the options had considerable drawbacks related to cost/benefits, implementation and phasing. Each of these options considered allowing private and commercial vehicles into the CTA, a threat that Alternative D eliminates.

2 was determined through meetings with LAWA senior staff and the consultant team that any recommended security modifications within the CTA be consistent with the long-term planning for all Master Plan Alternatives. 

H.5 ALTERNATIVE D REFINED CONCEPTS

As part of the refinement of Alternative D, additional concepts were evaluated to determine which elements, and their corresponding configuration, warranted further analysis. The following figures depict several configurations that were considered for Alternative D.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/4/2003 10:01:41 AM

What is the meaning of the statement, "It was determined through meetings...any recommended security modifications within the CTA be consistent with the long-term planning for all Master Plan Alternatives." Of the 4 alternatives only D calls for elimination of personal vehicles.

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 8/4/2003 9:59:30 AM



East Land Envelope Constraints Diagram (**Figure H-24**) – depicts the hard and soft constraints surrounding the east land envelope. The consultant team was given direction by senior LAWA staff as to which facilities were to be considered as hard constraints. Every attempt was made to avoid impacts to the following areas:

- ◆ Hotel and commercial area located at the northwest corner of Century and La Cienega Boulevard,
- ◆ Hotel, commercial, and industrial area located at the southwest corner of Century and La Cienega Boulevard
- ◆ U.S. Customs facility located at the northwest corner of La Cienega Boulevard and 111th Street, and
- ◆ Commercial area located at the northwest corner of La Cienega Boulevard and Imperial Highway, up to 111th Street.

Alternative D1 (**Figure H-25**) – “Alternative D Airfield” key features include:

- ◆ Relocation of existing Runway 24L to the south and lengthening to east over Sepulveda Boulevard
- ◆ New centerline taxiway between Runways 24L and 24R
- ◆ Taxiway Alpha extension
- ◆ New north CTA gates (removal of Terminals 1, 2, and 3)
- ◆ New Midfield Satellite and Tom Bradley International Terminal (TBIT) gates
- ◆ Primary curbside and consolidated rental car facility located in Manchester Square
- ◆ New parking structure located at the northeast corner of Imperial Highway and Aviation Boulevard (old Continental City property)
- ◆ APM connection between the CTA, Manchester Square, and parking structure at the old Continental City property
- ◆ Green Line connection

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/4/2003 10:03:30 AM

What are the hard constraints that were given by senior LAWA management as to which facilities were to be considered as hard constraints?

Sequence number: 2

Author: Denny Schneider

Subject: Highlight

Date: 8/4/2003 10:04:56 AM

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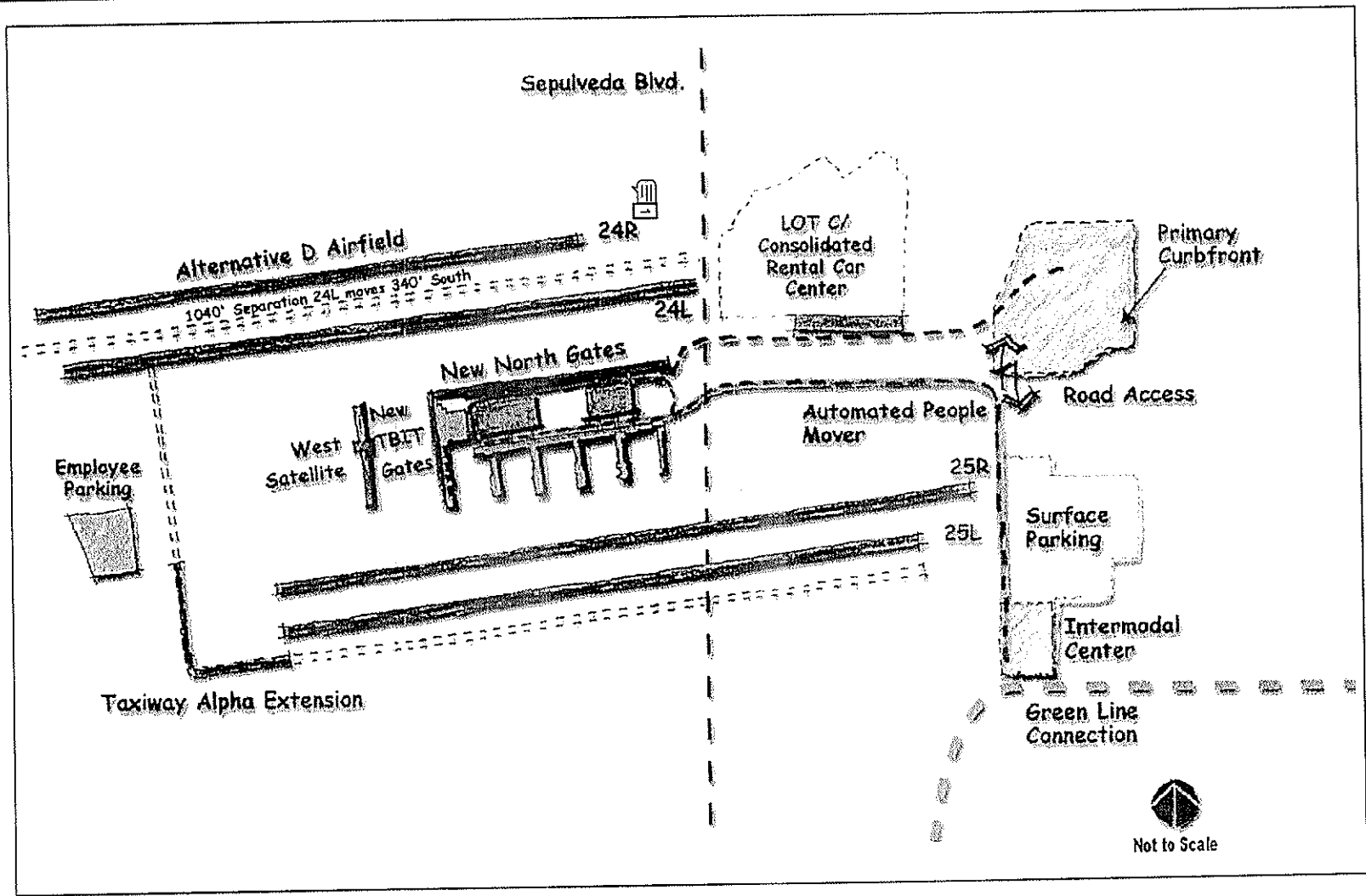
Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 8/4/2003 10:07:11 AM

At what point was the lengthening of 24L over Sepulveda abandoned? As we have said regularly, it would be a sad day to have all 4 runways destroyed by a truck bomb on Sepulveda.



Prepared by: Luchman & Down
 Draft: June 2002

Los Angeles International Airport Master Plan

Alternative DB

Figure
 H-33

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/4/2003 10:26:33 AM

What is the separation distance for 24R/L? Several places show 340' but another says 388'? How was this value determined?


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From an operational and customer service perspective, the best design is Option 1. It involves constructing the customer service building and ready/return area on the current Budget, Avis and National sites. Though it would require relocating those companies to Lot C, there are a number of key advantages to this option:

1. The customer service building would be used in the final phase long-term consolidated rental car facility.
2. The ready/return area is located directly across the street from Hertz, Avis, National and Budget, which makes shuttling vehicles quick and easy. Those companies represent 66% of the LAX rental car market (based on 2000 figures).
3. The site could accommodate approximately 2,500 ready/return spaces. To increase capacity and reduce shuttling, it may also be possible to deck the site and construct a quick turn around facility (QTA) where vehicles can be quickly washed, vacuumed and fueled. This area could then be used as a storage site once the final phase long-term consolidated rental car facility is built.
4. Double busing is minimized which is beneficial from both a customer service and environmental perspective.

Ultimately, the biggest advantage to this option, and the others as well, is the fact that they all involve the use of a common busing operation. Common busing would drastically reduce curb congestion and traffic in the terminal core. At Houston George Bush Intercontinental Airport, for example, the rent-a-car (RAC) industry uses 125 vehicles to transport rental car customers. A common bus fleet of only 24 Gillig 40-foot low floor buses is replacing those vehicles. Logically, this also improves air quality. Dallas/Fort Worth International Airport estimates that the common busing operation at its consolidated rental car facility has reduced particulate emissions by more than 460 tons each year.

Site Accessibility (Figure H-34)

The general site area that was considered for the Phase I – Consolidated Rental Car Options includes Lot C, existing rental car areas west of Airport Boulevard, and the Belford Area (LAWA  owned). Primary access to the site is via Sepulveda Boulevard, Airport Boulevard, 96th and 98th Street and Arbor Vitae Street.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 8/4/2003 10:36:59 AM

The Belford area, like Manchester Square, is not LAWA owned--yet.

Appendix I

COMPARATIVE SECURITY ANALYSIS OF ALTERNATIVE D AND THE NO ACTION/ NO PROJECT ALTERNATIVE

1 EXECUTIVE SUMMARY

Alternative D, the Enhanced Safety and Security Alternative, provides Los Angeles International Airport (LAX) a much higher degree of safety and security than the No Action / No Project (NA/NP) Alternative in the proposed LAX Master Plan. Alternative D allows for the dispersal of people and security processes away from critical points on the airport complex. This allows for consistent levels of screening, an increased ability for law enforcement and security personnel to respond to threats, and the protection of people and critical facilities essential to the continued operation of the airport.

The postulated threat against LAX is terrorist actions, particularly those using a vehicle or truck bomb. LAX's primary function is the movement of passengers and cargo into and out of the airport. The level of security implemented at LAX must not limit the ability of the Airport to accomplish its primary function. Analysis shows that the potential of a vehicle bomb to cripple LAX and inflict a high number of casualties is the primary vulnerability and focus of security planning.

Alternative D's unique effectiveness as an enhanced safety and security plan lies in the establishment of a new and more effective concept of security operations for LAX. This concept involves the use of multiple concentric rings of security that provides security measures around each primary LAX facility. The establishment of these multiple concentric rings of security will allow LAX to begin its security process long before any passenger or vehicle enters the Central Terminal Area (CTA). The use of concentric rings in the development of a deterrent and mitigation strategy is based upon the concept of protecting, detecting, assessing, and responding (PDAR) to threats to passengers and the airport. This is best accomplished through the dispersal of potential hostile events in such a manner as to allow increased distance and time from a threat to give law enforcement and security personnel time to assess the threat and respond to it.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/8/2003 8:22:17 AM

The entire theory of security expounded upon by this Appendix I of the Alt D Addendum corresponds to the SAIC study report of concentric levels of security. It also states that LAX is too small to be secure and need the additional land of Manchester Square, Belford Square, and all of the other areas out to the 405 freeway to implement the security strategy. Explain why the present land mass is insufficient and why some of the less used areas can not be secured in place of more land being added. Explain why the lesser used cargo must be further developed to allow for an increase of 1.5 MAT

5 THREAT

5.1 LOS ANGELES INTERNATIONAL AIRPORT (LAX) AS A TARGET

LAX is a potential target for a terrorist attack due to its significance as an international gateway and the third-busiest airport in the United States. LAX accounts for \$60 billion in the Southern California economy and one in twenty jobs in Southern California is attributed to LAX operations.



5.1.1 POTENTIAL ADVERSARIES

The obvious and primary adversaries to LAX are transnational terrorist groups and the criminal element. Both need to be considered in developing the final concept and design for Alternative D. The external threats to all elements of the airport, but particularly at the CTA, include terrorist and non-terrorist groups using traditional bombing tactics, such as the following events:

- ◆ On April 19, 1995, at 9:02 AM, a large vehicle bomb containing approximately 4,800 pounds of an ammonium nitrate and fuel oil (ANFO) mixture concealed in a 1993 Ford F700 20-foot cargo van detonated at the north side of the Alfred P. Murrah Federal Building in Oklahoma City, Oklahoma. The investigation revealed that Timothy McVeigh had conducted pre-attack analyses of numerous Federal buildings looking for one that met his requirements. He developed a three-pronged targeting criterion that called for a building occupied by children as well as agents of the Federal Bureau of Investigation (FBI) and the Bureau of Alcohol, Tobacco, and Firearms (BATF) as retribution for the Waco, Texas incident a year earlier. He was also looking for a target with minimal protective measures. He selected the Murrah building because it represented an extremely soft target that allowed him to park his vehicle within 10 feet of the building. The Murrah Federal Building bombing proved that a small group of anti-government individuals can cause significant loss of life and damage to property using relatively unsophisticated explosive devices.
- ◆ The 1993 World Trade Center (WTC) bombers used a truck bomb to cause significant damage to the WTC. This attack, in addition to the Murrah building bombing in Oklahoma City, supports the concern about the vulnerability of a facility to an unsophisticated

Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 8/8/2003 8:09:43 AM
LAX accounts for 1 in 20 jobs of Southern California. This makes LAX one very significant target! Explain why LAX has to be so dominant in air commerce instead of being a key in a more regionally disbursed system.

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 8/8/2003 8:08:09 AM


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
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EXECUTIVE SUMMARY

Introduction

This document is the Supplement to the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the proposed Los Angeles International Airport (LAX) Master Plan. It has been prepared to describe a new alternative for the LAX Master Plan and provide data and analyses related to the reasonably foreseeable environmental impacts of the new alternative. In response to the public comments received on the Draft EIS/EIR and the changing conditions after the September 11, 2001 terrorist attacks, a new alternative, "Alternative D - Enhanced Safety and Security Plan," has been added to the range of alternatives being considered by the Federal Aviation Administration (FAA) and the City of Los Angeles - Los Angeles World Airports (LAWA) for the proposed Master Plan.


In January 2001, the FAA and City of Los Angeles published a Draft EIS/EIR addressing three build alternatives for the Master Plan, identified as Alternatives A, B, and C, as well as the No Action/No Project Alternative. That Draft EIS/EIR was made available for public review and comment from January 18, 2001, to November 9, 2001. During that time, substantial public input was received regarding alternatives to be considered for the LAX Master Plan. Additionally, the terrorist attacks of September 11, 2001 have had a substantial influence on how airports now operate, including increased attention to, and provisions for, airport safety and security. Alternative D was subsequently formulated and refined in 2002 to provide an additional option for the LAX Master Plan. 

This Supplement to the Draft EIS/EIR serves to integrate Alternative D into the existing environmental review process for the LAX Master Plan, providing a level and extent of analysis comparable to that which was previously prepared for the other alternatives addressed in the January 2001 Draft EIS/EIR. It also serves to present certain supplemental information and analysis that apply to all of the alternatives. Such information and analysis are based upon the availability of new or updated information since publication of the Draft EIS/EIR in January 2001. 

This draft environmental analysis is being widely distributed to the public and to various local, state and federal government agencies so that they may comment on Alternative D and the new impact analysis during public hearings and in writing. LAWA and FAA will prepare written responses to the comments. In preparing the Final EIS/EIR, LAWA and FAA will assess and consider comments both individually and collectively, and will respond by modifying alternatives, developing and evaluating new alternatives, supplementing the analysis, making factual corrections, or explaining why the comments do not warrant further response, citing appropriate authority and reasons. LAWA and FAA will also respond by one or more of these means to the comments made on the Draft EIS/EIR and will provide their responses to comments on the Draft EIS/EIR and Supplement in the Final EIS/EIR.

Purpose and Need Statement for the Project

The purpose and need for the LAX Master Plan has not changed since the publication of the Draft EIS/EIR. An overarching consideration during the planning process has been to achieve the project objectives in an environmentally sound manner. In particular, the Master Plan project objectives are to:

- ◆ Respond to **local and regional demand** for air transportation during the period 2000-2015, taking into consideration the amount, type, location, and timing of such demand.
- ◆ Ensure that new investments in airport capacity are efficient and cost-effective, maximizing the return on **existing infrastructure capital**. 
- ◆ Sustain and advance the international trade component of the regional economy and the **international commercial gateway** role of the City of Los Angeles.

Description of Alternatives Studied in Detail

The alternatives evaluated in the Draft EIS/EIR and this Supplement to the Draft EIS/EIR are the end result of eight years of the Master Plan process, ongoing scientific study, several hundred informal community meetings and an extensive formal public comment period for identification of project issues for the environmental analysis (scoping). In addition to the No Action/No Project Alternative, the Supplement to the Draft EIS/EIR and the Draft EIS/EIR analyze a total of four "build" alternatives.

Summary of Comments on SEIS 00 Main Document v05 final 06 17 2003.PDF

Page: 24

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 11:34:13 AM

Why were the comments submitted by November 2001 not answered before (or with) the release of the Alt. D Plan in July 2003?

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 11:35:45 AM

Numerous data issues were identified in 2001. How is the integration of more data into questionable data expected to be satisfactory?

Sequence number: 3

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:09:51 PM

If "the purpose and need for the LAX Master Plan has not changed since the publication of the Draft EIS/EIR" and there have been significant political event changes in addition to the Mayor's no expansion pledge, why is one of the three major project objectives to "Ensure that new investments in airport capacity are..." Also, we are told that the major emphasis is for "Security and Safety." Why is this not even mentioned in the list of project purpose and need?

Executive Summary

Table ES-1, Summary of Activity - Comparison of Alternatives, and Table ES-2, Summary of Features - Comparison of Alternatives, present key physical characteristics and projected activity levels of each build alternative as an aid to comparison to the No Action/No Project Alternative, the CEQA Environmental Baseline, and the "unconstrained" airport (e.g., number of runways, number of passengers accommodated, tons of air freight accommodated, daily flights, land acquisition, relocation of homes and businesses).

Table ES-1
Summary of Activity - Comparison of Alternatives

Activity/Facility	Environmental Baseline (1996)	Unconstrained Forecast	Planning Year 2015				
			Alternative				
			NA/NP	A	B	C	D
Passenger Activity¹							
Million Annual Passengers (MAP)	58.0	97.9	78.7	97.9	97.9	89.6	78.9
Domestic MAP (w/ Commuters)	43.9	60.9	49.9	60.9	60.9	54.9	48.6
International MAP	14.0	37.1	28.9	37.0	37.0	34.6	30.3
Design Day Passengers	186,512	326,380	262,329	326,329	326,329	298,588	262,758
Peak Hour Passengers	16,682	30,218	20,884	28,142	28,142	24,519	20,404
Passengers per Departure	90.76	122.98	127.47	133.09	133.09	145.09	127.68
Cargo Activity (Tons per year)	1,896,764	4,172,000	3,120,000	4,172,000	4,172,000	4,172,000	3,120,000
Aircraft Activity							
Total Annual Aircraft Operations	763,866	1,004,591	783,430	935,140	935,140	797,249	784,126
Total Domestic (incl. Hawaii)	386,733	421,138	383,245	431,390	431,390	401,669	350,791
International	91,641	217,818	168,773	217,818	217,818	203,393	179,592
Commuter	233,832	280,335	160,437	200,632	200,632	108,905	182,767
All Cargo	23,682	48,300	35,994	48,300	48,300	48,300	35,994
General Aviation	27,978	37,000	34,982	37,000	37,000	34,982	34,982
Design Day Operations	2,235	2,921	2,279	2,719	2,719	2,319	2,279
All Weather Peak Hour Operations	150	N/A	144	176	181 ²	145	146
Three Hour Average Operations	145	N/A	140	172	172	138	141
Annual Cancellations	2,050	N/A	10,126 ²	15,586 ²	9,108 ²	15,910 ²	9,719
All Weather Average Delay (minutes per operation)	8.69	N/A	13.33 ²	9.86 ²	10.88 ²	13.81 ²	11.56

¹ Totals may not add due to rounding.

² This number has been revised since publication of the Draft EIS/EIR. The numbers presented in this table are consistent with those published in the Draft Master Plan document and are modified here to provide a correction to the numbers presented in Table 3-2 of the Draft EIS/EIR. This change is not material to the conclusions of the Draft EIS/EIR.

Source: Landrum & Brown, 1999, 2003.

Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:10:44 PM

Based on 2.8% growth from present we will be at 78 MAP in 2015. Is this a realistic growth rate?

Table ES-2
Summary of Features - Comparison of Alternatives

Facility	1996 Baseline	Planning Year 2015 Alternative					
		Unconstrained	NA/NP ¹	A	B	C	D
Runway Development							
North Airfield (6L/24R)	8,925 ft	6 runways 3 independent approaches 2,500-3,400 foot lateral runway separation.	8,925 ft	6,700 ft (new runway)	10,000 ft (relocate 135 ft north, extend 600 ft to the east and 475 ft to the west)	9,400 ft (relocate 350 ft north, extend 500 ft to west)	10,420 ft (extend 1,495 ft to west)
(6C/24C)	None	Takeoff runway length of 10,000-12,000 feet. Landing runway length of 9,000-10,000 feet.	none	12,000 ft (reconstruct 6L/24R, move 400 ft south, extend 3,075 ft to the east)	none	none	none
(6R/24L)	10,285 ft	Commuter runway length of 6,000 feet.	10,285 ft	12,000 ft (relocate 500 ft south, extend 1,715 ft to the east)	12,000 ft (relocate 35 ft north, extend 1,715 ft to the east)	12,000 ft (extend 2,900 ft to east shorten west end by 1,185 ft)	11,700 ft (extend 135 ft to west extend 1,280 ft east, move 340 ft south of existing centerline)
South Airfield (7L/25R)	12,091 ft		12,091 ft	12,000 ft	12,000 ft (relocate 555 ft north, shorten east end 91 ft)	12,091 ft	12,091 ft
(7C/25C)	None		none	None	12,000 ft (relocate 7R/25L, 500 ft north and 950 ft east)	none	none
(7R/25L)	11,096 ft		11,096 ft	12,000 ft (relocate 156 ft south)	6,700 ft (new runway)	11,096 ft (relocate 50 ft south of existing centerline)	11,096 ft (relocate 50 ft south of existing centerline)
Los Angeles International Airport				ES-3			LAX Master Plan Supplement to the Draft EIS/EIR


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Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:19:41 PM

 Compare this runway spacing with other statements in the document which appear to differ. This one is 340 ft south of existing centerline.

Executive Summary

**Table ES-2
Summary of Features - Comparison of Alternatives**

Facility	1996 Baseline	Planning Year 2015					
		Unconstrained	NANP ¹	A	Alternative B	C	D
Terminals							
Central Terminal Area							
Nominal Aircraft Gates	115		115	78	77	97	153
Narrow Body Equivalent Gates (NBEG)	148.3		148.3	93.9	92.5	121.6	178.9
Square Feet of Building Space	3,997,000		3,997,000	4,149,000	3,542,000	4,224,000	6,550,000
Remote Gates (nominal/NBEG)	48/55.1		48/55.1	N/A	N/A	N/A	N/A
New West Terminal Area							
Nominal Aircraft Gates	N/A	N/A	N/A	121	122	71	N/A
Narrow Body Equivalent Gates	N/A	N/A	N/A	162.5	164	100.6	N/A
Square Feet of Building Space	N/A	N/A	N/A	6,270,000	6,170,000	3,095,000 ²	N/A
Total All Terminals							
Nominal Aircraft Gates	163	214	163	199	199	168	153
Narrow Body Equivalent Gates	194.2 ⁴	276	194.2 ⁵	256.5	256.5	222.2	178.9
GTC Building Area	N/A	N/A	N/A	N/A	N/A	N/A	200,000 ²
ITC Building Area	N/A	N/A	N/A	N/A	N/A	N/A	50,000 ²
Total Square Feet of Terminal Building Space	3,997,000	7,786,800	3,997,000	10,419,000	9,712,000	7,319,000	6,800,000 ²
Transit							
Green Line Transit	to El Segundo	N/A	to El Segundo	to West Terminal	to West Terminal	to West Terminal	to ITC
Parking Stalls							
On-Airport Short-Term	8,441	16,000	9,127	15,500	15,500	15,500	13,380
On-Airport Long-Term	12,985	12,500	12,985	12,514	12,514	12,514	8,732
Off-Airport Long-Term	12,500	15,750	13,500	8,607	6,387	11,477	12,890
Total Public Stalls	33,926	44,250	35,612	36,621	34,401	39,491	35,002
Employee Parking Stalls	8,990	12,400 ³	8,990 ³	12,000 ³	13,748	14,265	13,600



Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:27:25 PM

2.8M sq ft of terminal space added by Alt D without any capacity enhancement? If the capacity is not expanding why are there about 4600 more employee parking spaces?

Table ES-2
Summary of Features - Comparison of Alternatives

Facility	1995 Baseline	Planning Year 2015					
		Unconstrained	NA/NP ¹	A	B	C	D
On-Airport Rent-A-Car Acres ²	52	101	82 ²	78	78	78	180
Cargo							
Annual Tons	1,896,764	4,172,000	3,120,000	4,172,000	4,172,000	4,172,000	3,120,000
Square Feet of Building Space	1,900,000	4,735,305	2,342,052	4,518,000	4,871,000	4,903,000	2,342,000
Acres of Apron/Ramp Space	77	159	77	128	104	164	77
Total Cargo Acres	197	473	197	436	450	473	197
Ancillary (acres)							
General Aviation	14	14	14	5	4	6	6
Ground Services	9	13	9	4	6	9	4
Airline Admin & Maintenance	295	415	295	72	92	87	31
LAWA & FAA	30	43	30	8	7	6	5
Flight Kitchens	10	18	10	13	16	11	2
Fuel Farm	20	36	20	13	off-site	32	14
Aircraft Rescue and Firefighting	1	1	1	2	1	2	1
Miscellaneous ¹⁰	5	10	5	9	8	11	9
Total Ancillary Acres	384	550	384	126	134	164	72
Land Acquisition							
Total Net Acres		N/A	148	273	345	216	77 ³
Single Family Dwelling Units		N/A	279	57	57	57	0
Multiple Family Dwelling Units		N/A	2,285	27	27	27	0
Library		N/A	98 th St. School	Westchester Branch Private elementary (2) and vacant comm. college	Westchester Branch Private elementary (2) and vacant comm. college	Westchester Branch Private elementary (2) and vacant comm. college	N/A
Schools		N/A		4,893	7,113	2,023	Private elementary (1) and Hollywood CPR 3,676
Remote Airport Parking Stalls		N/A		47 acres	35 acres	52 acres	9 acres
Rent-A-Car Space		N/A		330	323	239	38
Number of Businesses		N/A		997,936	1,140,000	603,020	240,607
Office Use Acquired (SF)		N/A		151,806	126,586	199,707	57,943
Retail Use Acquired (SF)		N/A		1,330,622/1,929	1,404,933/2,083	374,653/729	63,595/154
Hotel Use (SF)/Rooms		N/A					

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Sequence number: 1

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:32:04 PM

How are the schools impacted/removed related between Alt D and NA/NP? Alt D shows ab private elementary and a Hollywood CPR(?) not in the NA/NP.

Sequence number: 2

Author: Denny Schneider

Subject: Note

Date: 9/15/2003 12:34:21 PM

What are the values of NA/NP for Office Use, Retail Use Acquired and Hotel Use that are not shown in the table? How does this compare to Alt D? More or less? Why?

Executive Summary

**Table ES-2
Summary of Features - Comparison of Alternatives**


Facility	1995 Baseline	Planning Year 2015					
		Unconstrained	NA/NP ¹	A	B	C	D
Acquired				868,262	1,921,164	895,217	96,901
Bus. Park/Light Industrial (SF)		N/A		1,724,486	1,784,799	686,138	146,867
Freight Light Industrial (SF)		N/A		5,164,540	6,468,930	2,758,735	605,913
Total SF of Commercial Building Space		N/A		\$1.06 billion	\$1.36 billion	\$743.5 million	\$155.9 million
Estimated Market Value		N/A					
Collateral Development							4.5 MSF ^{4, 6}
LAX Northside		N/A	4.5 MSF ⁴	N/A	N/A	N/A	N/A
Westchester Southside		N/A	N/A	2.62 MSF ⁴	2.62 MSF ⁴	2.62 MSF ⁴	N/A
Continental City		N/A	3.1 MSF ⁴	airport	airport	airport	airport
Manchester Square		N/A	vacant	Independent LAWA development ⁷	airport	airport	airport
Belford		N/A	vacant	airport	airport	airport	vacant

Note: Discrepancies occur between Summary of Features - Comparison of Alternatives, of The Executive Summary of the Draft EIS/EIR, and Table 3-4, Los Angeles International Airport Master Plan Summary of Facilities by Alternatives - 2015, within Chapter 3 of the Draft EIS/EIR. The information presented within Table ES-2 of the Supplement to the Draft EIS/EIR, is consistent with that of Table 3-4 of the Draft EIS/EIR, unless otherwise noted to reflect further updates and corrections. To the extent that discrepancies exist between the table in the Executive Summary of the Draft EIS/EIR, Table ES-2 in the Supplement to the Draft EIS/EIR, and Table 3-4 in the Draft EIS/EIR, Table 3-4 and Table ES-2 are controlling.

¹ NA/NP = No Action/No Project
² Estimated future building space requirement. Actual building size will be refined as part of project-level design activities.
³ Excludes LAWA-owned on-airport properties.
⁴ MSF = Million Square Feet
⁵ This information has been revised since publication of the Draft EIS/EIR. This table uses consistent methodology for calculating NBEG based on a wingspan size factor for each nominal gate position based on the largest aircraft that can be accommodated on a particular gate. NBEG calculations in the Draft EIS/EIR converted terminal frontage to NBEG regardless of existing gate positions and their associated fixed infrastructure. Both methodologies are acceptable practice and the methodology presented herein better reflects the limitations of the existing remaining gates.
⁶ Under Alternative D, the existing vehicle trip cap for LAX Northside would be reduced to limit vehicle trips to a level comparable to that of the Westchester Southside project. As such, full development of the 4.5 million square feet of uses currently entitled for LAX Northside would not occur under Alternative D. As the exact nature and amount of land uses have not been specified to correspond with this cap, it is assumed, for purposes of impacts analysis that LAX Northside would be fully built out relative to all environmental topics except traffic and traffic-related issues such as air pollutant emission and noise.
⁷ This information has been revised since the publication of the Draft EIS/EIR. Under Alternative A, Manchester Square is assumed to be redeveloped with commercial/light industrial uses independent of the Master Plan.
⁸ Modified since publication of the Draft EIS/EIR to correct an error in the Draft EIS/EIR. This modification does not alter the conclusions of the Draft EIS/EIR.
⁹ Only ready-return (does not include storage support).
¹⁰ Includes airport police, central utility plant, LNG/CNG station, ground run-up enclosures, and Coast Guard building.


Source: Landrum & Brown, 2000, 2003.

Sequence number: 1
Author: Denny Schneider
Subject: Note

Date: 9/15/2003 12:38:40 PM
 This table assumes the higher value of development of LAX Northside in NA/NP and Alt D but Westchester South (the reduced) for A,B,C. Why? Isn't this assumption different in other areas of the documentation?

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 9/15/2003 12:38:41 PM



Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 9/15/2003 12:41:04 PM
 If LAWA doesn't own Manchester Square, why does it assume airport use in all but Alternative A? How is it going to be procured? Eminent Domain? Why is it in conflict with the W-PdR Community Plan?

The following mitigation measure from Section 4.21, *Design, Art and Architecture Application* of this Supplement to the Draft EIS/EIR, shall be implemented to reduce visual effects from construction:

◆ **MM-DA-1. Construction Fencing (Alternatives A, B, C, and D).**

The following mitigation measure from Section 4.21, *Design, Art and Architecture Application/Aesthetics*, of this Supplement to the Draft EIS/EIR, shall be implemented to reduce potential impacts resulting from the alignment of the LAX Expressway on residents on Thornburn Street:

◆ **MM-DA-2. LAX Expressway View Analysis (Alternatives A, B, and C).**

The following mitigation measures from Section 4.21, *Design, Art and Architecture Application/Aesthetics*, of this Supplement to the Draft EIS/EIR, shall be implemented to reduce potential impacts resulting from development of the Scattergood Fuel Farm on residents on Loma Vista Avenue:

◆ **MM-DA-3(a). Scattergood Visual Effects (Alternative B).**

◆ **MM-DA-3(b). Scattergood Visual Effects (Alternative B).**

The following mitigation measures from Section 4.10, *Biotic Communities*, of this Supplement to the Draft EIS/EIR, shall be implemented to reduce potential impacts resulting from installation of navigational aids in the Los Angeles/El Segundo Dunes:

◆ **MM-BC-10. Replacement of State-Designated Sensitive Habitat (Alternative A).**

◆ **MM-BC-11. Replacement of State-Designated Sensitive Habitat (Alternative B).**

◆ **MM-BC-12. Replacement of State-Designated Sensitive Habitat (Alternative C).**

◆ **MM-BC-13. Replacement of State-Designated Sensitive Habitat (Alternative D).**

The following mitigation measure from Section 4.11, *Endangered and Threatened Species of Flora and Fauna*, of this Supplement to the Draft EIS/EIR, shall be implemented to reduce potential impacts resulting from the installation of navigational aids on the El Segundo Blue Butterfly Habitat Restoration Area:

◆ **MM-ET-2. El Segundo Blue Butterfly Conservation: Habitat Restoration (Alternatives A and B).**

◆ **MM-ET-4. El Segundo Blue Butterfly Conservation: Habitat Restoration (Alternative D).**

The following mitigation measure from Section 4.18, *Light Emissions*, of this Supplement to the Draft EIS/EIR, shall be implemented to reduce potential light and visual impacts on nearby residents resulting from development of the LAX Expressway:

◆ **MM-LI-1. LAX Expressway Lighting Assessment (Alternatives A, B, and C).**

4.2.9 Level of Significance After Mitigation

4.2.9.1 Alternatives A, B, C, and D

The level of significance after mitigation as described for Alternatives A, B, and C in Section 4.2, *Land Use* (subsection 4.2.9), of the Draft EIS/EIR has been modified to include revised and new mitigation measures as presented in Section 4.1, *Noise* (subsection 4.1.8), and *Land Use* (subsection 4.2.8), of this Supplement to the Draft EIS/EIR. The new and revised measures add specificity, clarify language, and address exposure to significant single event noise levels that could result in nighttime awakenings and classroom disruption. After accounting for these new or revised mitigation measures, which also apply to Alternative D, certain areas affected by aircraft noise associated with the proposed action would still be faced with impacts that would, under CEQA, remain significant after mitigation. Impacts that would remain significant after mitigation include:

- ◆ **1** Impacts where aircraft noise levels of 75 CNEL or greater affect residential properties with exterior cognizable private habitable areas such as backyards, patios, or balconies as well as other outdoor community areas where noise would interfere with speech and other activities (this would not occur under Alternative C).



Sequence number: 1
Author: Owner
Subject: Highlight
Date: 8/20/2003 11:49:29 AM



Sequence number: 2
Author: Owner
Subject: Note
Date: 8/20/2003 11:50:52 AM
Greater outside impacts under Alt D. Why? What specific areas?

4.2 Land Use

- ◆ Interim impacts that would occur prior to completion of noise insulation or recycling of incompatible land use associated with exposure to 65 CNEL or greater noise levels, 94 dBA SEL or greater noise levels, and single event overflight noise resulting in classroom disruption as defined by MM-LU-4.
- ◆ [1]ome school uses would still be exposed to significant single event noise impacts even after incorporation of MM-LU-4 due to high single event noise levels that would result in classroom disruption when classroom activities take place outdoors.
- ◆ Impacts on incompatible uses ineligible for insulation due to inconsistent zoning or land use designations (i.e., residential uses on land designated for industrial use);
- ◆ [2]oise impacts on substandard housing units that are not feasible to insulate due to structural [3]onstraints or other factors associated with bringing properties into compliance with building codes.
- ◆ High construction noise levels would occur at residential and noise-sensitive land uses within 600 feet of construction sites.

[5]lthough increases in outdoor noise levels within the 65 to 75 CNEL contours would occur under the build alternatives, these increases would not exceed thresholds of significance. However, it is acknowledged that such increases may be perceptible and could affect outdoor speech and the quality of certain outdoor activities.



Sequence number: 1
Author: Owner
Subject: Highlight
Date: 8/20/2003 11:50:52 AM



Sequence number: 2
Author: Owner
Subject: Highlight
Date: 8/20/2003 11:51:26 AM



Sequence number: 3
Author: Owner
Subject: Highlight
Date: 8/20/2003 11:51:20 AM



Sequence number: 4
Author: Owner
Subject: Note
Date: 8/20/2003 11:52:52 AM
What is the threshold of significance for outdoor noise levels? How were they determined and applied?



Sequence number: 5
Author: Owner
Subject: Highlight
Date: 8/20/2003 11:52:08 AM



4.3 Surface Transportation

4.3.1 On-Airport Surface Transportation

4.3.1.1 Introduction

The on-airport surface transportation section addresses traffic-related issues inside the airport boundaries as more fully described in Section 4.3, *Surface Transportation* (subsection 4.3.1), of the Draft EIS/EIR. Additionally, Technical Reports 2.a, *On-Airport Surface Transportation Data* and 3.2, *On-Airport Surface Transportation Technical Report*, of the Draft EIS/EIR provide detailed supporting data regarding existing transportation operations, traffic modeling efforts and analysis of future on-airport conditions for the No Action/No Project Alternative and Alternatives A, B, and C. Technical Report S-2a, *Supplemental On-Airport Surface Transportation Technical Report*, of this Supplement to the Draft EIS/EIR, contains detailed information regarding existing transportation operations, traffic modeling efforts, and analysis of future on-airport conditions for Alternative D.

4.3.1.2 General Approach and Methodology

The analysis of On-Airport Surface Transportation presented below is based on the general approach and methodology described in Section 4.3.1, On-Airport Surface Transportation (subsection 4.3.2), of the Draft EIS/EIR. In addition, the analysis completed for this Supplement to the Draft EIS/EIR includes consideration of updates to the baseline conditions (see Section 4.3.1.3 below), and the scope of analysis for construction traffic affects of Alternative D. Changes in the general approach and methodology incorporated into this Supplement to the Draft EIS/EIR include the following:

- ◆ Existing airport conditions were defined by a traffic data survey conducted in 1995, plus additional traffic data collected in 1996 and 1997. To ensure that this data remains valid, traffic volumes entering and exiting the CTA were tabulated for the Year 2000 and compared to the original data. The findings of that comparison are described below in Section 4.3.1.3, *Affected Environment/Environmental Baseline*.
- ◆ The construction analysis for Alternative D follows the same general approach and methodology as used in the Draft EIS/EIR evaluation of the other alternatives; however, given that Alternative D involves substantially more modifications to the CTA and the related on-airport surface transportation system than the other alternatives, the analysis of Alternative D includes a more extensive evaluation of impacts to this system during the peak construction period. Based on the anticipated construction phasing of the components of Alternative D, the peak construction period would occur in the year 2008, whereas the assumptions for Alternatives A, B, and C addressed in the Draft EIS/EIR provided a basis to evaluate construction impacts for those alternatives in the years 2004 and 2013.

In addition to construction traffic, the number of origin and destination (O&D) passengers affects ground transportation forecasts. The airport traffic volumes used in this analysis represent peak summer airport operations. For Alternative D, the peak construction period traffic demands were determined to occur in the second quarter of 2008 and, similar to the approach used in evaluating the other alternatives, were added to the airport peak period traffic demands on an average summer weekday. The resulting traffic volumes and impacts depict the highest construction traffic scenario.

Evaluating construction impacts required two primary tasks: adding the construction traffic to the airport-related ground access demands, and reviewing the routes of the construction traffic model to determine where construction projects would adversely impact the on-airport ground access operations (e.g., detours, road closures, etc.). The construction scenario was analyzed in particular for capacity deficiencies that are expected to occur during this period.

To conduct the capacity analyses for the construction phases of Alternative D, traffic conditions were modeled with the Advanced Landside Performance Simulation (ALPS)TM computer modeling program used for the analysis of 2015 on-airport traffic conditions. Assumptions were made for the construction model with respect to the transportation network, trip generation, and trip distribution.

Sequence number: 1
Author: Denny Schneider
Subject: Note
Date: 8/17/2003 7:12:36 PM
Alt D more extensive changes than other alternatives. Is it so extensive that a new EIS/EIR required?

Sequence number: 2
Author: Denny Schneider
Subject: Highlight
Date: 8/17/2003 7:10:42 PM

Sequence number: 3
Author: Denny Schneider
Subject: Note
Date: 8/17/2003 7:15:47 PM
Since 2008 is the peak construction period for Alt D and 2004/2013 for the others, how does this impact noise distribution due to flight track differences.

Sequence number: 4
Author: Denny Schneider
Subject: Highlight
Date: 8/17/2003 7:17:42 PM

Sequence number: 5
Author: Denny Schneider
Subject: Highlight
Date: 8/17/2003 7:17:37 PM

Sequence number: 6
Author: Denny Schneider
Subject: Note
Date: 8/17/2003 7:18:53 PM
What are the construction model assumptions and where are they delineated?

Table S4.3.1-1

CTA Traffic Comparison, Baseline to Year 2000

Time Period	CTA Traffic		
	Inbound	Outbound	Total
A.M. Commuter Peak Hour			
March 1997 ¹	4,100	3,280	7,380
March 2000 ²	3,760	3,170	6,930
Percent Increase/(Decrease) between 1997 and 2000	(8.3%)	(3.4%)	(6.1%)
Airport Peak Hour			
August 1996 ³	5,910	5,380	11,290
August 2000 ⁴	6,500	5,600	12,100
Percent Increase/(Decrease) between 1996 and 2000	10.0%	4.1%	7.2%
P.M. Commuter Peak Hour			
March 1997 ⁵	4,160	4,480	8,640
March 2000 ⁶	4,390	4,410	8,800
Percent Increase/(Decrease) between 1997 and 2000	5.5%	(1.6%)	1.9%
Combined Peak Hours			
1996 / 97	14,170	13,140	27,310
2000	14,650	13,180	27,830
Percent Increase/(Decrease) between 1996/97 and 2000	3.4%	0.3%	1.9%

¹ Peak hour defined as 8:00 a.m. to 9:00 a.m.; Source: Update Existing Conditions to 1996, On-Airport Transportation; June 9, 1998; Leigh Fisher Associates.

² Average of peak hour traffic on March 17 and 24, 2000

³ Peak hour defined as 11:00 a.m. to 12:00 noon.; Source: Update Existing Conditions to 1996, On-Airport Transportation; June 9, 1998; Leigh Fisher Associates.

⁴ Average of peak hour traffic on August 4, 11, and 18, 2000

⁵ Peak hour defined as 5:00 p.m. to 6:00 p.m.; Source: Update Existing Conditions to 1996, On-Airport Transportation; June 9, 1998; Leigh Fisher Associates.

⁶ Average of peak hour traffic on March 17 and 24, 2000

Source: Los Angeles World Airports, LAX AVI Traffic Count Data; Landrum & Brown, 2003.

The results of the surveys completed for Year 2000 conditions showed no material or consistent change in traffic growth or reduction in on-airport traffic since August 1996/March 1997. Although some traffic did shift between peak hours, the overall change in traffic was minimal. The slight increase in the combined peak hour traffic volumes (1.9 percent for total traffic) indicates that the continued use of the 1996/97 traffic volumes as the baseline for analysis is a conservative approach, since the lower existing volumes would result in a larger change in traffic resulting from the projects. This would lead to an indication of more impacts resulting from the build alternatives. Further, there were no material infrastructure changes that were not already anticipated between 1996/97 and 2000 (i.e., improvements that were already planned and approved, as accounted for in the No Action/No Project Alternative).

- ◆ The airport provides both close-in and remote parking for short-term and long-term parking patrons, as illustrated in **Figure S4.3.1-2, Existing (1996) Parking Levels of Service**. **Table S4.3.1-2, Public Parking Comparison, Baseline to Year 2000**, provides a comparison of the public parking demands at LAX from the August 1996/March 1997 baseline to Year 2000. Similar to the CTA traffic comparison, there is no material or consistent change in the parking demand between the baseline years and Year 2000. The March comparison shows that parking slightly decreased between the baseline year and 2000, while the August analysis shows that parking slightly increased during that month.

Sequence number: 1

Author: Owner

Subject: Note

Date: 8/20/2003 5:58:22 PM

Does inbound and outbound counts refer to the upper and lower levels (aircraft arrivals/departures)? Otherwise they should be equal. Is there an explanation for inbound consistently higher increases?

Sequence number: 2

Author: Owner

Subject: Note

Date: 8/21/2003 4:48:42 PM

Why are the peak hours that different? What are the correct ones?
