APPENDIX A
Glossary of Terms

Term	Definition
14 CODE OF FEDERAL REGULATIONS (CFR) PART 36	This regulation, titled "Noise Standards: Aircraft Type and Airworthiness Certification," establishes noise standards for the civil aviation fleet. Certain extensions for compliance are included in the Aviation Safety and Noise Abatement Act of 1979.
14 CFR PART 91	This regulation, titled "General Operating and Flight Rules," includes an amendment issued by the FAA on September 25, 1991 (to 14 CFR 91) in conformance with requirements of the Airport Noise and Capacity Act of 1990. The amendment to the aircraft operating rules required a phased transition to an all Stage 3 aircraft fleet operating in the 48 contiguous United States and the District of Columbia by December 31, 1999.
14 CFR PART 150	This regulation, titled "Airport Noise Compatibility Planning," sets forth criteria for developing an 14 CFR Part 150 Noise Compatibility Program, an FAA-assisted program designed to increase the compatibility of land and land uses in the areas surrounding an airport that are most directly affected by operation of the airport. The specific purpose is to reduce the adverse effects of noise as much as possible by implementing both on-airport noise abatement measures and off-airport noise mitigation measures. The basic products of an 14 CFR Part 150 program typically include (1) noise exposure maps for the existing condition and for 5 years in the future; (2) workable on-airport noise abatement measures (preferential runway use programs, new or preferential flight tracks), (3) off-airport noise mitigation measures (land acquisition, soundproofing, or special zoning); (4) an analysis of the costs and the financial feasibility of the recommended measures; and (5) policies and procedures related to the implementation of on- and off-airport programs. Community involvement opportunities are provided throughout all phases of noise compatibility program development.
14 CFR PART 158	This regulation, titled "Passenger Facility Charges," establishes a passenger facility charge (PFC) program. The regulation implements Sections 9110 and 9111 of the Airport Noise and Capacity Act of 1990, which requires the Department of Transportation to issue regulations under which a public agency may be authorized to impose a PFC per enplaned passenger at a commercial service airport it controls. The proceeds from such PFCs are to be used to finance eligible airport-related projects that preserve or enhance safety, capacity, or security of the national air transportation system, reduce noise from an airport that is part of such system, or furnish opportunities for enhanced competition between or among airlines. The rule sets forth procedures for public agency applications for authority to impose PFCs, for FAA processing of such applications; for collection, handling, and remittance of PFCs by airlines; for record keeping and auditing by airlines and public agencies; for terminating PFC authority; and for reducing federal grant funds apportioned to large and medium hub airports where a PFC is imposed.
14 CFR PART 161	This regulation, titled "Notice and Approval of Airport Noise and Access Restrictions," establishes a program for reviewing airport noise and access restrictions on the operations of Stage 2 and Stage 3 aircraft. This regulation is in response to specific provisions in the Airport Noise and Capacity Act of 1990 and is a major element of the national aviation noise policy required by that Act. Even if such an airport noise and access restriction is proposed as an element of an 14 CFR Part 150 Noise Compatibility Program, it is still subject to the guidelines of 14 CFR Part 161 prior to approval. Some of the public notice requirements, however, may be met during development of the 14 CFR Part 150 program.

Term	Definition
A-WEIGHTED SOUND LEVEL (dBA)	The ear does not respond equally to different frequencies of sound. It is less efficient at low and high frequencies than it is at medium or speech-range frequencies. Thus, to obtain a single number representing the sound level of a noise having a wide range of frequencies in a manner representative of the ear's response, it is necessary to reduce the effects of the low and high frequencies with respect to the medium frequencies. The resultant sound level is said to be A-weighted, and the units are decibels (dB); hence, the abbreviation is dBA. The A-weighted sound level is also referred to as the noise level. Sound level meters have an A-weighting network for measuring noise in A-weighted decibels.
ABSORPTION	Absorption is a property of materials that reduces the amount of sound energy reflected. Thus, introduction of an "absorbent" into the surfaces of a room will reduce the sound pressure level in that room because sound energy striking the room's surfaces will be partially absorbed rather than totally reflected. The process of absorption is different from that of transmission loss through a material, which determines how much sound enters a room via the walls, ceiling, and floor. Absorption reduces the resultant sound level in the room produced by energy that has already entered the room.
ACOUSTICS	(1) The science of sound, including the generation, transmission, and effects of audible and inaudible sound waves. (2) The physical qualities (such as size and shape) of a room or other enclosure that determine the audibility and perception of speech and music.
ADVISORY CIRCULAR (AC)	An external Federal Aviation Administration (FAA) publication consisting of non-regulatory material of a policy, guidance, or informational nature.
AFFECTED LOCAL GOVERNMENT AGENCIES	The local government agencies that have the authority to control land uses in areas that may be adversely affected by aviation activities.
AIR CARRIER, CERTIFICATED ROUTE	An airline company that: (1) performs at least five round trips per week between two or more points and publishes flight schedules that specify the times, days of the week, and places between which such flights are performed; or (2) transports mail by air pursuant to a contract with the U.S. Postal Service, certificated in accordance with 14 CFR Parts 121 and 127.
AIR CARRIER, COMMUTER	An air taxi operator that (1) performs at least five round trips per week between two or more points and publishes flight schedules that specify the times, days of the week, and places between which such flights are performed; or (2) transports mail by air pursuant to a contract with the U.S. Postal Service.
AIRCRAFT OPERATION	An aircraft arrival (landing) or an aircraft departure (takeoff) represents one aircraft operation. A low approach, below traffic pattern or a touch-and-go operation is counted as both a landing and a takeoff, i.e., two operations. The Federal Aviation Administration (FAA) records aircraft operations in four categories: air carrier, air taxi, general aviation, and military.
AIR CARRIER	Operations performed in revenue service by certificated route air carriers.
AIR TAXI/COMMUTER	Operations performed by operators of aircraft holding an air taxi certificate. This category includes commuter airline operations (excluding certificated commuter airlines), mail carriers under contract with the U.S. Postal Service, and operators of nonscheduled air taxi service.
GENERAL AVIATION	All civil aircraft operations not classified as air carrier or air taxi operations.
MILITARY	Operations performed by military groups, such as the Coast Guard, Air National Guard, the U.S. Air Force, or the U.S. Marine Corps. Aircraft operations may also be described as local or itinerant:
LOCAL	Local operations are performed by aircraft that (1) operate in the local traffic pattern or within sight of the airport, (2) are known to be departing for, or arriving from, local practice areas within a 20-mile radius of the airport, or (3) execute simulated or practice instrument approaches or low passes at the airport. Touch-and-go operations are counted as two local operations.

Term	Definition
ITINERANT	All aircraft operations other than local operations.
AIR NAVIGATION FACILITY (NAVAID)	A facility designed for use as an aid to air navigation, including landing aids, lights, any apparatus or equipment for disseminating weather information; for signaling for radio direction-finding or for radio or other electronic communication; and any other structure or mechanism having a similar purpose for guiding and controlling flight in the air or the landing or takeoff of aircraft.
AIRPORT APPROACH AND RUNWAY PROTECTION ZONE LAYOUT PLAN	A plan map showing the imaginary surfaces that specify the maximum height of structures, trees, and other phenomena around an airport and that is prepared in accordance with 14 CFR Part 77, "Safe, Efficient Use and Preservation of the Navigable Airspace." The plan is required as part of an airport master plan.
AIRPORT ELEVATION	The highest point of an airport's usable runways measured in feet above mean sea level.
AIRPORT ENVIRONS	The area surrounding an airport that is considered to be directly affected by the presence and operation of the airport.
AIRPORT IMAGINARY SURFACES	Imaginary surfaces established at an airport for the purposes of identifying obstructions to air navigation. The imaginary surfaces consist of primary, approach-departure, horizontal, vertical, conical, and transitional surfaces.
AIRPORT IMPROVEMENT PROGRAM (AIP)	A program administered by the FAA to provide financial grants-in-aid for airport planning, airport development projects, and noise compatibility programs. The AIP was established through the Airport and Airway Improvement Act of 1982, which was incorporated as Title V of the Tax Equity and Fiscal Responsibility Act of 1982 (Public Law 97-248). Funds are appropriated by the U.S. Congress for the AIP annually.
AIRPORT LAND USE PLAN	A generalized plan depicting proposed land uses within the airport boundary. The land use plan is a required element of an airport master plan.
AIRPORT LAYOUT PLAN (ALP)	A plan showing boundaries and proposed additions to all areas owned or controlled by the airport sponsor for airport purposes, the location and nature of existing and proposed airport facilities and structures, and the location on the airport of existing and proposed nonaviation areas and improvements thereon. The ALP is a required element of an airport master plan.
AIRPORT MASTER PLAN	An assembly of appropriate documents and drawings addressing the development of a specific airport from physical, economic, social, and political jurisdictional perspectives. The airport master plan includes forecasts of aviation demand, an airport land use plan, airport layout plan, airport approach and runway protection zone plan, terminal area plan, airport access and parking plan, staging plan, capital improvement plan, and financial plan.
AIRPORT NOISE AND CAPACITY ACT OF 1990	The Act was enacted on November 5, 1990 (Public Law 101-508). Two important provisions of the Act were the establishment of a national aviation noise policy (Sections 9308 and 9309) and the creation of a passenger facility charge (Sections 9110 and 9111), which enables airport sponsors to impose fees on the tickets issued to eligible enplaning passengers. An amendment to 14 CFR Part 91, "Transition to an All Stage 3 Fleet Operating in the 48 Contiguous United States and the District of Columbia," and new 14 CFR Part 161, "Notice and Approval of Airport Noise and Access Restrictions", implement the national noise policy. 14 CFR Part 158, "Passenger Facility Charges," implements that portion of the Act authorizing the imposition of such a charge.
AIRPORT NOISE CONTROL AND LAND USE COMPATIBILITY (ANCLUC) STUDY	A study designed to minimize aircraft noise and maintain compatible land use around airports. Certain noise control and land use compatibility studies are eligible for federal funding participation.
AIRPORT SPONSOR	A public agency, such as an airport authority, authorized to own and operate an airport, obtain property interests, obtain funds, and be legally, financially, and otherwise able to meet all applicable requirements of current laws and regulations.

Term	Definition
AIRPORT SURVEILLANCE RADAR (ASR)	Radar providing aircraft position data in terms of azimuth and range. ASR does not provide altitude data. It is designed for range coverage up to 60 nautical miles and is used by terminal area air traffic control.
AIRPORT TRAFFIC CONTROL TOWER (ATCT)	A central operations facility in the terminal area air traffic control system, consisting of a tower cab structure and an associated instrument flight rule (IFR) room if radar equipped, using air/ground communications and/or radar, visual signaling, and other devices, to provide safe and expeditious movement of terminal area air traffic.
AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC)	A facility established to provide air traffic control service to aircraft operating on an IFR flight plan within controlled airspace and principally during the en route phase of flight.
AIRSPACE	Space in the air above the surface of the earth or a particular portion of such space, usually defined by the boundaries of an area on the surface projected upward.
AIR TRAFFIC CONTROL (ATC)	A service operated by appropriate authority (the FAA) to promote the safe, orderly, and expeditious flow of air traffic.
APRON	A paved area that provides the connection between the terminal buildings and the airfield. The apron includes aircraft parking areas, called ramps, and aircraft circulation and taxiing areas for access to these ramps. On the ramp, aircraft park in locations typically designated as gate positions or gates.
AUTOMATED RADAR TERMINAL SYSTEM (ARTS)	Computer-aided radar display subsystems capable of associating alphanumeric data with radar returns.
AVIATION SAFETY AND NOISE ABATEMENT ACT OF 1979	The purpose of the Act is to assist airport sponsors in preparing and carrying out noise compatibility programs and in assuring continued safety for aviation. The Act also contains provisions extending to January 1, 1988, the requirement for certain types of aircraft to comply with 14 CFR Part 36.
AVIGATION EASEMENT	A type of land acquisition that involves less-than-fee purchase. One form of aviation easement grants the right to perform aircraft operations over the designated property, including operations that might cause noise, vibration, and other effects. A stronger form of easement is a deed restriction that may include (1) the right to perform aircraft operations over the property, and (2) public acquisition of a landowner's rights restricting future development of the property in any use more intensive than that existing at the time of the transaction. This easement may also include specific prohibitions as to the uses for which the property may be developed. Maximum heights of structures and other objects may also be specified.
BACKBLAST	Noise generated by jet exhaust on takeoff characterized by high acoustic energy, low frequency, and high velocity air behind the aircraft engine.
BUILDING CODE	A legal document that sets forth requirements to protect the public health, safety, and general welfare as they relate to the construction and occupancy of buildings and structures. The code establishes the minimum acceptable conditions for matters found to be in need of regulation. Topics generally covered are exits, fire protection, structural design, sanitary facilities, lighting, and ventilation. Sound insulation may also be included.
BUILDING PERMIT	A permit issued by a local political jurisdiction (village, town, city, or county) to erect or modify a structure.
BUILDING RESTRICTION LINE (BRL)	The BRL should be located on an Airport Layout Plan to identify suitable locations for building areas on airports. It is recommended that the BRL encompass the runway protection zones, the runway visibility zone, areas required for airport traffic control tower clear lines of sight, and all airport areas with less than 35-foot clearance under the 14 CFR Part 77 surfaces.
CAPITAL IMPROVEMENT PROGRAM (CIP)	A multiyear (sometimes a single year) schedule of capital expenditures for construction or equipment at an airport.

Term	Definition
CEILING	The height above the earth's surface of the lowest layer of clouds or obscuring phenomena that is reported as "broken," "overcast," or "obscuration," and not classified as "thin" or "partial."
COMMUNITY NOISE EQUIVALENT LEVEL (CNEL)	A noise metric required by the California Airport Noise Standards for use by airport proprietors to measure aircraft noise levels. CNEL includes an additional weighting for each event occurring during the evening (7:00 p.m. – 10:00 p.m.) and nighttime (10:00 p.m. – 7:00 a.m.) periods to account for increased sensitivity to noise during these periods. Evening events are treated as though there were three and nighttime events are treated as though there were ten. This results in a 4.77 and 10 decibel penalty for operations occurring in the evening and nighttime periods, respectively.
DAY-NIGHT AVERAGE SOUND LEVEL (DNL)	A measure used to predict, by a single number rating, cumulative aircraft noise that affects communities in airport environs. DNL represents decibels of noise as measured by an A-weighted sound-level meter. In the DNL procedure, the noise exposure from each aircraft takeoff or landing is calculated at ground level around an airport, and these noise exposure levels are accumulated for a typical 24-hour period. (The 24-hour period is the annual average day aircraft operations for the year being analyzed.) Daytime and nighttime noise exposure is considered separately. A weighting factor equivalent to a penalty of 10 decibels is applied to operations between 10:00 p.m. and 7:00 a.m. to account for the increased sensitivity of people to nighttime noise. DNLs can be expressed graphically on maps using either contours or grid cells.
DECIBEL (dB)	A unit for measuring the volume of a sound, equal to the logarithm of the ratio of the intensity of the sound to the intensity of an arbitrarily chosen standard sound.
DEVELOPMENT PLAN	A detailed land use plan for all or specific areas of an airport. The plan usually includes a plot map depicting parcel size and configuration, access, land use categories, utilities, improvements, and performance standards for each parcel and use category.
DEVELOPMENT RIGHTS	Rights of landowners to develop a parcel of land according to the zoning of that parcel. Land is often assessed on a combination of its "resource" value and its "commodity" value. The resource value is the value of the property in its natural state; while the commodity value is an artificial value placed on it by the marketplace (that is, its value for development purposes). In less-than-fee acquisition, the airport sponsor may purchase only the development rights; the ownership of the land remains unchanged.
DISPLACED THRESHOLD	A runway threshold that is located at a point other than the designated beginning of the runway.
DISTANCE MEASURING EQUIPMENT (DME)	Equipment (ground and airborne) used to measure and report to the pilot the slant range distance, in nautical miles, of an aircraft from the DME navigational aid.
DURATION	The length of time that a noise event, such as an aircraft flyover, is experienced (typically reported in seconds). "Duration" may also refer to the length of time that the noise event exceeds a specified threshold noise level.
EMINENT DOMAIN (POWER OF)	In common law, power of a governmental unit (federal, state, or local) to condemn land for public purposes after having paid the owner of the land just compensation.
ENGINE RUNUP AREA	An area on an airport where aircraft engines are serviced or tested. The noise from such servicing or testing can affect neighborhoods adjacent to the airport.
ENPLANED PASSENGERS	The passengers on aircraft outbound (departing) from an airport. The total annual number of passengers at an airport is the total of enplaned and deplaned passengers.

Term	Definition
EQUIVALENT CONTINUOUS SOUND LEVEL (LEQ)	Leq is the sound level, expressed in dBA, of a steady sound which has the same A-weighted sound energy as the time-varying sound over the averaging period. Unlike Sound Exposure Level (SEL), Leq is the average sound level for a specified time period (e.g., 24 hours, 8 hours, 1 hour, etc.). Leq is calculated by integrating the sound energy from all noise events over a given time period and applying a factor for the number of events.
FEDERAL AVIATION ADMINISTRATION (FAA)	The FAA, an agency of the U.S. Department of Transportation, is charged with (1) regulating air commerce to promote its safety and development; (2) achieving the efficient use of navigable airspace of the United States; (3) promoting, encouraging, and developing civil aviation; (4) developing and operating a common system of air traffic control and air navigation for both civilian and military aircraft; and (5) promoting the development of a national system of airports.
FAA ADVISORY CIRCULAR (AC) 150/5300-13A (Change 1)	This document, titled "Airport Design," contains airport design standards, including descriptions of various subdivisions of 14 CFR Part 77 (see also) such as obstacle free zones (OFZs), object free areas (OFAs), and runway protection zones (RPZs) – formerly referred to as "clear zones" – on airports. According to Paragraph 211, "Safe and efficient operations at an airport require that certain areas on and near the airport be clear of objects or restricted to objects with a certain function, composition, and/or height." To achieve this requirement, object clearing criteria contained in the AC describe the types of objects tolerated within various subdivisions of 14 CFR Part 77. Aircraft are controlled by aircraft operating rules and not by these criteria. However, objects not in conformance with these criteria may result in aircraft operating restrictions.
FAA HANDBOOK 7400.2K	This document, titled "Procedures for Handling Airspace Matters," contains procedures and guidelines for analyzing aeronautical operating conditions and determining the effects of existing or proposed objects that exceed 14 CFR Part 77 standards. Objects that exceed 14 CFR Part 77 standards are subject to an aeronautical review and are presumed to be hazards to air navigation unless an aeronautical review determines otherwise. However, once an aeronautical review is initiated, 14 CFR Part 77 standards are no longer the basis for determining whether or not an object would be a hazard. Other criteria, including operational, procedural, and electronic requirements, are used to determine if the object in question would be a hazard to air navigation. The outcome of an FAA aeronautical review is either a "Determination of No Hazard" or "Determination of Hazard to Air Navigation."
FAA HANDBOOK 8260.3B (Change 26)	This document, titled "TERPS" (terminal instrument procedures), contains obstruction clearance criteria for instrument procedures. Imaginary surfaces for each type of instrument procedure are described. If an object would penetrate the imaginary surfaces for a particular instrument procedure and could not be relocated or sufficiently reduced in height, one of the following would be necessary: (1) alteration of the procedure to minimize or eliminate effects; (2) increase in the minimum cloud ceiling and/or visibility requirements for conducting the procedure; (3) some combination of (1) and (2); or (4) preclusion of the particular procedure.
FEE SIMPLE LAND ACQUISITION	The full purchase of land and improvements by an airport sponsor. The land is usually maintained or leased for uses that are compatible with airport operations. Alternatively, the airport sponsor can resell the land with an aviation easement (see also) and deed restrictions that specify the compatible land uses that are permitted. One benefit of the resale option is that the land is returned to the local tax rolls.
FLIGHT TRACK	The average flight path flown by aircraft within specific corridors. Deviation from these tracks occurs because of weather, pilot technique, air traffic control, and aircraft weight. Individual flight tracks within a corridor are "averaged" for purposes of modeling noise exposure using the FAA's Integrated Noise Model.
GENERAL AVIATION (GA)	All civil aviation except that classified as air carrier, military, or air taxi. The types of aircraft typically used in GA activities vary from multiengine jet aircraft to single-engine piston aircraft.

Term	Definition
GENERAL PLAN	An overall plan of a political jurisdiction setting forth the goals and objectives of the jurisdiction, policies for development and redevelopment, and maps showing the spatial arrangement of land uses, circulation routes, and community facilities. This is sometimes referred to as a comprehensive plan or community plan.
GLIDE SLOPE	A FAA navigational system that: (1) provides the vertical (or altitude) profile followed by an aircraft during the approach and landing; (2) is an electronic vertical guidance provided by airborne and ground instruments for instrument approaches using equipment such as an instrument landing system (ILS) as well as visual ground aids, such as a visual approach slope indicator (VASI), for a visual flight rule (VFR) approach or for the visual portion of an instrument approach and landing.
GLOBAL POSITIONING SYSTEM (GPS)	A navigational system that uses a series of satellites orbiting the earth to provide non-precision guidance in azimuth, elevation, and distance measurement.
GROUND EFFECT	The excess attenuation of sound associated with absorption or reflection of noise by manmade and physical features on the ground surface.
GROUND TRACK	The trajectory of an aircraft flight path projected onto the ground surface.
HELIPAD	A small area designated for takeoff, landing, or parking of helicopters.
IFR AIRPORT	An airport with an authorized instrument approach procedure.
IFR CONDITIONS	Weather conditions that require aircraft to be operated in accordance with instrument flight rules.
IFR MINIMUMS AND DEPARTURE PROCEDURES (FAR PART 91)	Prescribed takeoff rules. For some airports, obstructions or other factors require the establishment of nonstandard takeoff minimums or departure procedures, or both, to assist pilots in avoiding obstacles during climb to the minimum en route altitude.
INCOMPATIBLE LAND USE	Residential, public, recreational, and certain other noise-sensitive land uses that are designated as unacceptable within specific ranges of cumulative (DNL) noise exposure as set forth in 14 CFR Part 150, Appendix A, Table 1.
INFILL	The development of small pieces of property remaining in previously developed larger areas.
INSTRUMENT APPROACH	An aircraft approach to an airport, with intent to land, by a pilot flying in accordance with an IFR flight plan, when the visibility is less than 3 miles and/or when the ceiling is at or below the minimum initial approach altitude.
INSTRUMENT APPROACH RUNWAY	A runway equipped with electronic and visual navigation aids for which a precision or nonprecision approach procedure having straight-in landing minimums has been approved.
INSTRUMENT FLIGHT RULES (IFR)	Rules specified by the FAA for flight under weather conditions that do not meet the minimum requirements for VFR (see also). Under these conditions the pilot must rely on instruments to fly and navigate.
INSTRUMENT LANDING SYSTEM (ILS)	A system that provides, in the aircraft, the lateral and longitudinal (localizer), and vertical (guidance) electronic guidance necessary for an instrument landing.
INSTRUMENT OPERATION	An aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility or air route traffic control center.
INSTRUMENT RUNWAY	A runway equipped with electronic and visual air navigation aids and for which a straight-in (precision or nonprecision) approach procedure has been approved or is planned.
INTEGRATED NOISE MODEL (INM)	A computer model developed by the FAA and required by the FAA for use in environmental assessments, environmental impact statements, and 14 CFR Part 150 studies for developing existing and future aircraft noise exposure maps.

Term	Definition
LAND USE COMPATIBILITY	The compatibility of land uses surrounding an airport with airport activities and particularly with the noise from aircraft operations.
LAND USE CONTROLS	Controls established by local or state governments to implement land use planning. The controls include zoning, subdivision regulations, land acquisition (in fee simple, lease-back, or easements), building codes, building permits, and capital improvement programs (to provide sewer, water, utilities, or other service facilities).
LAND USE PLANNING	Comprehensive planning carried out by units of local government, for all areas under their jurisdiction, to identify the optimum uses of land and to serve as a basis for the adoption of zoning or other land use controls.
LESS-THAN-FEE ACQUISITION	The purchase of development rights from landowners by airport sponsors in areas that should remain at very low densities or in open space uses. The airport sponsor negotiates with the landowner to determine the fair market value of the unused development rights. Once sold, the land cannot be developed except in specified uses.
LOCALIZER (LOC)	Navigational equipment that provides electronic course guidance. The ground-based equipment sends two signals, which, when received and receded by airborne equipment with equal intensity, indicate that the aircraft is on course. If the received and receded signals have unequal intensity, then the aircraft is off course. A localizer is the part of an ILS that provides lateral and longitudinal course guidance to the runway.
LOCALIZER-TYPE DIRECTIONAL AID (LDA)	A navigational aid used for nonprecision instrument approaches with utility and accuracy comparable to a localizer; however, it is not part of a complete ILS and its signal is not typically aligned with the runway.
LOUDNESS	The judgment of the intensity of a sound by a person, loudness depends primarily on the sound pressure of the stimulus. Over much of the loudness range, it takes about a threefold increase in sound pressure (approximately 10 decibels) to produce a doubling of loudness.
MAXIMUM SOUND LEVEL (Lmax)	The maximum a-weighted sound level, in dBA, for a given noise event. The peak noise level reached by a single aircraft event.
MISSED APPROACH	An approach that is not completed with a landing due to lack of visual reference, the presence of other aircraft on or too near the runway, instructions from air traffic control to execute a missed approach, or other reasons.
MISSED APPROACH POINT (MAP)	A point during an instrument approach procedure at which, if the visual reference to continue the approach does not exist (i.e., the pilot cannot see the runway or visual guidance to the runway), a missed approach procedure must be executed.
NOISE	Noise is any sound that is considered to be undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying.
NOISE ABATEMENT PROCEDURES	Changes in runway use, flight approach and departure routes and procedures, and other air traffic procedures that are intended to shift adverse aviation effects away from noise-sensitive areas (such as residential neighborhoods).
NOISE ATTENUATION OF BUILDINGS	The use of building materials to reduce noise through absorption, transmission loss, and reflection of sound energy.
NOISE CONTOURS	Lines drawn on a map that connect points of equivalent noise exposure levels. For aircraft noise analyses conducted using DNL, noise contours are usually drawn in 5-DNL intervals, such as connections of DNL 75 exposure, DNL 70 exposure, DNL 65 exposure, and so forth.
NOISE EXPOSURE MAP (NEM)	A map prepared in accordance with 14 CFR Part 150 or other FAA environmental regulation that depicts actual (existing or historical conditions) or anticipated (future conditions) aircraft noise exposure and the affected land uses. NEMs for future conditions may take into account anticipated land use changes around the airport.

Term	Definition
NOISE LEVEL REDUCTION (NLR)	The noise reduction between two areas or rooms is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. Noise reduction is measured by combining the effect of the transmission loss performance of structures separating the two areas or rooms and the effect of acoustic absorption in the receiving room.
NOISE-SENSITIVE LAND USE	A land use that can be adversely affected by high levels of aircraft noise. Residences, schools, hospitals, religious facilities, libraries, and other similar uses are typically considered to be noise-sensitive.
NONDIRECTIONAL RADIO BEACON (NDB)	A low/medium frequency radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction-finding equipment can determine the aircraft's bearing to or from the radio beacon and track to or from the station.
NON-PRECISION INSTRUMENT APPROACH PROCEDURE	A standard instrument approach procedure for which no glide slope guidance is provided. Typical non-precision instrument approach procedures include VOR (see VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE), GPS (see GLOBAL POSITIONING SYSTEM), NDB (see NONDIRECTONAL RADIO BEACON), and LOC (see LOCALIZER) approach procedures.
OBSTACLE FREE ZONE (OFZ)	The OFZ is a three-dimensional section of airspace that supports the transition of ground-to-airborne-aircraft operations (and vice versa). The OFZ clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible NAVAIDS, the location of which is fixed by function. The runway OFZ; when applicable, the inner-approach OFZ; and the inner-transitional OFZ compose the obstacle free zone.
OBSTRUCTION	An object that exceeds a limiting height or penetrates an imaginary surface described by 14 CFR Part 77.
PATTERN	The configuration or form of a flight path flown by an aircraft, or prescribed to be flown, as in making an approach for landing.
PRECISION APPROACH PATH INDICATOR (PAPI)	An airport lighting facility in the terminal area navigation system used under VFR conditions, through a single row of two to four lights, radiating high intensity red or white beams to indicate whether the aircraft is on, above, or below the required runway glide slope.
PRECISION INSTRUMENT APPROACH PROCEDURE	A standard instrument procedure for a pilot to approach an airport, in which both electronic course guidance and an electronic glide scope are provided. For example, an approach using an ILS is considered a precision instrument approach.
PREFERENTIAL RUNWAY USE (PROGRAM)	A noise abatement action whereby the FAA Air Traffic Division, in conjunction with the FAA Airports Division and Aviation System Standards Division, assists the airport sponsor in developing a program that gives preference to the use of a specific runway(s), unless weather or other conditions prevail, to reduce overflights of noise-sensitive areas.
PROPRIETARY USE RESTRICTIONS	Restrictions by an airport sponsor on the number, type, class, manner, or time of aircraft operations at the airport. The ability of an airport sponsor to impose proprietary use restrictions was significantly affected by passage of the *Airport Noise and Capacity Act of 1990*.
RELIEVER AIRPORT	An airport accommodating general aviation aircraft operations that might otherwise have to be accommodated at a congested air carrier airport.
RETROFIT	The retroactive modification of existing jet aircraft engines for noise reduction purposes.
RUNWAY	A defined rectangular area on an airport for the purpose of landing and taking off of aircraft. Runways are numbered in relation to their magnetic direction, rounded to the nearest 10 degrees (i.e., Runway 14, Runway 32).

Term	Definition
RUNWAY OBJECT FREE AREA	The runway object free area (OFA) is a two-dimensional ground area surrounding the runway. The runway OFA clearing standard precludes parked aircraft and objects, except objects whose location is fixed by function.
RUNWAY PROTECTION ZONE (RPZ)	The RPZ (formerly referred to as the runway clear zone) is trapezoidal in shape and centered about the extended runway centerline. It begins 200 feet beyond the end of the area usable for takeoff or landing. Displacing the threshold does not change the beginning point of the RPZ unless declared runway distances have been established by the airport sponsor and approved by the FAA. The RPZ dimensions are functions of the design aircraft, type of operation, and visibility minimums.
RUNWAY THRESHOLD	The beginning of that portion of a runway usable for landing.
SHIELDING	The attenuation of a sound by placing walls, buildings, plants, or other barriers between a sound source and the receiver. Also used with light to minimize impacts by introducing manmade or natural elements to reduce or eliminate glare.
SINGLE EVENT	Noise generated by a single event, such as a single aircraft flyover.
SOUND EXPOSURE LEVEL (SEL)	SEL is a time-integrated measure, expressed in decibels, of the sound energy of a single noise event. The sound level is integrated over the period that the level exceeds a threshold (normally 65 dBA for aircraft noise events). Therefore, SEL accounts for the duration of the sound. SELs for aircraft noise events depend on the location of the aircraft, the type of operation (landing, takeoff, or overflight), and the type of aircraft.
SOUND INSULATION	(1) The use of structures and materials designed to reduce the transmission of sound from one room or area to another, or from the exterior to the interior of a building. (2) The degree of reduction in sound transmission, or noise level reduction, by means of sound insulating structures and materials.
SOUND LEVEL (NOISE LEVEL)	The weighted sound pressure level obtained by the use of a sound level meter having a standard frequency filter for attenuating part of the sound spectrum.
SOUND LEVEL METER	An instrument consisting of a microphone, an amplifier, an output meter, and frequency-weighting networks used to measure noise and sound levels in a specified manner.
STANDARD TERMINAL ARRIVAL ROUTE (STAR)	A preplanned and published instrumental arrival route.
TERPS	Certain airspace needs to be cleared for aircraft operations. This airspace is determined by the application of operating rules and terminal instrument procedures (TERPS). Removing obstructions to air navigation, except those that an FAA aeronautical analysis determined need not be removed, satisfies these requirements. Subpart C of 14 CFR Part 77 defines obstructions to air navigation. (See FAA HANDBOOK 8260.3B.)
TERMINAL RADAR APPROACH CONTROL (TRACON)	Radar approach facility for an airport.
TRANSFER OF DEVELOPMENT RIGHTS (TDR)	TDR involves separate ownership and use of the various rights associated with a parcel of real estate. Under TDR, some of the property's development rights are transferred to another location, where they may be used to intensify allowable development. For example, lands within an area affected by aircraft noise could be kept in open space or agricultural uses, and development rights for residential or other uses could be transferred to locations outside the area. Landowners could be compensated for the transferred rights by their sale at the new locations, or the airport sponsor could purchase the rights. Depending on market conditions and legal requirements, the airport sponsor could either hold or resell the rights.

Term	Definition
URBAN GROWTH MANAGEMENT	The identification and management of the demands on municipal facilities, improvements, or services created by any proposed residential, commercial, industrial, or other type of development. Urban growth management is intended to (1) provide the means for satisfying such demands, (2) identify any harmful effects of development, and (3) protect the jurisdictions and their residents against such harmful effects by minimizing the costs of municipal facilities, improvements, and services. The intent of urban growth management is usually not to prevent development or growth, but rather to avoid free or disorganized development or growth in the urban growth management area, which is generally located in and around the fringe of an urban area. The urban growth management area usually is either relatively undeveloped or predominantly agricultural and lacks most, if not all, municipal facilities, improvements, or services.
VERY HIGH FREQUENCY (VHF) OMNIDIRECTIONAL RANGE (VOR)	A radio transmitter facility in the navigation system radiating a VHF radio wave modulated by two signals, the relative phases of which are compared, resolved, and displayed by a compatible airborne receiver to give the pilot a direct indication of bearing relative to the facility.
VFR AIRPORT	An airport without an authorized or planned instrument approach procedure.
VISUAL APPROACH	An approach to an airport wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control of a radar facility and having air traffic control authorization, may deviate from the prescribed instrument approach procedure and proceed to and land at the airport of destination, served by an operational ATCT, by visual reference to the surface.
VISUAL APPROACH SLOPE INDICATOR (VASI)	An airport lighting facility in the terminal area navigation system used primarily under VFR conditions. It provides vertical visual guidance to indicate whether the aircraft is on, above, or below the glide slope to the runway.
VISUAL FLIGHT RULES (VFR)	A set of regulations that a pilot may operate under when weather conditions meet certain minimum requirements. The requirements are designed to provide sufficient visibility so that other aircraft can be seen and avoided. Under VFR, the pilot generally controls the attitude of the aircraft by relying on what can be seen out the window, although this may be supplemented by referring to the instrument panel.
VISUAL FLIGHT RULE (VFR) CONDITIONS	Meteorological conditions under which VFR flight is permitted. For VFR flight certain requirements for visibility, ceilings (for takeoffs and landings), and cloud clearances must be met.
VISUAL RUNWAY	A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved Airport Layout Plan, or by any planning document submitted to the FAA by competent authority.
ZONING AND ZONING ORDINANCES	Ordinances that divide a community into zones or districts according to the current and potential use of properties for the purpose of controlling and directing the use and development of those properties. Zoning is concerned primarily with the use of land and buildings, the height and bulk of buildings, the proportion of a lot that buildings may cover, and the density of population of a given area. As an instrument for noise compatibility plan implementation, zoning deals principally with the use and development of privately owned land and buildings. The objectives of zoning are to establish regulations that provide locations for all essential uses of land and buildings and ensure that each use is located in the most appropriate place. In noise compatibility planning, zoning can be used to achieve two major aims: (1) to reinforce existing compatible land uses and promote the location of future compatible uses in vacant or underdeveloped land, and (2) to convert existing incompatible uses to compatible uses over time.

SOURCE: Environmental Science Associates, 2014.

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APPENDIX B
Summary of Land Use Plans and Zoning

B.1 Introduction

This technical appendix describes the existing and planned land use setting in the vicinity of Los Angeles International Airport (LAX). Information provided herein was derived from environmental planning studies prepared for LAX and from available planning documents developed by local jurisdictions. The LAX environs include portions of unincorporated Los Angeles County and the cities of Los Angeles, El Segundo, Hawthorne, and Inglewood (See **Exhibit B-1**). Existing and planned land uses in these communities are described in the following sections.

B.2 Los Angeles County

Los Angeles County is approximately 4,057 square miles in size, and has a population of approximately 10 million people (U.S. Census Bureau, 2014a). The portions of unincorporated Los Angeles County located closest to LAX include the communities of Lennox, Del Aire, and West Athens-Westmont. All three communities are located east of LAX, with Del Aire less than a mile to the southeast, Lennox less than a mile to the east, and Athens approximately three miles to the east.

B.2.1 Existing Land Uses

The communities of Del Aire, Lennox, and West Athens-Westmont can all be characterized as consisting predominately of residential land uses. The community of Del Aire is broken into two distinct areas; a northern portion located north of El Segundo Boulevard and west of Interstate 405 and a southern area located south of El Segundo Boulevard and east of Interstate 405. Del Aire consists primarily of residential uses, with a mix of office, commercial, and public (i.e., schools and a park) uses located along major roadways. The community of Lennox, which is located east of Interstate 405 and north of Interstate 105, consists primarily of residential uses, but also includes a mix of schools, commercial, and office uses. Lastly, West Athens-Westmont, which is located south of W. Manchester Avenue, north of El Segundo Boulevard, west of S. Vermont Avenue, east of S. Van Ness Avenue, and is partially bisected by Interstate 105, consists mostly of residential uses, with a variety of public, commercial, and office uses also included within its planning area.

B.2.2 Planned Land Uses

Future land use development within unincorporated Los Angeles County is guided by the Los Angeles County General Plan, which is currently going through the process of being updated. Development within the community of Del Aire is guided by the County's General Plan, while the communities of Lennox and Athens have separate planning documents.

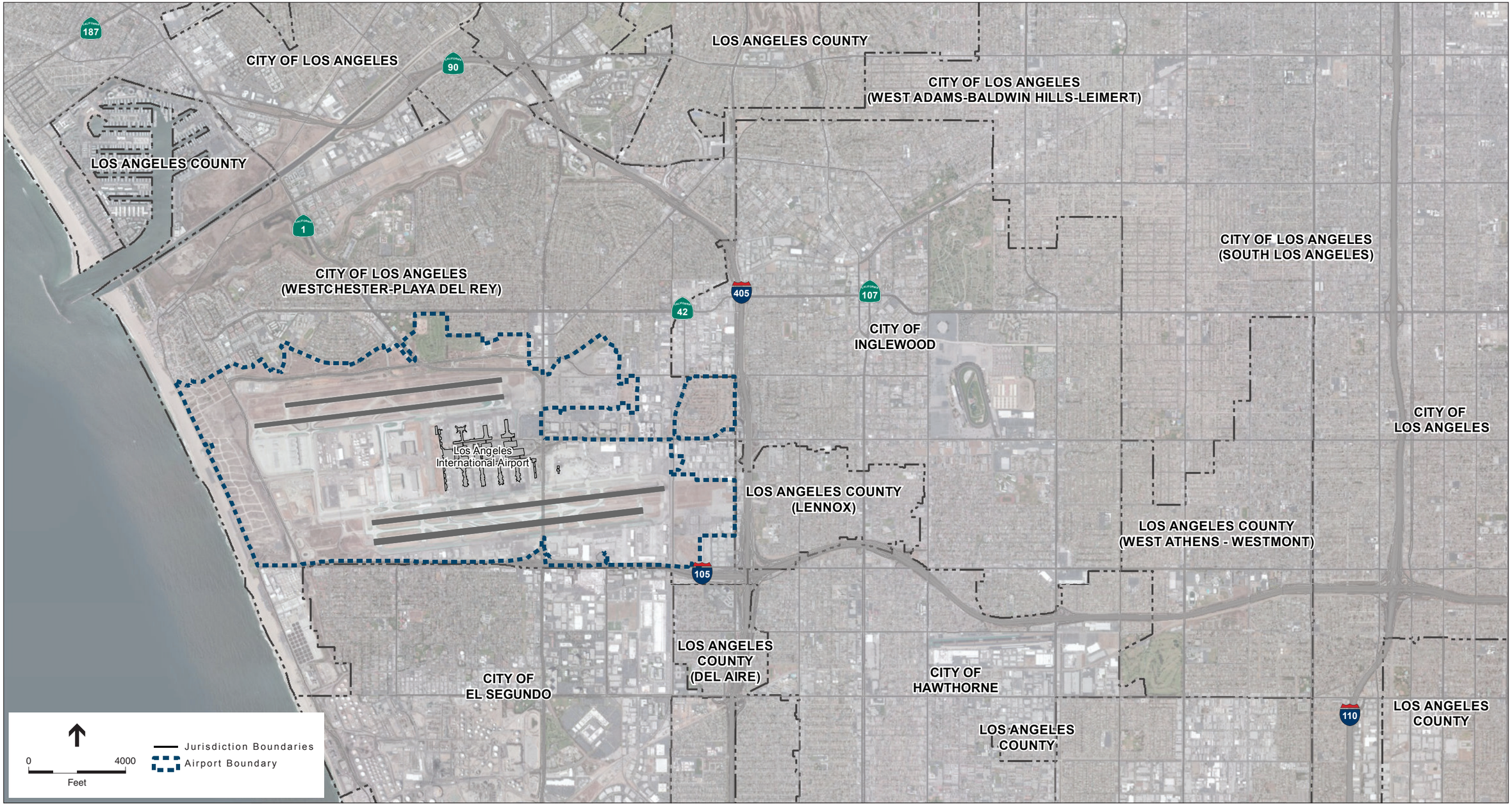
Del Aire

Table B-1 identifies planned land use designations within the Del Aire community, per the *Draft County General Plan* (see **Exhibit B-2**).

TABLE B-1
LOS ANGELES COUNTY – DEL AIRE LAND USE DESIGNATIONS

Land Use Designation	Density/Intensity	Description
Residential 2	0 – 2 du/net ac	Single family residences.
Residential 5	0 – 5 du/net ac	Single family residences.
Residential 9	0 – 9 du/net ac	Single family residences.
Residential 30	0 – 30 du/net ac	Single family residences, two family residences, multi-family residences.
Residential 100	50 – 100 du/net ac	Multi-family residences.
Commercial General	Residential: 0 – 50 du/net ac Nonresidential: Max FAR 1.0 Mixed Use: 0 – 50 du/net ac Max FAR 1.0	Local-serving commercial uses, including retail, restaurants, and personal and professional services; single family and multi-family residences; and residential and commercial mixed uses.
Light Industrial	Max FAR 1.0	Light industrial uses, including light manufacturing, assembly, warehousing and distribution.
Mixed Use	Residential: 0-150 du/net ac Non-Residential: Max FAR 3.0 Mixed Use: 0-150 du/net ac and FAR 3.0	Pedestrian-friendly and community-serving commercial uses that encourage walking, bicycling, and transit use; residential and commercial mixed uses; and multi-family residences.
Parks and Recreation	N/A	Open space recreational uses, such as regional and local parks, trails, athletic fields, community gardens, and golf courses.
Public and Semi-Public	Non-Residential: Maximum FAR 3.0	Public and semi-public facilities and community-serving uses, including public buildings and campuses, schools, hospitals, cemeteries, and fairgrounds; airports and other major transportation facilities. Other major public facilities, including planned facilities that may be public-serving but generally not publicly accessible, such as landfills, solid and liquid waste disposal sites, multiple use stormwater treatment facilities, and major utilities. In the event that the public or semi-public use of mapped facilities is terminated, alternative uses that are compatible with the surrounding development, in keeping with community character, are permitted.

SOURCES: Los Angeles County, *Draft Los Angeles County General Plan*, 2014; Land Use Policy Map (Figure A.5), 2014.



SOURCE: ESRI ArcGIS, 2011; PCR Services Corporation, 2012; ESA Airports, 2014

Exhibit B-1

Los Angeles International Airport and Surrounding Jurisdictions

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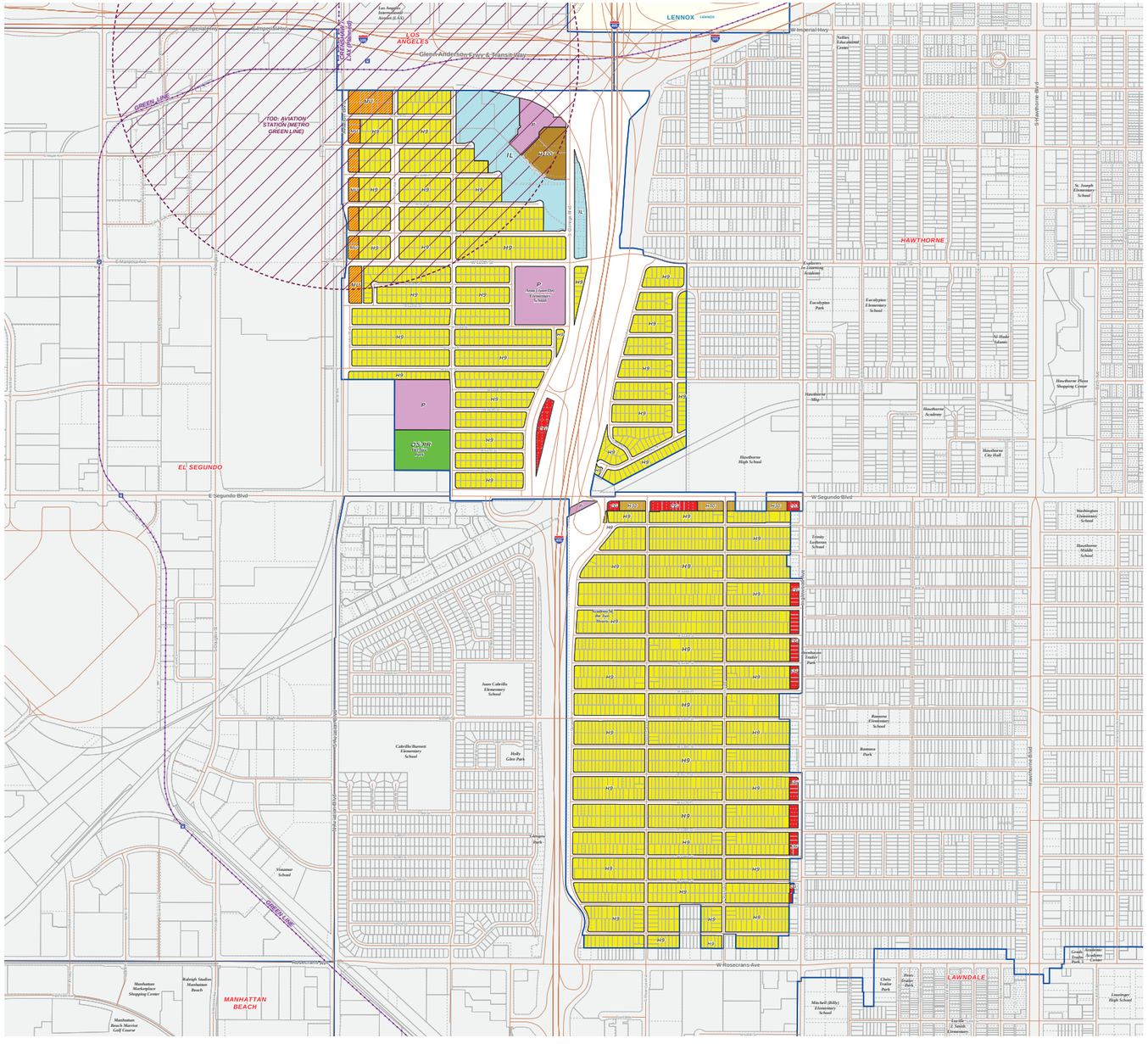

Los Angeles County

DEL AIRE

Land Use Policy

LEGEND

- RL1 - Rural Land 1
- RL2 - Rural Land 2
- RL5 - Rural Land 5
- RL10 - Rural Land 10
- RL20 - Rural Land 20
- RL40 - Rural Land 40
- H2 - Residential 2
- H5 - Residential 5
- H9 - Residential 9
- H18 - Residential 18
- H30 - Residential 30
- H50 - Residential 50
- H100 - Residential 100
- H150 - Residential 150
- CR - Rural Commercial
- CG - General Commercial
- CM - Major Commercial
- MU-R - Mixed Use - Rural
- MU - Mixed Use
- IL - Light Industrial
- I4 - Heavy Industrial
- IO - Industrial Office
- P - Public and Semi-Public
- OS-BLM - Bureau of Land Management
- OS-C - Conservation
- OS-PR - Parks and Recreation
- OS-NF - National Forest
- W - Water
- MR - Mineral Resources
- ML - Military Land

Base Features

- Lot, Cut/Deed, Subdivision and Easement Line
- Parcels
- City / Unincorporated Community Boundary
- Surrounding City
- Surrounding Unincorporated Community
- Water Feature
- National Forest

Overlays ★

- Transit Oriented District
- Employment Protection Districts
- Specific Plan (SP)

Transit Lines

- Metrolink Stations
- Metro Rail Stations
- Metrolink
- Transitways
- Light Rail - Existing
- Light Rail - Proposed
- Light Rail - Under Construction

SOURCE:

Street Centerline data from 2010 TIGER (US Census Bureau), modified through the LA County Countywide Address Management System (CAMS).

Parcel data is sourced from the L.A. County Assessor's Office.

★ The Special Management Areas, which are comprised of environmentally sensitive, hazardous, and resource areas, are not shown on this map. Please refer to the General Plan Land Use Element for more information on the Special Management Areas.

VICINITY MAP:

KEY MAP:

Current as of: May, 2014

LOS ANGELES COUNTY
Department of Regional Planning
320 W. Temple St.
Los Angeles, CA 90012

Scale in Feet
0 150 300 600 900 1,200

SOURCE: Los Angeles County, 2014

Exhibit B-2

Los Angeles County Planned Land Use Designations – Del Aire

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Lennox

Table B-2 identifies planned land use designations within the Lennox community, per the *Vision Lennox Plan* (see **Exhibit B-3**).

TABLE B-2
LOS ANGELES COUNTY – LENNOX LAND USE DESIGNATIONS

Planned Land Use	Density/Intensity	Description
Low Density Residential	1 to 6 du/acre	Single family residential uses
Low/Medium Density Residential	6-12 du/acre	Single family residential uses
Major Commercial	N/A	N/A
Major Industrial	N/A	N/A
Open Space	N/A	N/A
Public and Semi Public Facilities	N/A	N/A

SOURCE: Los Angeles County, *Vision Lennox Plan*, 2010.

West Athens-Westmont

Table B-3 identifies planned land use designations within the West Athens-Westmont community, per the *West Athens/Westmont Community Plan* (see **Exhibit B-4**).

TABLE B-3
LOS ANGELES COUNTY – WEST ATHENS-WESTMONT LAND USE DESIGNATIONS

Planned Land Use	Density/Intensity	Description
RD 2.3	0 – 8 du/net ac	Single family residential uses
RD 3.1	0 – 17 du/net ac	Two family residential uses
RD 3.2	0 – 30 du/net ac	Multi-family residential with medium density bonus
SCD	0 – 50 du/net ac	Senior citizen housing with density bonus
C.1	N/A	Regional commercial
C.2	N/A	Community commercial
C.3	N/A	Neighborhood commercial
C.4	N/A	Commercial manufacturing
CR	N/A	Commercial recreation
PL.1	N/A	Public/Quasi-Public
OS.1	N/A	Recreation/Open Space
CR	N/A	Commercial recreation

SOURCE: Los Angeles County, *West Athens-Westmont Community Plan*, 1990.

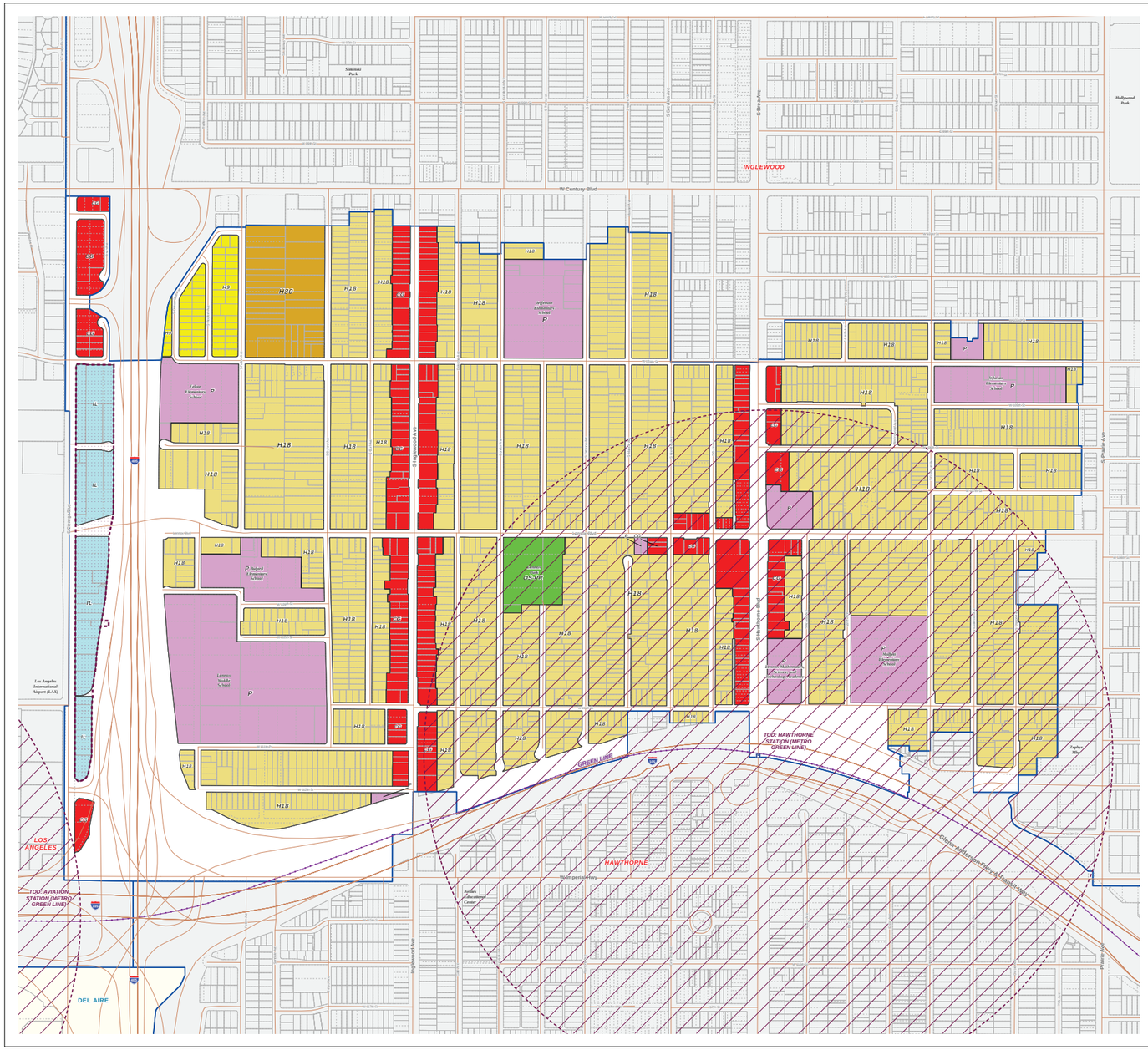
B.2.4 Zoning

Regulations for land use development within Los Angeles County are set forth in Title 22 of the County's Zoning Ordinance. **Table B-4** provides information regarding the County's standard zoning classifications for areas within the Del Aire, Lennox, and West Athens-Westmont communities.

TABLE B-4
LOS ANGELES COUNTY ZONING CLASSIFICATIONS

Zoning Classifications	Allowable Uses
Residential	
Zone R-1: Single Family Residence	Single family residences.
Zone R-2: Two Family Residence	Two family residences (or duplex), single family residences.
Zone R-3: Limited Multiple Residence	Apartment houses, uses permitted in Zone R-1 and R-2.
Combining Zones	
Zone CRS: Commercial – Residential	Uses permitted in basic zone and with Director's approval, any residential use, separate or in combination with a permitted commercial use.
Commercial	
Zone C-2: Neighborhood Business	Community and financial services, parks and play grounds, business/ professional offices, rentals, outdoor advertising, and tailor shops.
Zone C-M: Commercial Manufacturing	Community and financial services, parks and play grounds, business/professional offices, rentals, outdoor advertising, tailor shops, commercial services, retail sales of new goods and genuine antiques, and limited manufacture and assembly.
Zone C-R: Commercial Recreation	Amusement parks, campgrounds, tennis courts, golf courses, and limited agriculture.
Manufacturing	
Zone C-M: Commercial Manufacturing	Community and financial services, parks and play grounds, business/professional offices, rentals, outdoor advertising, tailor shops, commercial services, retail sales of new goods and genuine antiques, and limited manufacture and assembly.

SOURCE: Los Angeles County Zoning Ordinance (Title 22), 2014.



Los Angeles County

LENNOX

Land Use Policy

LEGEND

- RL1 - Rural Land 1
- RL2 - Rural Land 2
- RL5 - Rural Land 5
- RL10 - Rural Land 10
- RL20 - Rural Land 20
- RL40 - Rural Land 40
- H2 - Residential 2
- H5 - Residential 5
- H9 - Residential 9
- H18 - Residential 18
- H30 - Residential 30
- H50 - Residential 50
- H100 - Residential 100
- H150 - Residential 150
- CR - Rural Commercial
- CG - General Commercial
- CM - Major Commercial
- MU-R - Mixed Use - Rural
- MU - Mixed Use
- IL - Light Industrial
- IH - Heavy Industrial
- IO - Industrial Office
- P - Public and Semi-Public
- OS-BLM - Bureau of Land Management
- OS-C - Conservation
- OS-PR - Parks and Recreation
- OS-NF - National Forest
- W - Water
- MR - Mineral Resources
- ML - Military Land

Base Features

- Lot, Cut/Deed, Subdivision and Easement Line
- Parcels
- City / Unincorporated Community Boundary
- Surrounding City
- Surrounding Unincorporated Community
- Water Feature
- National Forest

Overlays ★

- Transit Oriented District
- Employment Protection Districts
- Specific Plan (SP)

Transit Lines

- Metrolink Stations
- Metro Rail Stations
- Metrolink
- Transitways
- Light Rail - Existing
- Light Rail - Proposed
- Light Rail - Under Construction

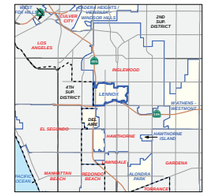
SOURCE:

Street Centerline data from 2010 TIGER (US Census Bureau), modified through the LA County Countywide Address Management System (CAMS).

Parcel data is sourced from the L.A. County Assessor's Office.

★ The Special Management Areas, which are comprised of environmentally sensitive, hazardous, and resource areas, are not shown on this map. Please refer to the General Plan Land Use Element for more information on the Special Management Areas.

VICINITY MAP:



KEY MAP:

Current as of: May, 2014

LOS ANGELES COUNTY
Department of Regional Planning
320 W. Temple St.
Los Angeles, CA 90012

Scale in Feet
0 100 200 400 600 800

SOURCE: Los Angeles County, 2014

Exhibit B-3

Los Angeles County Planned Land Use Designations – Lennox

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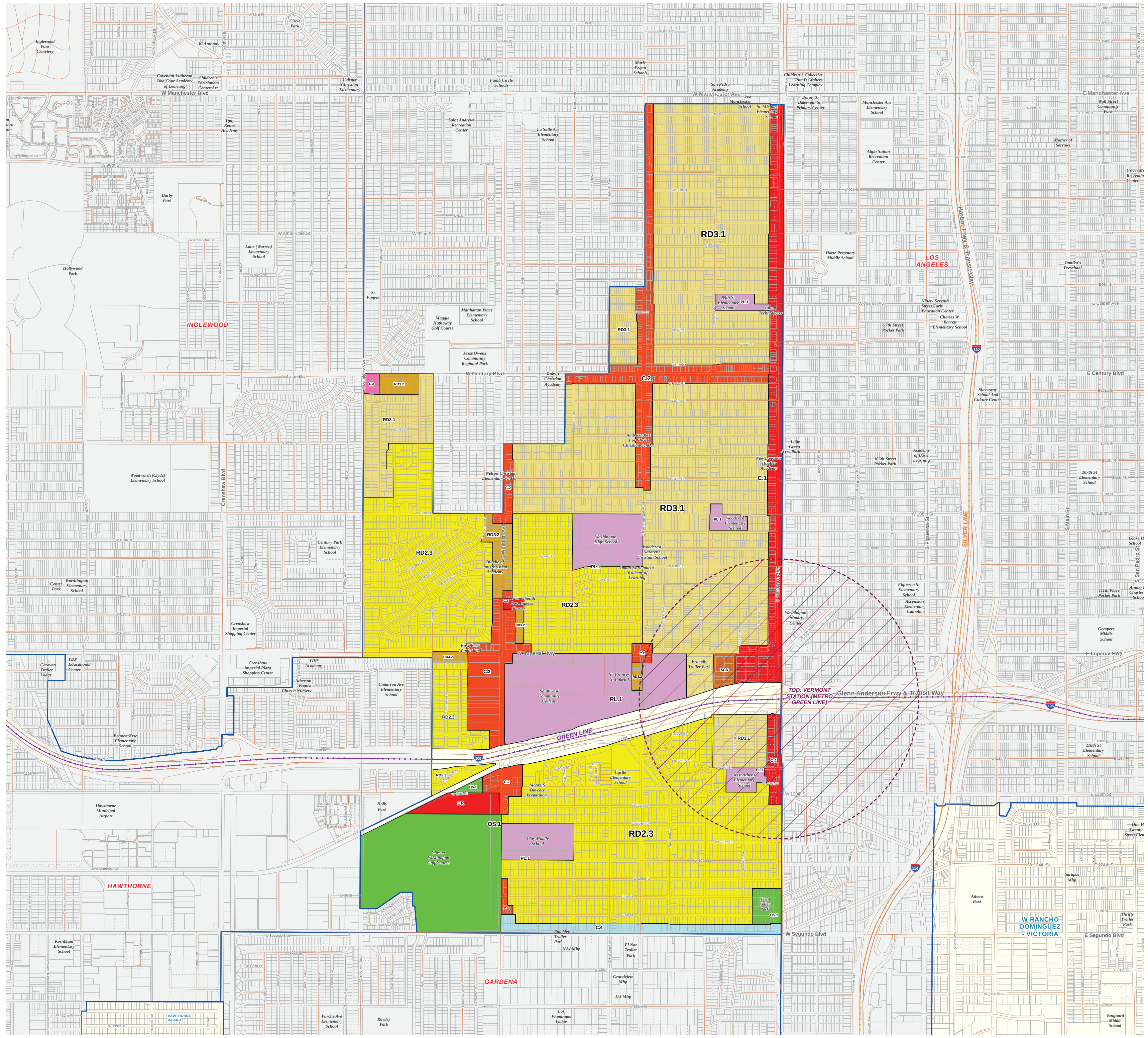


Los Angeles County

WEST ATHENS - WESTMONT Community Plan

Adopted by Board of Supervisors - 3/15/90

As Amended Through - 6/3/03 (LP 02-286)

LEGEND

- RD 2.3 - Single Family Residence
- RD 3.1 - Two Family Residence
- RD 3.2 - Medium Density Bonus
- SCD - Senior Citizen Density Bonus
- C.1 - Regional Commercial
- C.2 - Community Commercial
- C.3 - Neighborhood Commercial
- C.4 - Commercial Manufacturing
- CR - Commercial Recreation
- PL.1 - Public/Quasi-Public Use
- OS.1 - Recreation / Open Space

Transit Lines

- Metrolink
- Transitways
- Light Rail - Existing
- Light Rail - Proposed
- Light Rail - Under Construction

Base Features

- Lot, Cut/Deed, Subdivision and Easement Line
- Parcels
- City / Unincorporated Community Boundary
- Surrounding City
- Surrounding Unincorporated Community
- National Forest

Overlays *

- Transit Oriented District
- Employment Protection Districts
- Specific Plan (SP)

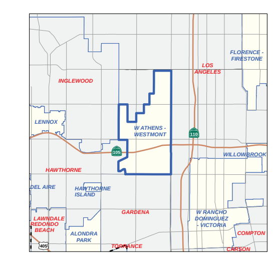
SOURCE:

Street Centerline data from 2010 TIGER (US Census Bureau), modified through the LA County Countywide Address Management System (CAMS).

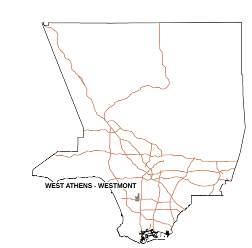
Parcel data is sourced from the L.A. County Assessor's Office.

* The Special Management Areas, which are comprised of environmentally sensitive, hazardous, and resource areas, are not shown on this map. Please refer to the General Plan Land Use Element for more information on the Special Management Areas.

VICINITY MAP:



KEY MAP:



Current as of: May, 2014

LOS ANGELES COUNTY
Department of Regional Planning
320 W. Temple St.
Los Angeles, CA 90012

Scale in Feet

0 250 500 1,000 1,500 2,000

SOURCE: Los Angeles County, 2014

Exhibit B-4

Los Angeles County Planned Land Use Designations – West Athens-Westmont

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B.3 City of Los Angeles

At 468.7 square miles and a population of 3,884,307, the City of Los Angeles is the largest city within the greater Los Angeles area (U.S. Census Bureau, 2014b). LAX is located within the borders of the City of Los Angeles, and is located in close proximity to the following City of Los Angeles planning areas: South Los Angeles, West Adams-Baldwin Hills-Leimert, and Westchester-Playa del Rey.

B.3.1 Existing Land Uses

The communities of South Los Angeles, West Adams-Baldwin Hills-Leimert, and Westchester-Playa del Rey can all be characterized as consisting predominately of residential uses. The community of South Los Angeles, which is located east of LAX and bound by Van Ness Avenue to the west, W. 120th Street, to the south, Broadway to the east, and W. Pico Boulevard to the north, consists predominately of residential uses, with commercial, industrial, and public uses located along major transportation corridors. The West Adams-Baldwin Hills-Leimert community is located east of LAX and is generally bound by Pico and Venice Boulevards to the north, the City of Inglewood to the south, Arlington and Van Ness Avenues to the east, and Culver City to the west. Existing land uses in the southern portions of the West Adams-Baldwin Hills-Leimert community planning area closest to LAX consist predominately of residential uses, with some commercial and public uses as well. Lastly, the Westchester-Playa del Rey community is located north of LAX, and is bound by Centinela Avenue, La Brea Avenue, unincorporated County of Los Angeles, the City of Inglewood, the City of El Segundo, Dockweiler State Beach, Ballona Creek, Bay Street and Jefferson Boulevard. Westchester-Playa del Rey is generally characterized by existing residential uses in the central portions of its planning area, with commercial and industrial uses framing the northern and southern portions of the community, and open space associated with Dockweiler State Beach to the west.

B.3.2 Planned Land Uses

The City of Los Angeles developed the Los Angeles Citywide General Plan Framework Element that defines the City's long-range growth and development policy and establishes City-wide standards, goals, policies, and objectives for Community Plans. The Framework Element does not convey or affect entitlements for any property; final determinations regarding specific land use designations are determined by the Community Plans. Development within the communities identified in the previous section is guided by the *South Los Angeles Community Plan*, the *West Adams-Baldwin Hills-Leimert Community Plan*, and the *Westchester-Playa Del Rey Community Plan*, respectively.

Table B-5 identifies planned land use designations within the communities identified above, per the City's Framework Element. **Exhibits B-5**, **B-6**, and **B-7** identify land use designations within the South Los Angeles, West Adams-Baldwin Hills-Leimert, and Westchester-Playa Del Rey communities, respectively.

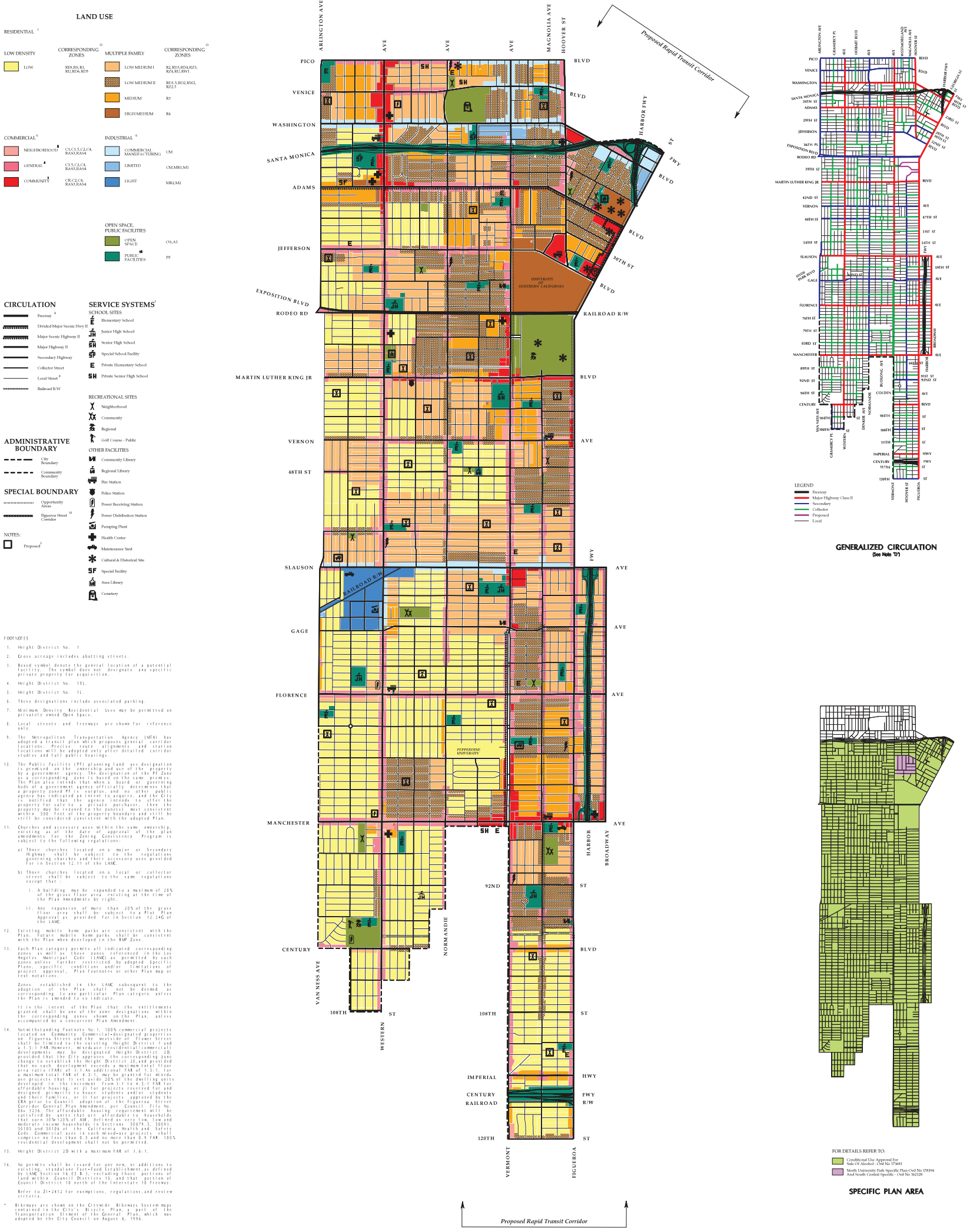
TABLE B-5
CITY OF LOS ANGELES LAND USE DESIGNATIONS

Planned Land Use	Density/Intensity	Description
Residential – Minimum Density	0.4-1 units per net acre	Single-family Residential
Residential – Low Density	4-12 units per net acre	Single-family Residential
Residential – Low Medium I	10-17 units per net acre	Multi-family Residential
Residential – Low Medium II	18-29 units per net acre	Multi-family Residential
Residential - Medium	30-55 units per net acre	Multi-family Residential
Residential – High Medium	56-109 units per net acre	Multi-family Residential
Commercial – Neighborhood	Maximum FAR 1.5:1	Retail commercial, small professional offices, personal services, food stores, eating and drinking establishments, telecommunications centers, small cultural facilities (generally, 5,000 square feet or less), and similar uses.
Commercial – General (F)	N/A	Uses as permitted by existing zoning.
Commercial – Community	FAR range 1.5:1 to 3.0:1	Same as Neighborhood District, including entertainment, larger cultural facilities (museums, libraries, etc.), commercial overnight accommodations, small offices, bus or rail center (at station or intersection), and small parks and other community-oriented activity facilities.
Commercial – Regional	FAR range 1.5:1 to 6.0:1	Corporate and professional offices, retail commercial (including malls), offices, personal services, eating and drinking establishments, telecommunications centers, entertainment, major cultural facilities (libraries, museums, etc.), commercial overnight accommodations, and similar uses.
Industrial –Commercial Manufacturing	N/A	Industrial
Industrial – Limited Industrial	N/A	Industrial
Open Space	N/A	Park/Open Space
Public Facilities	N/A	Public

SOURCE: City of Los Angeles, *General Plan Framework Element* (Table 3-1), 2001.

B.3.3 Zoning

Regulations for land use development within the City of Los Angeles are set forth in Article 2 of the City's Municipal Code. **Table B-6** provides information regarding the City's standard zoning classifications for areas within the South Los Angeles, West Adams-Baldwin Hills-Leimert, and the Westchester-Playa Del Rey communities.



FOOTNOTES

1. Height District No. 1
2. Gross acreage includes abutting streets.
3. Boxed symbol denote the general location of a potential facility. The symbol does not designate any specific private property for acquisition.
4. Height District No. 1VL.
5. Height District No. 1L.
6. These designations include associated parking.
7. Minimum Density Residential Uses may be permitted on privately owned Open Space.
8. Local streets and freeways are shown for reference only.
9. The Metropolitan Transportation Agency (MTA) has adopted a transit plan which proposes general corridor locations. Precise route alignments and station locations will be adopted only after detailed corridor studies and full public hearings.
10. The Public Facility (PF) planning land use designation is premised on the ownership and use of the property by a government agency. The designation of the PF Zone as a corresponding zone is based on the same premise. The Plan also intends that when a board or governing body of a government agency officially determines that a property zoned PF is surplus, and no other public agency has indicated an intent to acquire, and the City is notified that the agency intends to offer the property for sale to a private purchaser, then the property may be rezoned to the zone(s) most consistent within 500 feet of the property boundary and still be still be considered consistent with the adopted Plan.
11. Churches and accessory uses within the same ownership, existing as of the date of approval of the plan amendments for the Zoning Consistency Program is subject to the following regulations:
    a) Those churches located on a major or Secondary Highway shall be subject to the regulations governing churches and their accessory uses provided for in Section 12.11 of the LAMC.
    b) Those churches located on a local or collector street shall be subject to the same regulations except that:
        i. A building may be expanded to a maximum of 20% of the gross floor area existing at the time of the Plan Amendments by right.
        ii. Any expansion of more than 20% of the gross floor area shall be subject to a Plot Plan Approval as provided for in Section 12.24G of the LAMC.
12. Existing mobile home parks are consistent with the Plan. Future mobile home parks shall be consistent with the Plan when developed in the RMP Zone.
13. Each Plan category permits all indicated corresponding zones as well as those zones referenced in the Los Angeles Municipal Code (LAMC) as permitted by such zones unless further restricted by adopted Specific Plans, specific conditions and/or limitations of project approval, Plan footnotes or other Plan map or text notations.

    Zones established in the LAMC subsequent to the adoption of the Plan shall not be deemed as corresponding to any particular Plan category unless the Plan is amended to so indicate.

    It is the intent of the Plan that the entitlements granted shall be one of the zone designations within the corresponding zones shown on the Plan, unless accompanied by a concurrent Plan Amendment.
14. Notwithstanding Footnote No.1, 100% commercial projects located on Community Commercial-designated properties on Figueroa Street and the westside of Flower Street shall be limited to the existing Height District 1 and a 1.5:1 FAR. However, mixed-use (residential/commercial) developments may be designated Height District 2D, provided that the City approves the corresponding zone change to establish the Height District 2D, and provided that no such development exceeds a maximum total floor area ratio (FAR) of 3:1. An additional FAR of 1.5:1, for a maximum total FAR of 4.5:1, may be granted for mixed-use projects that 1) set aside 20% of the dwelling units developed in the increment from 3:1 to 4.5:1 FAR for affordable housing, or 2) for projects reserved for and designed primarily to house students and/or students and their families, or 3) for projects approved by the CRA prior to Council adoption of the Figueroa Street Corridor General Plan Amendment, per Council File No. 06-1236. The affordable housing requirement will be satisfied by units that are affordable to households that earn 30%-120% of AMI, defined as very low, low and moderate income households in Sections 50079.5, 50093, 50105 and 50106 of the California Health and Safety Code. Commercial uses in such mixed-use projects shall comprise no less than 0.5 and no more than 0.9 FAR. 100% residential development shall not be permitted.
15. Height District 2D with a maximum FAR of 3.6:1.
16. No permits shall be issued for any new, or additions to existing, standalone Fast-Food Establishment, as defined by LAMC Section 16.05 B.3, excluding those portions of land within Council Districts 15, and that portion of Council District 10 north of the Interstate 10 Freeway.

    Refer to ZI-2412 for exemptions, regulations, and review criteria.

* Bikeways are shown on the Citywide Bikeways System maps contained in the City's Bicycle Plan, a part of the Transportation Element of the General Plan, which was adopted by the City Council on August 6, 1996.

Notes :

A. The text of the Community Plan can be accessed on the City Of Los Angeles' Web Page (www.lacity.org/PLN).
B. Other Special Area Maps may not be included on this document.
C. Parcel level information (plan designation and zoning) can be found on the City Of Los Angeles' ZIMAS Map Automation Web Site.
D. Generalized Circulation is for reference only. For detailed information, see the "Street and Highway Designation" maps prepared and maintained by Public Works/Bureau of Engineering.

Disclaimer : The City Of Los Angeles is neither responsible nor liable for any inaccuracies,errors or omissions with respect to the material contained on this map. This map and all materials contained on it are distributed and transmitted "as is" without warranties of any kind, either express or implied, including without limitation,warranties of title or implied warranties of merchantability or fitness for a particular purpose. The City Of Los Angeles is not responsible for any special, indirect, incidental, or consequential damages that may arise from the use of, or the inability to use,the map and/or the materials contained on the map whether the materials contained on the map are provided by the City Of Los Angeles, or a third party.

PLOT DATE : 03/10/11

GENERAL PLAN LAND USE MAP (as of December 08 2010)

SOUTH LOS ANGELES COMMUNITY PLAN

A PART OF THE GENERAL PLAN OF THE CITY OF LOS ANGELES

City Of Los Angeles - City Planning Department - Systems And GIS Division Con Howe - Director

NORTH
0 1500 3000 FEET

SOURCE: City of Los Angeles, 2010

Exhibit B-5

City of Los Angeles Planned Land Use Designations – South Los Angeles

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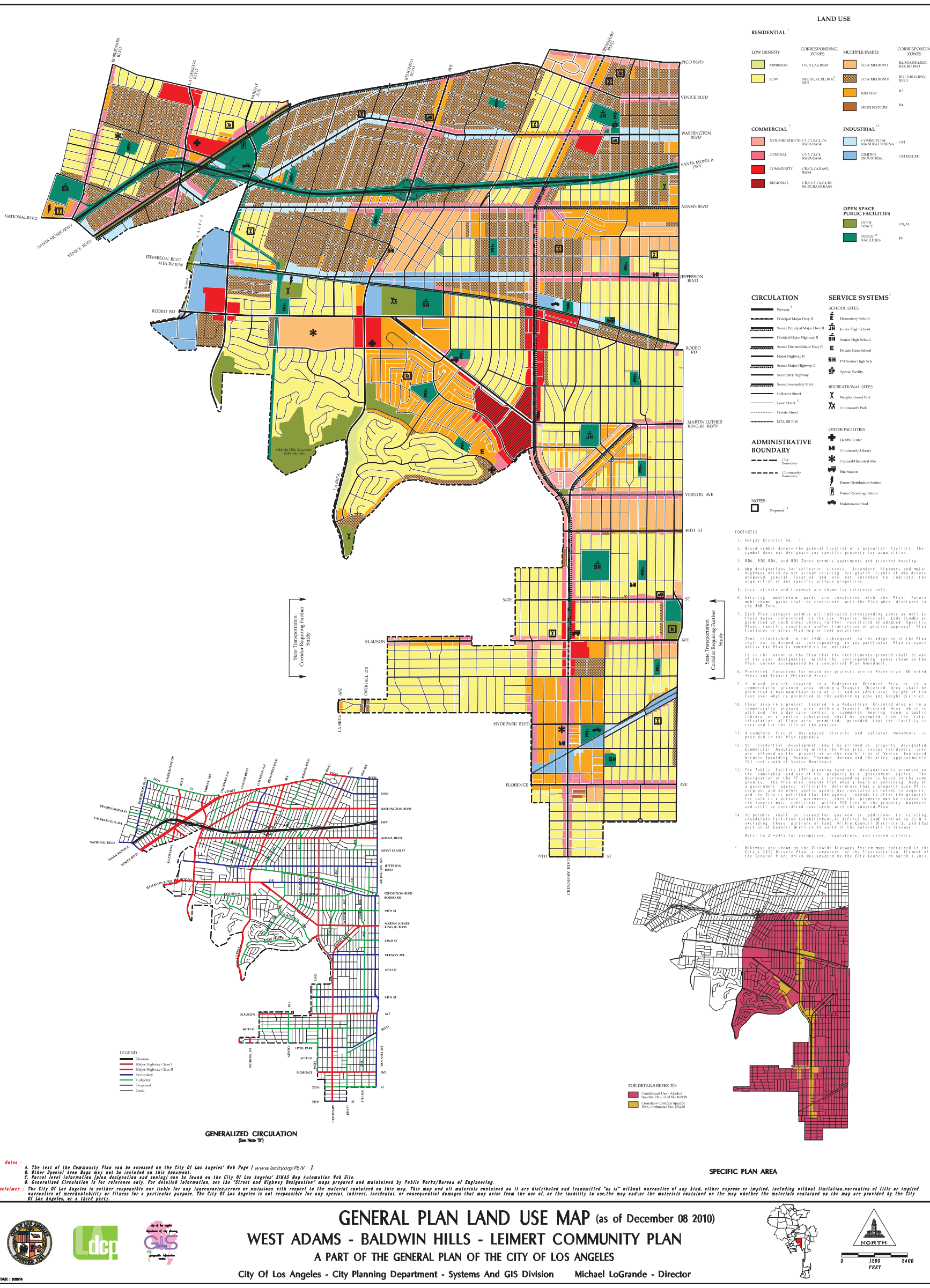

SOURCE: City of Los Angeles, 2010

Exhibit B-6

City of Los Angeles Planned Land Use Designations – West Adams-Baldwin Hills-Leimert

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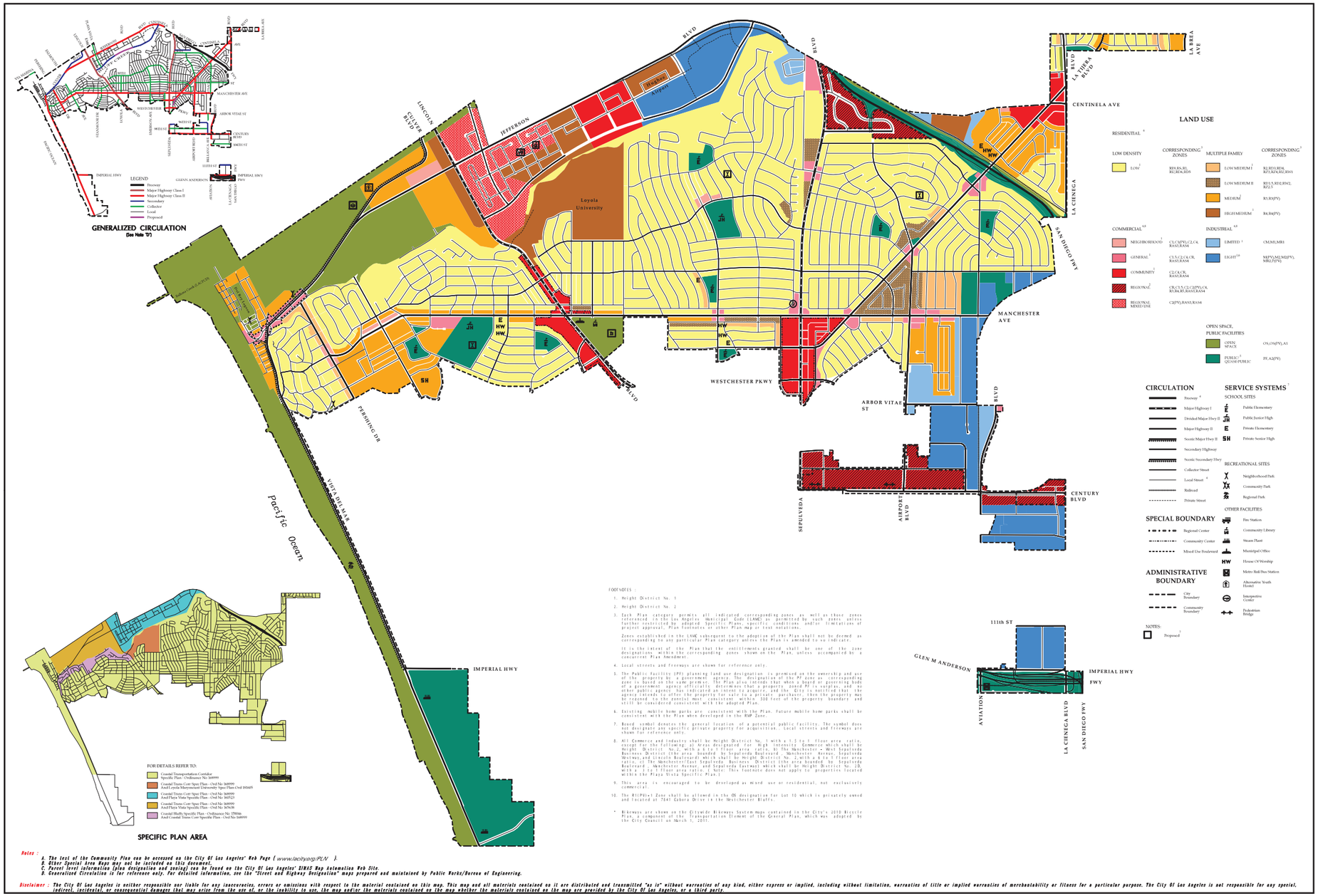

SOURCE: City of Los Angeles, 2013

Los Angeles International Airport 14 CFR Part 150 Study . 130072.03

Exhibit B-7

City of Los Angeles Planned Land Use Designations – Westchester-Playa del Rey

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TABLE B-6
CITY OF LOS ANGELES ZONING CLASSIFICATIONS

Zoning Classifications	Allowable Uses
Residential	
R1: One Family Zone	One-family dwelling, parks, playgrounds or community centers, owned and operated by a governmental agency.
R2: Two-Family Zone	Any use permitted in the "R1" One–family Zone and two–family dwelling or two single–family dwellings.
R3: Multiple Dwelling Zone	Any use permitted in the "R2" Two–family Zone, group dwellings, multiple dwellings, apartment houses, boarding houses, rooming houses or light housekeeping rooms, and child care facilities for not more than 20 children.
R4: Multiple Dwelling Zone	Any use permitted in the "R3" Multiple Dwelling Zone; churches (except rescue mission or temporary revival) or philanthropic institutions, with yards; child care facilities or nursery schools; hotels, motels and apartment hotels under any of the following conditions subject to the requirements indicated; fraternity or sorority houses and dormitories; schools, elementary and high, or educational institutions, with yards; and museums or libraries (non–profit) with yards.
R5: Multiple Dwelling Zone	Any use permitted in the "R4" Multiple Dwelling Zone; hotels, motels and apartment hotels; retirement hotels; clubs or lodges (private non–profit), chartered as such by the State, with yards; and hospitals or sanitariums (except animal hospitals), with yards.
Commercial	
CR: Limited Commercial Zone	Banks, or financial institution; business college, professional or scientific school or college (classroom or lecture instruction only); not including a music school, trade school, nor any school specializing in manual training, shop work or in the repair or maintenance of machinery or mechanical equipment; club or lodge (nonprofit); hotels (including motels), apartment hotels, transient occupancy residential structures or hostels; museum or library (non-profit); office, general business or professional, including that of a real estate or stock broker, or an insurance or building and loan company; pharmacy; counseling and referral facilities; child care facilities or nursery schools; church (except rescue mission or temporary revival); park, playground, or community center, owned and operated by a governmental agency; public parking area; any single family dwelling, two-family dwelling or apartment house use permitted in the R4 Multiple Dwelling; and schools, elementary or high, or educational institution.
C1: Limited Commercial Zone	Any use permitted in the CR Limited Commercial Zone but not including a church, educational institution, museum or school (elementary or high), provided that all the regulations of said CR zone are complied with except as provided in this section. Any residential use permitted in the R3 Multiple Residential Zone provided that all the regulations of said R3 zone are complied with except as provided in this section.
C1.5: Limited Commercial Zone	Any use permitted in the C1 Limited Commercial Zone, provided that all regulations and limitations of said C1 zone are complied with except as provided in this section. Any single-family dwelling, two-family dwelling or apartment house use permitted in the R4 Multiple Dwelling Zone provided that all regulations of said R4 zone are complied with except as provided in this section.
C2: Commercial Zone	Any use permitted in the C1.5 Limited Commercial Zone b or in the C1 Limited Commercial Zone.
C4: Commercial Zone	Any use permitted in the C2 Zone, provided that all regulations and limitations of said C2 Commercial Zone are complied with.
Manufacturing	
CM: Commercial Manufacturing Zone	Any use permitted in the C2 Zone, provided that these uses are conducted in full compliance with all of the regulations of the zone, except that these uses may be conducted as wholesale businesses without limitation on the floor area used for storage. Provided further that residential uses shall be permitted but shall be limited to shelters for the homeless, joint living and work quarters, and those uses permitted in the R3 Multiple Residential Zone, which R3 uses shall be in compliance with all the regulations of the R3 Zone, except that front yard setbacks are not required.
MR1: Restricted Industrial Zone	Any use permitted in the CM Zone provided that all regulations of said zone are complied with, and any use permitted in the C2 Commercial Zone, provided that these uses are conducted in accordance with all building enclosure and fence enclosure limitations of said C2 zone

TABLE B-6
CITY OF LOS ANGELES ZONING CLASSIFICATIONS

Zoning Classifications	Allowable Uses
M1: Limited Industrial Zone	Any use permitted in the MR1 Zone, provided that all regulations of the zone are complied with, except that front yard setbacks are not required, and any commercial use permitted in the C2 Zone except sanitariums and hospitals, provided that these uses are conducted in accordance with all building enclosure and fence enclosure limitations of the C2 Zone.
MR2: Restricted Light Industrial Zone	Any use permitted in the MR1 Zone provided that all regulations of said zone are complied with.
M2: Light Industrial Zone	Any use permitted in the M1 or MR2 Zone, whether conducted within or without a building or enclosed area.
M3: Heavy Industrial Zone	Any use permitted in the "M2" zone.

SOURCE: City of Los Angeles Municipal Code (Article 2), 2014.

B.4 City of Inglewood

The City of Inglewood is part of the greater Los Angeles Metropolitan area and is located east and northeast of LAX. The City of Inglewood is approximately 9.07 square miles and, has a population of 111,542 (U.S. Census Bureau, 2014c).

B.4.1 Existing Land Uses

City of Inglewood existing land uses closest to LAX include office uses west of Interstate 405 and north of W. Arbor Vitae Street. East of Interstate 405, existing land uses within the City of Inglewood consist largely of residential uses, with commercial, industrial, and public uses making up the balance of existing uses within the City.

B.4.2 Planned Land Uses

Land use development within the City is guided by the City of Inglewood *General Plan Land Use Element*. City land use designations established in the General Plan are identified in **Table B-7** and depicted on **Exhibit B-8**.

B.4.3 Zoning

Regulations for land use development within the City of Inglewood are set forth in Chapter 12 of the City's Municipal Code. **Table B-8** provides information regarding the City's standard zoning classifications.

TABLE B-7
CITY OF INGLEWOOD LAND USE DESGINATIONS

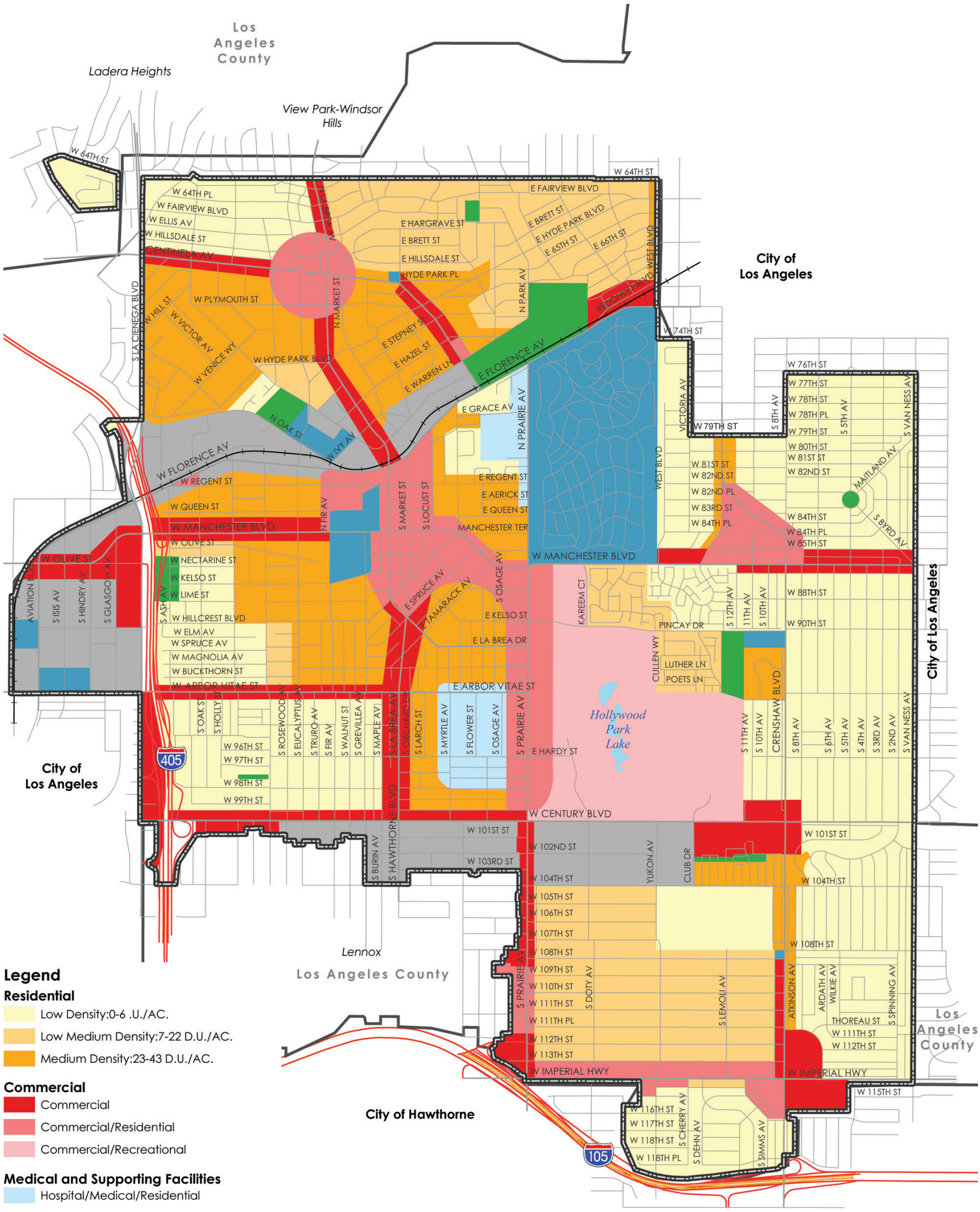
Planned Land Use	Density/Intensity	Description
Residential – Low Density	0–6 dwelling units per acre	This land use category has been applied to all single-family development, and is generally located in the eastern, southern, southwestern, and northwestern portions of the City. The density standards for this class provide for from one to six units to the acre.
Residential – Low Medium Density	7 to 22 dwelling units per acre	This land use category has been applied to two main areas; the northeastern and southeastern portions of the City and represent major locations suitable for infill housing and conversion to townhouse complexes and garden apartments. These areas are presently developed primarily as single-family but they are well located with respect to convenience and access to the regional transportation network and serve as buffers or transition areas between more intensive development and areas of less intensive use. This category has a relatively flexible density standard of from seven to twenty-two dwelling units to the acre.
Residential – Medium Density	23 to 43 dwelling units per acre	This land use category has been applied to primarily those areas surrounding the downtown business district and Civic Center. Several of these areas are still developed with single-family densities but are generally in states of transition to more intense development. The locations provide ideal access to the regional freeway network and close-in convenience to the major shopping facilities of the downtown business district. The standards provide for relative large multiple dwelling complexes at a density of 23 to 43 dwellings to the acre.
Commercial – Commercial	N/A	This land use category basically represents all forms of commercial enterprise. This may include retail and service uses; corporate, medical, and other offices; restaurants; hotels and motels; and other commercial uses. Commercial areas are designated along the City's major arterials, including the north-south arterials of La Cienega Boulevard, La Brea Avenue, Prairie Avenue, and Crenshaw Boulevard; and the east-west arterials of Centinela Avenue, Manchester Boulevard, Arbor-Vitae Street, Century Boulevard, and Imperial Highway.
Commercial – Commercial/Residential	N/A	This land use category represents areas allowed for mixed commercial and residential. These areas are primarily concentrated around the Central Business District and Civic Center in the west-central portion of the City, in portions along Prairie Avenue and Imperial Highway, and in nodes at and around the intersections of Centinela Avenue and La Brea Avenue, and Manchester and Crenshaw Boulevards.
Commercial – Commercial/Recreational	N/A	This land use category is the area where both commercial and private recreation and similar uses would be allowed. This includes the area currently developed as the Hollywood Park Race Track & Casino and The Forum.
Medical, etc. – Hospital/Medical/Residential	N/A	This land use category is an outgrowth of a specialized land use situation. Inglewood has two regional medical centers which are a dominating influence on the surrounding land pattern. Both Daniel Freeman and Centinela Hospital have grown to the point where they have attracted adjacent satellite uses such as medical offices, convalescent and nursing homes, pharmacies and similar uses.
Public Facilities – Public/Semi-public	N/A	This land use category has been applied to those areas used for civic purposes, including City Hall, the library, and the police station, and also includes other public institutions such as Inglewood High School and the Inglewood Park Cemetery. These areas are found primarily concentrated in the Civic Center area in the west-central portion of the City, and scattered as well in various locations throughout the City.
Public Facilities – Open Space	N/A	This land use category distinguishes those lands and uses which are of such a nature that they should be reserved for open space and/or recreational activities. The largest concentration of open space in the City is Edward Vincent Jr. Park. Smaller areas include all of the other municipal parks throughout the City.
Industrial -- Industrial	N/A	This land use category has been applied to those areas that encompass both light and heavy industrial uses. The Element indicates that the distinction between light industrial or heavy industrial is not crucial in that virtually all new development would be located within industrial park areas and subject to review by the City. The City's industrial areas take into account three factors involved in their location: infrastructure (transportation facilities and utilities), compatibility of use, and proximity to an adequate labor force. Industrial areas are designated primarily in the area west of the San Diego (I-405) Freeway, and in large portions along Florence Avenue and Century Boulevard.

SOURCE: City of Inglewood, *General Plan Update Technical Background Report*, 2006.

TABLE B-8
CITY OF INGLEWOOD ZONING CLASSIFICATIONS

Zoning Classifications	Allowable Uses
Residential	
R-1: One Family Zone	One-family dwellings; senior citizen accessory units; accessory private garage; detached one-story accessory buildings not used for garage purposes and not exceeding a total of four hundred square feet of floor area; group home or community care facility; private greenhouses and horticultural collections, vegetable gardens and orchards when not located in the front setback; transitional uses.
R-2: Limited Multiple-Family Zone	Any use permitted in the R-1 One-Family Zone; one or more one-family dwellings per lot; multiple dwellings; churches or other facilities for regularly scheduled religious or metaphysic meetings; group home or community care facility not exceeding six residents and not located within three hundred feet of any other group home or comparable facility; required parking space; and transitional uses.
R-3: Multiple-Family Zone	Any use permitted in the R-1 One-Family Zone or the R-2 Limited Multiple-Family Zone; multiple-unit dwellings; boarding or lodging houses if developed in conformance with the requirements for multiple-unit dwellings; churches or other facilities for regularly scheduled religious or metaphysics meetings; day care facilities or nursery schools; group home, community care facility or half-way houses not exceeding six residents and not located within three hundred feet of any other group home or comparable facility; convalescent home (exceeding six residents) if the facility was constructed prior to July 1, 1987; and required parking space.
R-4: Multiple-Family Zone	Any use permitted in the R-1 One Family Zone or the R-2 Limited Multiple Family Zone; multiple unit dwellings; boarding or lodging houses if developed in conformance with the requirements for multiple unit dwellings; churches or other facilities for regularly scheduled religious or metaphysics meetings; nursery schools for the enrollment of children six years of age or younger; group home, community care facility or half-way house not exceeding six residents and not located within three hundred feet of any other group home or comparable facility; convalescent home (exceeding six residents) if the facility was constructed prior to July 1, 1987; and required parking space.
Commercial	
C-1: Limited Commercial Zone	Retail sales of merchandise; financial and insurance institutions; professional and medical offices and pharmacies; restaurants, cafeterias, doughnut shops, bakeries; bars, nightclubs, supper clubs, dance halls, and the like; service shop for watches, keys, shoes, small household appliances, dry cleaning, tailoring, printing; hotels or motels; studios and gymnasiums; new car dealership with ancillary automobile servicing; day care facilities or nursery schools (no age limitation); public and quasi-public uses; parking lots; small group counseling/tutoring facilities; and wireless telecommunication facilities.
C-2: General Commercial Zone	Any use permitted in the C-1 Zone except ambulance dispatch facilities and residential uses.
C-2A: Airport Commercial Zone	Any use permitted in the C-2 Zone; hotels or motels, with a minimum of fifty guestrooms per facility; automobile rental and leasing (including limousines) and nonambulatory transportation uses.
C-3: Heavy Commercial Zone	Any use permitted in the C-2 zone except convalescent or retirement homes, group homes, congregate housing, orphanages, half-way houses, fraternities or sororities.
C-S Commercial Service Zone	Any use permitted in the C-2 zone except convalescent or retirement homes, group homes, orphanages, half-way houses, fraternities or sororities.
Manufacturing	
M-1: Light Manufacturing Zone	Any use permitted in the C-2A, C-3 or C-S zones, except convalescent or retirement homes, group homes, congregate housing, half-way houses, fraternities or sororities.
M-2: Heavy Manufacturing Zone	Any use permitted in the M-1 Zone; acetylene gas manufacture or storage; alcohol manufacture; ammonia, bleaching powder, or chlorine manufacture; asphalt manufacture or refining; blast furnace or coke oven; boiler works; cotton gin or oil mill; freight classification yard; iron, steel foundry; oil cloth or linoleum manufacture; ore reduction; pant, oil shellac, turpentine, or varnish manufacture; paper and pulp manufacture; petroleum products, or wholesale storage of petroleum; and other similar types of uses.
Open Space	
O-S: Open Space Zone	No building or land shall be used and no building shall be erected or structurally altered hereafter except for the following permitted uses: privately owned or public open recreation areas, parks, schools, malls or plazas, playgrounds, freeways, parkways, transportation and public transit rights-of-way, and such buildings and structures as are accessory thereto provided; agricultural and horticultural uses and such buildings and structures as are accessory thereto; bicycle routes, hiking trails, and other pedestrian ways; drainage channels, water courses, spreading grounds and settling basins; and public parking as is accessory to permitted uses.

SOURCE: City of Inglewood Municipal Code (Chapter 12), 2014.



SOURCE: City of Inglewood, 2006

Los Angeles International Airport 14 CFR Part 150 Study . 130072.03

Exhibit B-8

City of Inglewood Planned Land Use Designations

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B.5 City of El Segundo

The City of El Segundo is located south of LAX, and is bound by Aviation Boulevard to the east, Rosecrans Avenue to the south, the Pacific Ocean to the west, and LAX to the north. The City is approximately 5.46 square miles and has an approximate population of 16,924 (U.S. Census Bureau, 2014d).

B.5.1 Existing Land Uses

The City of El Segundo is characterized by existing residential uses in the northwestern portions of its planning area. The northeastern and eastern portions of El Segundo are made up predominately of office and commercial uses, and the central and southern portions of the City are made up of residential, industrial, and manufacturing uses.

B.5.2 Planned Land Uses

Development within the City of El Segundo is guided by the *El Segundo General Plan*, as well as a series of specific plans, including the *Smoky Hollow Specific Plan* and the *Downtown Specific Plan*. **Table B-9** summarizes the land use designations set forth by the El Segundo General Plan (see **Exhibit B-9**).

B.5.3 Zoning

Regulations for land use development within the City of El Segundo are set forth in Title 15 of the City's Municipal Code. **Table B-10** provides information regarding the City's standard zoning classifications.

TABLE B-9
CITY OF EL SEGUNDO LAND USE DESIGNATIONS

Planned Land Use	Density/Intensity	Description
Residential Single-family	8 du/ac	Permits one single-family home on one legal lot at a maximum density of eight dwelling units per acre. The minimum lot size for new lots is 5,000 square feet.
Residential Two-family	12 du/ac	Permits two residences on one legal lot, either attached or detached, at a maximum density of 12 dwelling units per acre. The minimum lot size for new lots is 7,000 square feet.
Residential Multi-family	27 du/ac	Permits multiple dwelling units in either a condominium or apartment configuration. A condominium or apartment is a structure or group of structures containing three or more dwelling units, as defined by the Zoning Code. The maximum permitted density for multi-family residential is 27 dwelling units per acre on properties equal to or less than 15,000 square feet and 18 du/ac on properties greater than 15,000 square feet.
Planned Residential Development	29 du/ac (single family) 36 du/ac (multi-family)	Permits a mixture of residential uses on the former Imperial School site with a maximum of 29 single-family detached dwelling units and 36 multi-family dwelling units. This designation is intended to encourage design flexibility and provide transitional densities and uses that are compatible with surrounding land uses. This designation is not intended to be used elsewhere within the City.
Neighborhood Commercial	Residential: 10 du/ac Nonresidential: Max FAR 0.5	Permits neighborhood-serving retail, neighborhood-serving office, and limited residential on a single floor above the commercial ground floor. This designation is intended to provide integrated neighborhood-serving commercial areas adjacent to the residential neighborhoods.
Downtown Commercial	Residential: 10 du/ac Nonresidential: Max FAR 1.0	Permits community serving retail, community serving office, and residential on the floor above street level only if commercial is on the street level. This designation is intended to provide an integrated community serving commercial area downtown.
General Commercial	Max FAR 1.0	Permits all retail uses, including hotel uses, and major medical facilities. Office uses are not permitted except for those providing personal services not exceeding 5,000 square feet such as travel and insurance agents.
Corporate Office	Max FAR 0.8	Permits a mixture of office and food-serving uses in single-tenant or multi-tenant buildings with limited retail uses permitted in the lobby area. Research and development uses are permitted east of Sepulveda Boulevard.
Commercial Center	Residential: 10 du/ac Nonresidential: Max FAR 1.0	Permits community serving retail, community serving office, and residential on the floor above street level only if commercial is on the street level. This designation is intended to provide an integrated community serving commercial area downtown.
Smoky Hollow	Max FAR 0.6	Permits primarily light industrial uses including light manufacturing, research and development, warehousing, and office uses. Other compatible uses and additional FAR may be permitted for individual projects by the approval of a Specific Plan.
Urban Mixed-use North	Max FAR 1.3	Permits a mixture of office, research and development, retail, and hotel uses. Light industrial uses conducted within a fully enclosed building shall be permitted if approved with a discretionary application.
Urban Mixed-use South	Max FAR 1.3	Permits a mixture of office, research and development, retail, and hotel uses. Light industrial uses conducted within a fully enclosed building and adult-oriented businesses shall be permitted if approved with a discretionary application.
Parking	N/A	Permits areas for parking automobiles, motorcycles, and bicycles in surface or structured parking. Specific properties have been designated as parking to insure that adequate long-term parking space will be available.
Light Industrial	Max FAR 0.6	Permits light manufacturing, warehousing, research and development, and office. Light manufacturing is defined as the assembly, packaging, fabrication, and processing of materials into finished products, rather than the conversion or extraction of raw materials. The light industrial activity shall be conducted primarily within structures; outside storage areas and assembly activity should be limited. Other compatible uses and additional FAR may be permitted for individual projects by the approval of a Specific Plan with supplemental environmental analysis.
Heavy Industrial	Max FAR 0.6	Permits heavy manufacturing uses such as construction yards, factories, generating stations, extraction of raw materials, and refining. All uses must conform to the policies of the Hazardous Materials Element.

TABLE B-9 (Continued)
CITY OF EL SEGUNDO LAND USE DESIGNATIONS

Planned Land Use	Density/Intensity	Description
Public Facility	N/A	Permits publicly owned facilities such as schools, maintenance yards, utilities, the Civic Center, and the Library.
Federal Government	N/A	Permits a U.S. Government facility that is consistent with surrounding uses.
Open Space	N/A	Permits passive or active use of areas preserved as useable or visual open space both publicly- and privately-owned. These areas include the El Segundo Blue Butterfly preserve, utility easements, and the existing flood control sumps.
Parks	N/A	Permits passive or active use of areas developed as parks, for community and recreational uses. Designated park areas are publicly-owned.

SOURCE: City of El Segundo, *General Plan Land Use Element*, 1992.

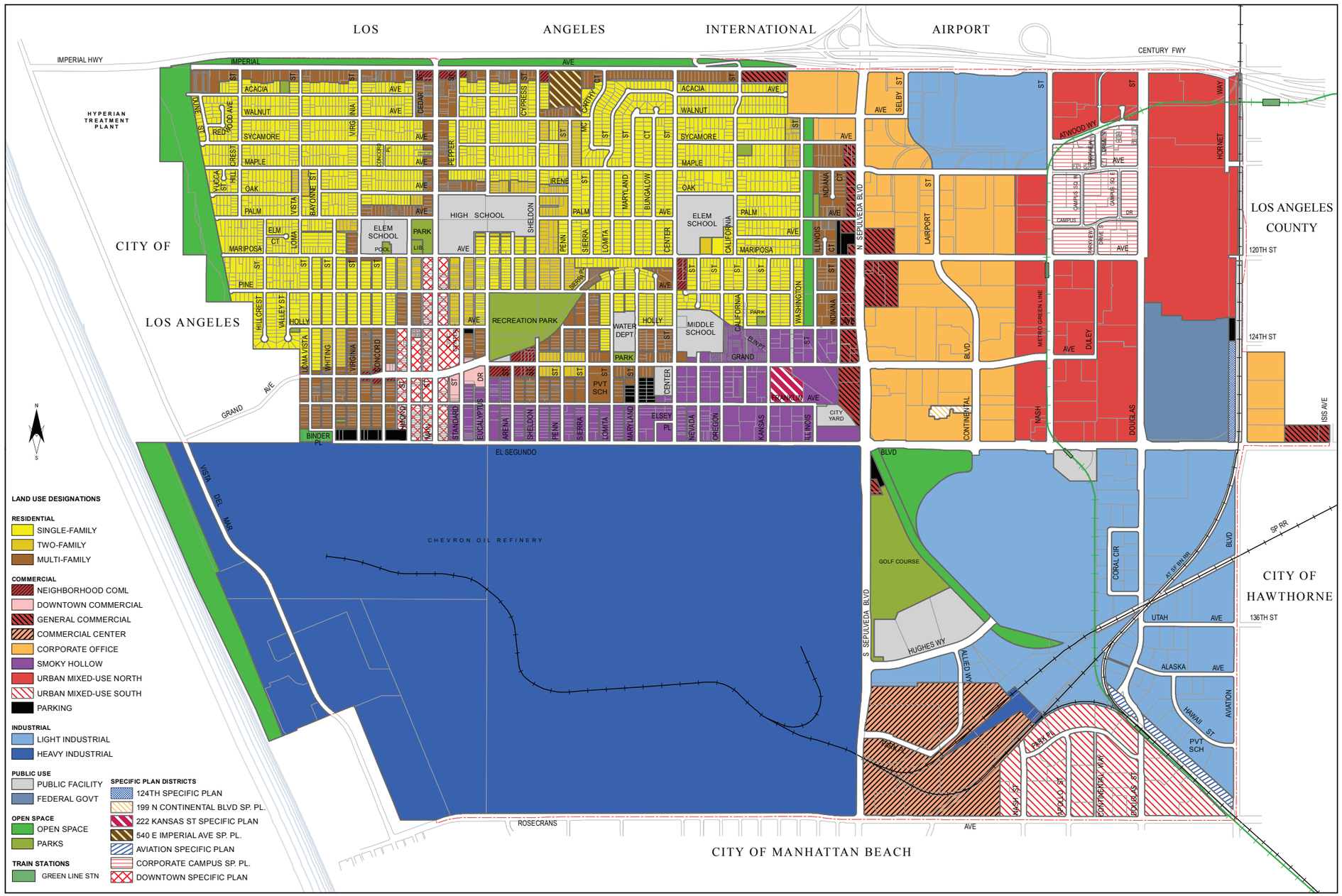
TABLE B-10
CITY OF EL SEGUNDO ZONING CLASSIFICATIONS

Zoning Classifications	Allowable Uses
Residential	
R-1: Single-Family Residential Zone	Single-family dwellings; parks, playgrounds, recreational areas (publicly owned and operated) but excluding ballparks, bleachers, swimming pools or other types of facilities where racing or contests are conducted or public amusement devices are for hire; the keeping of animals and pets; a state authorized, certified or licensed family care home, foster family home, or group home serving six (6) or fewer children; a state authorized, certified or licensed residential facility, residential care facility, residential care facility for the elderly, intermediate care facility, developmentally disabled habilitative or nursing, or congregate living health facility, serving six (6) or fewer persons; home occupations; small family daycare homes; and large family daycare homes.
R-2: Two-Family Residential Zone	Any use permitted in the R-1 zone; a two-family dwelling, duplex, or two (2) one-family dwellings; and a three-family or a four-family dwelling.
R-3: Multi-Family Residential Zone	Any use permitted in the R-2 zone; condominiums and stock cooperatives converted from multiple-family dwellings; daycare centers; large family daycare homes; lodging houses; and multiple-family dwellings.
Commercial	
C-RS: Downtown Commercial Zone	Billiard-pool rooms and bowling alleys; financial institutions; general offices; government buildings (including offices, police and fire stations, parking and related buildings); medical-dental offices; restaurants, delicatessens, and cafes (excluding dancing and entertainment); retail uses providing sales (excluding off site alcohol sales) and services; schools; and other similar uses.
C-2: Neighborhood Commercial Zone	General and medical-dental offices; neighborhood services, including, but not limited to, beauty/barber shops and markets; neighborhood serving commercial uses, including, but not limited to, retail sales (excluding off site alcohol sales); public uses, including, but not limited to, fire and police stations, post offices and libraries; recreational facilities (public and private); restaurants and cafes; and other similar uses.
C-3: General Commercial Zone	General offices not exceeding five thousand (5,000) square feet; hotels and motels; medical-dental offices and facilities; public uses, including, but not limited to, fire and police stations, post offices and libraries; recreational facilities (public and commercial); restaurants and cafes; retail uses (excluding off site alcohol sales); and other similar uses.
CO: Corporate Commercial Zone	General offices; medical-dental offices; public uses, including, but not limited to, fire and police stations, post offices and libraries; recreational facilities (public and private); research and development uses, located east of Sepulveda Boulevard only; restaurants and cafes; and other similar uses.
MU-N: Urban Mixed Use North Zone	Business service establishments such as electronic computer facilities and addressing services; general offices of commercial, financial or industrial establishments; engineering, industrial design, consultation and other offices; financial institutions; hotels and motels; medical-dental offices or facilities; motion picture/television production facilities (excluding outdoor facilities); restaurants and cafes; retail (excluding off site alcohol sales) and wholesale sales and service; scientific research and experimental development laboratories; and other similar uses.

TABLE B-10 (Continued)
CITY OF EL SEGUNDO ZONING CLASSIFICATIONS

Zoning Classifications	Allowable Uses
Commercial (cont.)	
MU-S: Urban Mixed Use South Zone	Business service establishments such as electronic computer facilities and addressing services; engineering, industrial design, consultation and other offices; financial institutions; general offices of commercial, financial or industrial establishments; hotels and motels; massage establishments; medical-dental offices or facilities; motion picture/television production facilities (excluding outdoor facilities); restaurants and cafes; retail (excluding off site alcohol sales) and wholesale sales and service; scientific research and experimental development laboratories; and other similar uses.
C-4: Commercial Center Zone	Banks, savings and loans and/or credit unions; dance and music instruction studios; day spas; farmers' market; fitness centers (indoors only); general offices; health and/or skin care services; indoor sale of automobiles, motorcycles, and motor scooters along with the sale of accessories and parts as an accessory use; medical and dental offices; pet supplies and services, including veterinary services; restaurants and cafes; retail sales uses (excluding off site alcohol sales); and other similar uses.
Industrial	
M-1: Light Manufacturing Zone	Fiberglass products; general offices and establishments for research, professional and technical services; general storage, warehousing and ministorage; high and medium bay labs; light manufacturing uses and related offices; manufacturing and assembly of electrical appliances, electronic instruments and devices, radios and phonographs, including the manufacturing of small tools and parts such as coils, condensers, transformers, crystal holders, etc.; manufacturing of cleaning agents, waxes and finishes; manufacturing of cutlery, hardware, and hand tools and kitchen utensils; manufacturing, processing and packaging of pharmaceuticals, drugs, toiletries and cosmetics, except soap; public facilities, including, but not limited to, fire and police facilities, post offices, and libraries; public utilities, including, but not limited to, power substations and telephone exchanges; recreation facilities (public and private); restaurants and cafes; and other similar uses.
M-2: Heavy Industrial Zone	Construction yards; extraction of raw materials and refining; factories; generating stations; heavy manufacturing uses; and other similar uses.
SB: Small Business Zone	Art studios (production space only); general and/or multimedia related offices; general offices in conjunction with any other permitted use; light industrial uses; manufacturing; public facilities and utilities; research and development; restaurants and cafes without drive-through facilities; warehousing and distribution; and other similar uses.
MM: Medium Manufacturing Zone	Art studios (production space only); general and/or multimedia related offices; general offices in conjunction with any other permitted use; light assembly and processing; light industrial; manufacturing; mixed use projects including commercial, office and light industrial uses; parking structures and parking lots; public facilities, public utilities; research and development; restaurants and cafes without drive-through facilities; retail sales for wholesale outlets; warehousing and distribution; and other similar uses.
Open Space	
O-S: Open Space Zone	Public outdoor recreation, including, but not limited to, ball parks and bleachers, swimming pools, parks and other areas of active or passive recreational usage; trails and other suitable corridors including off-road bicycle paths; the preservation and conservation of natural resources, including, but not limited to, areas required for the preservation of plant and animal life and areas required to provide visual relief from intense urban development and growth; the managed production of resources, including, but not limited to, agricultural lands and mineral deposits; the regulation of areas for public health and safety, including, but not limited to, areas which require special management or regulation because of hazardous or special conditions; and other similar uses.
Public Facilities	
P-F: Public Facilities Zone	Municipal, county, state or federal governmental buildings such as city hall, library, court facilities or fire stations; public or quasi-public educational facilities such as schools and administrative offices; flood control facilities, including, but not limited to, spreading grounds, settling basins and drainage facilities; public parking lots or structures; public utilities; public recreational facilities; and other similar uses.

SOURCE: City of El Segundo Municipal Code (Title 15), 2014.



SOURCE: City of El Segundo, 2012

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Exhibit B-9

City of El Segundo Planned Land Use Designations

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B.6 City of Hawthorne

The City of Hawthorne is located southeast of LAX and is generally bound by Marine Avenue to the south, Crenshaw Boulevard and unincorporated County to the east, the Imperial Highway and City of Los Angeles to the north, and Aviation Boulevard and the City of El Segundo to the west. The City is approximately 6.08 square miles and has an estimated population of 86,199 (U.S. Census Bureau, 2014d).

B.6.1 Existing Land Uses

Existing land uses closest to LAX in the northwestern portions of the City of Hawthorne's planning area predominately consist of residential uses. Existing uses towards the central portions of Hawthorne are also predominately residential, with commercial uses clustered along major streets and transportation corridors. Towards the eastern side of the City, uses are predominately commercial and light industrial. Hawthorne Municipal Airport is also located in the northeastern portion of the City.

B.6.2 Planned Land Uses

Land use development within the City of Hawthorne is guided by the City of Hawthorne General Plan.[1] **Table B-11** summarizes the planned land use designations, as identified in the City's General Plan Land Use Element (see **Exhibit B-10**).

TABLE B-11
CITY OF HAWTHORNE LAND USE DESIGNATIONS

Planned Land Use	Density/Intensity	Description
Low Density Residential	1 – 8 du/ac	This particular land use designation is characterized by single-family detached units and is found throughout the City.
Medium Density Residential	8.1 – 17 du/ac	This land use designation, in addition to single-family detached uses, allows for two-family dwelling units.
High Density Residential	17.1 – 40 du/ac	This land use designation, in addition to single-family detached uses and two-family dwelling units, also allows for multi-family dwelling units.
Freeway Commercial/Mixed Use	Max FAR 3.5	This land use designation allows for a mix of general retail and residential uses.
Local Commercial	Max FAR 1.5	Allows for retail and other commercial services.
General Commercial	Max FAR 2.5	Allows for retail and other commercial services.
Industrial	Max FAR 0.75	The Industrial land use designation generally involves smaller scale development than the General Industrial designation.
General Industrial	Max FAR 1.75	The General Industrial designation includes large-scale developments or industrial parks whose activities include heavy manufacturing, compounding, processing or fabrication.
Open Space/Parks	FAR 0.1 – 0.3	Allows for outdoor park and recreation uses.
Public Facilities	FAR 0.3 – 0.75	This designation can apply to all zoning districts and allows for a variety of public uses, including schools, the Hawthorne Municipal Airport, and City offices.

SOURCE: City of Hawthorne, *General Plan Land Use Element*, 1990.

[1] The City of Hawthorne is also currently going through the process of preparing a specific plan for Downtown Hawthorne.

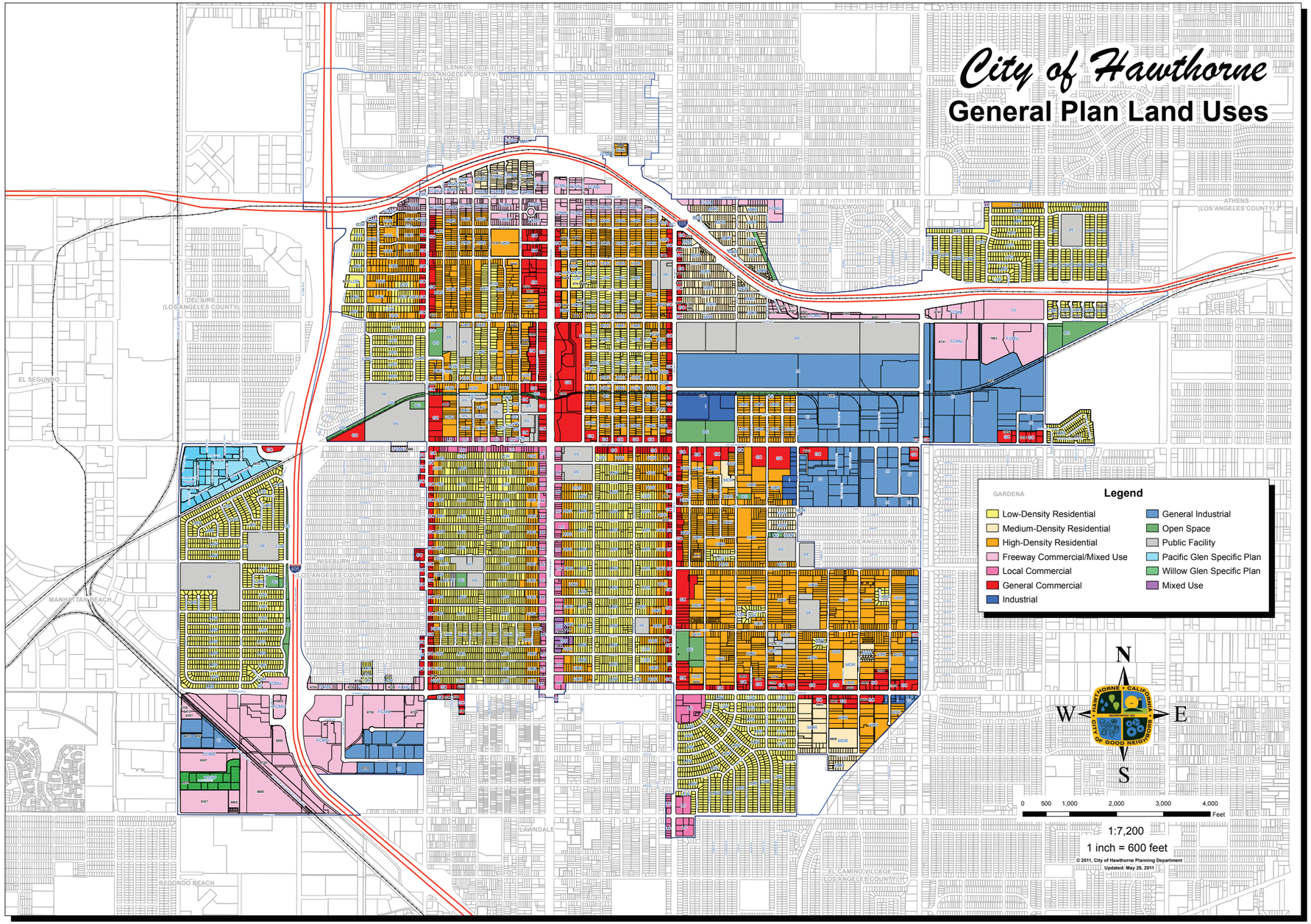
B.6.3 Zoning

Regulations for land use development within the City of Hawthorne are set forth in Title 17 of the City's Municipal Code. **Table B-12** provides information regarding the City's standard zoning classifications.

TABLE B-12
CITY OF HAWTHORNE ZONING CLASSIFICATIONS

Zoning Classifications	Allowable Uses
Residential	
R-1: Low-Density Residential District	Single-family detached dwelling units; accessory dwelling units; mobile homes; places of worship; substations; residential care facility (6 or fewer persons); home occupation; libraries; parks and recreational areas; schools, elementary, junior and high; and small and large family day care homes.
R-2: Medium Density Residential District	Same as R-1 district plus two-family dwelling units.
R-3: High Density Residential District	Same as R-2 district plus multi-family dwelling units.
R-4: Maximum Density Residential District	Same as R-3 district plus fire stations, fraternity and sorority housing, hospitals, private clubs and fraternal societies, rest homes, and sanitariums, convalescent homes, and nursing homes.
Commercial	
C-1: Freeway Commercial Mixed Use	Car washes, auto sales, rentals, and repair; bakeries; banks; child care centers; dry cleaning services; department stores; drugstores; food markets, grocers; health clubs; hotels and motels; movie theaters; medical and dental offices; professional and general offices; parking garages; restaurants; schools, elementary, junior, and high; and single-family detached dwelling units.
C-2: Local Commercial District	Ambulance services; auto sales; bakeries; banks; bars; bicycle shops; boat sales; bowling alleys; business and professional offices; dry cleaning services; art studios; department stores; drugstores; employment agencies; engineering consultants; food markets and grocers; health clubs; hospitals (emergency only); hotels and motels; laboratories; medical-dental buildings and clinics; mortuaries; movie theaters; parking garages; passenger terminals; printing establishments; restaurants; schools, elementary, junior, high; stationary stores; and telegraph offices.
C-3: General Commercial District	Ambulance services; auto sales and repair; aviaries; bakeries; banks; bars; bicycle shops; boat sales; bowling alleys; business and professional offices; dry cleaning services; art studios; department stores; drugstores; employment agencies; engineering consultants; food markets and grocers; health clubs; hospitals (emergency only); hotels and motels; laboratories; medical-dental buildings and clinics; mortuaries; movie theaters; parking garages; passenger terminals; printing establishments; restaurants; schools, elementary, junior, high; stationary stores; telegraph offices; trade schools; and other unclassified uses.
Industrial	
M-P: Industrial Park District	Ambulance service; auto repair; bakeries; banks; battery manufacturing; beauty shops and salons; blueprinting; boat building; bookbinding; bottling plants; cabinet shops; carpet and rug cleaning; ceramic products; check cashing; places of worship; dry cleaning; cosmetics manufacturing; creameries and dairy products; substations; electric generating plants; neon sign manufacturing; electrical appliance assembly; electroplating; fire stations; food product processing and packaging; foundries (aluminum only); furniture repair; garment manufacture; gas distribution; government; hospital (emergency only); house trailer sales; ice storage; jewelry manufacturing; laboratories; lampshade manufacturing; lapidary shops; laundries; machine shops; equipment rentals; muffler sales and installation; pawn shops; pharmaceuticals manufacturing; pumping plants; plastics fabrication; plumbing shops; prefab manufacturing; printing; radio and television repair; research and electronic industries; restaurants; rubber fabrication; saw and filing shops; secondhand stores; sheet metal shops; show manufacturing; textile manufacturing; upholstering; vacuum metallization; and wholesale business and storage.
M-1: Limited Industrial District	Any use permitted in the C-3 zone; provided that, unless specified below, a conditional use permit shall be required if such a permit is required for the same use in the C-3 zone, plus other uses identified in Section 17.32.020 of the City's Municipal Code.
M-2: Heavy Industrial District	Any use permitted in the C-3 zone and any use permitted in the M-1 zone, plus other uses identified in Section 17.34.020 of the City's Municipal Code.

SOURCE: City of Hawthorne Municipal Code (Title 17), 2014.



SOURCE: City of Hawthorne, 2011

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Exhibit B-10

City of Hawthorne Planned Land Use Designations

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B.7 Land Use Plans Adopted for Los Angeles International Airport

Several documents guide development within the boundaries of LAX, including the LAX Master Plan, the LAX Specific Plan, and the Los Angeles Airport/El Segundo Dunes Specific Plan. The following discussions briefly describe these documents.

B.7.1 LAX Master Plan

The LAX Master Plan sets forth a comprehensive development program for LAX properties. In general, projects identified in the LAX Master Plan are intended to improve Airport safety, add new security measures, improve ground transportation, and provide job opportunities. The LAX Master Plan outlines improvement programs to modernize the Airport, including runway and taxiway system modernization, redevelopment of terminal areas, airport access improvements, and passenger safety, security, and convenience enhancements (LAWA, 2004).

B.7.2 LAX Specific Plan

The LAX Specific Plan achieves the goals and objectives of the LAX Plan through zoning and development standards, and contains specific provisions for LAX's Detailed Study Area (DSA). The LAX Specific Plan also establishes the procedures for processing future specific projects and activities anticipated under the LAX Master Plan. The currently adopted LAX Specific Plan zoning for the DSA are LAX-A Zone Airport Airside and LAX-L Zone Airport Landside. The purpose of the LAX-A Zone is to allow for the safe and efficient operation of airport airfield activities. The LAX-L Zone is in place to allow for the safe and efficient operation of airport facilities, with the primary function of providing access to the airport and processing passengers (City of Los Angeles, 2013).

B.7.3 LAX Plan

The LAX Plan is one of 35 Community Plans that are part of the Land Use Element of the City of Los Angeles General Plan. The LAX Plan is intended to promote an arrangement of airport uses that encourages and contributes to the modernization of the Airport in an orderly and flexible manner within the context of the City and region. It provides goals, objectives, policies, and programs that establish a framework for the development of facilities that promote the movement and processing of passengers and cargo within a safe and secure environment. The LAX Plan is intended to allow the Airport to respond to emerging new technologies, economic trends and functional needs (City of Los Angeles, 2004).

B.7.4 Los Angeles Airport/El Segundo Dunes Specific Plan

This Specific Plan applies to the portion of the LAX Plan area that is bound by Napoleon and Waterview Streets on the north, by Imperial Highway on the south, by Pershing Drive on the east, and by Vista del Mar on the west. This area includes the former residential development known

as Surfridge. This Specific Plan was created to restore and preserve the natural ecology of the El Segundo Dunes and native dune-dependent species, such as the endangered El Segundo Blue Butterfly. The Specific Plan also provides for active recreation in the form of a public golf course and related facilities, consistent with the preservation of the El Segundo Dunes ecology. In addition, passive recreation is allowed under this Specific Plan in the form of paths, a visitor center, and viewing areas. To date, these recreational uses have not been developed (City of Los Angeles, 1992).

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U.S. Census Bureau, 2014d. State and County QuickFacts. Accessed at http://quickfacts.census.gov/qfd/states/06/0632548.html on June 18, 2014.

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APPENDIX C

Radar Flight Tracks for Los Angeles International Airport

C.1 Radar Flight Track Exhibits

Exhibits included in this Appendix present radar flight track data from LAWA's Airport Noise and Operations Management System (ANOMS) superimposed on an aerial photograph depicting the Airport and its environs. The aircraft flight tracks depicted on the exhibits are based on actual arrival and departure operations that occurred during calendar year 2013.

- **Exhibit C-1** presents a sample of arrival flight tracks from the east.
- **Exhibit C-2** presents a sample of arrival flight tracks from the west.
- **Exhibit C-3** presents a sample of departure flight tracks to the east.
- **Exhibit C-4** presents a sample of departure flight tracks to the west.

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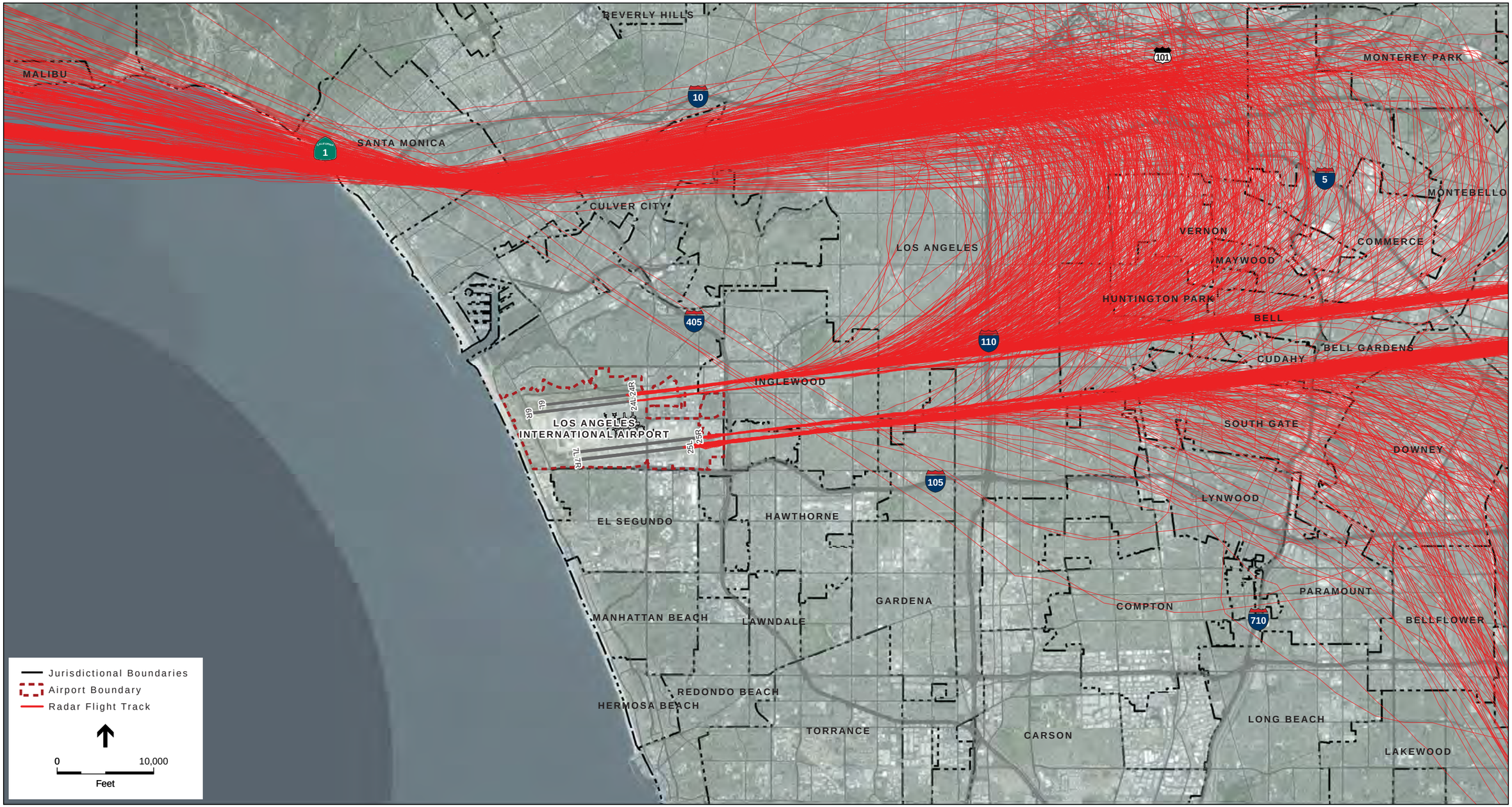

SOURCES: LAWA Airport Noise and Operations Management System data, 2013; LA Co. DRP, 2014; City of LA DCP, 2013; ESA Airports, 2014; ESRI ArcGIS Online, 2011; PCR Services Corporation, 2012

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Exhibit C-1

Radar Flight Tracks – Arrivals from the East

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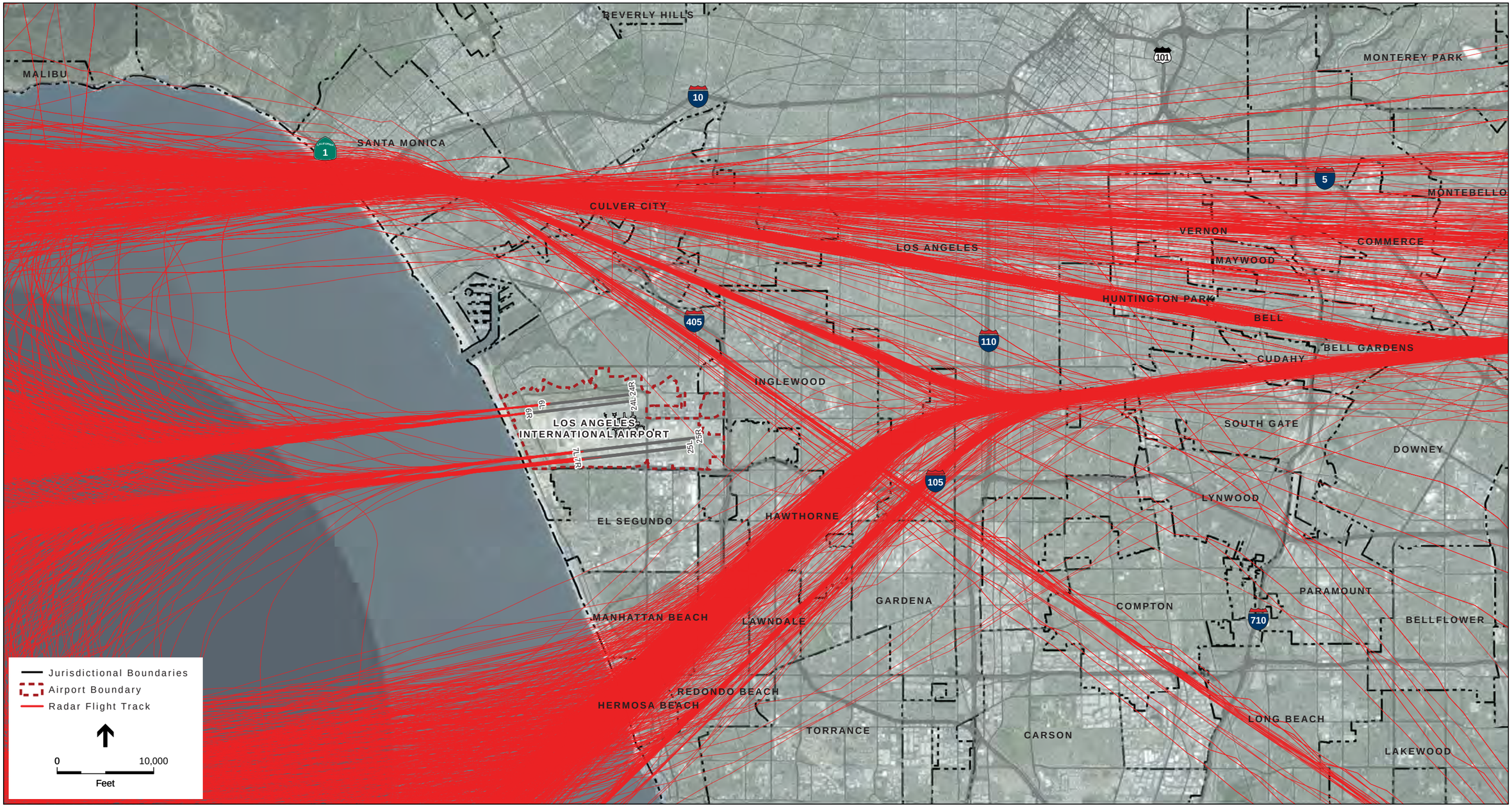

SOURCES: LAWA Airport Noise and Operations Management System data, 2013; LA Co. DRP, 2014; City of LA DCP, 2013; ESA Airports, 2014; ESRI ArcGIS Online, 2011; PCR Services Corporation, 2012

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Exhibit C-2

Radar Flight Tracks – Arrivals from the West

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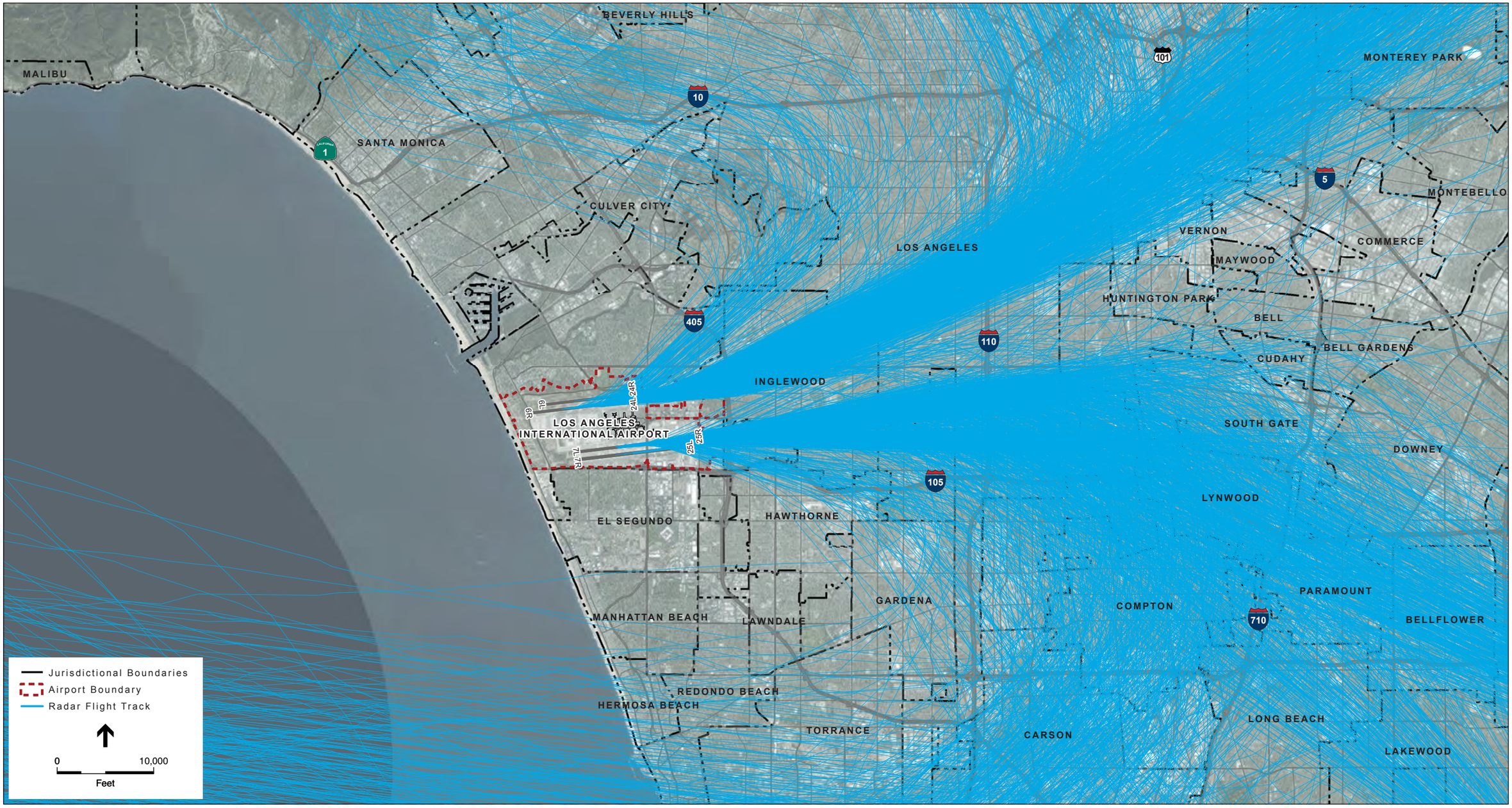

SOURCES: LAWA Airport Noise and Operations Management System data, 2013; LA Co. DRP, 2014; City of LA DCP, 2013; ESA Airports, 2014; ESRI ArcGIS Online, 2011; PCR Services Corporation, 2012

Exhibit C-3

Radar Flight Tracks – Departures to the East

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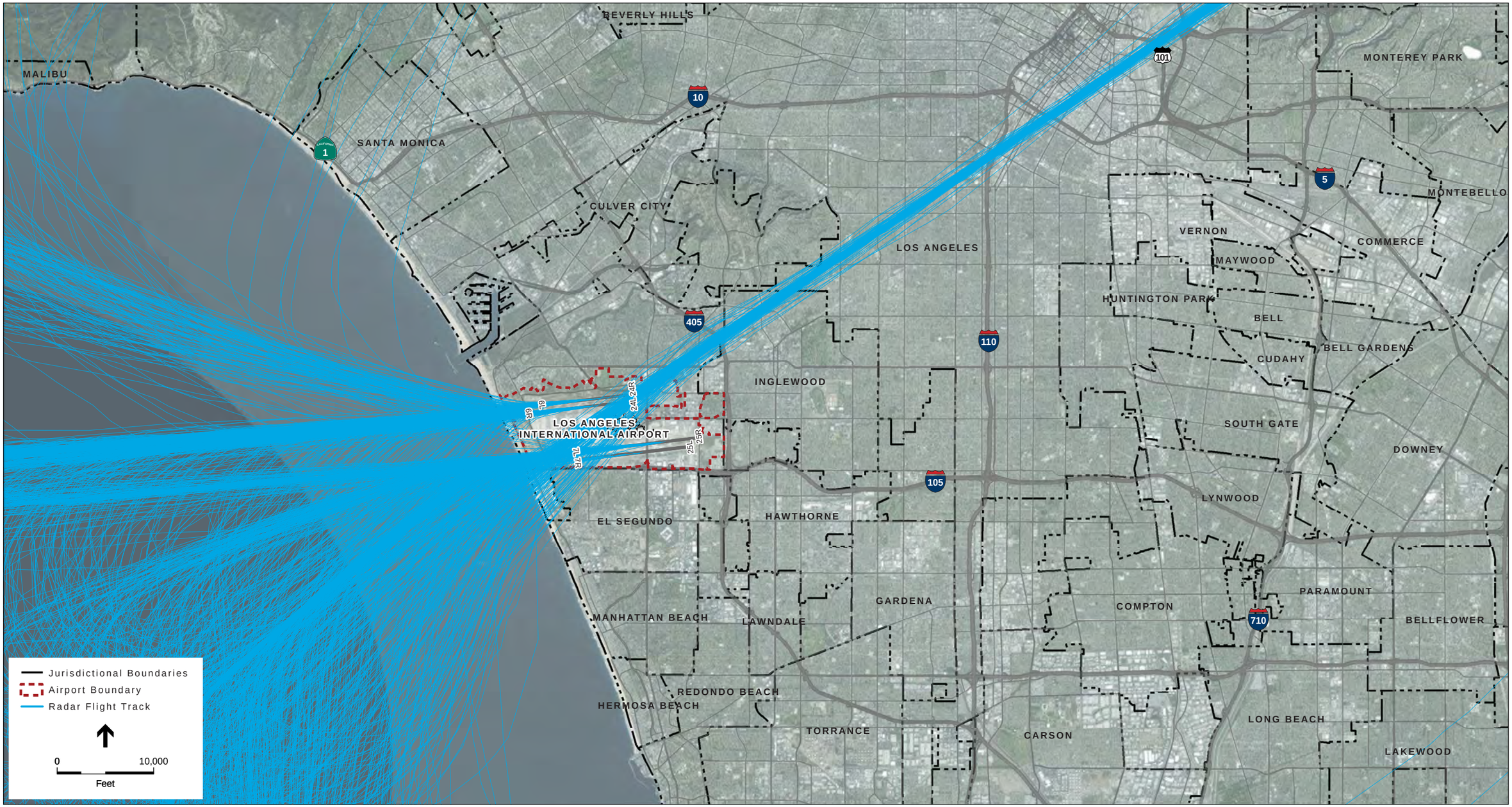

SOURCES: LAWA Airport Noise and Operations Management System data, 2013; LA Co. DRP, 2014; City of LA DCP, 2013; ESA Airports, 2014; ESRI ArcGIS Online, 2011; PCR Services Corporation, 2012

Exhibit C-4

Radar Flight Tracks – Departures to the West

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APPENDIX D

Annual Average Day Aircraft Operations: 2015 and 2020

D.1 Annual Average Day Aircraft Operations – 2015

Table D-1 presents annual average day (AAD) aircraft operations by INM aircraft type, type of operation, time of day, and departure stage length for existing (2015) conditions. These data were input into the INM and used to develop the 2015 noise exposure contours depicted on Exhibit 5-1 in Chapter 5.

D.2 Annual Average Day Aircraft Operations – 2020

Table D-2 presents AAD aircraft operations by INM aircraft type, type of operation, time of day, and departure stage length for future (2020) conditions. These data were input into the INM and used to develop the 2020 noise exposure contours depicted on Exhibit 5-2 in Chapter 5.

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TABLE D-1
2015 ANNUAL AVERAGE DAY (AAD) AIRCRAFT OPERATIONS
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Arrivals			Departures by Stage Length and Time of Day																											Total Daily Operations
				Stage 1			Stage 2			Stage 3			Stage 4			Stage 5			Stage 6			Stage 7			Stage 8			Stage 9			
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	
1900D	8.32	0.09	0.21	7.81	0.15	0.60	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.24
727EM2	0.17	0.01	0.03	0.07	0.00	0.02	0.08	0.01	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43
737300	19.34	4.24	1.75	12.12	2.34	1.38	3.74	0.72	0.43	2.46	0.47	0.28	1.07	0.21	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.67
737400	5.76	0.97	0.38	0.03	0.01	0.00	3.68	0.85	0.17	1.82	0.42	0.09	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.23
737500	0.05	0.01	0.00	0.04	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
737700	60.75	15.05	8.94	32.99	6.78	5.53	7.92	1.63	1.33	8.22	1.69	1.38	12.54	2.58	2.10	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	169.48
737800	80.11	25.03	17.36	13.36	2.02	4.20	11.95	1.81	3.76	15.12	2.29	4.76	37.64	5.70	11.84	5.49	0.83	1.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	245.00
747200	0.03	0.16	0.57	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.01	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
747400	10.95	3.89	4.66	0.76	0.18	0.88	0.09	0.02	0.10	0.11	0.03	0.12	0.78	0.19	0.91	0.11	0.03	0.12	0.01	0.00	0.01	1.48	0.35	1.71	2.35	0.56	2.72	2.46	0.59	2.85	39.01
7478	1.49	1.06	0.97	0.50	0.05	0.69	0.04	0.00	0.06	0.08	0.01	0.11	0.22	0.02	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.11	0.48	0.05	0.66	0.03	0.00	0.04	7.05
757300	6.68	4.23	3.37	0.58	0.00	0.12	1.09	0.01	0.22	1.01	0.01	0.21	5.09	0.04	1.04	4.02	0.03	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.55
757PW	28.46	11.72	11.99	1.97	0.09	0.78	4.45	0.19	1.76	2.82	0.12	1.11	23.23	1.02	9.16	3.81	0.17	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	104.34
757RR	8.07	7.07	7.00	0.22	0.00	0.06	0.20	0.00	0.05	5.21	0.12	1.36	5.75	0.13	1.50	5.87	0.13	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.28
767300	12.38	6.25	4.43	0.04	0.01	0.02	0.25	0.06	0.12	2.27	0.51	1.15	8.02	1.80	4.06	1.14	0.26	0.58	0.94	0.21	0.48	0.66	0.15	0.33	0.00	0.00	0.00	0.00	0.00	0.00	46.13
767400	0.13	0.05	0.03	0.01	0.00	0.00	0.02	0.00	0.00	0.07	0.00	0.02	0.05	0.00	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44
767CF6	5.78	1.86	2.54	0.52	0.07	0.15	0.14	0.02	0.04	0.21	0.03	0.06	6.24	0.82	1.79	0.07	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.37
777200	10.59	0.73	1.18	0.03	0.00	0.01	0.00	0.00	0.00	0.38	0.06	0.13	1.37	0.21	0.46	0.10	0.02	0.03	0.29	0.04	0.10	2.85	0.44	0.96	2.67	0.41	0.90	0.69	0.11	0.23	25.02
777300	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
7773ER	18.07	2.94	2.25	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.48	0.09	0.47	0.02	0.00	0.02	0.00	0.00	0.00	2.14	0.42	2.08	2.61	0.51	2.54	5.46	1.07	5.32	46.52
7878R	1.32	0.16	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.01	0.03	0.36	0.01	0.05	0.33	0.01	0.05	0.00	0.00	0.00	3.22
A300-622R	0.61	0.13	1.72	0.31	0.04	0.96	0.00	0.00	0.01	0.02	0.00	0.06	0.25	0.04	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.93
A300B4-203	0.02	0.37	1.16	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.98	0.01	0.00	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.11
A310-304	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
A319-131	23.56	7.35	5.36	9.19	1.30	2.84	3.26	0.46	1.01	5.03	0.71	1.55	7.20	1.02	2.22	0.33	0.05	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.53
A320-211	26.17	9.80	6.03	6.78	0.88	1.50	4.63	0.60	1.02	1.35	0.17	0.30	16.81	2.18	3.71	1.53	0.20	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.99
A320-232	18.10	7.25	6.25	3.23	0.30	1.31	1.62	0.15	0.66	2.46	0.23	0.99	11.77	1.11	4.77	2.01	0.19	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.20
A321-232	9.17	3.93	2.02	2.39	0.12	1.60	0.00	0.00	0.00	0.01	0.00	0.00	6.40	0.31	4.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.24
A330-301	1.21	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.04	0.09	0.00	0.00	0.00	0.00	0.00	0.00	2.69
A330-343	2.02	0.05	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.03	0.00	0.00	2.19	0.11	0.14	0.00	0.00	0.00	0.94	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.00	7.08
A340-211	3.43	0.21	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.41	0.25	1.20	0.62	0.38	0.00	0.00	0.00	0.00	0.00	0.00	7.34
A340-642	2.77	0.76	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	1.54	0.67	0.00	0.00	0.00	0.00	0.00	0.00	7.09
A380-841	2.65	0.67	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.04	0.85	0.74	0.10	2.14	0.00	0.00	0.00	8.33
A380-861	2.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.03	0.01	0.24	0.00	0.00	0.00	4.58
BEC58P	0.20	0.04	0.03	0.17	0.06	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53
C17	0.03	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
C5A	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
CIT3	0.09	0.03	0.02	0.11	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26
CL600	2.95	0.53	0.34	3.10	0.33	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.63
CL601	48.46	12.00	6.39	50.20	10.90	5.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	133.69
CNA172	0.04	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08

TABLE D-1 (Continued)
2015 ANNUAL AVERAGE DAY (AAD) AIRCRAFT OPERATIONS
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Arrivals			Departures by Stage Length and Time of Day																										Total Daily Operations
				Stage 1			Stage 2			Stage 3			Stage 4			Stage 5			Stage 6			Stage 7			Stage 8			Stage 9			
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	
CNA182	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
CNA206	0.03	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
CNA208	0.38	0.09	0.06	0.12	0.03	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06
CNA20T	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
CNA441	0.66	0.14	0.09	0.62	0.12	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.77
CNA500	0.29	0.04	0.03	0.28	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71
CNA510	0.55	0.12	0.08	0.59	0.09	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49
CNA525C	0.54	0.09	0.08	0.55	0.07	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
CNA55B	0.43	0.04	0.06	0.46	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
CNA560E	0.19	0.04	0.01	0.21	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47
CNA560XL	1.01	0.12	0.09	1.02	0.11	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45
CNA680	0.50	0.09	0.05	0.50	0.06	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26
CNA750	1.49	0.28	0.20	1.64	0.14	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.94
CRJ9-ER	55.91	17.43	6.08	31.27	8.37	4.20	13.56	3.63	1.82	11.80	3.16	1.58	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	158.83
CVR580	0.00	0.25	0.36	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23
DC1010	1.39	0.13	2.12	0.10	0.18	0.38	0.00	0.00	0.00	0.08	0.14	0.30	0.38	0.66	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.29
DC9Q9	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
DHC6	0.04	0.02	0.01	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
DHC830	6.79	1.90	0.02	5.92	2.35	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.44
DO328	0.02	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
ECLIPSE500	0.03	0.00	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
EMB120	33.92	7.75	6.24	34.16	7.78	5.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.81
EMB145	1.38	0.04	0.04	0.21	0.00	0.00	1.11	0.02	0.02	0.02	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.92
EMB14L	0.00	0.18	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40
EMB170	3.97	0.82	0.04	3.47	0.52	0.20	0.03	0.00	0.00	0.51	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.67
EMB190	3.47	1.56	0.61	0.00	0.00	0.00	0.16	0.02	0.01	4.73	0.54	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.27
F10062	0.89	0.12	0.12	0.74	0.06	0.04	0.06	0.00	0.00	0.19	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25
FAL20	0.05	0.02	0.02	0.05	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
GASEPV	0.08	0.01	0.02	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
GII	0.08	0.03	0.01	0.07	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
GIIB	0.35	0.08	0.10	0.40	0.06	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06
GIV	2.57	0.59	0.32	2.66	0.44	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97
GV	2.51	0.49	0.41	2.64	0.36	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.81
IA1125	0.23	0.03	0.03	0.24	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56
LEAR25	0.04	0.01	0.01	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
LEAR35	2.41	0.45	0.42	2.56	0.32	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.54
MD11GE	1.81	0.28	2.43	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	1.44	0.77	1.30	0.30	0.16	0.27	0.00	0.00	0.00	0.09	0.05	0.08	0.00	0.00	0.00	0.00	0.00	9.03
MD11PW	0.74	0.09	0.86	0.05	0.05	0.08	0.00	0.00	0.00	0.01	0.01	0.02	0.41	0.35	0.57	0.04	0.03	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.38
MD81	0.02	0.00	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
MD82	1.69	0.92	0.07	0.26	0.00	0.05	0.14	0.00	0.03	0.96	0.02	0.18	0.86	0.02	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.37

TABLE D-1 (Continued)
2015 ANNUAL AVERAGE DAY (AAD) AIRCRAFT OPERATIONS
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Arrivals			Departures by Stage Length and Time of Day																										Total Daily Operations
				Stage 1			Stage 2			Stage 3			Stage 4			Stage 5			Stage 6			Stage 7			Stage 8			Stage 9			
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	
MD83	3.47	1.31	0.28	0.28	0.01	0.03	0.98	0.04	0.10	1.69	0.07	0.17	1.48	0.06	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.14
MD9025	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
MU3001	0.96	0.11	0.10	0.94	0.12	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.34
PA28	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
PA31	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
PA42	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
SA365N	2.38	0.95	0.00	3.02	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.67
SD330	0.18	0.05	0.03	0.20	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52
Total	**555.82**	**165.44**	**121.09**	**242.19**	**47.42**	**43.55**	**59.28**	**10.26**	**12.75**	**69.19**	**10.94**	**17.41**	**149.88**	**19.35**	**53.71**	**27.13**	**2.23**	**8.78**	**2.23**	**0.68**	**0.87**	**12.45**	**3.72**	**7.39**	**11.21**	**1.67**	**9.24**	**8.64**	**1.77**	**8.43**	**1,684.70**

NOTE: Values may not sum to totals shown due to rounding.
SOURCE: ESA Airports, October 2014.

TABLE D-2
2020 ANNUAL AVERAGE DAY (AAD) AIRCRAFT OPERATIONS
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Arrivals			Departures by Stage Length and Time of Day																											Total Daily Operations
				Stage 1			Stage 2			Stage 3			Stage 4			Stage 5			Stage 6			Stage 7			Stage 8			Stage 9			
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	
1900D	9.12	0.10	0.23	8.57	0.16	0.66	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.91
737700	98.08	24.30	14.43	53.27	10.95	8.94	12.78	2.63	2.14	13.28	2.73	2.23	20.25	4.16	3.40	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	273.63
737800	92.67	28.95	20.08	15.46	2.34	4.86	13.82	2.09	4.35	17.49	2.65	5.50	43.54	6.59	13.70	6.35	0.96	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	283.41
747400	9.60	3.41	4.08	0.67	0.16	0.77	0.07	0.02	0.09	0.09	0.02	0.11	0.69	0.17	0.79	0.09	0.02	0.11	0.01	0.00	0.01	1.29	0.31	1.50	2.06	0.50	2.38	2.16	0.52	2.49	34.19
7478	1.73	1.23	1.12	0.58	0.06	0.80	0.05	0.01	0.07	0.09	0.01	0.12	0.25	0.03	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.13	0.55	0.06	0.76	0.03	0.00	0.04	8.16
757300	7.72	4.89	3.90	0.67	0.01	0.14	1.26	0.01	0.26	1.17	0.01	0.24	5.88	0.05	1.20	4.65	0.04	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.02
757PW	33.07	13.62	13.94	2.28	0.10	0.90	5.17	0.23	2.04	3.27	0.14	1.29	27.00	1.18	10.65	4.43	0.19	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	121.24
757RR	9.35	8.19	8.11	0.25	0.01	0.07	0.23	0.01	0.06	6.04	0.14	1.58	6.66	0.15	1.74	6.79	0.16	1.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.30
767300	16.94	8.55	6.06	0.06	0.01	0.03	0.34	0.08	0.17	3.11	0.70	1.58	10.97	2.46	5.56	1.56	0.35	0.79	1.29	0.29	0.65	0.90	0.20	0.46	0.00	0.00	0.00	0.00	0.00	0.00	63.11
767400	0.16	0.06	0.04	0.01	0.00	0.00	0.02	0.00	0.00	0.08	0.00	0.02	0.06	0.00	0.02	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51
767CF6	6.69	2.15	2.94	0.60	0.08	0.17	0.16	0.02	0.05	0.24	0.03	0.07	7.22	0.94	2.07	0.08	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.56
777200	22.20	1.53	2.48	0.06	0.01	0.02	0.01	0.00	0.00	0.79	0.12	0.27	2.87	0.45	0.97	0.21	0.03	0.07	0.60	0.09	0.20	5.98	0.93	2.01	5.60	0.87	1.89	1.44	0.22	0.49	52.43
777300	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
7773ER	20.90	3.40	2.60	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.56	0.11	0.54	0.02	0.00	0.02	0.00	0.00	0.00	2.48	0.49	2.41	3.01	0.59	2.93	6.32	1.24	6.15	53.81
7878R	1.53	0.19	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.02	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.01	0.03	0.42	0.02	0.06	0.38	0.01	0.05	0.00	0.00	0.00	3.72
A319-131	27.25	8.50	6.20	10.63	1.50	3.28	3.77	0.53	1.16	5.82	0.82	1.80	8.33	1.18	2.57	0.38	0.05	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.90
A320-211	30.27	11.33	6.98	7.84	1.01	1.73	5.36	0.69	1.18	1.56	0.20	0.34	19.45	2.52	4.29	1.77	0.23	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.16
A320-232	26.26	10.52	9.07	4.68	0.44	1.90	2.35	0.22	0.95	3.56	0.33	1.44	17.07	1.60	6.91	2.92	0.27	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.71
A321-232	10.61	4.54	2.33	2.77	0.13	1.85	0.00	0.00	0.00	0.01	0.00	0.00	7.40	0.36	4.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.98
A330-301	1.40	0.13	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.04	0.11	0.00	0.00	0.00	0.00	0.00	0.00	3.11
A330-343	2.34	0.06	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.04	0.00	0.00	2.54	0.13	0.16	0.00	0.00	0.00	1.08	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.00	8.19
A340-211	3.97	0.24	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.92	0.48	0.29	1.39	0.72	0.44	0.00	0.00	0.00	0.00	0.00	0.00	8.49
A340-642	3.21	0.88	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54	1.78	0.78	0.00	0.00	0.00	0.00	0.00	0.00	8.21
A380-841	4.59	1.15	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.07	1.47	1.29	0.17	3.70	0.00	0.00	0.00	14.42
A380-861	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.89	0.04	0.70	0.00	0.00	0.00	13.27
BEC58P	0.21	0.04	0.03	0.18	0.06	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57
C17	0.03	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
C5A	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
CIT3	0.09	0.03	0.02	0.12	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27
CL600	3.15	0.56	0.36	3.31	0.35	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.14
CL601	53.16	13.16	7.00	55.06	11.95	6.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	146.65
CNA172	0.04	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
CNA182	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
CNA206	0.03	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
CNA208	0.41	0.10	0.06	0.13	0.03	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13
CNA441	0.73	0.15	0.09	0.68	0.13	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94
CNA500	0.31	0.04	0.03	0.30	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76
CNA510	0.59	0.12	0.08	0.62	0.09	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
CNA525C	0.57	0.10	0.09	0.59	0.08	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52
CNA55B	0.46	0.04	0.06	0.49	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11

TABLE D-2 (Continued)
2020 ANNUAL AVERAGE DAY (AAD) AIRCRAFT OPERATIONS
LOS ANGELES INTERNATIONAL AIRPORT

INM Aircraft Type	Arrivals			Departures by Stage Length and Time of Day																											Total Daily Operations
				Stage 1			Stage 2			Stage 3			Stage 4			Stage 5			Stage 6			Stage 7			Stage 8			Stage 9			
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night	
CNA560E	0.20	0.04	0.01	0.22	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50
CNA560XL	1.08	0.13	0.10	1.09	0.12	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.61
CNA680	0.53	0.09	0.05	0.53	0.06	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
CNA750	1.59	0.30	0.22	1.74	0.15	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.20
CRJ9-ER	64.67	20.16	7.03	36.17	9.68	4.86	15.68	4.20	2.10	13.65	3.65	1.83	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	183.73
DHC6	0.04	0.02	0.01	0.02	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
DHC830	8.42	2.36	0.03	7.34	2.91	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.62
DO328	0.02	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
ECLIPSE500	0.03	0.01	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
EMB120	37.20	8.50	6.84	37.47	8.54	6.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	105.10
EMB145	1.51	0.05	0.04	0.23	0.00	0.00	1.22	0.02	0.02	0.02	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.21
EMB14L	0.00	0.20	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44
EMB170	4.60	0.95	0.05	4.02	0.60	0.23	0.03	0.00	0.00	0.59	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.19
EMB190	4.01	1.80	0.71	0.00	0.00	0.00	0.18	0.02	0.01	5.47	0.62	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.04
F10062	0.95	0.13	0.12	0.79	0.06	0.04	0.07	0.01	0.00	0.21	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.40
FAL20	0.06	0.02	0.02	0.06	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
GASEPV	0.09	0.01	0.02	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
GIV	2.83	0.65	0.36	2.94	0.48	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.68
GV	3.09	0.60	0.50	3.26	0.45	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.39
IA1125	0.24	0.03	0.03	0.25	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
LEAR35	2.61	0.48	0.45	2.78	0.34	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.10
MD9025	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
MU3001	1.02	0.12	0.11	1.00	0.13	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.49
PA28	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
PA31	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
PA42	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
SA365N	2.40	0.96	0.00	3.04	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.71
SD330	0.20	0.06	0.03	0.22	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57
Total	**643.55**	**189.94**	**132.62**	**273.37**	**53.73**	**47.97**	**62.65**	**10.78**	**14.68**	**77.12**	**12.32**	**18.96**	**178.56**	**21.97**	**59.74**	**31.88**	**2.46**	**9.35**	**3.04**	**0.87**	**1.19**	**16.87**	**4.62**	**9.43**	**18.79**	**2.24**	**12.41**	**9.95**	**1.99**	**9.17**	**1,932.20**

NOTE: Values may not sum to totals shown due to rounding.
SOURCE: ESA Airports, October 2014.

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APPENDIX E
Correspondence and Consultation

E.1 Correspondence and Consultation

This appendix contains copies of correspondence between the Federal Aviation Administration (FAA) and Los Angeles World Airports (LAWA). The following letters and e-mails are provided in this appendix:

- May 1, 2014 letter to Victor Globa (FAA Environmental Protection Specialist) from Scott Tatro (LAWA) regarding recommended INM aircraft substitutions for use in the Los Angeles International Airport 14 CFR Part 150 Noise Exposure Map Update.
- May 22, 2014 letter to Victor Globa from Rebecca Cointin (Federal Aviation Administration, AEE/Noise Division) approving the use of the INM aircraft substitutions proposed by LAWA.
- E-mail from Victor Globa to Kathryn Pantoja (LAWA) transmitting the letter prepared by Rebecca Cointin.
- September 4, 2014 letter from Scott Tatro to Victor Globa requesting FAA's review and approval of a forecast memorandum prepared by ESA Airports.
- October 9, 2014 letter from Jaime Duran (FAA Lead Airport Planner) to Scott Tatro approving the use of the current FAA Terminal Area Forecast (TAF) for the purpose of developing updated noise exposure maps for Los Angeles International Airport.
- May 14, 1985 letter from H.C. McClure (FAA) to Clifton A. Moore (LAWA) transmitting the April 13, 1985 Record of Approval for the Los Angeles International Airport 14 CFR Part 150 Noise Compatibility Program.

Los Angeles
World Airports

TM

May 1, 2014

Mr. Victor Globa
Environmental Protection Specialist
Federal Aviation Administration
Western-Pacific Region
15000 Aviation Boulevard
Lawndale, CA 90261

LAX

LA/Ontario

Van Nuys

City of Los Angeles

Eric Garcetti
Mayor

Board of Airport Commissioners

Sean O. Burton
President

Valeria C. Velasco
Vice President

Gabriel L. Eshaghian
Jackie Goldberg
Beatrice C. Hsu
Matthew M. Johnson
Dr. Cynthia A. Telles

Gina Marie Lindsey
Executive Director

Re: **LAX 14 CFR Part 150 NEM Update – Request for INM 7.0d Aircraft Type Substitutions**

Dear Victor:

Los Angeles World Airports (LAWA) is preparing a FAR Part 150 Noise Exposure Map (NEM) Update for Los Angeles International Airport (LAX) and has obtained the services of ESA Airports, as a subcontractor to Alta Environmental, to do so. Please see the enclosed technical memorandum from ESA Airports recommending INM 7.0d substitutes for use in the LAX FAR Part 150 NEM Update Study.

LAWA requests that the FAA approve these recommended substitutes or provide FAA recommended substitutes for each of the aircraft types. If you have any questions, please contact me or Kathryn Pantoja at 424-646-6501.

Sincerely,

Scott Tatro
Airport Environmental Manager I

ST:KRP:sts

Enclosure

cc: Kathryn Pantoja

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ESA Airports

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Sacramento, CA 95816
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technical memorandum

date April 30, 2014

to Kathryn Pantoja, Los Angeles World Airports, Environmental Affairs Officer

from Steve Alverson, ESA Airports, National Director

subject Request for INM 7.0d Aircraft Type Substitutions

reference Los Angeles International Airport 14 CFR Part 150 NEM Update Study

ESA Airports is assisting Los Angeles World Airports (LAWA) with the preparation of a FAR Part 150 Noise Exposure Map (NEM) Update for Los Angeles International Airport (LAX). The LAX NEM Update is being prepared with the latest release of the Integrated Noise Model (INM), Version 7.0d. Total aircraft operations for CY 2014 are 614,917[1]and projected to be 690,736[2] operations in FY 2019. Upon evaluating the fleet mix, several commercial and general aviation aircraft were identified that do not have a direct INM type or pre-approved Federal Aviation Administration (FAA) substitution defined in the model. Substitutions for most of these aircraft have previously been approved by the Office of Environment and Energy in prior FAR Part 150 studies as shown in Table 1 on the next page. However, there are an additional 19 aircraft which do not have a pre-approved substitution in the INM for which we are proposing aircraft substitutes.

The following is a description of the aircraft listed in Table 1 as well as a suitable substitution based on research of engine and performance characteristics for the FAA's review and approval.

1. **Boeing 77L and 77W**

The Boeing 77L and 77W (B77L) (B77W) are versions of the Boeing 777 aircraft. In researching the (L) and the (W) to determine a suitable INM aircraft substitution to use for the LAX NEM Update; we found that the B77L is the Boeing 777-200LR, and that the B77W is the 777-300ER. Upon evaluation of the INM 7.0d INM Aircraft and INM 7.0d INM Aircraft Substitutions lists, the 7773ER is the suitable substitute aircraft for the Boeing 777-200LR. The 7773ER is also the suitable substitute aircraft for the Boeing 777-300ER.

We propose to model the Boeing 77L and the Boeing 77W (Boeing 777-200LR and 777-300ER) with the INM type 7773ER.

[1] http://aspm.faa.gov/opsnet/sys/Airport.asp

[2] http://aspm.faa.gov/apowtaf/

Table 1
Aircraft Types and Recommended INM Substitutions

Group	Aircraft Code	Aircraft Model	Previously Approved Substitution	Recommended Substitution
Jet	B77L	Boeing 777-200LR	None	7773ER
Jet	B77W	Boeing 777-300ER	None	7773ER
Jet	A333	Airbus 330-200/ CF6-80E1A2	None	A330-301
Jet	A333	Airbus 330-200/Rolls Royce Trent	None	A330-343
Jet	A333	Airbus 330-300/ PW4168	None	A330-301
Jet	A343	Airbus 340-300	None	A340-211
Jet	A345	Airbus 340-500	None	A340-642
Jet	A320neo	Airbus 320neo	None	A320-232
Jet	A350	Airbus 350	None	A330-343
Jet	737Max	Boeing 737Max	None	737700
Jet	DA7X	Dassault Falcon 700X	None	F10062
Jet	GLF6	Gulfstream 650	None	GV
Jet	G280	Gulfstream 280	None	CL601
Jet	LJ40	LearJet 40	None	LEAR35
Jet	C25A/B	Cessna Citation Jets (CJ 1 and 2)	None	CNA525
Jet	E50P	Embraer Phenom 100	None	CNA510
Jet	E55P	Embraer Phenom 300	None	CNA560E
Turboprop	DH8D	Bombardier Q400	None	DHC830
Turboprop	P46T	Piper Malibu Meridian	None	CNA208
Prop	BE35/36	Beechcraft Bonanza	GASEPV	GASEPV
Prop	COL3/4	Cessna Corvalis	GASEPV	GASEPV
Prop	LNC3/4	Lancair Columbia 400	GASEPV	GASEPV
Prop	LEG2	Lancair Legacy	GASEPV	GASEPV
Prop	SR20	Cirrus SR-20	GASEPV	GASEPV

2. Airbus 330-200 Aircraft, and Airbus 330 Aircraft Equipped with Pratt & Whitney Engines

The Airbus 330 (A330) is an aircraft that is commonly operated at LAX. Upon review of the INM 7.0d Aircraft Database and Substitutions lists, there are two INM models of the aircraft to be utilized, the A330-301 that is equipped with the General Electric CF6 engines, and the A330-343 that is equipped with the Rolls-Royce Trent engines. However, in reviewing the air carriers utilizing the A330 at LAX, we found that some of the operators utilize the Airbus 330-200 series aircraft, as well as A330 aircraft that are equipped with Pratt & Whitney (PW) 4100 engines.

In finding a suitable substitute for the Airbus 330-200 series aircraft, engine data for each of the air carriers operating the A330 at LAX were identified. We recommend that the engine used by each air carrier be the recommended substitute as explained below.

In finding a suitable aircraft for Airbus 330 aircraft utilizing PW engines, research was conducted to find the engine that most closely represents the PW engine from a thrust and noise stand point. The PW 4100 series engine has a takeoff thrust between 64,000-68,000 lbs. The A330-301 has a takeoff thrust of approximately 65,000 lbs. The Rolls-Royce Trent engine utilized on the Airbus 330 is capable of 75,000 lbs of takeoff thrust. The noise characteristics are also similar between the PW engine and the CFM engine as shown in Table 2 below.[3]

Table 2
FAA Noise Certification Data

Aircraft Data						Noise (EPNdB)		
Manufacturer	**Aircraft Model**	**MTOW (lbs)**	**MLW (lbs)**	**Engine Type**	**Thrust (lbs)**	**Takeoff**	**Side-Line**	**Approach**
Airbus	A330-301	507,000	419,000	CF6-80E1A2	65,800	94.2	97.2	98.7
Airbus	A330	507,000	419,000	PW4168	68,000	94.3	98.3	98.0

Source: https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/aircraft_noise_levels/, Appendix 1

We propose to model the Airbus 330-200 with the INM type A330-301 and A330-343 based on engine type (i.e., Hawaiian Airlines operates the Airbus 330-200 with the Rolls-Royce Trent engines, and therefore will be modeled as the A330-343 INM aircraft that has the noise data for the Rolls-Royce Trent engines).

We propose to model Airbus 330 aircraft utilizing PW engines with the INM type A330-301 that utilize the General Electric CF6 engines as they are more comparable in performance and noise output.

3. Airbus 340-300 and Airbus A340-500

The Airbus 340-300 (A343) and the Airbus 340-500 (A345) series aircraft are versions of the Airbus 340 (A340) aircraft that is commonly operated at LAX. Upon review of the INM 7.0d Aircraft Database and Aircraft Substitutions lists, there are two INM models of the aircraft to be utilized, the Airbus 340-211 with General Electric CFM engines, and the Airbus 340-642 with Rolls-Royce Trent engines. In finding a suitable substitute for the A343 and A345 series aircraft, engine data for each of the air carriers operating the A340 at LAX was researched and identified. We found that the air carries that operated the A343 aircraft utilized the same engine that is utilized by the INM aircraft A340-211 (i.e., the General Electric CFM Engines), and the air carriers that operated the A345 aircraft utilized the same engine that is utilized on the INM aircraft A340-642 (i.e., the Rolls-Royce Trent Engines).[4]

We propose to model the A343 and A345 with the INM type A340-211 and A340-642, respectively, since their engine types match up with aircraft type modeled in the INM.

[3] http://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/aircraft_noise_levels/
[4] http://www.airfleets.net/home/

4. Airbus 320 New Engine Option

The Airbus 320 New Engine Option (A320neo) is the newest version of the Airbus 320 family and provides a maximum benefit to air carriers with two new jet engine choices, the CFM International's LEAP-X, and the PW 1100G PurePower engines. Both engines advertise meeting ICAO's Chapter 14 noise standards; however, there is little information available to determine the best suitable substitute INM aircraft for the A320neo.[5] Therefore, we propose conservatively substituting the A320neo with the Airbus 320-232 with IAE V2500 engines as shown in the certification table below.

Aircraft Data						Noise (EPNdB)		
Manufacturer	**Aircraft Model**	**MTOW (lbs)**	**MLW (lbs)**	**Engine Type**	**Thrust (lbs)**	**Takeoff**	**Side-Line**	**Approach**
Airbus	A320-232	171,960	145,510	IAE V2500	26,500	84.9	91.3	94.4
Source: https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/aircraft_noise_levels/, Appendix 1								

We propose to model the A320neo with the INM type A320-232, or request FAA recommend a suitable substitute aircraft.

5. Airbus 350

The Airbus 350 (A350) is Airbus' latest wide-body aircraft (with seating for 250 to 400 passengers) for medium and long-haul routes. The aircraft will feature two Rolls-Royce Trent Engines producing up to 84,000 lbs of thrust at an aircraft MTOW of approximately 593,000 lbs meeting the latest noise standards.[6] Although there is little information available regarding the noise characteristics of the Airbus 350, we find the aircraft to be most similar to INM aircraft A330-343 with Rolls-Royce Trent 772B engines with a MTOW of 513,677 lbs.

We propose to model the A350 with the INM type A330-343, or request FAA recommend a suitable substitute aircraft.

6. Boeing 737Max

Boeing 737Max (737Max) is the newest version of the Boeing 737 aircraft and provides a maximum benefit to air carriers in efficiency and fuel savings. This aircraft is very similar in shape and design with current Boeing 737 aircraft, but will offer the CFM International's LEAP-X engine that advertises meeting ICAO's Chapter 14 noise standards.[7] However, like the Airbus 320neo and Airbus 350, there is very little noise data available to determine the best suitable INM aircraft substitute for the 737Max. Therefore, we propose conservatively substituting the 737Max with the 737700 with CFM-56 engines as shown in the certification table below.

[5] www.airbus.com

[6] http://www.a350xwb.com/#x-tra/technical-specifications

[7] http://www.newairplane.com/737max/

Aircraft Data						Noise (EPNdB)		
Manufacturer	Aircraft Model	MTOW (lbs)	MLW (lbs)	Engine Type	Thrust (lbs)	Takeoff	Side-Line	Approach
Boeing	737700	154,500	129,200	CFM-56	26,300	84.6	94.7	95.9
Source: https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/aircraft_noise_levels/, Appendix 1								

We propose to model the 737MAX with the INM type 737700, or request FAA recommend a suitable substitute aircraft.

7. Dassault Falcon 700X

The Falcon 700X is a three-engine aircraft that is comparable to the Falcon 50 or Falcon 900 in airframe characteristics. However, the Falcon 50 and Falcon 900 utilize Honeywell engines (TFE731), while the Falcon 700X utilizes three Pratt & Whitney (PW) 307A engines that are capable of higher thrust output due to the aircraft's heavier weight. Through researching the noise data shown in the table below, we found that the noise data for the Falcon 700X most closely resembled the Falcon 900 that is modeled in the INM as the F10062 aircraft.[3]

FAA Noise Certification Data

Aircraft Data						Noise (EPNdB)		
Manufacturer	Aircraft Model	MTOW (lbs)	MLW (lbs)	Engine Type	Thrust (lbs)	Takeoff	Side-Line	Approach
Falcon	900	45,500	42,000	TFE731	4,750	81.9	89.5	91.7
Falcon	700X	69,000	62,400	PW307A	6,400	83.7	90.3	92.6
Source: https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/aircraft_noise_levels/, Appendix 1								

We propose that since the Falcon 900 is substituted in the INM 7.0d as a F10062, that the Falcon 700X also be substituted as the F10062.

8. Gulfstream 650

The Gulfstream 650 (G-VI) jet is the latest version of Gulfstream Aircraft's G-III, IV, and V aircraft. All of these aircraft have similar design, but the latest version (G-VI) has greater range, payload, and overall performance capabilities. The G-VI's performance data includes a Maximum Takeoff Weight (MTOW) of 99,600 lbs, a Maximum Landing Weight (MLW) of 83,500 lbs, and features two Rolls-Royce BR725 engines rated at 16,900 lbs of takeoff thrust each.[8] Through research, we found that there is no noise level certification data published on the FAA's noise certification website for the G-VI; however, we find that this aircraft most closely represents the G-V aircraft which is shown in the table below.

[8] http://www.gulfstream.com/products/g650/

FAA Noise Certification Data

Aircraft Data						Noise (EPNdB)		
Manufacturer	Aircraft Model	MTOW (lbs)	MLW (lbs)	Engine Type	Thrust (lbs)	Takeoff	Side-Line	Approach
Gulfstream	V	90,500	75,300	BR700	14,700	80.3	89.1	90.8
Source: https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/aircraft_noise_levels/, Appendix 1								

We propose to model the Gulfstream 650 with the INM type GV aircraft.

9. Gulfstream 280

The Gulfstream 280 (G280) is the newest aircraft produced by Gulfstream. The G280 features a MTOW of 39,600 lbs and a MLW of 32,700 lbs, and is powered by two Honeywell HTF7250G engines rated at 7,600 lbs of takeoff thrust each.[9] Through research, it was found that there is no noise level certification data published on the FAA's noise certification website for the G280; however, we found that this aircraft most closely matches the CL601 aircraft that is shown in the table below.

FAA Noise Certification Data

Aircraft Data						Noise (EPNdB)		
Manufacturer	Aircraft Model	MTOW (lbs)	MLW (lbs)	Engine Type	Thrust (lbs)	Takeoff	Side-Line	Approach
Bombardier	CL601	42,100	36,000	CF34-1A	8,650	79.4	84.9	89.4
Source: https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/aircraft_noise_levels/, Appendix 1								

We propose to model the Gulfstream 280 with the INM type CL601 aircraft.

10. LearJet 40

The LearJet 40 is a continuation of the LearJet 31A and LearJet 35 aircraft featuring better performance with a MTOW of 20,350 lbs, a MLW of 19,200, and is powered by two Honeywell TFE 731 engines rated at 3,500 lbs at takeoff thrust.[10] There is no noise level certification data published on the FAA's noise certification website for the LearJet 40, but we found that the LearJet 40 most closely matches the noise and performance characteristics of the LEAR45 as shown below that is modeled as a LEAR35 in the INM.

FAA Noise Certification Data

Aircraft Data						Noise (EPNdB)		
Manufacturer	Aircraft Model	MTOW (lbs)	MLW (lbs)	Engine Type	Thrust (lbs)	Takeoff	Side-Line	Approach
Bombardier	LEAR35	20,500	19,500	TFE731	3,500	74.4	85.2	93.4
Source: https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/aircraft_noise_levels/, Appendix 1								

[9] http://www.gulfstream.com/products/g280/

[10] http://jetadvisors.com/learjet-40/

We propose that since the LearJet 45 is substituted in the INM 7.0d as a LEAR35, that the LearJet 40 also be substituted as the LEAR35.

11. Cessna Citation Jets 1 and 2 (CJ1 and CJ2)

The Cessna Citation Jets (CJ1 and CJ2) are part of the Citation Jet family that features Citation Jets 1 through 4. The Citation Jet 4 (CJ4) is listed in the INM as the CNA525 and is just a slightly larger version of the CJ1 and CJ2. The CJ1 and CJ2 feature the same engines as the CNA525, the Williams FJ44 engines. The engines have just been de-rated on the CJ1 and CJ2 due to the lighter weights of the aircraft then the CJ4. Therefore, we feel the CNA525 would be a conservative substitution for the CJ1 and CJ2.

We propose to model the Cessna Citation Jets 1 and 2 with the INM type CNA525 aircraft.

12. Embraer Phenom 100

The Phenom 100 is a relatively new entry-level jet that belongs to the very-light jet category of aircraft. The Phenom 100 has a MTOW of 10,472 pounds, a MLW of 9,766 pounds, and is powered by two Pratt & Whitney Canada PW617F-E turbofan engines rated at 1,695 pounds of thrust.[11] The engine and weights are similar to the Cessna Citation Mustang (CNA510) that has a MTOW of 8,645 pounds, a MLW of 8,000 pounds, and is powered by two Pratt and Whitney Canada PW615F turbofan engines rated at 1,460 pounds of thrust.[12] Neither aircraft has noise level certification data published on the FAA's noise certification website.

We propose to model the Embraer Phenom 100 (E50P) with the INM type CNA510 aircraft.

13. Embraer Phenom 300

The Phenom 300 is a new light business jet that recently entered the corporate jet market. The Phenom 300 has a MTOW of 17,968 pounds, a MLW of 16,865 pounds, and is powered by two Pratt and Whitney Canada PW535E engines rated at 3,360 pounds of thrust.[8] The engine and weights are similar to the Cessna Citation Encore (CNA560E) that has a MTOW of 16,630 pounds, a MLW of 15,200 pounds, and is powered by two Pratt and Whitney Canada PW535A engines rated at 2,900 pounds of thrust.[3] Noise data from the FAA noise certification database is listed below.

FAA Noise Certification Data

Aircraft Data						Noise (EPNdB)		
Manufacturer	Aircraft Model	MTOW (lbs)	MLW (lbs)	Engine Type	Thrust (lbs)	Takeoff	Side-Line	Approach
Cessna	560 Encore	16,630	15,200	PW535A	2,900	70.30	89.90	90.50
Source: https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/aircraft_noise_levels/, Appendix 1								

We propose to model the Embraer Phenom 300 (E55P) with the INM type CNA560E aircraft.

14. Bombardier Q400 (DH8D)

[11] www.embraerexecutivejets.com

[12] www.cessna.com

The Bombardier Q400 is operated by Horizon Airlines at LAX. The aircraft is an extended version of the Bombardier Dash-8-300 aircraft, and can carry up to 80 passengers. The Q400 is quieter than the Dash-8-300 aircraft integrating noise reduction technologies that make it 15 dB quieter than ICAO Stage 4 noise standards.[13] Comparisons between the Dash-8-300 and the Q400 are shown in the table below. Therefore, we recommend to model conservatively using the Dash-8-300 as a substitute for the Q400 since it is a louder aircraft according to the FAA Noise Certification Data.

FAA Noise Certification Data

Aircraft Data						Noise (EPNdB)		
Manufacturer	**Aircraft Model**	**MTOW (lbs)**	**MLW (lbs)**	**Engine Type**	**Horse Power**	**Takeoff**	**Side-Line**	**Approach**
Bombardier	Dash-8-300	41,000	40,000	PW123	2,142	84.3	87.4	98.9
Bombardier	Q400	61,700	60,500	PWC150A	5,070	77.1	84.1	94.9

Source: https://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/aircraft_noise_levels/, Appendix 6

We propose to model the Bombardier Q400 (DH8D) with the INM type DHC830 aircraft.

15. Piper Malibu Meridian

The Piper Malibu Meridian (P46T) is a single engine turboprop aircraft. Upon evaluating a previously approved substitute for the Malibu Meridian, it was noted that the SD330, a 22,900 pound twin-engine turboprop, has been a previously approved aircraft substitute. We noted with the release of INM 7.0d the Socata TBM 700, a very similar aircraft to the Malibu Meridian, identified the CNA208 as an approved substitute. The Malibu Meridian has a MTOW of 5,134 pounds, a MLW of 4,850 pounds, and is powered by the Pratt & Whitney PT6A-42A rated at 500 Shaft Horse Power (SHP).[14] The Socata TBM 700 aircraft has a MTOW of 6,579 pounds, a MLW of 6,250 pounds, and is powered by the Pratt & Whitney PT6A-64 engine rated at 700 SHP.[15]

FAA Noise Certification Data

Aircraft Data						Noise (dBA)		
Manufacturer	**Aircraft Model**	**MTOW (lbs)**	**MLW (lbs)**	**Engine Type**	**SHP**	**dBA***	**TO#**	**APP#**
Cessna	208 Caravan	8,000	7,800	PT6A-114	600 @ 1900 RPM	79	64.9	73

*U.S. Certified Propeller Driven Small Airplanes (14 CFR Part 36, Appendix G)
#Noise Level Data AC36-3H (April 5, 2012)

We propose that since the TBM 700 is substituted in INM 7.0d as a CNA208, that the Piper Malibu Meridian also be substituted as the CNA208.

[13] http://www.bombardier.com/en/aerospace/commercial-aircraft.html
[14] http://www.flyingmag.com/pilot-reports/turboprops/living-piper-meridian?page=0,4
[15] http://www.tbm850.com/Pilot-s-Information-Manual

We are requesting that LAWA forward this technical memorandum to Victor Globa – Environmental Specialist in FAA's Western Pacific Region, so that the FAA can approve these recommended INM 7.0d substitutes, or provide FAA recommended substitutes for each of the aircraft types for use in the LAX FAR Part 150 NEM Update Study.

We appreciate your assistance in this matter.

U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of Environment and Energy

800 Independence Ave., S.W.
Washington, D.C. 20591

Date: May 22, 2014

Victor Globa
Environmental Protection Specialist
Federal Aviation Administration
15000 Aviation Boulevard
Lawndale, CA 90261

Dear Mr. Globa,

The Office of Environment and Energy (AEE) received the letter addressed to you from Scott Tatro of Los Angeles World Airports (LAWA) dated May 1, 2014 requesting approval of modeling 24 aircraft types that do not have Integrated Noise Model (INM) standard substitutions. This request is to evaluate noise in support of the Los Angeles International Airport (LAX) Part 150 Noise Exposure Map (NEM) Update.

ESA Airports is assisting LAWA with the preparation of the Part 150 NEM update for LAX using the latest version of INM, Version 7.0d. ESA identified 24 aircraft types that do not have INM standard substitutions. The list of those aircraft is displayed in the table below along with AEE's recommendations.

Aircraft	ESA Proposed Substitution	AEE Recommendation
Boeing 777-200LR	7773ER	Concur
Boeing 777-300ER	7773ER	Concur
Airbus 330-200/CF6-80E1A2	A330-301	Concur
Airbus 330-200/Rolls Royce Trent	A330-343	Concur
Airbus 330-300/PW4168	A330-301	Concur
Airbus 340-300	A340-211	Concur
Airbus 340-500	A340-642	Concur
Airbus 320neo	A320-232	Concur
Airbus 350	A330-343	**7773ER**
Boeing 737 Max	737700	Concur
Dassault Falcon 700X	F10062	Concur
Gulfstream 650	GV	Concur
Gulfstream 280	CL601	Concur
Learjet 40	LEAR35	Concur
Cessna Citation Jets (CJ 1 and 2)	CNA525	Concur
Embraer Phenom 100	CNA510	Concur

Embraer Phenom 300	CNA560E	Concur
Bombardier Q400	DHC830	Concur
Piper Malibu Meridian	CNA208	Concur
Beechcraft Bonanza	GASEPV	**CNA206**
Cessna Corvalis	GASEPV	Concur
Lancair Columbia 400	GASEPV	Concur
Lancair Legacy	GASEPV	Concur
Cirrus SR-20	GASEPV	Concur

AEE concurs with all but two of the proposed substitutions. The A350 has several variations and the most conservative substitution for all A350 models would be the Boeing 7773ER. Therefore, AEE recommends the INM type 7773ER as a substitute for the A350. Also, the Beechcraft Bonanza is normally substituted by the INM type CNA206 and AEE continues to recommend the CNA206 as a substitute for the Bonanza. AEE approves the substitutions proposed by ESA with these two exceptions.

Please understand that this approval is limited to this particular project for LAX. Any additional projects or non-standard INM input at LAX will require separate approval.

Sincerely,

Rebecca Cointin, Manager
AEE/Noise Division

cc: Jim Byers, APP-400

From: Victor.Globa@faa.gov [mailto:Victor.Globa@faa.gov]
Sent: Thursday, May 22, 2014 1:04 PM
To: PANTOJA, KATHRYN R.
Cc: TATRO, SCOTT
Subject: LAX Part 150 NEM Update - Request for INM 7.0d Aircraft Type Substitutions

Hi Kathryn – Attached is copy of the response I received from the Office of Environment and Energy (AEE) regarding LAWA's May 1, 2014, request to approve the modeling of 24 aircraft type that do not have INM standard substitutions. AEE approved 22 of 24 substitutions requested. However for the Airbus 350, AEE recommends the 7773ER instead of A330-343; and, for the Beechcraft Bonanza, AEE recommends the CNA206 instead of GASEPV.

If you have any additional questions feel free to e-mail me or give a call.

Victor

Victor Globa
Environmental Protection Specialist
Federal Aviation Administration
15000 Aviation Boulevard
Lawndale, CA 90261
310-725-3637
victor.globa@faa.gov

Los Angeles
World Airports

LAX

LA/Ontario

Van Nuys

City of Los Angeles

Eric Garcetti
Mayor

Board of Airport Commissioners

Sean O. Burton
President

Valeria C. Velasco
Vice President

Gabriel L. Eshaghian
Jackie Goldberg
Beatrice C. Hsu
Matthew M. Johnson
Dr. Cynthia A. Telles

Gina Marie Lindsey
Executive Director

September 4, 2014

Mr. Victor Globa
Environmental Protection Specialist
Federal Aviation Administration
Western-Pacific Region
Los Angeles Airports District Office, LAX-600.3
P.O. Box 92007
Los Angeles, CA 90009-2007

Re: Review and Approval of Los Angeles International Airport Part 150 Noise Exposure Map Update Forecast

Dear Mr. Globa:

Los Angeles World Airports requests the Federal Aviation Administration's review and approval of the 2015 and 2020 operations forecasts for the Los Angeles International Airport Part 150 Noise Exposure Map Update. The attached technical memorandum describes the forecast methodology and comparison results in detail.

If you have any comments or questions related to this request, please feel free to contact me at (424) 646-6499. Thank you for your assistance.

Sincerely,

Scott Tatro
Airport Environmental Manager I

ST:kp

Enclosure: Technical memorandum

cc: Kathryn Pantoja

Los Angeles World Airports Mail

ESA Airports

5401 South Kirkman Road
Suite 405
Orlando, FL 32819
407.403.6300 phone
407.403.6301 fax

www.esassoc.com

technical memorandum

date September 2, 2014

to Kathryn Pantoja – Los Angeles World Airports
Environmental Affairs Officer

from Michael Arnold
Manager of Airport Planning

subject Los Angeles International Airport
Recommended Forecast for Use in Preparing the LAX FAR Part 150 Noise Exposure Map Update

ESA Airports is currently updating the Noise Exposure Maps for Los Angeles International Airport (LAX). This update includes evaluation of existing operational conditions as well as those anticipated in 2020. The purpose of this technical memorandum is to review the current Federal Aviation Administration (FAA) Terminal Area Forecast (TAF) for LAX to determine if adjustments are necessary based on recent activity trends. This memorandum also includes a comparison of the LAX TAF to operations projections that have been included in environmental documentation prepared for recent LAX capital improvement projects.

FAA Terminal Area Forecasts

The TAF is an unconstrained forecast of future demand for an airport or air traffic facility that is used by the FAA to project future staffing and facility needs. Forecasts developed independently by airport sponsors are reviewed to determine if they are within 10 percent of the TAF in the five-year period or 15 percent of the TAF in the ten-year period. If the forecasts fall within these ranges, they are considered consistent with the TAF. If not, additional justification is required from the airport sponsor before the forecast can be used for project justification or funding. The TAF is re-indexed each year based on activity that occurred during the previous federal fiscal year (October 1st through September 30th). While the TAF includes a projection of air carrier and commuter passengers, aircraft operations are of primary interest for the purposes of noise modeling. The current TAF was issued by the FAA in February 2014. LAX's portion of the TAF is outlined in **Table 1**.

TABLE 1

FAA TERMINAL AREA FORECAST - OPERATIONS
LOS ANGELES INTERNATIONAL AIRPORT

Year (Federal Fiscal)	Air Carrier	Air Taxi	General Aviation	Military	Total
2009	436,149	89,916	15,813	2,736	544,614
2010	452,918	95,187	20,039	2,829	570,973
2011	468,763	106,471	18,549	2,411	596,194
2012	481,325	106,722	18,165	2,634	608,846
2013	491,693	93,768	18,333	2,554	606,348
2014*	501,170	95,000	18,430	2,544	617,144
2015	513,784	96,263	18,592	2,534	631,173
2016	526,526	97,541	18,755	2,524	645,346
2017	539,793	99,113	18,919	2,514	660,339
2018	553,469	100,423	19,085	2,504	675,481
2019	567,541	101,449	19,252	2,494	690,736
2020	581,708	101,641	19,421	2,484	705,254

SOURCE: FAA February 2014 TAF
*estimated

The current TAF projects an increase in air carrier activity of 90,000 operations between 2013 and 2020 at LAX and a total increase of nearly 100,000 operations during the same period to just over 705,000 total operations at LAX by 2020.

Review of Recent Airport Activity

A review of recent activity was conducted to determine if the current LAX TAF was consistent with recent airport trends and continues to be representative of the dynamic airport environment. **Table 2** outlines activity levels at LAX for the 12-month period ending April 2014.

TABLE 2

OPERATIONAL ACTIVITY FOR 12-MONTH PERIOD ENDING APRIL 2014
LOS ANGELES INTERNATIONAL AIRPORT

Period	Air Carrier	Air Taxi	General Aviation	Military	Total
12 months ending April 2014	513,624	91,445	18,227	2,325	625,621

SOURCE: FAA Air Traffic Activity System (ATADS)

Comparing the activity for the 12-month period ending in April to the most recent TAF (Table 1), ESA Airports determined that total aircraft activity is tracking nearly 8,500 operations or 1.4 percent ahead of the FAA's 2014

projection. Air carrier activity is tracking about 2.5 percent ahead of projections, while air taxi activity is tracking about 4 percent below projections. GA and military operations are relatively consistent with the FAA's LAX TAF projections. These variances are well within the FAA's 10 percent guidance for determining forecast consistency within the five-year timeframe and would be expected to have a negligible impact on contour size and shape.

Comparison to Recent Activity Forecasts

In reviewing the TAF, we noted that there were two recent studies that included activity projections for LAX. These include the:

- Specific Plan Amendment Study (SPAS) Operational Analysis - prepared Ricondo and Associates, July 2012; and the

- Runway 7L/25R Runway Safety Area (RSA) Environmental Assessment (EA), Appendix B, Noise Technical Report - prepared by Ricondo and Associates, August 2013.

The SPAS Operational Analysis focused on 2009 and 2025 design-day passenger activity levels. An operations forecast was not part of the SPAS analysis. The SPAS forecasts developed design-day flight schedules (DDFS), which were based on peak-month, average-day flight schedules (PMAD). Because annual operations statistics were not developed as part of the SPAS forecast, activity levels could not be directly compared. For the purposes of comparing to the adjusted TAF, the 2020 operations levels were estimated based on a prorated growth assumption and the 2009 operations relationships to the 2009 DDFS. The SPAS analysis projected an increase in the design-day flight schedule from 1,563 operations to 2,053 operations by 2025. It also cites a FY 2009 total activity level of 561,989 total annual operations. However, page 14 of the SPAS analysis indicates that August's peak month operations of 48,448 represent 8.9 percent of the total annual activity. This relationship holds true for the 544,833 operations experienced in 2009 calendar year, but not the 561,889 operations referenced earlier in the report. Therefore, the comparison to the TAF was based on PMAD relationship consistent with the lower activity level. Assuming a similar relationship between the 2,053 PMAD operations estimated for 2025 results in 715,712 total operations without adjustments for fleet or load factor. This can be prorated to approximately 657,226 operations in 2020.

The 2013 Runway 7L/25R RSA EA used 593,593 as its baseline 2011 operational level for the purposes of developing noise contours. It used the March 2012 FAA TAF operational projections of 637,903 and 705,281 for 2015 and 2020, respectively.

Table 4 compares the current FAA TAF and the Adjusted TAF to the SPAS and Runway 7L-25R projections. **Figure 1** presents this information graphically.

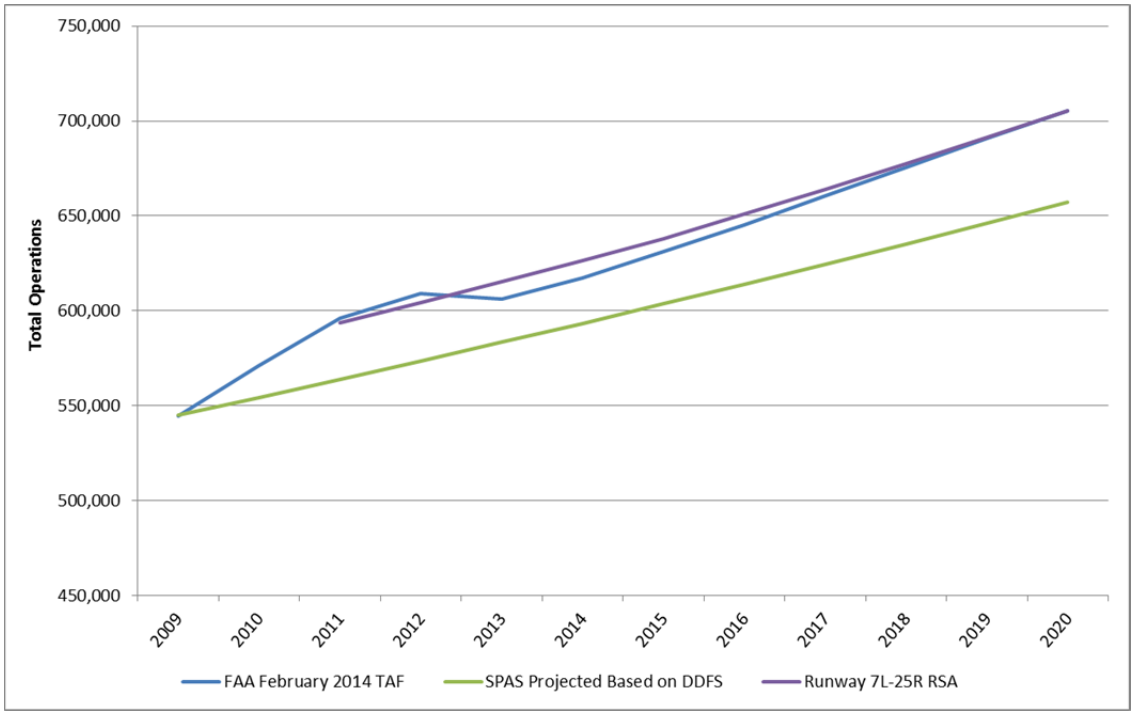
TABLE 4

FORECAST COMPARISON
LOS ANGELES INTERNATIONAL AIRPORT

Year (Federal Fiscal)	FAA February 2014 TAF	SPAS Projected Based on DDFS	Runway 7L-25R RSA
2009	544,614	544,833	
2010	570,973	554,202	
2011	596,194	563,732	593,593
2012	608,846	573,426	604,373
2013	606,348	583,287	615,349
2014*	617,144	593,317	626,525
2015	631,173	603,520	637,903
2016	645,346	613,898	650,843
2017	660,339	624,454	664,045
2018	675,481	635,193	677,515
2019	690,736	646,115	691,259
2020	705,254	657,226	705,281

SOURCE: FAA February 2014 TAF, FAA ATADS,
SPAS Operational Analysis
Runway 7L/25R Runway Safety Area (RSA) Environmental Assessment
ESA Airports

FIGURE 1
LAX OPERATIONS FORECAST COMPARISON



Conclusions and Recommendations

Review of the existing LAX TAF, the forecasts used for recent capital projects, and the most recent 12 months of LAX operational information results in the following conclusions:

- The LAX TAF is within 1.4 percent of the most recent 12 months of activity at the airport and therefore falls well within FAA TAF consistency guidelines of 10 percent in the 5 year period and 15 percent in the ten-year period.
- The 2020 projected activity level in the LAX TAF is virtually identical to the 2020 forecast activity level used for the 2013 Runway 7L-25R RSA Environmental Assessment and is generally consistent with the activity projected in the SPAS.

Based on these conclusions, ESA Airports recommends that the current TAF be used for the purposes of developing the updated FAR Part 150 Noise Exposure Maps for LAX.

U.S. Department
of Transportation
**Federal Aviation
Administration**

Federal Aviation Administration
Los Angeles Airports District Office

P.O. Box 92007
Los Angeles, CA 90009-2007

October 9, 2014

Mr. Scott Tatro
Airport Environmental Manager
Los Angeles World Airports
Environmental Services Division
1 World Way, P.O. Box 92216
Los Angeles, CA 90009

Los Angeles International Airport (LAX)
Airport Part 150 Noise Exposure Map Update Forecast Approval

Dear Mr. Tatro:

The Federal Aviation Administration (FAA) has completed the review of the Technical Memorandum dated September 4, 2014. The report recommends the use of the current FAA Terminal Area Forecast (TAF) for the purpose of the developing the updated FAR Part 150 Noise Exposure Maps at LAX. We approve the use of the TAF forecasts for your proposed Part 150 Study.

The Technical Memorandum compared the activity for the 12-month period ending in April 2014, to the most recent TAF and found that operations were 1.4 percent ahead of the FAA's projection. In addition, the Specific Plan Amendment Study Operational Analysis and the Runway 7L/25R Runway Safety Environmental Assessment, Appendix B, Noise Technical Report forecasts were both within 10 percent of the TAF in the 5-year forecast period, which is our standard for determining TAF consistency at the 5-year point.

If you have any questions in regards to this forecast approval, please call me at 310-725-3630.

Sincerely,

Jaime Duran
Lead Airport Planner

US Department
of Transportation
Federal Aviation
Administration

Western-Pacific Region

P.O. Box 92007
Worldway Postal Center
Los Angeles, CA 90009

MAY 14 1985

Mr. Clifton A. Moore
General Manager
Los Angeles Department of Airports
One World Way, Fourth Floor
Los Angeles, California 90009

Dear Mr. Moore:

The Federal Aviation Administration (FAA) has evaluated the noise compatibility program for Los Angeles International Airport (LAX) contained in the Noise Control and Land Use Compatibility (ANCLUC) Study and related documents submitted to this office under the provisions of Section 104(a) of the Aviation Safety and Noise Abatement Act of 1979 (the Act). The recommended noise compatibility program proposed by the Department of Airports for LAX is identified by action element number on Pages 13 through 27 of the ANCLUC Study, Phase Three Report, Volume I. I am pleased to inform you that the Administrator has approved 28 of the 40 proposed action elements in the noise compatibility program, in full or in part. The specific FAA action for each noise compatibility program element is set forth in the enclosed Record of Approval. The effective date of this approval is April 13, 1985.

Three action elements, A.5, C.1b and C.9 have been disapproved pending submission of additional information to FAA. These elements have been disapproved because they were not described in sufficient detail to allow an informed analysis by the FAA under Section 104(b) of the Act. These disapprovals do not reflect FAA opposition to the noise mitigation objectives of the proposals nor of the concepts on which they are based. Rather, the Act comtemplates FAA action to either approve or disapprove a noise compatibility program within the statutory 180-day period allowed for FAA review. These actions may be reconsidered by the FAA if developed in greater detail and submitted to the FAA under Part 150.

Action elements F.5, G.1c, and the second portion of G.1f have been disapproved for the following reasons. Element F.5 involves regulating the establishment and operation of new helicopter landing facilities in communities north and south of LAX. This action element is inappropriate for FAA's approval with respect to the LAX Part 150 program because it does not involve LAX itself nor is there evidence that it would reduce noncompatible uses within the area of LAX's noise impact. Further, Section 150.3 states that FAR Part 150 is not applicable to airports used exclusively by helicopters. Element G.1c is disapproved since it involves the implementation of a passenger facility charge which is currently prohibited by Federal law. The next element disapproved, G.1f, would establish a commitment by FAA with respect to the funding of elements in the

LAX noise compatibility program. This would be contrary to Section 150.5(b) which clearly indicates that FAA's Part 150 approval action is neither a commitment to financially support the implementation of a program nor a determination that measures in the program are eligible for grant-in-aid funding from FAA.

Two action elements, B.1 and C.8, relate to the use of flight procedures for noise mitigation which have been determined to require further FAA evaluation. The Act provides that such measures are not subject to the 180-day review period applicable to all other proposed actions. No action is required by you at this time on these elements. There is no action required on four other action elements (C.4, C.5, G.1a, and the first portion of G.1f) because they are not program recommendations. Elements C.4 and C.5 simply provide information that two alternative measures were not recommended as part of the program in accordance with Section 150.23(e)(2). Element G.1a and the first portion of G.1f provide information on local funding arrangements in accordance with Section 150.23(e)(8). All the approval and disapproval actions are more fully explained in the enclosed Record of Approval.

In addition to completing FAA's responsibility for issuing a Part 150 determination within the statutory 180-day review period, FAA's determination on the LAX Part 150 program fulfills the condition of a 1980 environmental impact statement (EIS). On June 3, 1983, a revision to the condition was approved by FAA, after concurrence by the Office of the Secretary of Transportation. The approval stated that:

> "The proposed revision will allow Federal assistance to be provided for reconstruction of Runway 25L/7R at LAX as described in the EIS by altering the timing of the approval of a noise mitigation package and by requiring that package to be submitted and approved under FAR Part 150, rather than as an addendum or supplement to the 1980 EIS. A grant for Federal assistance shall include a provision that the City of Los Angeles complete in a timely manner the Noise Control/Land Use Compatibility Study now underway, and submit it as a Noise Compatibility Program for FAA approval pursuant to the provisions of FAR Part 150 and the Aviation Safety and Noise Abatement Act of 1979 as early as possible. Approval of the Part 150 program will fulfill the intent of the condition in the concurrence memorandum of December 11, 1980."

Each airport noise compatibility program developed in accordance with FAR Part 150 is a local program, not a federal program. The FAA does not substitute its judgement for that of the airport proprietor with respect to which measures should be recommended for action. The FAA's approval or disapproval of FAR Part 150 program recommendations is measured according to the standards expressed in Part 150 and the Aviation Safety and Noise Abatement Act of 1979, and is limited to the following determinations:

> The noise compatibility program was developed in accordance with the provisions and procedures of FAR Part 150;

Program measures are reasonably consistent with achieving the goals of reducing existing noncompatible land uses around the airport and preventing the introduction of additional noncompatible land uses;

Program measures would not create an undue burden on interstate or foreign commerce, unjustly discriminate against types or classes of aeronautical uses, violate the terms of airport grant agreements, or intrude into areas preempted by the Federal Government; and

Program measures relating to the use of flight procedures can be implemented within the period covered by the program without derogating safety, adversely affecting the efficient use and management of the Navigable Airspace and Air Traffic Control Systems, or adversely affecting other powers and responsibilities of the Administrator prescribed by law.

Specific limitations with respect to FAA's approval of an airport noise compatibility program are delineated in FAR Part 150, Section 150.5. Approval is not a determination concerning the acceptability of land uses under federal, state, or local law. Approval does not by itself constitute an FAA implementing action. A request for federal action or approval to implement specific noise compatibility measures may be required, and an FAA decision on the request may require an environmental assessment of the proposed action. Approval does not constitute a commitment by the FAA to financially assist in the implementation of the program nor a determination that all measures covered by the program are eligible for grant-in-aid funding from the FAA under the Airport and Airway Improvement Act of 1982. Where federal funding is sought, requests for project grants must be submitted to the FAA Western-Pacific Region, Airports Division.

The FAA will publish a notice in the Federal Register announcing approval of the LAX noise compatibility program. You are not required to give local official notice, although you may do so if you wish. Thank you for your continuing support and active interest in airport noise abatement and noise compatibility planning.

Sincerely,

H. C. McClure
Director

Enclosure

RECORD OF APPROVAL
LOS ANGELES INTERNATIONAL AIRPORT
NOISE COMPATIBILITY PROGRAM

ON AIRPORT ELEMENTS

Action
Element

(Note: Many of the initial descriptions of the action elements which follow are abridged to permit a more concise Record of Approval. The full wording of each element, together with references for greater detail, is given in exhibit D, pages 13-27, which for purposes of FAA action are considered the program recommendations.)

A. Airport Noise Monitoring, Management, and Coordination

A.1 Emphasize noise abatement and enforcement activities as a priority function under the responsibility of the Deputy General Manager in Charge of Operations.

Approved. This is a local administrative action within the authority of the Department of Airports (DOA). Implementation is aimed at increasing the effectiveness and accountability of this function.

A.2a Develop computer-based noise performance/management system in the short-range (1984-86) implementation phase.

Approved. This action would develop a system with the capability to monitor progress in noise reduction as well as identify problem areas that would benefit from additional mitigation or corrective actions.

A.2b Install computer-based noise performance/management system to monitor implementation of the Noise Compatibility Program (NCP) elements and to refine NCP elements as appropriate based on the ongoing monitoring and noise modeling program.

Approved. This element would operationalize and refine the system developed in A.2a.

A.3 Develop an ongoing airport/community compatibility forum in the short-range (1984-86) implementation phase and continuing through the medium and long-range phases.

Approved. This is the mechanism by which progress will be evaluated and revisions to the NCP developed. Representatives on the forum will be local elected officials, aviation industry representatives, airport officials and the FAA.

A.4 Actively pursue amendment of California Airport Noise Standards during the short-range (1984-86) implementation phase to augment the definition of compatible land use.

Approved. The city has indicated that this action is to request the State of California to revise existing regulations covering state airport noise standards and definitions of compatible land uses. The concept implied here is that a consolidated effort under the aegis of an approved NCP would be more effective in achieving the revisions sought. This is a matter of local discretion; no Federal action or authorization is necessary. This approval does not endorse the amendment. Approval simply acknowledges that the proposed amendment would contribute to the reduction of noncompatible uses.

A.5 The General Manager, with the help and cooperation of the Federal Aviation Administration (FAA), [will] develop a report showing how and to what extent ARTS III A data may be used in a program for identifying early turns and drifts in the short range. (Short range 1984-86)

Disapproved pending submission to FAA under Part 150 of program details sufficient to permit an informed analysis under section 104(b) of the Aviation Safety and Noise Abatement Act of 1979. The actual release of ARTS III A data by FAA for noise abatement and monitoring purposes is not contemplated at this time. The degree to which FAA could make certain data available for study purposes would depend upon submission of a more specific proposal from the city. Not enough information is furnished at this time.

B. Flight Procedures Changes: (Items excluded from 180-day requirement)

B.1 Request that the FAA extend the Over Ocean Operation procedures in the following increments:

- 1 hour increase, 11 p.m. to 6:30 a.m. from 12 p.m. to 6:30 a.m., if compatible with the needs of air traffic control in the short range.

- Additional 1-1/2 hour increase, 10 p.m. to 7 a.m. from 11 p.m. to 6:30 a.m. (total increase of 2.5 hours), if the air traffic system safety tolerance is not affected. This action would occur in the medium range.

No Action Required at this Time. This relates to flight procedures for the purpose of section 104(b) of the Aviation Safety and Noise Abatement Act of 1979 and will receive further FAA review before approval or disapproval. Existing noise abatement procedures at LAX include "over ocean operations" from 12 midnight until 6:30 a.m. Weather and other factors permitting, departures take off to the west and arrivals land from the west. Landing periods alternate with takeoff periods, and each is separated by periods of no activity.

It is estimated that expansion of over ocean procedures would remove approximately 1500 dwelling units from within the 65 CNEL (Ldn) contour. Additional relief would be realized through the reduction of overflights in areas east of the airport during these hours.

Operational capacity is restricted during over ocean operations and pilots groups (i.e., ALPA; see exhibit D, attachment D-1) have objected to use of the procedure without what they consider to be adequate safeguards. Comments from air traffic control experts indicate opposition to expanding the hours of over ocean operation because of expected increases in air traffic delay and in controller coordination activity.

These are critical concerns leading the FAA to the determination that this issue requires further study.

C. Airport Noise Limits, Use Restrictions, Technological Advances

C.1a Maintain existing policy pertaining to SST access prohibition.

Approved. There is no ordinance or other airport rule in place to implement or enforce this policy with explicit reference to SST's. Board of Airport Commissioners Resolution No. 5456 (Oct. 22, 1969) stated that no commercial aircraft would be permitted to use LAX if it generated more noise than a Boeing 707-320-C. Resolution No. 8661 (Oct. 30, 1974) expresses Board's desire that FAR Part 36 noise certification standards be established for SST aircraft. Resolution No. 9022 (Apr. 28, 1975) expresses opposition to use of LAX by SST aircraft unless they meet FAR Part 36 requirements. A noise regulation in Los Angeles City Ordinance No. 152,455 (May 31, 1979), was adopted pursuant to Board Resolution No. 11650 (May 7, 1979).

This noise regulation establishes noise limits and a phased compliance schedule essentially consistent with FAR's 36 and 91. Aircraft operators may, until January 1, 1985, use the airport if their aircraft will not exceed established noise limits on approach or departure. No aircraft type or model is named in the regulation, but the effect is to bar access to the noisiest aircraft, including the SST.

Since adoption of this ordinance, only one operator has inquired about SST access to LAX. This was in conjunction with a proposed flight from New York to Los Angeles, Honolulu, Los Angeles, and Washington, D.C., to be completed in less than 24 hours. The local regulation was not challenged, however, because the proponent withdrew his proposal when FAA denied his petition for a waiver from the ban on supersonic flight over the continental United States as stated in 14 CFR 91.55 (Federal Register, October 27, 1983). See exhibit D, attachment D-3.

C.1b Maintain the LAX Noise Regulation modified FAR Part 36 compliance schedule.

Disapproved pending submission to FAA under Part 150 of program details sufficient to permit an informed analysis under section 104(b) of the Aviation Safety and Noise Abatement Act of 1979. This regulation does not permit operations at LAX by certain two-engine turbojet aircraft which have received an FAA exemption under FAR Part 91.307 to provide service to small communities. This exemption was specifically established by section 304 of that ASNA Act. One criteria for the grant of that exemption is that the need for air service justifies the short term (until January 1, 1988) use of Stage I aircraft.

Table IV-3 of the Phase Two Report (exhibit C, page 4-17) shows that in July 1982 there were 528 flights by two-engine turbojet aircraft which may qualify for the small community exemption. This represents 3.9 percent of the monthly total of 13,497 air carrier flights. No analysis is presented which shows the effect of removing these aircraft, so there is no evidence that barring the aircraft will reduce existing noncompatible uses or prevent additional noncompatible uses. Further, there is insufficient analysis on which to base FAA favorable determinations with respect to undue burden on interstate or foreign commerce or unjust discrimination.

C.1c The Los Angeles Board of Airport Commissioners will transmit to the FAA its proposed position on FAR Part 36, Stage III aircraft.

Approved. The FAA will consider the merits of the concept to retire or retrofit Stage II aircraft under a Federal regulatory schedule. A notice of petition for rulemaking to that effect was published in the Federal Register on April 4, 1984. (See exhibit D, attachment D-4.) Approval of this element within the context of this NCP does not constitute a commitment by the FAA to establish such a regulation. That action can only be taken after completion of the process for publishing a new regulation, including the opportunity to comment by interested parties.

C.2 Continue to pursue a policy of accelerating the requirement for installation of fixed ground power and air conditioning units at all aircraft parking locations for fuel conservation and reduced ground noise emissions.

Approved. Such a policy is within the purview of local airport management. No Federal action or authorization is necessary.

C.3 Maintain voluntary preferential runway utilization system with inboard Runways 25R-7L and 24L-6R and Taxiways K and U being preferred during noise sensitive nighttime (10 p.m. to 7 a.m.) hours.

Approved. This procedure is currently used, traffic and other conditions permitting. No mandatory use of this procedure is contemplated.

C.4 Evaluation of strategies to limit nighttime (10 p.m. to 7 a.m.) operations is contrary to existing legislation and the Board of Airport Commissioners is not able to consider a policy that would place an absolute restriction on operations.

No Action Required. This is not a recommendation. This is information on why the city did not include an alternative measure as a recommendation in the program, in accordance with Part 150.23(e)(2).

However, FAA does not agree with the city's suggestion that airline deregulation legislation has preempted the authority of airport proprietors to consider strategies for controlling the noise impacts of night aircraft operations.

C.5 The Los Angeles Board of Commissioners cannot at this time make a finding that the Imperial terminal will not be needed in the future.

No Action Required. This is not a program recommendation made by the city. This is the city's determination to temporarily reject a steering committee recommendation.

The Los Angeles Board of Commissioners will adopt a policy for the Imperial Terminal that would allow continued use without the operation of aircraft engines at the terminal area.

Approved. This is a change in operating policy in the vicinity of the Imperial Terminal which was adopted by the Board of Airport Commissioners on June 13, 1984 to provide some of the relief sought. This policy requires that all turbojet aircraft and turboprop aircraft over 65,000 lbs be towed between taxiway F and the Imperial Terminal when arriving or departing. It also prohibits jet engine runs and runups and limits the use of aircraft auxiliary power units on that terminal ramp. The Board's resolution adopting this policy includes no enforcement measures, but operators have complied voluntarily without significant complaints.

C.6 Increase pilot awareness of Standard Instrument Departure (SID) requirement of not turning prior to the coastline upon departure from Runway 25 L&R and 24 L&R unless so instructed by air traffic control; increase pilot understanding of the adverse noise impacts resulting from premature turns and drifts over adjacent residential neighborhoods (short term); continuous monitoring and enforcement. (Element A.5, acquisition of ARTS IIIA data, would augment current enforcement capabilities.)

Approved. The SID procedure requires aircraft departing to the west to continue on runway heading and not turn to an easterly heading until a shoreline crossing of 8000' is assured. The major thrust of this measure is pilot education for the purpose of closer adherence to the published departure procedures. Current practice is that ATC notifies the airport noise abatement office of aircraft which are observed to

turn east (prematurely) with respect to the SID procedure. Airport staff then notifies the aircraft operator, or chief pilot in case of air carriers, of the infraction. Enforcement measures are not punitive, rather they rely on "jawboning" techniques to elicit compliance. In the past, the effectiveness of this measure has been criticized because the letter of notification has not been timely. More recently, tower personnel have notified user's officials (e.g. chief pilots) at the same time the airport staff is notified. Although not in letter form, the timeliness of this notice has proven to be very effective. Previous items A2.a and A2.b when implemented will improve the efficiency of the notification system and reduce the workload of ATC.

C.7 Maintain and enforce existing regulation of nighttime engine maintenance runups. Review current regulation to develop strengthened program of enforcement for adoption.

Existing regulations regarding nighttime engine maintenance runups were assessed and found adequate if properly enforced. Sufficient manpower and monitoring sites now exist to enforce this regulation.

Approved. The city has determined that adequate regulations and hardware exists to enforce the current airport regulation of no runups between 11 p.m. and 7 a.m. The city advised that this measure is within the management authority of the Department of Airports and enforcement will be handled the same as other violations of lease agreements which require adherence to airport operating rules.

C.8 Adopt a helicopter noise abatement policy establishing FAA approved approach and departure routes, minimum approach and departure altitudes and other measures as are necessary to mitigate potential noise impacts associated with scheduled helicopter operations.

The Los Angeles Board of Airport Commissioners adopted Resolution No. 13942 on October 5, 1983. This policy establishes to the extent of the Board's authority, provisions governing the operation of scheduled helicopters arriving and departing LAX.

No Action Required at this Time. This relates to flight procedures for the purpose of section 104(b) of the Aviation Safety and Noise Abatement Act of 1979 and will receive further FAA review before approval or disapproval. This measure as written, would have the FAA establish operational controls on helicopters in flight that have not received adequate review. Cooperation with local residents, operators, and airport officials has long been practiced by field and Regional Office air traffic personnel. FAA will continue to work with all parties concerned to realize the maximum benefits attainable while balancing the needs of those parties.

C.9 The Department of Airports [will] continue to pursue the development of a capacity control regulation.

The capacity control regulation is needed to manage the growth of operations as the 40 MAP limitation is approached. This regulation would either control operations directly or indirectly through associated environmental impacts. This type of regulatory approach would benefit the entire noise compatibility area.

Disapproved pending submission to FAA under Part 150 of a specific capacity control regulation proposal in sufficient detail to permit an informed analysis under section 104(b) of the Aviation Safety and Noise Abatement Act of 1979.

D. Capital Improvements Projects

D.1 Prepare a detailed evaluation of the noise reduction benefits produced by a 2000-foot westerly extension of the Runways 25/7 L&R together with a 2600-foot take-off threshold relocation for a total landing threshold displacement of 4600 feet (short range). Reverse thrust noise impact will be emphasized. Engineering feasibility and environmental assessment studies will also be included during the short range (1984-86) implementation phase.

Approved. This measure would produce a definitive study of the costs and benefits associated with a westerly extension of the south runways combined with landing threshold changes at the east ends. Noise exposure analysis indicates that this measure could have significant beneficial results, but reverse thrust noise impact as well as the cost, in both dollars and airfield efficiency, have not been fully addressed.

OFF-AIRPORT ACTIONS

E. Residential Acoustical Insulation

E.1a Undertake initial acoustical insulation program using representative housing sample in terms of both construction type and predominant noise exposure within the projected 1987 CNEL contour set, in the short range implementation phase and monitor effectiveness.

Mitigation of sideline and takeoff noise impacts in the communities of El Segundo and Westchester is a key objective of the initial FAR Part 150 Noise Compatibility Program for LAX. Because these communities are comprised of sound, high quality residential neighborhoods, land use conversion is not considered a viable option. Instead, it is recommended that an acoustical insulation program be implemented, with first priority funding directed into those neighborhoods most heavily noise impacted (70 CNEL+). Fully implemented, this program will encompass over 4,200 dwelling units, and achieve a 16 percent reduction in the total number of incompatible residential units within the projected airport noise impact area.

Approved. This is the first phase of an acoustical treatment program for noise-impacted communities. Twenty dwelling units will be treated under this project to formulate better estimates of costs and to develop project management techniques applicable to future projects.

E.1b Expand voluntary residential acoustical insulation program to Los Angeles City and El Segundo Neighborhoods exposed to CNEL levels of 70 dBA or greater during the remainder of the short range (1984-86) implementation phase.

Approved. This measure is a companion to Item E.1a, above.

E.1c Expand voluntary residential acoustical insulation program to neighborhoods within the projected target CNEL levels of 65 dBA in the cities of Los Angeles, El Segundo, Inglewood, and unincorporated Los Angeles County areas of Del Aire and Lennox during the remainder of the medium range (1986-90) implementation phase and the long range (1990+) as necessary.

An expanded acoustical insulation program in sound residential neighborhoods located within the 65 to 70 CNEL contour is recommended as the only off airport noise mitigation alternative. This program will involve both voluntary insulation of existing units, and mandatory insulation of proposed new residential units as a condition of development. Since nearly 13,000 dwelling units fall within this noise impact area, the recommended program will necessarily involve a long term, phased implementation effort.

Approved. This is a further expansion of the two areas immediately above.

F. Actions and Projects to Reduce Incompatible Land Use

F.1 Redevelopment by the city of Inglewood in the Century and La Cienega Redevelopment Districts to airport compatible land uses. Action to commence in the short range and continue until completed. The recommended program is intended to support and accellerate efforts by the city of Inglewood to recycle portions of the La Cienega and Century Redevelopment Districts to airport compatible land uses. Once implemented, nearly 2540 dwelling units will be removed from the projected airport noise impact area.

Approved. This project, although large in scope, falls within the concept of those voluntary measures described in FAA Advisory Circular 150/5020-1, sections 3 and 4. The city of Inglewood has advised that it intends to initiate redevelopment in certain noncompatible high noise areas that have good potential for the introduction of compatible uses. The first steps in this project have been accomplished, and the city is now ready to implement the first acquisition and clearance measures. It should be emphasized that any relocation resulting from use of Federal funds will require the city to satisfy the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646). This measure, if fully implemented, could remove approximately 2,540 dwelling units from noncompatible use. The city has determined that it has the authority to initiate these actions, although some steps

would involve state and/or Federal concurrence, particularly when outside funds are used. Approval of this concept within this NCP should not be construed as a commitment to future Federal funding under the AIP or successor legislation. (See FAA comment under item G.1f, below.) Local, state, and other Federal agencies may assist with such projects according to their authority and funding capability provided that the sponsoring jurisdiction develops satisfactory plans proposals, and funding necessary for the local matching share.

F.2 Rezoning actions by the city of Inglewood in specific areas to foster development of airport compatible uses and to preclude the development of noise sensitive land uses within the established noise impact area. This action would occur in the short range.

Approved. The city of Inglewood has advised that it proposes to rezone existing neighborhoods to encourage current or subsequent land owners to convert properties to compatible uses. If fully implemented, 440 dwelling units could be removed from noise exposure in excess of 65 CNEL. The city has advised that it has the necessary authority to implement this action.

F.3a Development and adoption of a Revitalization Strategy and Implementation Program by Los Angeles County for the unincorporated Los Angeles County Lennox area to encourage development of airport compatible land uses (short range).

Approved. This measure is similar to that described under item F.1, above, except that the target area is under jurisdiction of Los Angeles County. FAA comments under items F.1 and G.1f are also applicable to this item. This project has the potential to benefit residents in approximatey 3,900 dwelling units exposed to more than 65 CNEL (Ldn).

F.3b Amendment of the Countywide General Plan to reflect the Lennox Revitalization Strategy and initiate implementation programs (medium range and long range).

Approved. Los Angeles County intends to revise the county plan in accordance with the results of Item F.3, above, and to implement certain actions within the plan. This measure can be initiated under existing county authority although state and/or Federal concurrence may be required for certain steps.

F.3c Initiation of rezoning actions by the County of Los Angeles as necessary, to support the Lennox Revitalization Strategy and Implementation Program.

Approved. The city has identified that the proposed zoning changes are within the authority of Los Angeles County. They require no Federal action or concurrence.

F.4a Preparation and adoption by the city of Los Angeles of amendments to the Westchester/Playa del Rey District Plan to foster development of airport compatible uses in areas adjacent to the north runway threshold. (Short range 1984-86)

Approved. The city has advised that the proposed plan revisions are within the authority of the city of Los Angeles. They require no Federal action or concurrence.

F.4b Rezoning actions by the city of Los Angeles to support the District Plan amendments in fostering airport compatible uses in areas adjacent to the north runway thresholds during the medium range (1986-90) implementation phase.

Approved. The proposed zoning changes are to be consistent with the plan changes adopted as a result of item F.4a, above. The city has advised that it has the necessary authority to initiate such changes, and no Federal action or concurrence is required.

F.5 Develop and adopt local plans and ordinances as necessary to regulate the establishment and operation of new helicopter landing facilities within the cities of Los Angeles, El Segundo, Inglewood, and Los Angeles County, in the short range with ongoing monitoring and implementation.

Disapproved for purposes of the Los Angeles International Airport Part 150 Program. This proposal involves the establishment and operation of new helicopter landing facilities in communities north and south of LAX. It does not involve LAX itself nor is there evidence that it would reduce noncompatible uses within the area of LAX's noise impact. Further, FAR Part 150 is not applicable to airports used exclusively by helicopters (reference 150.3). Therefore, this recommendation is inappropriate for FAA's Part 150 review. However, outside the Part 150 context, the FAA is willing to cooperate with and advise communities with respect to mitigating noise impacts in heliport siting and operation.

F.6 Adoption of a comprehensive Airport Land Use Compatibility Plan for LAX and environs reflecting the provisions of the FAR Part 150 action program by Los Angeles County Regional Planning Commission acting as the Airport Land Use Commission as mandated by Assembly Bill No. 2920 and codified as Chapter 1041 (short range 1984-86).

Approved. Los Angeles County is designated by state law as the agency responsible for developing airport land use compatibility plans for the areas surrounding each airport in the county. This item emphasizes that responsibility and establishes the NCP as the basis for much of the plan. No Federal action or concurrence, beyond the approval or disapproval of this NCP, is required to implement this action.

F.7 Evaluate and construct sound attenuation barriers in appropriate locations adjacent to residential areas within the city of El Segundo. The evaluation would occur in the short range with construction to occur during the remainder of that phase and into the medium range.

Approved. This measure would evaluate the feasibility and the expected benefits of a noise barrier to protect certain portions of El Segundo south of LAX. The barrier would be constructed if the evaluation resulted in a positive recommendation.

G. Noise Compatibility Program Implementation and Funding

G.1a The Airport Commission will provide the local share of the grant application for initial implementation funds for specific noise compatibility program elements as indicated, if the local jurisdictions will agree to reimburse the Department of Airports, at the time more permanent local share provisions are arranged.

No Action Required. This is not a recommendation. This is factual information on local funding arrangements in accordance with Part 150.23(e)(8).

G.1b Evaluate legality and feasibility of amending Federal law to allow the airport proprietor to implement a passenger facility charge which as a condition must have FAA and Congressional approval during the short range (1984-86) implementation phase to provide for the local share of noise compatibility program implementation funding.

Approved. Current legislation precludes the establishment by local airport authorities of certain charges on air passengers. This NCP item expresses the intent of the Board of Airport Commissioners to study and evaluate ways in which such charges can be levied. The proposal recognizes that new Federal legislation would be required to establish such authority at a local level. This approval does not endorse this legislative proposal. Approval simply acknowledges that additional funding sources to carry out a noise program would contribute to the reduction of noncompatible uses.

G.1c Implement passenger facility charge during the short range (1984-86).

Disapproved. The suggested facility charge is that to be studied under item G.1b, above. Inasmuch as no proposal is currently under study, and Federal law prohibits certain charges of this type, this recommendation cannot be approved at this time. This does not foreclose the possibility of future approval under the proper circumstances.

G.1d Evaluate legality and feasibility of additional NCP implementation funding sources including the following to provide the local share of noise compatibility program funding:

- Amendment of AIP Program through Federal legislation to provide 100 percent financing for approved noise compatibility program elements.
- Conversion of a portion of the 8 percent ticket tax to a levy permitting its applicability as a debt service fund enabling the issuance of special bonds for the specific purpose of implementing an approved element of the noise compatibility program.
- Application of "In-Kind Services" by local authorities.
- Provision of the local share should be by the local agency having jurisdiction.

Approved. As in item G.1b, above, this measure recommends local study to develop alternatives for reducing the financial burden on local communites for NCP projects. Approval of this study item does not constitute approval of any specific funding concept. Approval simply acknowledges that additional funding sources to carry out a noise program would contribute to the reduction of noncompatible uses.

G.1e The Department of Airports negotiate a contract with its Financial Consultant to provide an additional review of the possibilities existing for other alternative financing methods that might be used to accomplish the off-airport redevelopment and insulation actions included in the noise compatibility program.

Approved. This measure recommends further study of local initiatives which could be used to generate revenue for the local matching funds in AIP grants. Approval simply acknowledges that additional funding sources to carry out a noise program would contribute to the reduction of noncompatible uses.

G.1f The Airport Commissioners affirm that in making the FAR Part 150 grant application for initial implementation funds for specific noise compatibility program elements as indicated, they do not intend to make further commitments to the program until the first phases under the initial grant have been completed and feasibility agreed upon.

Further, appropriate funding mechanisms must be in place or properly authorized, in order that all concerned may understand how any future elements of the program may be adequately financed.

No Action Required. This is not a recommendation. This is factual information on local funding arrangements in accordance with Part 150.23(e)(8).

It must be further understood that the Federal Aviation Administration agrees to and supports all elements of the Noise Compatibility Program as being an appropriate element of a Part 150 Program and eligible for the full support of that agency.

Disapproved. This item would establish an unacceptable condition in requiring FAA to agree to the eligibility of and support for all elements of the NCP. FAA approval of program elements within the context of this NCP can only be interpreted as a determination that the approved items if implemented would reduce existing noncompatible uses and prevent additional noncompatible uses, will not impose undue burden on interstate or foreign commerce, and are not unjustly or unreasonably discriminatory. FAR 150.5(b) states that approval of an NCP "neither represents a commitment by the FAA to support or financially assist in the implementation of the program, nor does it determine that all measures covered by the program are eligible for grant-in-aid funding from the FAA."

B. Noise Compatibility Program

Determinations of acceptability in this section are primarily based on reference to the Phase III, Volume I Report. Additional detail may be found in Volumes II and III of Phase III, as well as in the earlier reports in Phases I and II. As used herein, the term "accepted" means accepted for FAA review under Part 150. Approval and disapproval of specific program items are discussed in the record of approval.

Note

1. Noise Exposure Map. Accepted. The Los Angeles International Airport (LAX) noise exposure map has been developed and submitted for FAA review. The map was accepted on October 16, 1984.

2. Conformance with FAR Part 150, Appendix B. Accepted. The city has demonstrated that the issues and alternatives addressed in section B150.5 and B150.7 were considered during program formulation and feasible measures were incorporated as NCP elements. Refer to Noise Control and Land Use Compatibility Study, Phase III, Volume II.

3. Description of Consultation. Accepted. During Phase III of the study (NCP development), all Steering Committee meetings were announced publicly and time was provided for comments or questions by the public. Refer to page 7 of the Phase III, Volume I Report.

4. Adequate Opportunity for Interested Persons to Submit Views, Data, and Comments. Accepted. The city has demonstrated that broad public involvement was encouraged through publicized workshop sessions, which briefed all interested parties on the purpose, workscope, and progress made in plan/program formulation. In addition to these public forums, meetings of the Steering Committeee and the Board of Airport Commissioners were open to receive public input on the plan and program. The composition of the technical committees, with representatives of local units of government, provided ample opportunity for those jurisdictions to shape program recommendations throughout the study. This is more fully discussed in the Phase III, Volume I Report, and in the Phase II Report.

5. Consultation with local Agencies and Citizens. Accepted. As indicated in items 3 and 4, above, the city has advised that local agencies and citizen groups were given ample opportunity to participate in the formulation of issues and the recommended mitigation actions.

6. Consultation with Air Carriers, FBO's, and Others. Accepted. Air Carriers were represented by the Air Transport Association (ATA) and pilots by the Airline Pilots Association. Other airport users were periodically apprised of the study's progress through newsletters and meetings with airport management. See Phase III, Volume I, page 7.

7. Consultation with FAA and Other Federal Agencies. Accepted. Lines of communication were established by the city with the FAA, both in the Regional Airports Division and the LAX Tower. The Civil Aeronautics Board participated in Steering Committee meetings until the local office was closed. The recommended program does not affect other Federal agencies insofar as their responsibilities are concerned.

8. Summary of Consultation Comments and Operator's Responses. Accepted. Comments received during the study helped shape the study and, therefore, do not remain as comments requiring explicit responses by the city. The summary of comments and responses are presented in the Phase III, Volume I Report. An additional comment was received from ALPA after publication of the reports. The primary objection raised was the way in which a certain noise mitigation procedure is implemented at LAX, and the concern that this procedure would be expanded without due regard for safety. The joint technical committee discussed this with the ALPA representative and it was agreed that FAA approval and implementation would not occur at this time. See exhibit D, attachment D-1; Phase III, Volume II; and item B.1 of the Record of Approval.

9. Discussion of Options Recommended and Rejected by the City (section 150.23(d)(2)). Accepted. These alternatives are discussed in the context of operational scenarios and issues developed through workshops with the community. (Refer to Phase III, Volumes I and II, and Phase II Reports.) Certain alternatives listed in section B150.7(b)(2), were not seriously considered by the city because they are inappropriate or unreasonable with respect to LAX (e.g., curfews, capacity limits based on noisiness of aircraft types, and noise based landing fees).

10. Recommended NCP. Accepted. The submittal by the city includes a compilation of action items which make up its recommended noise compatibility program. The program actions are more fully described in the Phase III report. These actions fall under the categories of on-airport and off-airport actions, and are further subdivided under the headings of airport noise monitoring, management, and coordination; flight procedures changes; noise limits, use restrictions, and technological advances; capital improvements; residential acoustical insulation; reduction of incompatible land use; and NCP implementation and funding.

11. Relative and Overall Effectiveness of NCP Options. Accepted. The effects of the operational scenario studies are described in the Phase III, Volume II Report, Section II, and are summarized in Table IV-2 (page 2-16). Subsequent to the publication of this report, additional scenarios were suggested for study. These are discussed in the Phase III, Volume I Report, and a summary comparison is presented in figure 2, page 12, of that report.

12. Anticipated Noise Reduction Based on Implementation of Recommendations. Accepted. The anticipated noise reduction benefits are outlined and summarized in Volume I of the Phase III Report (page 12). The net result of the proposed actions, should they all be implemented, is reduction of the area within the 65 Ldn (CNEL) contour by 0.53 square miles (339 acres). (This does not include

the potential effect of extending the southern runway pair and displacing landing thresholds on Runways 25R and 25L.) Land use and acoustical insulation actions, combined with the reduced 65 Ldn contour are expected to reduce the number of noncompatible dwellings in noncompatible areas by 3,495 units. See exhibit A, page 5, and exhibit D, pages 43-45.

13. Critical Government Actions and NCP Funding. Accepted. Actions required by local, state, and Federal agencies are noted, where appropriate, in conjunction with each recommended action. In most cases, the local jurisdictions have the statutory authority to implement noise compatibility actions of interest to them. The NCP also recommends actions to be taken by the State of California and the Federal Government. These initiatives, if adopted, would contribute to improved compatibility around LAX, but the NCP is not dependent on them. Initial program funding from the Aviation Trust Fund through the Airport Improvement Program is anticipated by the city. Long term funding mechanisms are the subject of one of the NCP items to be studied by the Airport/Community Forum. See the Record of Approval, below.

14. Persons/Entities Responsible for NCP Implementation. Accepted. Responsibilities for implementing actions in the NCP are clearly assigned by the NCP and supporting documentation. Airport operational actions generally require the cooperation of two or more entities (e.g., airport and air carriers, pilots and FAA). Responsibility for zoning, land use, and participation in or management of acoustical insulation programs has been described by the city for jurisdictions surrounding the airport. See exhibit D, pages 28-35.

15. Options Available to Airport Operator. Accepted. The NCP specifies those actions which can or will be implemented by the Department of Airports.

16. Options Available to Local Jurisdictions/Agencies. Accepted. The NCP specifies those actions which the city advises can or will be implemented by units of local government.

17. Options Requiring FAA Review and Concurrence. Accepted. The NCP specifies those actions which would involve FAA concurrence or cooperation. These actions, whether operational, technical or administrative, are discretionary with FAA.

18. Effect of Recommended Actions on the Airport Layout Plan, Airport Master Plan, and System Plan. Accepted. The NCP is consistent with the ALP. In addition, the city has advised that it is consistent with the regional planning work of the Southern California Association of Governments and the State of California, and with other plans covering the study area.

19. Time Period Covered by the NCP. Accepted. The recommended NCP includes actions to be implemented immediately and through the years beyond 1990.

20. Implementation Schedule. Accepted. The NCP places each action item into short range (through 1986), medium range (1986-1990), or long range (beyond 1990) time periods. These were established by perceived city priorities and in some cases, the need for certain phasing or prerequisite steps. Items A.2a, A.2b, A.3, D.1, E.1a, E.1b, F.1. F.3a, and F.7, are the subject of a grant application at this time. See pages 13-27 of exhibit D.

21. Periodic NCP Update. Accepted. The heart of this requirement is satisfied by the establishment of the Airport/Community Forum, comprised of officials representing adjacent jurisdictions and other interested parties. The city has determined that this Forum will monitor progress of NCP implementation, evaluate effectiveness of implemented measures, and propose revisions to the NCP when appropriate. The Forum was formally established by the ANCLUC Steering Committee on August 17, 1984. See exhibit D, attachment D-2.

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APPENDIX F
Public Involvement and Outreach

F.1 Public Workshops – Round 1

The following sections contain meeting notices, handouts, and presentation boards associated with the May 12, 2014 and May 13, 2014 Public Workshops conducted for the Los Angeles International Airport FAR Part 150 Noise Exposure Map Update. Information regarding the May 2014 public workshops excluding the newspaper notices described below has been uploaded to the website established for the Los Angeles International Airport 14 CFR Part 150 Noise Exposure Map Update:

http://www.lawa.org/LAXPart150.aspx?id=8526

F.1.1 Meeting Notices and Advertisements

The May 2014 public workshops were advertised in the Los Angeles Times and The Argonaut. Those advertisements and proof of publication statements received from those newspapers are included in this Appendix. Members of the LAX/Community Noise Roundtable and other interested stakeholders received an e-mail notice regarding the May 2014 public workshops on May 2, 2014. The stakeholders included elected officials, community groups, aircraft operators, city planning agencies, and the media. LAWA issued a press release about the public workshops on May 6, 2014. The e-mail notice and press release are also included in this Appendix.

F.1.2 Handouts and Sign-in Sheet

Copies of the meeting handouts (English and Spanish versions) that were developed for the May 2014 public workshops are included in this Appendix. Also included in this Appendix are the completed meeting sign-in sheets for the May 2014 public workshops.

F.1.3 Presentation Boards

Presentation boards from the May 2014 public workshops are presented after the meeting sign-in sheets.

F.2 Public Workshops - Round 2

A second round of public workshops for the Los Angeles International Airport 14 CFR Part 150 Noise Exposure Map Update was held on May 11, 2015 and May 12, 2015.

F.2.1 Meeting Notices and Advertisements

The May 2015 public workshops were advertised in the Los Angeles Times and The Daily Breeze. Those advertisements and proof of publication statements received from those newspapers are included in this Appendix. Members of the LAX/Community Noise Roundtable and other interested stakeholders received an e-mail notice regarding the May 2015 public workshops on May 2, 2014. The stakeholders included elected officials, community groups, aircraft operators, city planning agencies, and the media.

F.2.2 Handouts and Sign-in Sheet

The meeting handouts (English and Spanish versions) that were developed for the May 2015 public workshops are included in this Appendix. Also included in this Appendix are the completed meeting sign-in sheets for the May 2015 public workshops.

F.2.3 Presentation Boards

Presentation boards from the May 2015 public workshops are presented after the meeting sign-in sheets.

F.3 Public Review - Draft Noise Exposure Map Report

The Draft Noise Exposure Map Report was uploaded to the project website on May 9, 2015 and was available for public review at five public libraries in the vicinity of LAX. LAWA accepted comments regarding the Draft Noise Exposure Map Report between May 9, 2015 and June 9, 2015. The notice regarding the availability of the Draft Noise Exposure Map Report for public review appears on the project website and is included in this Appendix.

F.4 LAX/Community Noise Roundtable Briefings

The LAX/Community Noise Roundtable membership includes local elected officials and staff, representatives of congressional offices, members of recognized community groups, the FAA, the airlines, and LAWA Management. LAX/Community Noise Roundtable briefings occurred on March 12, 2014; May 14, 2014; and May 13, 2015. MS PowerPoint slides developed for the LAX/Community Roundtable briefings are provided in this Appendix.

F.5 FAA ATCT Personnel Briefings

A briefing meeting was held with the FAA's LAX ATCT Support Manager (Rolan Morel) on March 11, 2015. MS PowerPoint slides developed for the FAA ATCT briefing are provided in this Appendix.

F.6 Agencies and Individuals Consulted during the Noise Exposure Map Update

More than 1,800 individuals were contacted during the development of the LAX Noise Exposure Maps and were invited to participate in public workshops and to provide comments regarding the May 2015 Draft Noise Exposure Map Report. The majority of these individuals, over 1,700, were contacted using an email only distribution list originally created by LAWA as the LAX Master Plan Stakeholders Distribution list. This list has since been amended through the years and used to notify stakeholders for various LAWA projects requiring public outreach. A subset of the agencies and individuals that were consulted during the update of the LAX Noise Exposure Maps and that were invited to submit comments regarding the Draft Noise Exposure Map Report are listed at the end of this Appendix.

Proof of Publication

Los Angeles Times

STATE OF CALIFORNIA
County of Los Angeles

I am a citizen of the United States, and a resident of the county aforesaid; I am over the age of eighteen years; and I am not a party to or interested in the notice published. I am the chief legal advertising clerk of the publisher of the LOS ANGELES TIME a newspaper of general circulation, printed and published daily in the City of Los Angeles, County of Los Angeles. The LOS ANGELES TIMES has been adjudged a newspaper of general circulation by the Superior Court of the County of Los Angeles, State of California, under the date of May 21, 1952, Case No. 598,599. The notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

May 1,

all in the year 2014

I certify (or declare) under penalty of perjury that the foregoing is true and correct

Dated at Los Angeles, California, this

1st *day of* May 2014

Signature

2615483

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Rev. 12/11. Daily Jc [illegible] CA 90012

NOTICE OF PUBLIC INFORMATION WORKSHOPS TO INTRODUCE THE LOS ANGELES INTERNATIONAL AIRPORT FEDERAL AVIATION REGULATION (FAR) PART 150 NOISE EXPOSURE MAP UPDATE STUDY

Los Angeles World Airports (LAWA) will be hosting two (2) public information workshops in May 2014 to provide information regarding the Federal Aviation Regulation (FAR) Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. The workshops will include guided displays that will present information regarding the FAR Part 150 Noise Exposure Map Update study process, the project schedule, noise metrics, and methods used to quantify aircraft noise exposure. A second round ofpublic information workshops will be conducted early next year to provide information regarding the primary products of the FAR Part 150 Noise Exposure Map Update Study – the 2015 and 2020 Noise Exposure Maps.

Information presented at each workshop listed below will be the same. Residents need only attend one workshop to learn about the study and offer input. Each workshop will be held in an **"open house"** format from **6 p.m. to 8 p.m.**on the dates listed below. No formal presentation will be given in order to provide the public with the maximum opportunity for one-on-one interaction and sharing of information and concerns. You may attend the workshop at any time during the two-hour open house.

- **Monday, May 12, 2014 – Jessie Owens Community Regional Park Gymnasium**
9651 S. Western Avenue
Los Angeles, CA 90047

- **Tuesday, May 13, 2014 – Flight Path Learning Center & Museum**
6661 West Imperial Highway
Los Angeles, CA 90045

For more information, please visit the project website at:http://www.lawa.org/welcomeLAX.aspx.

Anyone needing special accommodations under the Americans with Disabilities Act of 1990 should contact Larry Rolon, LAWA ADA Coordinator, at (424) 646-5005 at least 72 hours prior to the meeting.Anyone with questions about the project should contact Ms. Kathryn Pantoja at (424)646-6501

Asistenciaenespañoles tará disponibleen las reuniones .

5/1/14

Y

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
County of Los Angeles

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of The Argonaut, a newspaper of general circulation, printed and published weekly in the County of Los Angeles, State of California, under the date of March 7, 1973, modified October 5, 1976, Case Number C47170; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

All in the year 2014

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at 15th Day of April, 2014

California, Los Angeles

Signature:

Tiyana Dennis

The Argonaut
Local News & Culture

Located at 5355 McConnell Ave.,
Los Angeles, CA 90066
(310) 822-1629 x 103

Proof of Publication of

NOTICE OF PUBLIC INFORMATION WORKSHOPS TO INTRODUCE THE LOS ANGELES INTERNATIONAL AIRPORT FEDERAL AVIATION REGULATION (FAR) PART 150 NOISE EXPOSURE MAP UPDATE STUDY

Los Angeles World Airports (LAWA) will be hosting two (2) public information workshops in May 2014 to provide information regarding the Federal Aviation Regulation (FAR) Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. The workshops will include guided displays that will present information regarding the FAR Part 150 Noise Exposure Map Update study process, the project schedule, noise metrics, and methods used to quantify aircraft noise exposure. A second round ofpublic information workshops will be conducted early next year to provide information regarding the primary products of the FAR Part 150 Noise Exposure Map Update Study - the 2015 and 2020 Noise Exposure Maps.

Information presented at each workshop listed below will be the same. Residents need only attend one workshop to learn about the study and offer input. Each workshop will be held in an **"open house"** format from **6 p.m. to 8 p.m.**on the dates listed below. No formal presentation will be given in order to provide the public with the maximum opportunity for one-on-one interaction and sharing of information and concerns. You may attend the workshop at any time during the two-hour open house.

- Monday, May 12, 2014 - Jessie Owens Community Regional Park Gymnasium
9651 S. Western Avenue
Los Angeles, CA 90047
- Tuesday, May 13, 2014 - Flight Path Learning Center & Museum
6661 West Imperial Highway
Los Angeles, CA 90045

For more information, please visit the project website at:http://www.lawa.org/welcomeLAX.aspx.

Anyone needing special accommodations under the Americans with Disabilities Act of 1990 should contact Larry Rolon, LAWA ADA Coordinator, at (424) 646-5005 at least 72 hours prior to the meeting.Anyone with questions about the project should contact Ms. Kathryn Pantoja at (424)646-6501

Asistencia en español estará disponibleen las reuniones .

5/1/14
CNS-2615489#
THE ARGONAUT

A000003421362

From: CHAN, DAVID [mailto:DCHAN@lawa.org]
Sent: Friday, May 02, 2014 1:05 PM
Subject: Public Workshops for LAX Part 150 Noise Exposure Map Update

NOTICE OF PUBLIC INFORMATION WORKSHOPS
To Introduce the Los Angeles International Airport Federal Aviation Regulation (FAR) Part 150 Noise Exposure Map Update Study

Los Angeles World Airports (LAWA) will be hosting two (2) public information workshops in May 2014 to provide information regarding the Federal Aviation Regulation (FAR) Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. The workshops will include guided displays that will present information regarding the FAR Part 150 Noise Exposure Map Update study process, the project schedule, noise metrics, and methods used to quantify aircraft noise exposure. A second round of public information workshops will be conducted early next year to provide information regarding the primary products of the FAR Part 150 Noise Exposure Map Update Study – the 2015 and 2020 Noise Exposure Maps.

Information presented at each workshop listed below will be the same. Residents need only attend one workshop to learn about the study and offer input. Each workshop will be held in an **"open house"** format from **6 p.m. to 8 p.m.** on the dates listed below. No formal presentation will be given in order to provide the public with the maximum opportunity for one-on-one interaction and sharing of information and concerns. You may attend the workshop at any time during the two-hour open house.

- **Monday, May 12, 2014 – Jessie Owens Community Regional Park Gymnasium**
  9651 S. Western Avenue
  Los Angeles, CA 90047
- **Tuesday, May 13, 2014 – Flight Path Learning Center & Museum**
  6661 West Imperial Highway
  Los Angeles, CA 90045

For more information, please visit the project website at: http://www.lawa.org/LAXPart150.aspx

Anyone needing special accommodations under the Americans with Disabilities Act of 1990 should contact Larry Rolon, LAWA ADA Coordinator, at (424) 646-5005 at least 72 hours prior to the meeting. Anyone with questions about the project should contact Ms. Kathryn Pantoja at (424) 646-6501.

CONTACT: Marshall Lowe
(424) 646-5260

**PUBLIC WORKSHOPS SET TO PROVIDE INFORMATION
ON NOISE EXPOSURE MAP UPDATE STUDY AT LOS ANGELES INTERNATIONAL AIRPORT**

(Los Angeles, California – May 6, 2014) Los Angeles World Airports (LAWA) is hosting public information workshops on May 12 and 13, 2014 to provide information regarding the Federal Aviation Regulation (FAR) Part 150 Noise Exposure Map Update Study process for Los Angeles International Airport (LAX).

The two workshops will be held from 6 to 8 p.m. at the following locations:

- Monday, May 12, 2014 – Jesse Owens Community Regional Park Gymnasium, 9651 S. Western Avenue, Los Angeles, CA 90047
- Tuesday, May 13, 2014 – Flight Path Museum and Learning Center, 6661 West Imperial Highway, Los Angeles, CA 90045

Updating the Noise Exposure Maps for LAX is a key step in local jurisdictions being able to apply for federal funding for sound insulation treatment of homes that are within LAX's noise impact area, airport officials said.

"These public workshops will introduce the community to the FAR Part 150 study process as well as allow residents to ask questions of our staff and members of the consultant team," said Scott Tatro, LAWA environmental services manager. "Public input is a critical component of the process."

The workshops will include guided displays that present information regarding the FAR Part 150 Noise Exposure Map Update study process, the project schedule, noise metrics, and methods used to determine aircraft noise exposure.

Information presented at each workshop will be the same. Residents need only attend one workshop to learn about the study and offer input.

-more-

Each workshop will be held using an “open house” format. No formal presentation will be given in order to provide the public with the maximum opportunity for one-on-one interaction and sharing of information and concerns. Visitors may attend a workshop at any time during the two-hour open house.

For more information, please visit the project website at: http://www.lawa.org/LAXPart150.aspx. Anyone with questions about the project should contact Kathryn Pantoja, LAWA environmental affairs officer, at (424) 646-6501.

A second round of public information workshops will be conducted early next year to provide information regarding the primary products of the FAR Part 150 Noise Exposure Map Update Study – the 2015 and 2020 Noise Exposure Maps.

As a covered entity under Title II of the Americans with Disabilities Act (ADA), the City of Los Angeles does not discriminate on the basis of disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services, and activities. Alternative formats in large print, braille, audio, and other forms (if possible) will be provided upon request.

Anyone needing special accommodations under ADA guidelines should contact Larry Rolon, LAWA ADA Coordinator, at (424) 646-5005 at least 72 hours prior to the meeting.

# # # # #

LAX FAR Part 150 Noise Exposure Map Update

What is a FAR Part 150 Study?

Federal Aviation Regulations (FAR) Part 150, Airport Noise Compatibility Planning, was issued by the Federal Aviation Administration (FAA) as a final rule in January 1985. FAR Part 150 sets forth the methodology and procedures to be followed when preparing aircraft noise exposure maps and developing airport /airport environs land use compatibility programs.

FAR Part 150 studies typically consist of two primary components: (1) the Noise Exposure Map (NEM) report which contains detailed information regarding existing and 5-year future airport/aircraft noise exposure patterns, and (2) the Noise Compatibility Program (NCP) which includes descriptions and an evaluation of noise abatement and noise mitigation options/programs applicable to an airport.

Has LAWA prepared a FAR Part 150 Study for Los Angeles International Airport (LAX)?

Los Angeles World Airports (LAWA) has a long history of implementing noise abatement and mitigation measures at LAX dating back to the late 1950s. In 1981, the Los Angeles City Department of Airports in conjunction with the Los Angeles County Department of Regional Planning and the cities of El Segundo, Hawthorne, and Inglewood undertook an Airport Noise and Land Use Compatibility (ANCLUC) Study to quantify LAX's aircraft noise exposure and to identify measures to mitigate aircraft noise impacts on the noise sensitive land uses surrounding LAX. The ANCLUC study process was the predecessor to the FAR Part 150 process. The LAX ANCLUC process was completed in June 1984. The LAX Noise Exposure Map (NEM) included in the ANCLUC and submitted under FAR Part 150 was accepted by the FAA on October 16, 1984. On April 13, 1985, the FAA issued a record of approval approving 28 of the recommended measures in the LAX NCP.

Why is LAWA updating the FAR Part 150 NEMs for LAX?

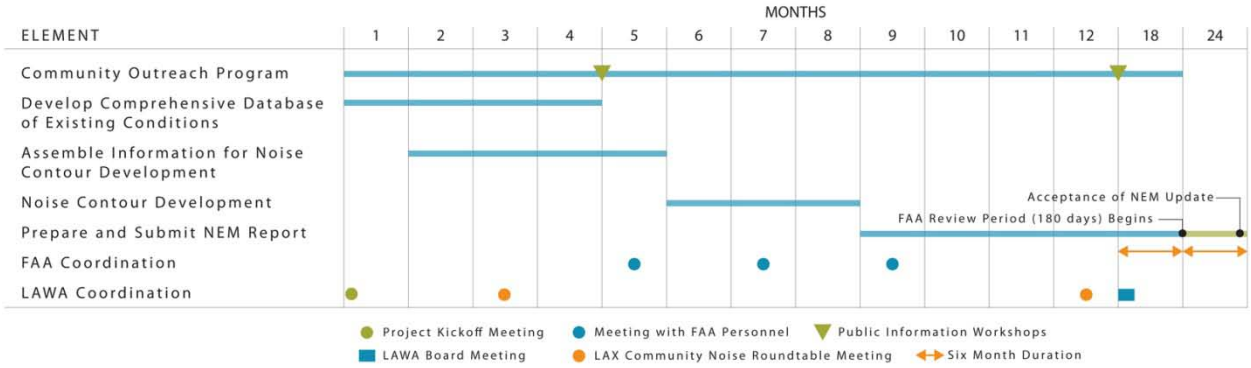
LAWA's goal for this project is to obtain the FAA's acceptance of the new 2015 and 2020 NEMs to ensure that ongoing noise mitigation programs managed by the Cities of Inglewood and El Segundo, and the County of Los Angeles can continue to receive FAA grant funding.

What will LAWA produce during the LAX FAR Part 150 NEM Update?

The LAX FAR Part 150 NEM Update must be prepared in accordance with guidance provided in the FAR Part 150 regulations and the FAR Part 150 NEM Checklist developed by the FAA. As part of the LAX FAR Part 150 NEM Update, LAWA and its consultants will quantify existing (2014/2015) and future (2020) aircraft noise exposure levels in the vicinity of LAX. LAWA will also develop supporting documentation explaining the process used to calculate existing and future aircraft noise levels. The LAX NEM Report update will provide LAWA and the FAA with a new set of NEMs which can be used to identify future noise mitigation needs. During the LAX NEM Report Update, LAWA will not develop or recommend noise abatement or noise mitigation measures, determine the boundaries for future sound insulation programs at LAX, or identify properties that are eligible for sound insulation.

When will the LAX FAR Part 150 NEM Update be completed?

The schedule for the LAX FAR Part 150 NEM Update is presented below. LAWA anticipates the updated NEMs will be approved by the FAA by December 2015.



Where can I get more information?

General information, project reports and public workshop materials, including presentation boards, will be uploaded to the project website at http://www.lawa.org/LAXPart150.aspx, as they become available.

How can I get involved?

FAR Part 150 encourages the participation of citizens and public agencies. LAWA will be convening two rounds of public information workshops during the preparation of the updated LAX FAR Part 150 NEM Report. Two public information workshops will be held in May 2014 to introduce the LAX FAR Part 150 NEM Update study. We anticipate that additional public information workshops will be convened in early 2015 to present key study findings.

LAWA is interested in hearing from you if aircraft noise is a concern. Your comments regarding the LAX FAR Part 150 NEM Update can be submitted at the public workshops or by (1) email to laxpart150nemupdate@lawa.org or (2) mailing them to LAWA:

FAR Part 150 NEM Update
Attn: Kathryn Pantoja, Environmental Affairs Officer
LAWA Environmental Services Division - Noise Management
P.O. Box 92216
Los Angeles, CA 90009-2216

LAX FAR Parte 150 Ruido Exposición de actualización de mapas

¿Qué es un Estudio de FAR Parte 150?

Regulaciones Federales de Aviación (FAR) Parte 150, Aeropuerto de Ruido Planificación de compatibilidad, fue emitida por la Administración de Aviación Federal (FAA) como norma definitiva en Enero de 1985. FAR Parte 150 expone la metodología y los procedimientos que deben seguirse en la preparación de los mapas de exposición al ruido de aviones y el desarrollo de aeropuertos / aeropuertos alrededores programas de compatibilidad de uso del suelo.

FAR Parte 150 estudios típicamente consisten de dos componentes principales: (1) el ruido Mapa de Exposición informe (NEM), que contiene información detallada sobre existente y 5 años futuros patrones de exposición al ruido aeropuerto / avión, y, (2) el Programa de Compatibilidad de Ruido (NCP), que incluye descripciones y una evaluación de la reducción del ruido y el ruido de mitigación opciones / programas aplicables a un aeropuerto.

¿LAWA ha preparado el Estudio FAR Parte 150 del Aeropuerto Internacional de Los Ángeles (LAX)?

Los Ángeles World Airports (LAWA) tiene una larga historia de la aplicación de la reducción del ruido y de las medidas de mitigación en LAX que data a los finales de 1950. En 1981, el Departamento de Aeropuertos en conjunto con el Departamento de Planificación Regional del Condado de Los Ángeles y las ciudades de El Segundo, Hawthorne, y la Ciudad de Inglewood Los Ángeles llevó a cabo un estudio de Ruido en Los Aeropuertos y Uso de la Tierra de Compatibilidad (ANCLUC) para cuantificar la exposición al ruido de aviones de LAX e identificar medidas para mitigar el impacto del ruido de aeronaves en tierra sensible ruido utiliza LAX alrededores. El proceso de estudio ANCLUC fue el predecesor del proceso de FAR Parte 150. El proceso de LAX ANCLUC se completó en Junio de 1984. El mapa de ruido exposición de LAX (NEM) incluido en el ANCLUC y presentado bajo Parte 150 fue aceptado por la FAA el 16 de Octubre de 1984. El 13 de Abril de 1985, la FAA emitió un registro de aprobación aprobar 28 de las medidas recomendadas en el LAX NCP.

¿Por qué es la actualización de LAWA las FAR Parte 150 NEM de LAX?

El objetivo de LAWA para este proyecto es obtener la aceptación de la FAA sobre la nueva 2015 y 2020 NEMs para asegurar que los programas de mitigación de ruido administrados por las ciudades de Inglewood y El Segundo, y el Condado de Los Ángeles pueden continúen recibiendo financiación de la FAA.

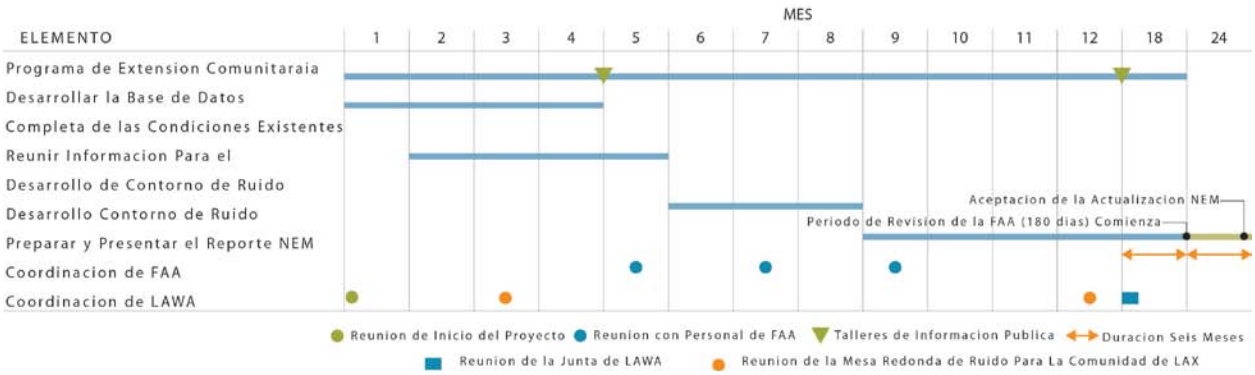
¿Qué va a producir LAWA durante la actualización de NEM LAX FAR Parte 150?

La actualización de NEM LAX FAR Parte 150 debe prepararse de acuerdo con la orientación proporcionada en las FAR Parte 150 reglamentos y la lista de verificación NEM FAR Parte 150 desarrollado por la FAA. Como parte de la actualización de NEM LAX FAR Parte 150, LAWA y sus consultores cuantificar existente (2014/2015) y los niveles de exposición al ruido futuro (2020) las aeronaves en las proximidades de LAX. LAWA también desarrollará la documentación de apoyo para explicar el proceso que se utiliza para calcular los niveles de ruido de las aeronaves existentes y futuras. La actualización de NEM reporte de LAX proporcionará a LAWA y la FAA con un nuevo conjunto de NEMs que se puede utilizar para identificar las necesidades futuras de mitigación del ruido. Durante el NEM LAX Informe de Actualización, LAWA no desarrollar o recomendar

la reducción del ruido o de las medidas de mitigación de ruido, determinar los límites de los programas de aislamiento acústico futuras en LAX, o la identificación de propiedades que son elegibles para el aislamiento acústico.

¿Cuando se complete la actualización NEM LAX FAR Parte 150?

El horario para la NEM actualización LAX FAR Parte 150 se presenta abajo. LAWA anticipa los NEM actualizados serán aprobados por la FAA antes de Diciembre de 2015.



¿Dónde puedo obtener más información?

Información general, informes de proyectos y materiales para talleres públicos, incluyendo paneles de presentación, se subirán a la página web del proyecto http://www.lawa.org/LAXPart150.aspx, a medida que estén disponibles.

¿Cómo puedo participar?

FAR Parte 150 fomenta la participación de los ciudadanos y los organismos públicos. LAWA convocará dos rondas de talleres de información pública durante la preparación del LAX FAR Parte 150 NEM Informe actualizado. Dos talleres de información pública se celebrarán en Mayo de 2014 para presentar el estudio NEM actualización LAX FAR Parte 150. Anticipamos que los talleres de información pública se convocarán a principios de 2015 para presentar las principales conclusiones del estudio.

LAWA está interesado en saber de usted si el ruido de los aviones es una preocupación. Sus observaciones sobre la actualización NEM LAX FAR Parte 150 pueden ser presentadas en los talleres públicos o por (1) correo electrónico a laxpart150nemupdate@lawa.org o (2) correo a LAWA:

FAR Parte 150 NEM actualización
Attn: Kathryn Pantoja, Environmental Affairs Officer
LAWA Environmental Services Division - Noise Management
P.O. Box 92216
Los Angeles, CA 90009-2216

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update Study
Los Angeles International Airport

Public Information Workshop
May 12, 2014 (6:00 p.m. – 8:00 p.m.)
Jessie Owens Community Regional Park Gymnasium

Sign-In Sheet

Name/Organization	Address	Phone or Email
Hazel Ferron	[redacted] LA, CA 90047	[redacted]
Sonia French-Potts - Cimarron St. Neighborhood Watch	[redacted] LA 90047	
Linda Murray	[redacted] LA 90044	
Bernard + Sandra Washington	[redacted], LA. 900	
Gloria Wilson	[redacted] LA 90044	
Jack Wilson	[redacted] LA 90044	
James Polido	[redacted], LAX, LA, CA 90046	
Joseph McCall	[redacted]	
Allison Jackson	[redacted]	
Jim Withrow	[redacted] Inglewood 90302	
Pearl Hunicutt	[redacted], L.A. CA 90044	
Clint Simmons		
Loretta Green	[redacted] LA CA 90047	

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update Study
Los Angeles International Airport

Public Information Workshop
May 12, 2014 (6:00 p.m. – 8:00 p.m.)
Jessie Owens Community Regional Park Gymnasium

Sign-In Sheet

Name/Organization	Address	Phone or Email
Esther May	[redacted] Inglewood 90303	[redacted]
Idorlph Edwards	[redacted] LA. 90047	
Hamilton Cloud	[redacted] L.A. 90003	
Linda J. WERE	[redacted] LA. 90047	
Joyce Alexander	[redacted] Inglewood 90303	
Wiley Williams	[redacted] LA 90047	
Violetta Price	[redacted] 90047	
Michael Flowers	[redacted] L.A 90044	
Linda Sanders	[redacted] L.A 90044	
Liliana Matlock	[redacted] L.A 90044	
Mayra Mancilla	[redacted] LA. 90044	
Faye Skipwith	[redacted] LA CA 90047	
Michael W. Jones	[redacted] LA CA 90047-3517	
Christine Wood	[redacted] Inglewood CA 90305	
Charles Ashley	[redacted]	
Georgianna Street (LAWA)	[redacted] LA 90045	
DEBORAH Jones	[redacted] CA, 90047	

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update Study
Los Angeles International Airport

Public Information Workshop
May 13, 2014 (6:00 p.m. – 8:00 p.m.)
Flight Path Learning Center and Museum

Sign-In Sheet

Name/Organization	Address	Phone or Email
LACDC / Mercy Cavazos	[redacted] Alhambra 91801	[redacted]
Carroll David	[redacted] Los Angeles, CA 90044	
Vigor Global	[redacted] Lawndale, CA	
Jeff Sibley	LOS ALAMITOS AAF	
Donna Cope	[redacted] Westchester CA 90045	
Suzanne Morris	[redacted] El Segundo	
Peter Garver	[redacted] Playa Del Rey	
Jacqueline Hamilton	[redacted] L.A. CA 90009	
Joan Richmeier	[redacted] Inglewood	
Betty E. Smith	[redacted] Inglewood	
Omar Pulido	[redacted]	
Carolyn & Mac Billups	[redacted] L.A, CA 90047	
Craig Eggers	[redacted] 90293	
John McCarthy	[redacted] Inglewood 90303	
Lynne Paxton	[redacted] Beverly Hills 90213	[redacted]

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update Study
Los Angeles International Airport

Public Information Workshop
May 13, 2014 (6:00 p.m. – 8:00 p.m.)
Flight Path Learning Center and Museum

Sign-In Sheet

Name/Organization	Address	Phone or Email
Marina Peterson	[redacted] LA 90039	[redacted]
Carl Jacobsen	[redacted] E.S.	
Petra Schneider	[redacted] RPV 90275	
Michelle Hicks	[redacted] Inglewood CA 90305	

LAX
Los Angeles World Airports

Welcome!

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Public Information Workshop #1

May 2014

Project Overview

- **Los Angeles World Airports (LAWA) has initiated an update of the Federal Aviation Regulations (FAR) Part 150 Noise Exposure Map (NEM) report for LAX**
- **The Alta Environmental Team has been selected by LAWA to prepare the LAX Part 150 NEM report**
- **The goal is to submit updated noise exposure maps for LAX to the Federal Aviation Administration (FAA) in 2015**
- **LAWA is updating the LAX NEMs to ensure continued eligibility for sound insulation program funding**

ALTA ESA LAX

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Project Overview

- **LAWA developed noise exposure maps for LAX in 1981 as part of an Airport Noise and Land Use Compatibility (ANCLUC) Study**
- **The FAA typically uses the airport's future year noise exposure map to determine eligibility for federal funding of noise mitigation programs (e.g., sound insulation)**
- **The FAA is currently relying on the 2015 LAX Master Plan Alternative D Community Noise Equivalent Level (CNEL) contours for funding current LAX sound insulation programs**

ALTA ESA LAX

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Project Overview

- **The NEM report must be prepared in accordance with the guidance provided in FAR Part 150**
- **FAR Part 150 includes detailed guidance and a checklist of the items that must be included in the FAR Part 150 NEM report**
- **For example, the NEM report must include aircraft noise exposure contours for the year of submission and a future year (typically five years in the future)**
  - **The Alta Environmental Team will produce NEMs for 2015 and 2020**

ALTA ESA LAX

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Project Overview

- This LAX NEM report update is not an airport master plan update, FAR Part 161 Study, FAR Part 150 Noise Compatibility Program Update, and is not related to other ongoing studies
- The project team will develop an aircraft operations and fleet mix forecast for FAA's review and approval
- The project team will consider completed and ongoing planning and environmental studies to ensure noise modeling assumptions are reflective of existing conditions and anticipated conditions in 2020
- The 2020 NEM must be based on "reasonably foreseeable" assumptions regarding future operations at LAX

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

The LAX NEM Report Update Will:

- Quantify existing and future aircraft noise exposure levels in the vicinity of LAX
- Provide the FAA and LAWA with a new set of NEMs to assess future noise mitigation needs

During The LAX NEM Report Update LAWA Will Not:

- Develop or recommend noise abatement or noise mitigation measures designed to minimize aircraft noise impacts
- Determine the sound insulation program boundaries
- Identify properties that are eligible for sound insulation

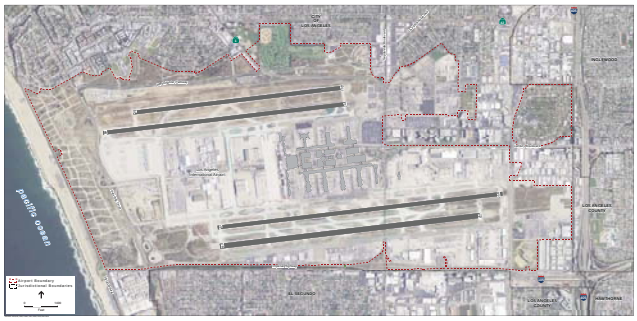
Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Who Can Regulate Airport Noise?

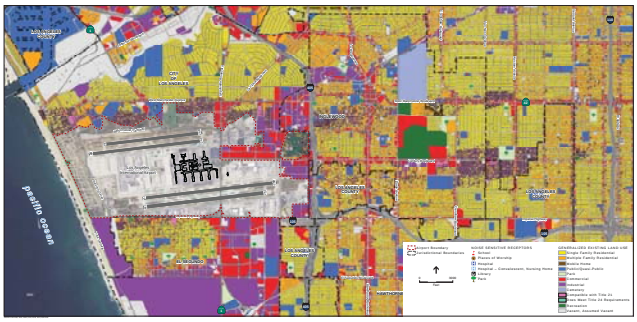
- **Federal Aviation Administration**
  - Controls aircraft while in flight
  - Responsible for controlling noise at its source (i.e., aircraft engines)
  - Certifies aircraft and pilots
- **Airport Proprietors/LAWA**
  - Limited authority to adopt local restrictions
  - Responsible for capital improvement projects and infrastructure
- **Local Governments and States**
  - Promote compatible land use through zoning
  - Require real estate disclosure
  - Mandate sound-insulating building materials

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Existing Facilities

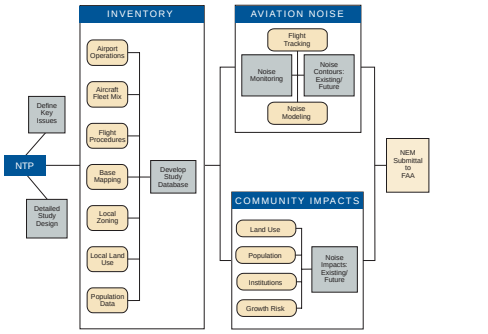


Existing Land Uses in the Study Area



Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

FAR Part 150 NEM Update Process



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FAR Part 150 Noise Exposure Map Report Update

FAR Part 150 Terminology

Noise Exposure Contours

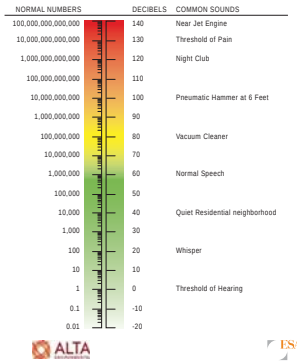
A noise exposure contour identifies areas of equal noise exposure around an airport. Noise exposure contours are similar to contours on topographic maps which show areas of equal elevation.

Noise Exposure Maps or NEMs

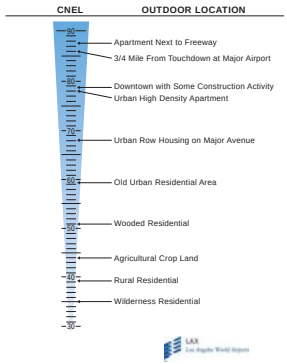
A noise exposure map is a map showing noise exposure contour lines (or footprints) which identify areas of specific noise levels around an airport. NEMs also include a graphic depiction of geographical features and land uses that surround an airport.

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

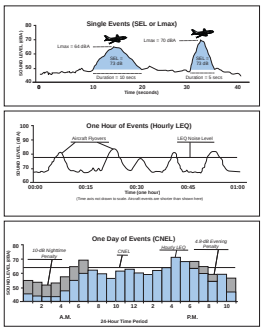
The Decibel Scale

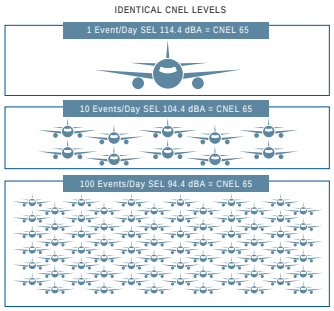


Sample CNEL Values



Aircraft Noise Levels





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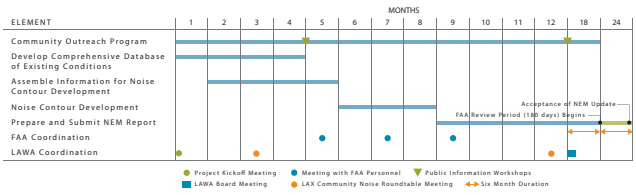
Day-Night Average Sound Level (DNL) and Community Noise Equivalent Level (CNEL)

DNL	CNEL	
√	√	24-hour time-weighted energy average noise level measured in dBA
√	√	Captures the noise exposure for individual aircraft noise events during the course of a 24-hour day
	√	Noise occurring between 7 p.m. to 10 p.m. is penalized by approximately 4.8 dB - Penalty was selected to account for the sensitivity to aircraft noise and activity interference during the evening hours
√	√	Noise occurring between 10 p.m. to 7 a.m. is penalized by 10 dB - Penalty was selected to account for the higher sensitivity to aircraft noise and lower background noise levels during nighttime hours
	√	Specified in Title 21 of the California Airport Noise Regulations and required for use in the development of aircraft noise exposure contours
√	√	Specified in 14 CFR Part 150 and required for use in the development of aircraft noise exposure contours (FAA permits the use of CNEL for noise studies in California)
√	√	Demonstrates a strong relationship between increased aircraft noise and increased human annoyance

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Project Schedule



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I am a resident of Los Angeles County, over the age of eighteen years and not a party to any or interested in the matter noticed.

The notice, of which the annexed is a printed copy appeared in the:

L.A. TIMES

On the following dates:

April 23, 2015

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Los Angeles, California, this

23rd day of **April** 20**15**

Signature

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NOTICE OF PUBLIC INFORMATION WORKSHOPS
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- Monday, May 11, 2015 – Flight Path Learning Center and Museum
6661 West Imperial Highway
Los Angeles, CA 90045
- Tuesday, May 12, 2015 – Jesse Owens Community Regional Park Gymnasium
9651 S. Western Avenue
Los Angeles, CA 90047

For more information, please visit the project website at: http://www.lawa.org/LAXPart150.aspx

Anyone needing special accommodations under the Americans with Disabilities Act of 1990 should contact Larry Rolen, LAWA ADA Coordinator, at (424) 646-5005 at least 72 hours prior to the meeting. Anyone with questions about the project should contact Ms. Kathryn Pantoja at (424) 646-6501

Asistencia en español estará disponible en las reuniones.

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County of Los Angeles

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of THE DAILY BREEZE, a newspaper of general circulation, printed and published in the City of Torrance*, County of Los Angeles, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of County of Los Angeles, State of California, under the date of June 10, 1974, Case Number SWC7146. The notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

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I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Dated at Torrance, California
On this 24th day of April, 2015.

Signature

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For more information, please visit the project website at: http://www.lawa.org/LAXPart150.aspx

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Asistencia en español estará disponible en las reuniones.
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From: CHAN, DAVID <DCHAN@lawa.org>
Sent: Tuesday, April 28, 2015 7:13 AM
Subject: Public Workshops for LAX Part 150 Noise Exposure Map Update

Los Angeles World Airports

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LAX FAR Part 150 Noise Exposure Map Update

What is a FAR Part 150 Study?

Federal Aviation Regulations (FAR) Part 150, Airport Noise Compatibility Planning, was issued by the Federal Aviation Administration (FAA) as a final rule in January 1985. FAR Part 150 sets forth the methodology and procedures to be followed when preparing aircraft noise exposure maps and developing airport /airport environs land use compatibility programs.

FAR Part 150 studies typically consist of two primary components: (1) the Noise Exposure Map (NEM) report which contains detailed information regarding existing and 5-year future airport/aircraft noise exposure patterns, and (2) the Noise Compatibility Program (NCP) which includes descriptions and an evaluation of noise abatement and noise mitigation options/programs applicable to an airport.

Has LAWA prepared a FAR Part 150 Study for Los Angeles International Airport (LAX)?

Los Angeles World Airports (LAWA) has a long history of implementing noise abatement and mitigation measures at LAX dating back to the late 1950s. In 1981, the Los Angeles City Department of Airports in conjunction with the Los Angeles County Department of Regional Planning and the cities of El Segundo, Hawthorne, and Inglewood undertook an Airport Noise and Land Use Compatibility (ANCLUC) Study to quantify LAX's aircraft noise exposure and to identify measures to mitigate aircraft noise impacts on the noise sensitive land uses surrounding LAX. The ANCLUC study process was the predecessor to the FAR Part 150 process. The LAX ANCLUC process was completed in June 1984. The LAX Noise Exposure Map (NEM) included in the ANCLUC and submitted under FAR Part 150 was accepted by the FAA on October 16, 1984. On April 13, 1985, the FAA issued a record of approval approving 28 of the recommended measures in the LAX NCP.

Why is LAWA updating the FAR Part 150 NEMs for LAX?

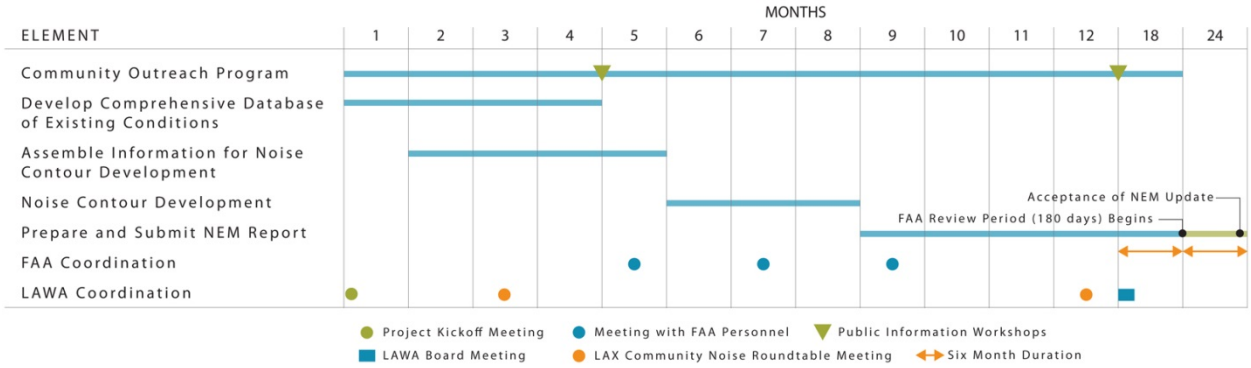
LAWA's goal for this project is to obtain the FAA's acceptance of the new 2015 and 2020 NEMs to ensure that ongoing noise mitigation programs managed by the Cities of Inglewood and El Segundo, and the County of Los Angeles can continue to receive FAA grant funding.

What will LAWA produce during the LAX FAR Part 150 NEM Update?

The LAX FAR Part 150 NEM Update must be prepared in accordance with guidance provided in the FAR Part 150 regulations and the FAR Part 150 NEM Checklist developed by the FAA. As part of the LAX FAR Part 150 NEM Update, LAWA and its consultants have calculated existing (2015) and future (2020) aircraft noise exposure levels in the vicinity of LAX. LAWA will also develop supporting documentation explaining the process used to calculate existing and future aircraft noise levels. The LAX NEM Report update will provide LAWA and the FAA with a new set of NEMs which can be used to identify future noise mitigation needs. During the LAX NEM Report Update, LAWA will not develop or recommend noise abatement or noise mitigation measures, determine the boundaries for future sound insulation programs at LAX, or identify properties that are eligible for sound insulation.

When will the LAX FAR Part 150 NEM Update be completed?

The schedule for the LAX FAR Part 150 NEM Update is presented below. LAWA anticipates the updated NEMs will be submitted to the FAA in July 2015.



Where can I get more information?

The Draft Noise Exposure Map Report has been uploaded to the project website at http://www.lawa.org/LAXPart150.aspx. Other materials including presentation boards from this workshop will be uploaded to the project website later this month.

How can I get involved?

FAR Part 150 encourages the participation of citizens and public agencies. LAWA convened two public information workshops in May 2014 to introduce the LAX FAR Part 150 NEM Update study. A second round of public information workshops are being conducted in May 2015 to present key findings from the study.

LAWA is interested in hearing from you if aircraft noise is a concern. Your comments regarding the LAX FAR Part 150 NEM Update can be submitted at the public workshops or by (1) email to laxpart150nemupdate@lawa.org or (2) mailing them to LAWA:

FAR Part 150 NEM Update
Attn: Kathryn Pantoja, Environmental Affairs Officer
LAWA Environmental and Land Use Planning Division - Noise Management
P.O. Box 92216
Los Angeles, CA 90009-2216

Los Angeles International Airport (LAX) Actualización del Mapa de exposición al ruido (Noise Exposure Map, NEM) en virtud de la FAR Parte 150

¿Qué es un Estudio de FAR Parte 150?

La Parte 150 de Las Regulaciones Federales de Aviación (FAR), Planificación de la Compatibilidad de Ruido del Aeropuerto, fue emitida por la Administración de Aviación Federal (FAA) como norma definitiva en enero de 1985. La FAR Parte 150 expone la metodología y los procedimientos que deben seguirse en la preparación de los mapas de exposición al ruido de aviones y en el desarrollo de programas de compatibilidad para el uso del suelo de los aeropuertos y alrededor.

Estudios de las FAR Parte 150 usualmente consisten en dos componentes principales: (1) el Informe del Mapa de Exposición al ruido (NEM), que contiene información detallada sobre patrones de exposición al ruido del aeropuerto y des los aviónes existentes y a 5 años en el futuro, y (2) el Programa de Compatibilidad de Ruido (NCP), que incluye descripciones y una evaluación de la reducción del ruido y de las opciones/programas de mitigación del ruido aplicables a un aeropuerto.

¿LAWA ha preparado un Estudio FAR Parte 150 del Aeropuerto Internacional de Los Ángeles (LAX)?

Los Angeles World Airports (LAWA) tiene una larga historia de medidas de reducción y de mitigación de ruido en LAX, que data de finales de 1950. En 1981, el Departamento de Aeropuertos de Los Ángeles en conjunto con el Departamento de Planificación Regional del Condado de Los Ángeles y las ciudades de El Segundo, Hawthorne, y Inglewood llevó a cabo un Estudio de Ruido del Aeropuerto y de Compatibilidad del Uso del Suelo (ANCLUC). Este estudio cuantificó la exposición al ruido de aviones de LAX e identificó medidas para mitigar el impacto del ruido de aeronaves en tierras sensibles al ruido alrededor de LAX. El proceso del estudio ANCLUC fue el predecesor del proceso de FAR Parte 150. El proceso ANCLUC de LAX se completó en junio de 1984. El mapa de exposición al ruido (NEM) de LAX, incluido en el ANCLUC y presentado bajo la Parte 150, fue aceptado por la FAA el 16 de octubre de 1984. El 13 de abril de 1985, la FAA emitió un registro de aprobación aprobando 28 de las medidas recomendadas en el NCP de LAX.

¿Por qué LAWA está actualizando los NEMs de la FAR Parte 150 de LAX?

El objetivo de LAWA para este proyecto es obtener la aceptación de la FAA sobre los nuevos NEMs de 2015 y 2020 para asegurar que los programas de mitigación de ruido administrados por las ciudades de Inglewood y El Segundo, y por el Condado de Los Ángeles siguan siendo eligibles para recibir fondos de la FAA.

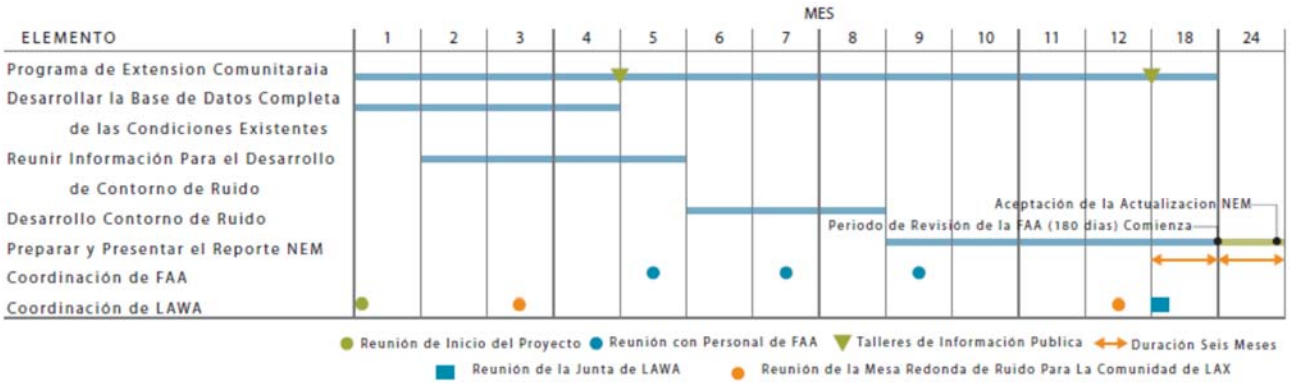
¿Qué va a producir LAWA durante la actualización de los NEMs de LAX de la FAR Parte 150?

La actualización de los NEMs de LAX FAR Parte 150 debe prepararse de acuerdo con las directrices proporcionadas en las regulaciones FAR Parte 150 y la lista de verificación NEM FAR Parte 150 desarrollado por la FAA. En el contexto de la actualización de NEM de LAX FAR Parte 150, LAWA y sus consultores cuantificaron los niveles de exposición al ruido de las aeronaves existentes (2015) y del futuro (2020) en las

proximidades de LAX. LAWA también desarrollará la documentación de apoyo para explicar el proceso que se utiliza para calcular los niveles de ruido de las aeronaves existentes y futuras. La actualización del informe NEM de LAX proporcionará a LAWA y a la FAA con un nuevo conjunto de NEMs que se puede utilizar para identificar las necesidades futuras de mitigación del ruido. Durante la Actualización de los NEMs de LAX, LAWA no va a desarrollar ni recomendar ninguna medida de reducción del ruido o de mitigación de ruido, no determinará los límites de los programas de aislamiento acústico futuras en LAX, y no identificará propiedades que sean elegibles para el aislamiento acústico.

¿Cuándo se finalizará la actualización de los NEMs de LAX de la FAR Parte 150?

El horario para la actualización de los NEMs de LAX de la FAR Parte 150 se presenta abajo. LAWA anticipa que los NEMs actualizados serán presentados a la FAA en julio del 2015.



¿Dónde puedo obtener más información?

El plan preliminar de **Actualización del Mapa de exposición al ruido (NEM)** se puede encontrar en la página web del proyecto, http://www.lawa.org/LAXPart150.aspx. Otros materiales, incluidos los paneles de presentación de este taller, se subirán a la página web del proyecto más tarde en el mes.

¿Cómo puedo participar?

La FAR Parte 150 fomenta la participación de los ciudadanos y las agencias públicas. LAWA convocó dos rondas de talleres de información pública durante mayo 2014 para introducir la Actualización de los NEMs de LAX . Dos talleres de información pública se llevarán a cabo en mayo de 2015 para presentar los resultados más importantes del estudio.

LAWA está interesado en saber de usted si el ruido de los aviones es una preocupación. Sus observaciones sobre la actualización de los NEMs de LAX de FAR Parte 150 pueden ser presentadas en los talleres públicos o por (1) correo electrónico a laxpart150nemupdate@lawa.org o (2) por correo a LAWA:

FAR Parte 150 NEM actualización
Attn: Kathryn Pantoja, Environmental Affairs Officer
LAWA Environmental and Land Use Planning Division - Noise Management
P.O. Box 92216
Los Angeles, CA 90009-2216

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update Study
Los Angeles International Airport

Public Information Workshop #2
May 11, 2015 (6:00 p.m. – 8:00 p.m.)
Flight Path Learning Center and Museum

Sign-In Sheet

Name/Organization	Address	Phone or Email
Steve Alverson ESA	[redacted] Sacramento, CA 95816	[redacted]
Adrian Jones - ESA	[redacted] San Francisco, CA 94108	
DAVID SCHACK - ALTA	[redacted] LONG BEACH, CA 90807	
Rose Cote	LAWA	
Carl Jacobsen	El Segundo	
John Keho	[redacted] Los Angeles 90008	
ESOSSLTA	[redacted] Los Angeles, CALIF 90049	
KATHRYN PANTOJA	LAWA	
Joanne Choi	LAWA	
DAN YEUNG	–	
Scott Tar	LAWA	
Georgianna Streeter	LAWA	

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update Study
Los Angeles International Airport

Public Information Workshop #2
May 12, 2015 (6:00 p.m. – 8:00 p.m.)
Jesse Owens Community Regional Park Gymnasium

Sign-In Sheet

Name/Organization	Address	Phone or Email
Sonia F. Branch Elmarra Street Neighborhood Watch President	[redacted] LA 90047	[redacted]
Desmond Woolfolk	[redacted] Wilmington CA 90748	
Allison Jackson		
Betty G. Griffith	[redacted] 90303	
Steve Huey son/ESA	Sacramento, CA 95816	
David Schaefer	[redacted] LB CA 90807	
Darrell Summerville	[redacted] L.A. Ca 90047	
GERALD BUTLER	[redacted] LA CA 90044	
KATHRYN PANTOJA	LAWA	
Joanne Choi	LAWA	
DAN YEUNG	LAWA	
Scott Tate	LAWA	
Georgianne Streeter	LAWA	

LAX
Los Angeles World Airports

Welcome!

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Public Information Workshop #2

May 11, 2015

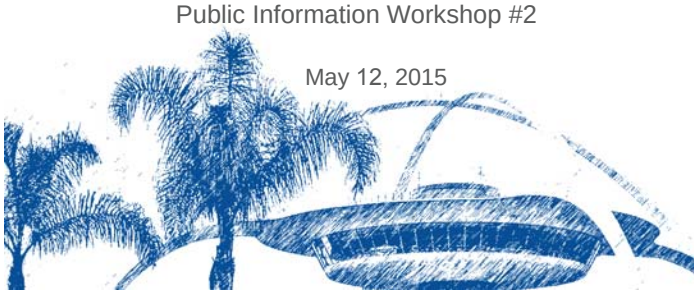
LAX
Los Angeles World Airports

Welcome!

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Public Information Workshop #2

May 12, 2015



Noise Modeling Assumptions

- **Existing (2015) Conditions Noise Exposure Map**
  - **Based on 2013 annual operations – 614,917**
  - **Aircraft fleet mix based on Airport Noise and Operations Management System (ANOMS) data for Calendar Year (CY) 2013**
  - **Runway use based on ANOMS data for CY 2013**
  - **Time of day based on ANOMS data for CY 2013**
  - **Flight tracks and flight track usage based on ANOMS data for CY 2013**

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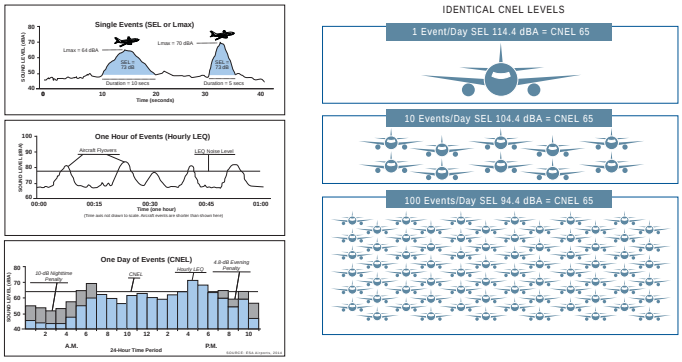
Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Noise Modeling Assumptions

- **Future (2020) Conditions Noise Exposure Map**
  - **705,254 annual operations in 2020**
  - **Aircraft fleet mix updated based on information contained in approved LAX environmental studies**
  - **Runway Use, time of day, and flight tracks assumed to be similar to 2015**
  - **Considered impact of runway safety area improvements for Runways 7L-25R and 6R-24L**

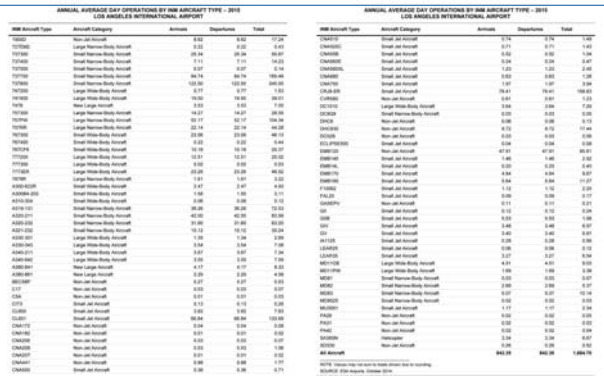
ALTA ESA Airports LAX

Aircraft Noise Levels



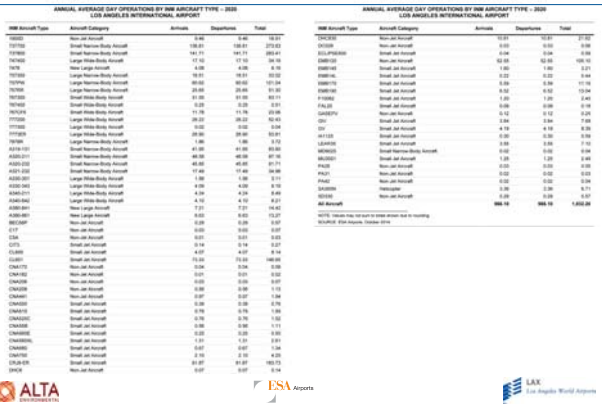
Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

2015 Aircraft Fleet Mix



Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

2020 Aircraft Fleet Mix



Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

2015 Time of Day

AIRCRAFT OPERATIONS BY TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Aircraft Category	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
Large Narrow-Body Aircraft	49.45%	25.66%	24.90%	100.00%	73.93%	2.36%	23.71%	100.00%
Large Wide-Body Aircraft	67.99%	11.99%	20.01%	100.00%	48.64%	13.53%	37.82%	100.00%
Non-Jet Aircraft	74.40%	15.19%	10.41%	100.00%	72.35%	15.49%	12.16%	100.00%
New Large Aircraft	64.44%	17.34%	18.22%	100.00%	45.02%	3.04%	51.94%	100.00%
Small Jet Aircraft	72.04%	19.37%	8.59%	100.00%	74.75%	16.21%	9.04%	100.00%
Small Narrow-Body Aircraft	66.62%	20.36%	13.01%	100.00%	70.58%	10.89%	18.53%	100.00%
Small Wide-Body Aircraft	50.50%	23.12%	26.38%	100.00%	56.80%	10.77%	32.43%	100.00%
All Aircraft[1]	**65.96%**	**19.61%**	**14.43%**	**100.00%**	**69.03%**	**11.65%**	**19.32%**	**100.00%**

NOTES:
Day (7 a.m. to 7 p.m.); Evening (7 p.m. to 10 p.m.); Night (10 p.m. to 7 a.m.)
Values may not sum to 100% due to rounding.
[1] Does not include helicopter operations
SOURCE: ESA Airports, October 2014, based on LAX ANOMS data for calendar year 2013.

2020 Time of Day

AIRCRAFT OPERATIONS BY TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Aircraft Category	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
Large Narrow-Body Aircraft	49.38%	25.70%	24.92%	100.00%	73.91%	2.36%	23.74%	100.00%
Large Wide-Body Aircraft	75.55%	11.46%	12.99%	100.00%	54.66%	11.98%	33.36%	100.00%
Non-Jet Aircraft	75.12%	15.06%	9.81%	100.00%	72.93%	15.82%	11.25%	100.00%
New Large Aircraft	72.23%	13.31%	14.46%	100.00%	52.09%	2.54%	45.37%	100.00%
Small Jet Aircraft	72.01%	19.45%	8.54%	100.00%	74.70%	16.28%	9.03%	100.00%
Small Narrow-Body Aircraft	65.95%	20.38%	13.67%	100.00%	69.83%	10.93%	19.24%	100.00%
Small Wide-Body Aircraft	54.56%	24.69%	20.75%	100.00%	61.33%	11.89%	26.77%	100.00%
All Aircraft [1]	**66.60%**	**19.63%**	**13.78%**	**100.00%**	**69.51%**	**11.49%**	**19.00%**	**100.00%**

NOTES:
Day (7 a.m. to 7 p.m.); Evening (7 p.m. to 10 p.m.); Night (10 p.m. to 7 a.m.)
Values may not sum to 100% due to rounding.
[1] Does not include helicopter operations
SOURCE: ESA Airports, October 2014.

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

2015 Runway Use

RUNWAY USE BY OPERATION TYPE AND TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrival			Departure		
Runway	**Day**	**Evening**	**Night**	**Day**	**Evening**	**Night**
06L	0.47%	0.23%	3.55%	0.02%	0.01%	0.01%
06R	0.01%	0.00%	15.73%	0.46%	0.24%	0.22%
07L	0.01%	0.01%	6.55%	0.55%	0.28%	0.51%
07R	0.54%	0.28%	4.30%	0.01%	0.02%	0.17%
24L	1.58%	2.39%	1.27%	43.20%	40.02%	25.87%
24R	45.91%	46.64%	30.97%	1.49%	0.47%	1.33%
25L	49.44%	47.12%	35.62%	3.23%	5.05%	10.82%
25R	2.04%	3.33%	2.01%	51.04%	53.91%	61.08%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

NOTES:
Day (7 a.m. to 7 p.m.); Evening (7 p.m. to 10 p.m.); Night (10 p.m. to 7 a.m.)
Values may not sum to 100% due to rounding.
Does not include helicopter operations
SOURCE: ESA Airports, October 2014, based on LAX ANOMS data for calendar year 2013.

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

2020 Runway Use

RUNWAY USE BY OPERATION TYPE AND TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrival			Departure		
Runway	**Day**	**Evening**	**Night**	**Day**	**Evening**	**Night**
06L	0.48%	0.23%	3.38%	0.02%	0.01%	0.01%
06R	0.01%	0.00%	15.00%	0.45%	0.26%	0.24%
07L	0.01%	0.01%	4.90%	0.55%	0.28%	0.50%
07R	0.53%	0.28%	3.17%	0.01%	0.01%	0.17%
24L	1.58%	2.39%	1.43%	44.22%	42.15%	28.55%
24R	46.53%	47.21%	34.12%	1.50%	0.49%	1.43%
25L	48.82%	46.52%	36.09%	2.90%	3.45%	9.60%
25R	2.04%	3.36%	1.92%	50.35%	53.35%	59.51%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

NOTES:
Day (7 a.m. to 7 p.m.); Evening (7 p.m. to 10 p.m.); Night (10 p.m. to 7 a.m.)
Values may not sum to 100% due to rounding.
Does not include helicopter operations
SOURCE: ESA Airports, October 2014.

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Arrival Flight Tracks – Runways 6 and 7

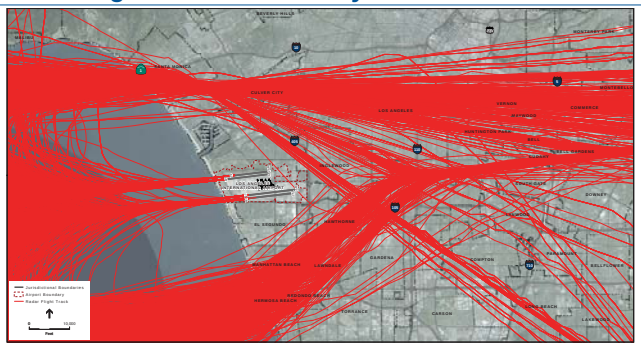


Exhibit C-2
Radar Flight Tracks – Arrivals from the West

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Arrival Flight Tracks – Runways 24 and 25

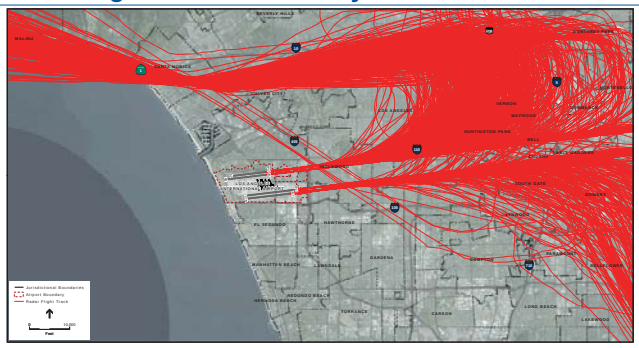


Exhibit C-1
Radar Flight Tracks – Arrivals from the East

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Departure Flight Tracks – Runways 6 and 7

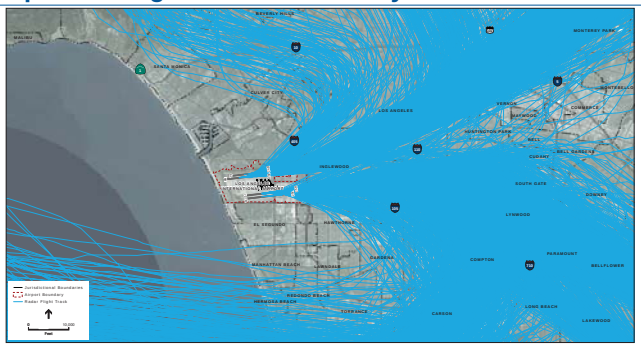


Exhibit C-3
Radar Flight Tracks – Departures to the East

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

Departure Flight Tracks – Runways 24 and 25

Exhibit C-4
Radar Flight Tracks – Departures to the West

Los Angeles International Airport
FAR Part 150 Noise Exposure Map Report Update

2015 Noise Exposure Map

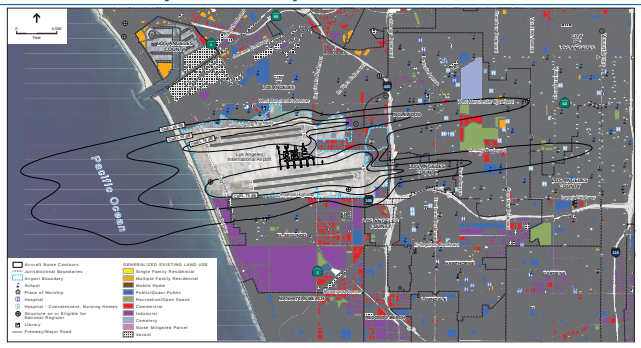


Exhibit S-1
2015 Noise Exposure Map – Los Angeles International Airport

2020 Noise Exposure Map

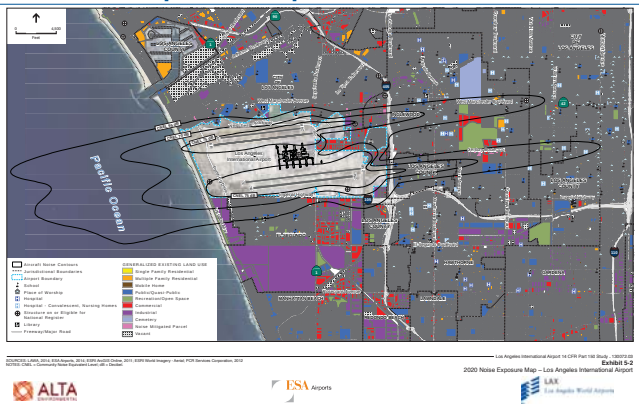


Exhibit 5-2
2020 Noise Exposure Map – Los Angeles International Airport

Draft Noise Exposure Map Report Available for Public Review

Los Angeles World Airports (LAWA) has completed a Draft Noise Exposure Map Report for Los Angeles International Airport. The Draft Noise Exposure Map Report has been uploaded to the project website at http://www.lawa.org/LAXPart150.aspx. Printed copies of the Draft Noise Exposure Map Report are available for public review at the following locations:

Library	**Address**
Westchester – Loyola Village Branch Library	7114 W. Manchester Ave., Los Angeles, CA
El Segundo Public Library	111 W. Mariposa Ave., El Segundo, CA
Inglewood Main Library	101 W. Manchester Blvd., Inglewood, CA
Lennox Library	4359 Lennox Blvd., Lennox, CA
Mark Twain Library	9621 S. Figueroa St., Los Angeles, CA

LAWA is interested in hearing from you if aircraft noise is a concern. Your comments regarding the Draft Noise Exposure Map Report can be submitted on the comment forms available at this public workshop or by (1) email to laxpart150nemupdate@lawa.org or (2) mailing them to LAWA:

FAR Part 150 NEM Update
Attn: Kathryn Pantoja, Environmental Affairs Officer
LAWA Environmental and Land Use Planning Division - Noise Management
P.O. Box 92216
Los Angeles, CA 90009-2216

Comments regarding the Draft Noise Exposure Map Report will be accepted until June 9, 2015.

LAX
Los Angeles World Airports
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Capital Planning, Programming and Engineering Group
Environmental and Land Use Planning Division
Noise Management

Receipt of Delivery

PROJECT: Title 14 Code of Federal Regulations Part 150
Noise Exposure Map Update Study for Los Angeles International Airport

DOCUMENTS ATTACHED:

- **Draft Noise Exposure Map Update for Los Angeles International Airport**
- **Appendix I, Draft Noise Exposure Map Update for Los Angeles International Airport**

DELIVER TO:

Westchester-Loyola Village Branch Library
Attention: Branch Manager/Librarian
7114 W. Manchester Ave.
Los Angeles, CA 90045

Documents delivered on: 5/12/15

Received by: Miriam Touchton

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Capital Planning, Programming and Engineering Group
Environmental and Land Use Planning Division
Noise Management

Receipt of Delivery

PROJECT: Title 14 Code of Federal Regulations Part 150
Noise Exposure Map Update Study for Los Angeles International Airport

DOCUMENTS ATTACHED:

- **Draft Noise Exposure Map Update for Los Angeles International Airport**
- **Appendix I, Draft Noise Exposure Map Update for Los Angeles International Airport**

DELIVER TO:

El Segundo Public Library
Attention: Julie Todd
111 W. Mariposa Ave
El Segundo, CA 90245

Documents delivered on: 5/12/15

Received by: Julie Todd

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Capital Planning, Programming and Engineering Group
Environmental and Land Use Planning Division
Noise Management

Receipt of Delivery

PROJECT: Title 14 Code of Federal Regulations Part 150
Noise Exposure Map Update Study for Los Angeles International Airport

DOCUMENTS ATTACHED:

- **Draft Noise Exposure Map Update for Los Angeles International Airport**
- **Appendix I, Draft Noise Exposure Map Update for Los Angeles International Airport**

DELIVER TO:

Inglewood Main Library
Attention: Joe Rane
101 W. Manchester Blvd.
Inglewood, CA 90301

Documents delivered on: 12 MAY 2015

Received by: _____

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Capital Planning, Programming and Engineering Group
Environmental and Land Use Planning Division
Noise Management

Receipt of Delivery

PROJECT: Title 14 Code of Federal Regulations Part 150
Noise Exposure Map Update Study for Los Angeles International Airport

DOCUMENTS ATTACHED:

- **Draft Noise Exposure Map Update for Los Angeles International Airport**
- **Appendix I, Draft Noise Exposure Map Update for Los Angeles International Airport**

DELIVER TO:

Lennox Library
Attention: Branch Manager/Librarian
4359 Lennox Blvd.
Lennox, CA 90304

Documents delivered on: 5/12/15

Received by: Norma Cuevas Norma Cuevas

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Los Angeles World Airports
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Capital Planning, Programming and Engineering Group
Environmental and Land Use Planning Division
Noise Management

Receipt of Delivery

PROJECT: Title 14 Code of Federal Regulations Part 150
Noise Exposure Map Update Study for Los Angeles International Airport

DOCUMENTS ATTACHED:

- **Draft Noise Exposure Map Update for Los Angeles International Airport**
- **Appendix I, Draft Noise Exposure Map Update for Los Angeles International Airport**

DELIVER TO:

Mark Twain Library
Attention: Branch Manager/Librarian
9621 S Figueroa St.
Los Angeles, CA 90003

Documents delivered on: 5/12/15

Received by: S/Rios

SENELE RIOS
323 755-4088

Los Angeles World Airports

LAX Community Noise Roundtable

LAX Part 150 Noise Exposure Map Update

Project Briefing #1

March 12, 2014

ESA Airports

LAX Part 150 Noise Exposure Map Update

Overview

- LAWA has initiated an update of the Federal Aviation Regulations (FAR) Part 150 Noise Exposure Map (NEM) for LAX
- Late in 2013 the Alta Environmental Team was selected by LAWA to prepare the LAX Part 150 NEM Update. Alta Environmental is a local, small business enterprise
- ESA Airports is serving as a subconsultant to Alta on the NEM Update preparation work including the aircraft noise modeling
- The goal is to submit updated NEMs for LAX to the FAA in 2015
- FAA requires LAWA to update the LAX NEMs to ensure continued sound insulation funding eligibility

ALTA ENVIRONMENTAL

Los Angeles World Airports

ESA Airports

LAX Part 150 Noise Exposure Map Update

Specifics

- LAWA developed NEMs for LAX in 1981 as part of an Airport Noise and Land Use Compatibility (ANCLUC) Study
- The FAA typically uses the airport's future year NEM to determine eligibility for federal funding of noise mitigation programs (e.g., sound insulation)
- The FAA is currently relying on the LAX Master Plan Alternative D contours for funding current LAX sound insulation programs
- The Alt. D contours represent the aircraft noise exposure in terms of the Community Noise Equivalent Level (CNEL) for calendar year 2015 forecast aircraft operations at LAX

ALTA ENVIRONMENTAL

Los Angeles World Airports

ESA Airports

LAX Part 150 Noise Exposure Map Update

Requirements

- The LAX NEM Update must be prepared in accordance with the guidance provided in FAR Part 150
- FAR Part 150 includes detailed guidance and a checklist of the items that must be included in the FAR Part 150 NEM Update
- For example, the LAX NEM Update must include aircraft noise exposure contours for the year of submission and a future year (typically five years in the future)
  - The Alta Team will produce LAX NEMs for 2015 and 2020

ALTA ENVIRONMENTAL

Los Angeles World Airports

LAX Part 150 Noise Exposure Map Update

Requirements (cont.)

- The noise contours must be depicted using DNL or CNEL and must be representative of the annual average day
- FAR Part 150 deems noise sensitive land uses exposed to noise levels above 65 DNL or CNEL to be incompatible with noise from aircraft operations
- Once submitted, FAA reviews the NEM report and either accepts or rejects the NEMs

LAX Part 150 Noise Exposure Map Update

This is a Stand Alone Effort

- This LAX NEM Update is not an airport master plan update, FAR Part 161 Study, nor a FAR Part 150 Noise Compatibility Program Update, and is not related to other ongoing studies
- The project team will develop an aircraft operations and fleet mix forecast for FAA's review and approval
- The project team will consider completed and ongoing planning and environmental studies to ensure noise modeling assumptions (e.g., airfield layout, runway use, aircraft fleet mix, flight tracks, etc.) are reflective of existing conditions and anticipated conditions in 2020
- The 2020 NEM must be based on "reasonably foreseeable" assumptions regarding future operations at LAX

LAX Part 150 Noise Exposure Map Update

The LAX NEM Update Will:

- Quantify existing and future aircraft noise exposure levels in the vicinity of LAX
- Provide the FAA and LAWA with a new set of NEMs to assess future noise mitigation needs

LAX Part 150 Noise Exposure Map Update

During The LAX NEM Update LAWA Will Not:

- Develop or recommend noise abatement or noise mitigation measures designed to minimize aircraft noise impacts
- Determine the sound insulation program boundaries
- Identify properties that are eligible for sound insulation

LAX Part 150 Noise Exposure Map Update

Details

- The Alta team kicked off the FAR Part 150 NEM Update with a project team meeting at LAWA's offices on February 18, 2014
- Reviewed the scope of work and project schedule
- Identified key contacts at LAWA for key data needs
- Agreed to brief the LAX Community Noise Roundtable tonight
- Kathryn Pantoja is LAWA's Project Manager
- Steve Alverson is the Alta Environmental Team's Project Manager

LAX Part 150 Noise Exposure Map Update

Study Elements

- Project Team Coordination
- Community Outreach Program
- Develop a Comprehensive Database of Current Conditions
- Assemble Information Required For Noise Contour Development
- Noise Contour Development
- Prepare and Submit NEM Report
- FAA Coordination
- LAWA Coordination
  - Includes two Roundtable briefings

LAX Part 150 Noise Exposure Map Update

Study Schedule

LAX Part 150 Noise Exposure Map Update

Key Dates in 2014

- 1/31/14 – Notice to Proceed
- 3/12/14 – Roundtable Briefing
- 2/3/14 – 5/23/14 – Develop Database of Current Conditions
- 3/17/14 – 7/25/14 – Assemble Information for Noise Contour Development
- 5/13/14, 5/15/14, and 5/16/14 – Community Workshops *(Tentative)*
- 7/21/14 – 9/26/14 – Noise Contour Development

Key Dates in 2015

- **9/29/14 – 12/18/15 – Prepare and Submit NEM Update**
- **3/10/15 – LAWA Board Meeting *(Tentative)***
- **3/11/15 – Roundtable Briefing *(Tentative)***
- **3/10/15, 3/12/15, and 3/13/15 – Community Workshops *(Tentative)***
- **6/15/15 - Submit LAX NEM Update to FAA**
- **12/18/15 – FAA Acceptance of the LAX NEM Update**

LAX Part 150 Noise Exposure Map Update

Questions?

Los Angeles World Airports

LAX Community Noise Roundtable

LAX Part 150 Noise Exposure Map Update

Project Briefing #2

May 14, 2014

ESA Airports

LAX Part 150 Noise Exposure Map Update

Brief Overview

- **In February 2014, LAWA initiated an update of the Federal Aviation Regulations (FAR) Part 150 Noise Exposure Map (NEM) for LAX**
- **FAA requires LAWA to update the LAX NEMs to ensure continued sound insulation funding eligibility**
- **The goal is to submit updated NEMs for LAX to the FAA in 2015**

ALTA ENVIRONMENTAL

Los Angeles World Airports

ESA Airports

LAX Part 150 Noise Exposure Map Update

Study Elements

- **Project Team Coordination**
- **Community Outreach Program**
- **Develop a Comprehensive Database of Current Conditions**
- **Assemble Information Required For Noise Contour Development**
- **Noise Contour Development**
- **Prepare and Submit NEM Report**
- **FAA Coordination**
- **LAWA Coordination**
  - **Includes two Roundtable briefings**

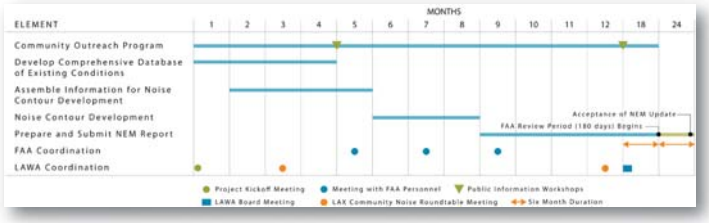
ALTA ENVIRONMENTAL

Los Angeles World Airports

ESA Airports

LAX Part 150 Noise Exposure Map Update

Study Schedule



ALTA ENVIRONMENTAL

Los Angeles World Airports

LAX Part 150 Noise Exposure Map Update

Key Dates in 2014

- ✓ 1/31/14 – Notice to Proceed
- ✓ 3/12/14 – Initial Roundtable Briefing
- ✓ 2/3/14 – 5/23/14 – Develop Database of Current Conditions
- 3/17/14 – 7/25/14 – Assemble Information for Noise Contour Development
- ✓ 5/12/14 and 5/13/14 – Community Workshops
- ✓ 5/14/14 – Roundtable Update
- 7/21/14 – 9/26/14 – Noise Contour Development

LAX Part 150 Noise Exposure Map Update

Key Dates in 2015

- 9/29/14 – 12/18/15 – Prepare and Submit NEM Update
- 3/10/15 – LAWA Board Meeting *(Tentative)*
- 3/11/15 – Roundtable Briefing *(Tentative)*
- March 2015 – Two Community Workshops *(Tentative)*
- 6/15/15 - Submit LAX NEM Update to FAA
- 12/18/15 – FAA Acceptance of the LAX NEM Update

LAX Part 150 Noise Exposure Map Update

Key Accomplishments to Date

- Collected all of the required aircraft operations, flight track, runway use, time of day, and fleet mix information
- Collected and reviewed all of the key background documents
- Prepared and delivered draft working papers to LAWA
- Submitted a technical memorandum to LAWA identifying potential INM substitutes for forwarding to FAA
- Conducted two public workshops
- Provided two Roundtable briefings

LAX Part 150 Noise Exposure Map Update

What's Next

- Finalize the aviation activity forecasts; submit to FAA for approval
- Receive FAA approval of the INM aircraft type substitutes
- Receive FAA approval of the aviation activity forecasts
- Finalize the noise model inputs and conduct preliminary noise model runs
- Initiate preparation of the draft Noise Exposure Map documentation

Questions?

ALTA ENVIRONMENTAL

Los Angeles World Airports

Los Angeles World Airports

LAX Community Noise Roundtable

LAX 14 CFR Part 150 Noise Exposure Map Update

Project Briefing #3

May 13, 2015

ESA Airports

LAX Part 150 Noise Exposure Map Update

Project Overview

- **Los Angeles World Airports (LAWA) initiated an update of the Title 14 Code of Federal Regulations (CFR) Part 150 Noise Exposure Map (NEM) report for LAX in February 2014**
- **The goal is to submit updated noise exposure maps for LAX to the Federal Aviation Administration (FAA) in 2015**
- **LAWA is updating the LAX NEMs to ensure continued eligibility for sound insulation program funding**

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LAX Part 150 Noise Exposure Map Update

Project Overview

- **LAWA developed noise exposure maps for LAX in 1981 as part of an Airport Noise and Land Use Compatibility (ANCLUC) Study**
- **The FAA typically uses the airport's future year noise exposure map to determine eligibility for federal funding of noise mitigation programs (e.g., sound insulation)**
- **The FAA is currently relying on the LAX Master Plan Alternative D noise contours for funding current LAX sound insulation programs. The Alternative D contours represent the aircraft noise exposure in terms of the Community Noise Equivalent Level (CNEL) for calendar year 2015 aircraft operations at LAX**

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LAX Part 150 Noise Exposure Map Update

Project Overview

- **The LAX NEM report must be prepared in accordance with the guidance provided in 14 CFR Part 150**
- **14 CFR Part 150 includes detailed guidance and a checklist of the items that must be included in the FAR Part 150 NEM Report**
- **For example, the NEM Report must include aircraft noise exposure contours for the year of submission and a future year (typically five years in the future)**
  - **The Alta Environmental Team has produced NEMs for 2015 and 2020**

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Noise Modeling Assumptions

- **Existing (2015) Conditions NEM**
  - Based on 2013 annual operations – 614,917
  - Aircraft fleet mix based on ANOMS data for Calendar Year (CY) 2013
  - Runway use based on ANOMS data for CY 2013
  - Time of day based on ANOMS data for CY 2013
  - Flight tracks and flight track usage based on ANOMS data for CY 2013

ESA Airports LAX Part 150 Noise Exposure Map Update

Noise Modeling Assumptions

- **Future (2020) Conditions NEM**
  - Terminal Area Forecast – 705,254 annual operations in 2020
  - Aircraft fleet mix updated based on information contained in approved environmental studies
  - Runway use, time of day, and flight tracks are assumed to be similar to 2015
  - Accounts for the Runway Safety Area improvements – Runways 7L-25R and 6R-24L

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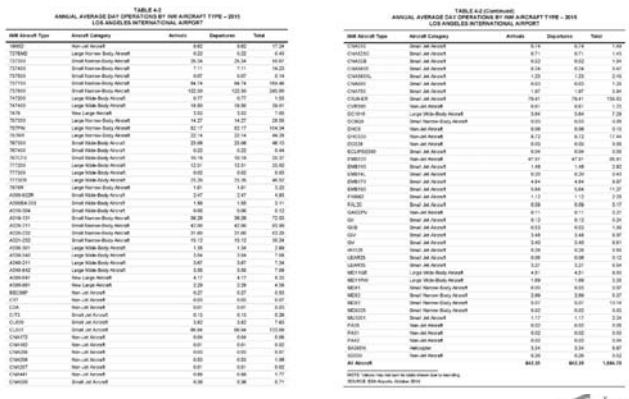
ESA Airports LAX Part 150 Noise Exposure Map Update

2015 Aircraft Fleet Mix



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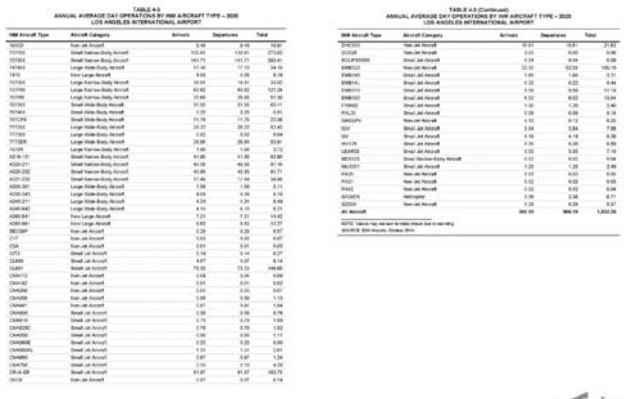
ESA Airports LAX Part 150 Noise Exposure Map Update

2020 Aircraft Fleet Mix



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2020 Aircraft Fleet Mix Assumptions

- 747200s will be replaced by 747400s
- 747400s will have fewer operations with increased operations by the A380-841 and A380-861 to compensate
- 737300s, 737400s, and 737500s would be replaced by 737700s and 737800s
- MD11s would be replaced 777200s and A320s

2020 Aircraft Fleet Mix Assumptions (cont.)

- MD80s and MD90s would be replaced by A320s
- 727s would be replaced by 757s
- A310s and A300s would be replaced by 767s
- DC9s would be replaced by 757s

2015 Time of Day

TABLE 4-4
AIRCRAFT OPERATIONS BY TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Aircraft Category	Day	Evening	Night	Total	Day	Evening	Night	Total
Large Narrow-Body Aircraft	49.45%	25.66%	24.90%	100.00%	73.93%	2.36%	23.71%	100.00%
Large Wide-Body Aircraft	67.99%	11.99%	20.01%	100.00%	48.64%	13.53%	37.82%	100.00%
Non-Jet Aircraft	74.40%	15.19%	10.41%	100.00%	72.35%	15.49%	12.16%	100.00%
New Large Aircraft	64.44%	17.34%	18.22%	100.00%	45.02%	3.04%	51.94%	100.00%
Small Jet Aircraft	72.04%	19.37%	8.59%	100.00%	74.75%	16.21%	9.04%	100.00%
Small Narrow-Body Aircraft	66.62%	20.36%	13.01%	100.00%	70.58%	10.89%	18.53%	100.00%
Small Wide-Body Aircraft	50.50%	23.12%	26.38%	100.00%	56.80%	10.77%	32.43%	100.00%
All Aircraft[1]	**65.96%**	**19.61%**	**14.43%**	**100.00%**	**69.03%**	**11.65%**	**19.32%**	**100.00%**

NOTES:
Values may not sum to 100% due to rounding.
[1] Does not include helicopter operations
SOURCE: ESA Airports, October 2014, based on LAX ANOMS data for calendar year 2013.

2020 Time of Day

TABLE 4-5
AIRCRAFT OPERATIONS BY TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrivals				Departures			
Aircraft Category	Day	Evening	Night	Total	Day	Evening	Night	Total
Large Narrow-Body Aircraft	49.38%	25.70%	24.92%	100.00%	73.91%	2.36%	23.74%	100.00%
Large Wide-Body Aircraft	75.55%	11.46%	12.99%	100.00%	54.66%	11.98%	33.36%	100.00%
Non-Jet Aircraft	75.12%	15.06%	9.81%	100.00%	72.93%	15.82%	11.25%	100.00%
New Large Aircraft	72.23%	13.31%	14.46%	100.00%	52.09%	2.54%	45.37%	100.00%
Small Jet Aircraft	72.01%	19.45%	8.54%	100.00%	74.70%	16.28%	9.03%	100.00%
Small Narrow-Body Aircraft	65.95%	20.38%	13.67%	100.00%	69.83%	10.93%	19.24%	100.00%
Small Wide-Body Aircraft	54.56%	24.69%	20.75%	100.00%	61.33%	11.89%	26.77%	100.00%
All Aircraft [1]	**66.60%**	**19.63%**	**13.78%**	**100.00%**	**69.51%**	**11.49%**	**19.00%**	**100.00%**

NOTES:
Values may not sum to 100% due to rounding.
[1] Does not include helicopter operations
SOURCE: ESA Airports, October 2014.

2015 Runway Use

TABLE 4-11
RUNWAY USE BY OPERATION TYPE AND TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrival			Departure		
Runway	Day	Evening	Night	Day	Evening	Night
06L	0.47%	0.23%	3.55%	0.02%	0.01%	0.01%
06R	0.01%	0.00%	15.73%	0.46%	0.24%	0.22%
07L	0.01%	0.01%	6.55%	0.55%	0.28%	0.51%
07R	0.54%	0.28%	4.30%	0.01%	0.02%	0.17%
24L	1.58%	2.39%	1.27%	43.20%	40.02%	25.87%
24R	45.91%	46.64%	30.97%	1.49%	0.47%	1.33%
25L	49.44%	47.12%	35.62%	3.23%	5.05%	10.82%
25R	2.04%	3.33%	2.01%	51.04%	53.91%	61.08%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

NOTES:
Values may not sum to 100% due to rounding.
Does not include helicopter operations
SOURCE: ESA Airports, October 2014, based on LAX ANOMS data for calendar year 2013.

2020 Runway Use

TABLE 4-12
RUNWAY USE BY OPERATION TYPE AND TIME OF DAY - FUTURE (2020) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrival			Departure		
Runway	Day	Evening	Night	Day	Evening	Night
06L	0.48%	0.23%	3.38%	0.02%	0.01%	0.01%
06R	0.01%	0.00%	15.00%	0.45%	0.26%	0.24%
07L	0.01%	0.01%	4.90%	0.55%	0.28%	0.50%
07R	0.53%	0.28%	3.17%	0.01%	0.01%	0.17%
24L	1.58%	2.39%	1.43%	44.22%	42.15%	28.55%
24R	46.53%	47.21%	34.12%	1.50%	0.49%	1.43%
25L	48.82%	46.52%	36.09%	2.90%	3.45%	9.60%
25R	2.04%	3.36%	1.92%	50.35%	53.35%	59.51%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

NOTES:
Values may not sum to 100% due to rounding.
Does not include helicopter operations
SOURCE: ESA Airports, October 2014.

Runway Use Assumptions

- **Runway use by INM aircraft type remains the same from 2015 to 2020**
- **Runway use tables show runway use by aircraft category (e.g., small-narrow body, large narrow-body)**
- **Changes in the mix of aircraft by category are responsible for the small changes in the 2020 runway use values**
- **Generally, changes in runway use are less than 5 percent**

Radar Flight Tracks – Runways 24 and 25 Arrivals

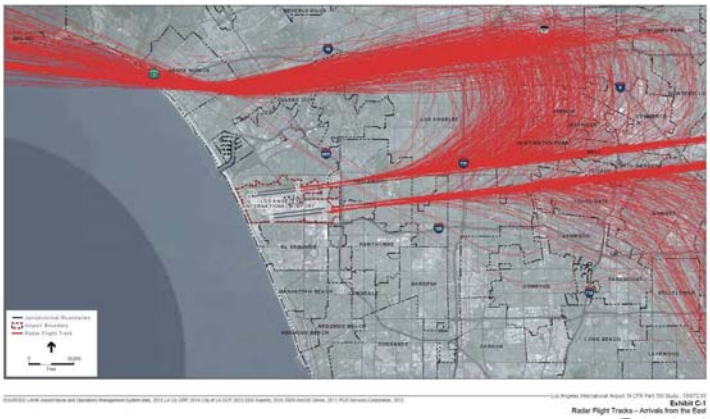

Exhibit C-1
Radar Flight Tracks – Arrivals from the East

ESA Airports

LAX Part 150 Noise Exposure Map Update

Radar Flight Tracks – Runways 24 and 25 Departures

Exhibit C-4
Radar Flight Tracks – Departures to the West

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LAX Part 150 Noise Exposure Map Update

Modeled Flight Tracks – Runway 24R Departures and Arrivals

Exhibit 4-3a
INM Arrival and Departure Flight Tracks – Runway 24R

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LAX Part 150 Noise Exposure Map Update

2015 Noise Exposure Map – Existing Conditions

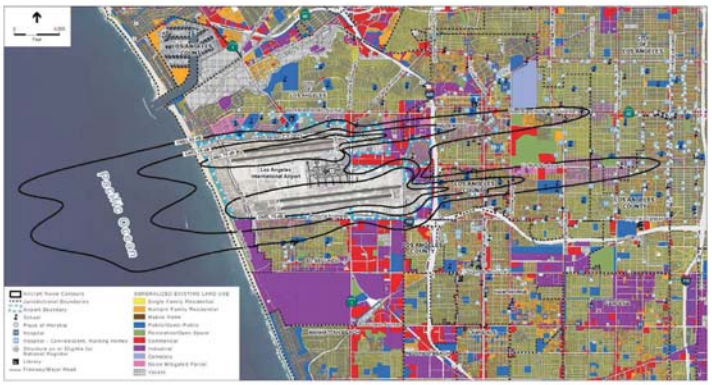

Exhibit 5-1
2015 Noise Exposure Map (Existing Conditions) - Los Angeles International Airport

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Los Angeles World Airports

ESA Airports

LAX Part 150 Noise Exposure Map Update

2020 Noise Exposure Map – Future Conditions

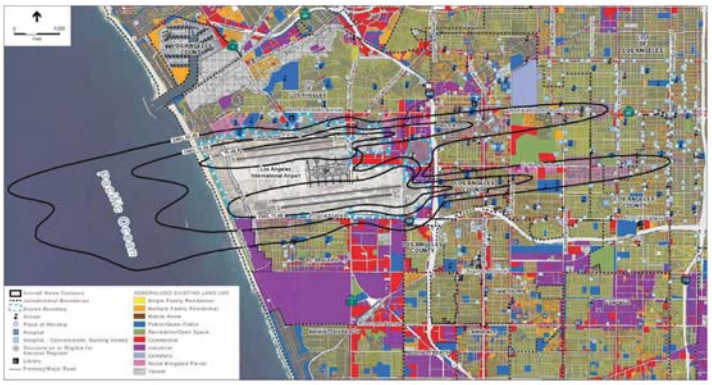

Exhibit 5-2
2020 Noise Exposure Map (Future Conditions) - Los Angeles International Airport

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Los Angeles World Airports

TABLE 5-2
EFFECTS OF NOISE EXPOSURE IN THE AIRPORT ENVIRONS – 2015 AND 2020

Noise Level	Area (acres)	Households	Population	Place of Worship	School	Hospital	Historic Structure
2015							
CNEL 65-70	6,581.1	9,323	29,585	32	19	2	1
CNEL 70-75	3,017.5	2,047	7,968	1	5	0	3
CNEL 75+	1,792.5	46	250	0	0	0	1
Total	**11,391.0**	**11,416**	**37,803**	**33**	**24**	**2**	**5**
2020							
CNEL 65-70	6,876.4	10,399	32,507	42	21	3	1
CNEL 70-75	3,229.9	2,575	10,068	1	5	0	3
CNEL 75+	1,929.4	71	384	0	0	0	1
Total	**12,035.6**	**13,045**	**42,959**	**43**	**26**	**3**	**5**

NOTES:
The households and population counts presented above do not include noise mitigated properties.
CNEL = Community Noise Equivalent Level
Values may not sum to totals shown due to rounding.
SOURCES: Los Angeles World Airports, 2014; ESA Airports, 2014; PCR Services Corporation, 2012.

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ESA Airports LAX Part 150 Noise Exposure Map Update

TABLE 5-3
LAND USE EVALUATION – 2015 AND 2020 NOISE EXPOSURE MAPS
LOS ANGELES INTERNATIONAL AIRPORT

	Area Exposed to Aircraft Noise in 2015 (acres)				Area Exposed to Aircraft Noise in 2020 (acres)			
Land Use	CNEL 65-70	CNEL 70-75	CNEL 75+	Total	CNEL 65-70	CNEL 70-75	CNEL 75+	Total
Single family residential	303.9	69.8	2.0	375.7	370.4	84.4	2.4	457.2
Multiple family residential	349.7	68.2	2.0	419.9	383.0	82.5	4.0	469.5
Mobile Home	0.9	0.0	0.0	0.9	0.9	0.0	0.0	0.9
Public/Quasi-Public	145.9	24.5	0.0	170.3	165.1	31.1	0.0	196.1
Recreation/Open Space	79.9	38.1	4.7	122.8	87.5	41.8	2.0	131.3
Commercial	330.5	67.6	5.1	403.2	350.5	97.3	10.6	458.4
Industrial	217.5	123.5	12.2	353.2	218.3	132.0	21.7	371.9
Cemetery	22.2	0.0	0.0	22.2	33.4	0.0	0.0	33.4
Noise Mitigated Parcel	566.8	118.5	1.6	686.9	630.0	150.2	4.1	784.2
Airport	504.4	1,375.4	1,737.8	3,617.5	400.0	1,380.5	1,851.8	3,632.4
Water/Beach	3,338.8	918.3	5.6	4,262.8	3,429.6	973.5	6.4	4,409.5
Vacant	56.3	21.1	0.3	77.6	60.1	23.4	0.3	83.8
Transportation/Other	664.4	192.4	21.2	878.0	747.6	233.3	26.1	1,007.1
Total	**6,581.1**	**3,017.5**	**1,792.5**	**11,391.0**	**6,876.4**	**3,229.9**	**1,929.4**	**12,035.6**

NOTES:
CNEL = Community Noise Equivalent Level
Values may not sum to totals shown due to rounding.
SOURCES: Los Angeles World Airports, 2014; ESA Airports, 2014; PCR Services Corporation, 2012.

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ESA Airports LAX Part 150 Noise Exposure Map Update

Key Accomplishments to Date

- **Prepared a Preliminary Draft LAX NEM Report**
  - **Incorporated LAWA's edits and comments**
  - **Incorporated FAA's edits and comments**
- **Published the Draft LAX NEM Report**
  - **An electronic copy is on the LAX 14 CFR Part 150 NEM Update Website**
  - **Printed copies are at five area libraries**
- **Conducted a total of four public workshops**
- **Provided three formal Roundtable briefings**

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ESA Airports LAX Part 150 Noise Exposure Map Update

What's Next

- **The 30-day public comment period ends on June 9, 2015**
- **Incorporate FAA and LAWA's edits/comments into the Final LAX NEM Report**
- **LAWA submits the Final LAX NEM Report to FAA for FAA's review and acceptance in July 2015**
- **FAA accepts the LAX NEMs**

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Additional Resources:

- **Electronic copies of the LAX NEM Report are available at: http://www.lawa.org/LAXPart150.aspx**
- **Hardcopies of the Draft LAX NEM Reports are available at the following libraries:**
  - **Loyola Village Branch Library, Westchester**
  - **El Segundo Public Library, El Segundo**
  - **Inglewood Main Library, Inglewood**
  - **Lennox Library, Lennox**
  - **Mark Twain Library, Los Angeles**
- **FAA's 14 CFR Part 150 Website: http://www.faa.gov/airports/environmental/airport_noise/**

ESA Airports LAX Part 150 Noise Exposure Map Update

Questions?

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Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

LAX ATCT Staff Briefing
March 11,2015

Project Overview

- **Los Angeles World Airports (LAWA) has initiated an update of the Federal Aviation Regulations (FAR) Part 150 Noise Exposure Map (NEM) report for LAX**
- **The Alta Environmental Team was selected by LAWA to prepare the LAX Part 150 NEM report. Alta Environmental is a local, small business enterprise**
- **The goal is to submit updated noise exposure maps for LAX to the Federal Aviation Administration (FAA) in 2015**
- **LAWA is updating the LAX NEMs to ensure continued eligibility for sound insulation program funding**

ALTA ENVIRONMENTAL ESA Airports

Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

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ALTA ENVIRONMENTAL ESA Airports

Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

Noise Modeling Assumptions

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  - **Aircraft fleet mix based on ANOMS data for Calendar Year (CY) 2013**
  - **Runway use based on ANOMS data for CY 2013**
  - **Time of day based on ANOMS data for CY 2013**
  - **Flight tracks and flight track usage based on ANOMS data for CY 2013**

ALTA ENVIRONMENTAL ESA Airports

Los Angeles World Airports

Noise Modeling Assumptions

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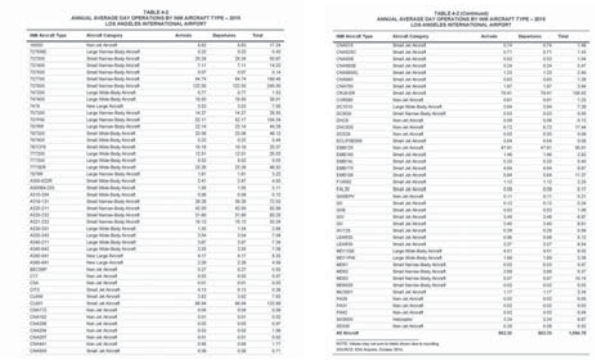
  - **Terminal Area Forecast – 705,254 annual operations in 2020**
  - **Aircraft fleet mix updated based on information contained in approved environmental studies**
  - **Runway Use, Time of Day, and flight tracks assumed to be similar to 2015**
  - **Runway Safety Area improvements – Runways 7L-25R and 6R-24L**

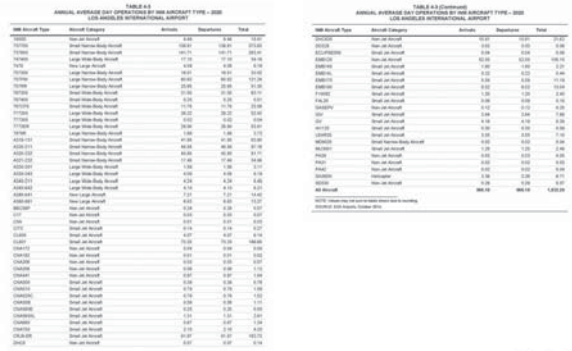
Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

2015 Aircraft Fleet Mix



Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

2020 Aircraft Fleet Mix



Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

2015 Time of Day

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AIRCRAFT OPERATIONS BY TIME OF DAY - EXISTING (2015) CONDITIONS
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Non-Jet Aircraft	74.40%	15.19%	10.41%	100.00%	72.35%	15.49%	12.16%	100.00%
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Small Jet Aircraft	72.04%	19.37%	8.59%	100.00%	74.75%	16.21%	9.04%	100.00%
Small Narrow-Body Aircraft	66.62%	20.36%	13.01%	100.00%	70.58%	10.89%	18.53%	100.00%
Small Wide-Body Aircraft	50.50%	23.12%	26.36%	100.00%	56.80%	10.77%	32.43%	100.00%
All Aircraft*	65.96%	19.01%	14.43%	100.00%	69.03%	11.65%	19.32%	100.00%

NOTES:
Values may not sum to 100% due to rounding.
* Does not include helicopter operations
SOURCE: ESA Airports, October 2014, based on LAX ANOMS data for calendar year 2013.

2020 Time of Day

TABLE 4-5
AIRCRAFT OPERATIONS BY TIME OF DAY - FUTURE (2020) CONDITIONS
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Non-Jet Aircraft	75.12%	15.00%	9.81%	100.00%	72.93%	15.82%	11.25%	100.00%
New Large Aircraft	72.23%	13.31%	14.46%	100.00%	52.09%	2.54%	45.37%	100.00%
Small Jet Aircraft	72.01%	19.45%	8.54%	100.00%	74.70%	16.28%	9.03%	100.00%
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All Aircraft [1]	66.60%	19.63%	13.78%	100.00%	69.51%	11.49%	19.00%	100.00%

NOTES:
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[1] Does not include helicopter operations.
SOURCE: ESA Airports, October 2014.

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

2015 Runway Use

TABLE 4-11
RUNWAY USE BY OPERATION TYPE AND TIME OF DAY - EXISTING (2015) CONDITIONS
LOS ANGELES INTERNATIONAL AIRPORT

	Arrival			Departure		
Runway	Day	Evening	Night	Day	Evening	Night
06L	0.47%	0.23%	3.55%	0.02%	0.01%	0.01%
06R	0.01%	0.00%	15.73%	0.46%	0.24%	0.22%
07L	0.01%	0.01%	6.55%	0.55%	0.28%	0.51%
07R	0.54%	0.28%	4.30%	0.01%	0.02%	0.17%
24L	1.58%	2.39%	1.27%	43.20%	40.02%	25.67%
24R	45.91%	46.64%	30.97%	1.49%	0.47%	1.33%
25L	49.44%	47.12%	35.82%	3.23%	5.05%	10.82%
25R	2.04%	3.33%	2.01%	51.04%	53.91%	61.08%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

NOTES:
Values may not sum to 100% due to rounding.
Does not include helicopter operations.
SOURCE: ESA Airports, October 2014, based on LAX AWOS data for calendar year 2013.

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

2020 Runway Use

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RUNWAY USE BY OPERATION TYPE AND TIME OF DAY - FUTURE (2020) CONDITIONS
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06L	0.48%	0.23%	3.58%	0.02%	0.01%	0.01%
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07L	0.01%	0.01%	4.90%	0.55%	0.28%	0.50%
07R	0.53%	0.28%	3.17%	0.01%	0.01%	0.17%
24L	1.58%	2.38%	1.43%	44.22%	42.15%	28.55%
24R	46.53%	47.21%	34.12%	1.50%	0.49%	1.43%
25L	48.82%	46.52%	36.09%	2.90%	3.45%	9.60%
25R	2.04%	3.36%	1.92%	50.35%	53.35%	59.51%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

NOTES:
Values may not sum to 100% due to rounding.
Does not include helicopter operations.
SOURCE: ESA Airports, October 2014.

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

Published Arrival and Departure Procedures

TABLE 3-3
STANDARD TERMINAL ARRIVAL ROUTES, LOS ANGELES INTERNATIONAL AIRPORT

Procedure Name	Procedure Type	Arrival Direction
BIGST THREE	Conventional	East/Northeast
DOWNE FOUR	Conventional	East/Northeast
KIMMO THREE	Conventional	North/Northeast
LEENA FOUR	Conventional	North/Northeast
MOORPARK THREE	Conventional	North/Northeast
OCEAN TWO	Conventional	South/Southwest/Southeast
OLDES ONE	Conventional	South/Southwest/Southeast
REDEYE TWO	Conventional	East/Northeast
REEDR THREE	Conventional	East/Northeast
RIVR TWO	Conventional	East/Northeast
SADDE SIX	Conventional	North/Northeast
SEAVU TWO	Conventional	East/Northeast
SHAVE ONE	Conventional	South/Southwest/Southeast
VISTA TWO	Conventional	South/Southwest/Southeast
WJFB THREE	RNAV	South/Southwest/Southeast
BEACH ONE	RNAV	North/Northeast
BYRON ONE	RNAV	North/Northeast

NOTE: RNAV = Area Navigation
SOURCE: Airfax.com, August 2014

TABLE 3-4
DEPARTURE PROCEDURES, LOS ANGELES INTERNATIONAL AIRPORT

Procedure Name	Procedure Type	Departure Direction
CATLINA FIVE	Conventional	South/East
CHATY TWO	Conventional	North/West
GABRIL EIGHT	Conventional	North/West
GORMAN FOUR	Conventional	North/West
IMPER ONE	Conventional	South/East
LAXX SEVEN	Conventional	South/East
LOOP SEVEN	Conventional	North/West
PERCH NINE	Conventional	North/West
SAN DIEGO SIX	Conventional	South/East
SEAL BEACH FIVE	Conventional	South/East
SEBBY EIGHT	Conventional	North/West
VENTURA FIVE	Conventional	North/West
CASTA FOUR	RNAV	North/West
FIXIT TWO	RNAV	North/West
HOLTZ NINE	RNAV	South/East
JEDDD ONE	RNAV	South/East
KANVR THREE	RNAV	South/East
MUELR ONE	RNAV	North/West
OSHKN FOUR	RNAV	North/West
ZULU ONE	RNAV	South/East

NOTE: RNAV = Area Navigation
SOURCE: Airfax.com, August 2014

Los Angeles International Airport
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Arrival Flight Tracks – Runways 24 and 25

ALTA ENVIRONMENTAL ESA Airports Los Angeles World Airports

Los Angeles International Airport
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Departure Flight Tracks – Runways 24 and 25

ALTA ENVIRONMENTAL ESA Airports Los Angeles World Airports

Los Angeles International Airport
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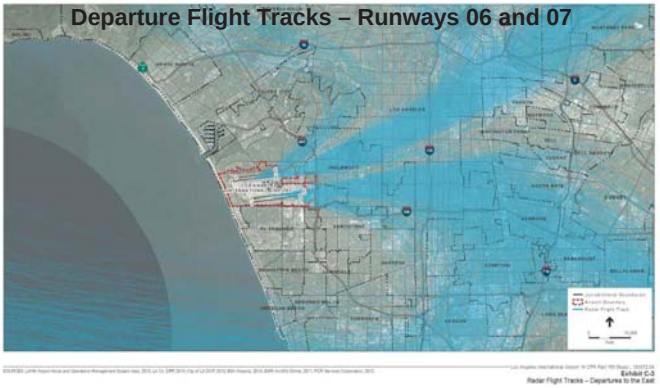
Arrival Flight Tracks – Runways 06 and 07

ALTA ENVIRONMENTAL ESA Airports Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

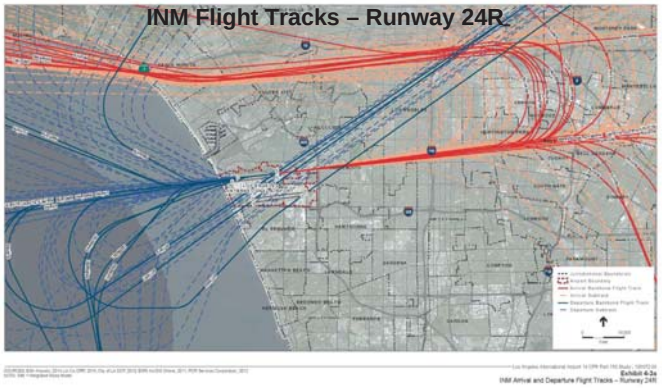
Departure Flight Tracks – Runways 06 and 07



ALTA ENVIRONMENTAL ESA Airports Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

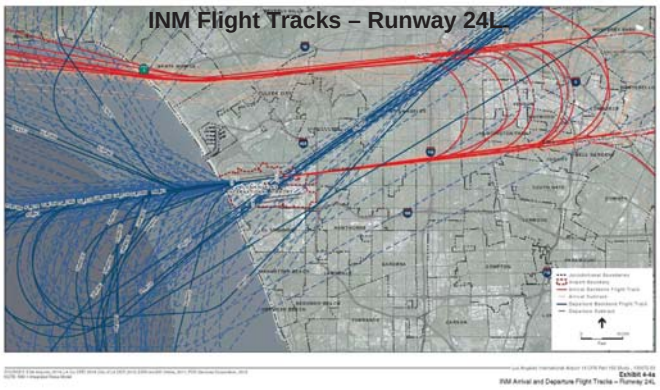
INM Flight Tracks – Runway 24R



ALTA ENVIRONMENTAL ESA Airports Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

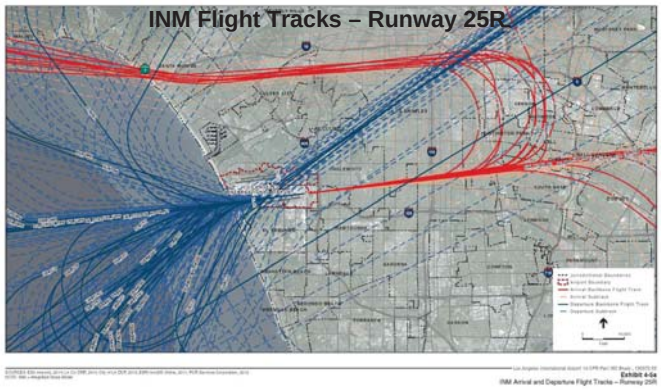
INM Flight Tracks – Runway 24L



ALTA ENVIRONMENTAL ESA Airports Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

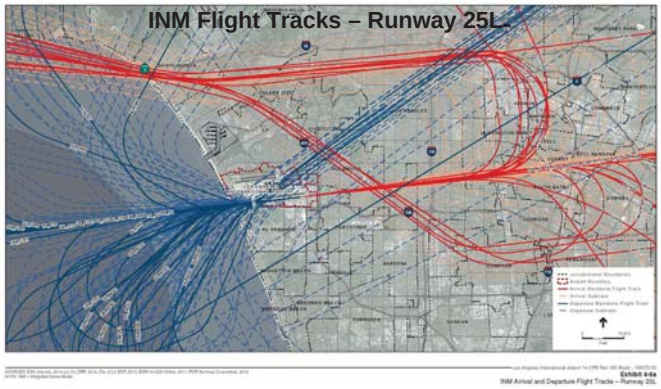
INM Flight Tracks – Runway 25R



ALTA ENVIRONMENTAL ESA Airports Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

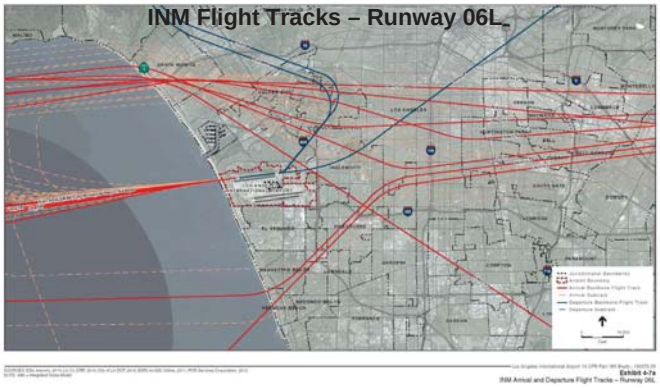
INM Flight Tracks – Runway 25L



ALTA ENVIRONMENTAL ESA Airports Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

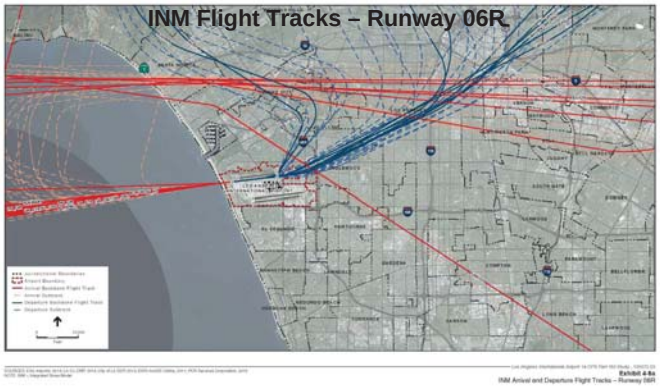
INM Flight Tracks – Runway 06L



ALTA ENVIRONMENTAL ESA Airports Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

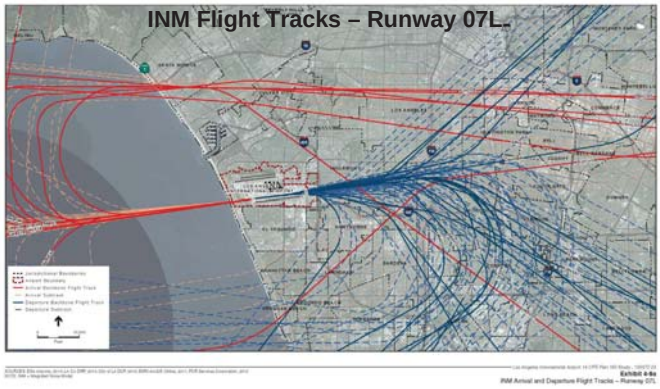
INM Flight Tracks – Runway 06R



ALTA ENVIRONMENTAL ESA Airports Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

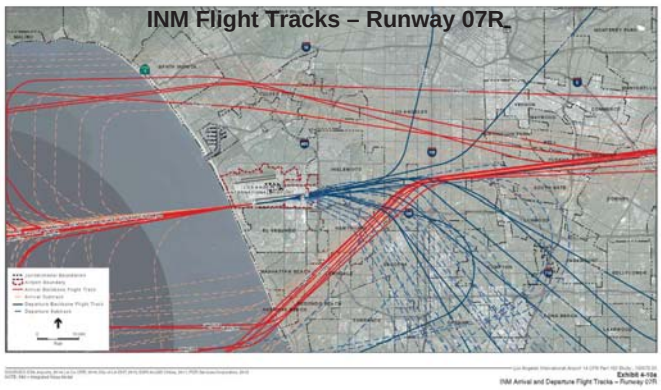
INM Flight Tracks – Runway 07L



ALTA ENVIRONMENTAL ESA Airports Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

INM Flight Tracks – Runway 07R



ALTA ENVIRONMENTAL ESA Airports Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

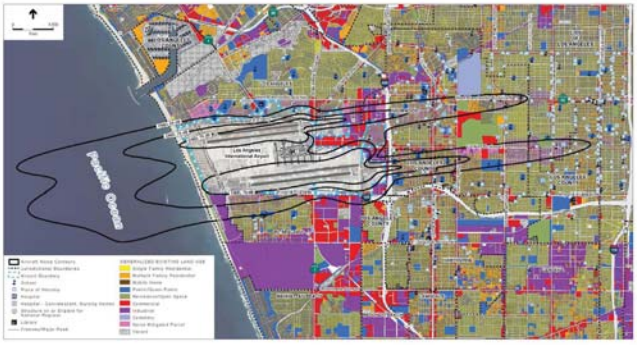


Exhibit 5-1
2015 Noise Exposure Map – Los Angeles International Airport

ALTA ENVIRONMENTAL ESA Airports

Los Angeles World Airports

Los Angeles International Airport
14 CFR Part 150 Noise Exposure Map Report Update

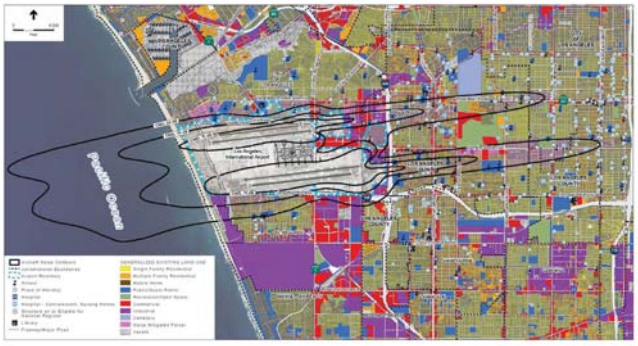


Exhibit 5-2
2020 Noise Exposure Map – Los Angeles International Airport

ALTA ENVIRONMENTAL ESA Airports

Los Angeles World Airports

From: PANTOJA, KATHRYN R. <KPantoja@lawa.org>
Sent: Thursday, August 06, 2015 10:49 AM
To: Dean Edwards; Carmen Sainz
Subject: LAX Noise Exposure Map Update

Hello,

I wanted to ensure that you are aware of the update LAWA is conducting for the 14 CFR Part 150 LAX Noise Exposure Map (NEM). We are trying to finalize the document for submittal to the Federal Aviation Administration in August 2015 and would like to make sure that you had an opportunity to review and provide any input if desired. We have been working primarily with the LACO CDC staff (Residential Sound Insulation Program (RSIP) – Ray Gomez) obtaining updated noise mitigation information for inclusion in this update to the Part 150 NEM 65 dB noise contour, which determines the eligible area for possible federal funding under the Airport Improvement Program for the CDC RSIP. This update was brought up in our discussion back in March 2015 when we had a teleconference call along with CDC staff to discuss which LAX noise contour map should be referenced in the Noise Insulation Program in Title 22 of Los Angeles County Code.

The draft LAX Part 150 NEM Update document and information may be viewed on the LAWA website at the following links:

http://www.lawa.aero/LAXPart150.aspx?id=9625 (document)
http://www.lawa.aero/LAXPart150.aspx (LAX Part 150 web page)

We will be finalizing the document hopefully by August 21, 2015. Please let me know if you have any problems accessing the linked information.

Kind regards,

Kathryn Pantoja
Environmental Affairs Officer
Los Angeles World Airports
Environmental and Land Use Planning Division
Noise Management
424-646-6501 PHONE
424-646-9260 FAX

The contents of this message are confidential and privileged and the dissemination or copying of this information is prohibited by anyone who is not the intended recipient. Thank you.

From: PANTOJA, KATHRYN R. <KPantoja@lawa.org>
Sent: Thursday, August 06, 2015 2:47 PM
To: cejackson@cityofinglewood.org
Subject: LAX Part 150 Noise Exposure Map Update

Dear Mr. Jackson,

I was referred by Bettye Griffith, Manager of the Inglewood RSI Program, who LAWA works with on a regular basis. We are in the final stages of updating the 14 CFR Part 150 Noise Exposure Map (NEM) for LAX to ensure continued eligibility for noise mitigation funds from the Federal Aviation Administration (FAA) under their AIP grants. We have obtained updated information from the Inglewood RSI Program regarding mitigated parcels, land use, etc., and incorporated this data into the LAX NEM update for submittal to the FAA. I would like to ensure that the City of Inglewood Planning Department is aware of this project so that you can share any feedback or input on this project if you so desire.

Our current project schedule has a target submittal date to the FAA of August 2015 to ensure that all noise impacted communities remain eligible to receive AIP grant funds from the FAA after this year – the current approved map is the Master Plan Alt D 65 dB contour for 2015. The draft LAX Part 150 NEM Update is available for review on our website as follows:

http://www.lawa.aero/LAXPart150.aspx (information web page)
http://www.lawa.aero/LAXPart150.aspx?id=9625 (document)

The draft 2020 NEM update contour is generally larger than the current NEM contour so this will be beneficial for all surrounding noise impacted communities. Please let me know if you have any problems accessing the website links above. We hope to have the final document ready for submittal to the FAA by August 21, 2015. Thank you for your time and attention.

Best regards,

Kathryn Pantoja
Environmental Affairs Officer
Los Angeles World Airports
Environmental and Land Use Planning Division
Noise Management
424-646-6501 PHONE
424-646-9260 FAX

The contents of this message are confidential and privileged and the dissemination or copying of this information is prohibited by anyone who is not the intended recipient. Thank you.

List of Individuals and Organizations Contacted
14 CFR Part 150 Noise Exposure Map Update
Los Angeles International Airport

Full Name	Agency
Brian Laycock	ABX Air (ABX)
Jeremy Heard	ABX Air (ABX)
Robert Lonnie	Aero Jet Services
SERGEY MAKSUNOV	AEROFLOT RUSSIAN AIRLINES
Wolfgang Sperber	AeroLogic
Maribel Iglesias	Aeromexico (AMX)
Francisco Padilla Fernandez de la Vega	AeroMexico Connect
Luis Del Bosque Gomez	AeroUnion (TNO)
Mr. Guilhem Perrichet	Air France (AFR)
David Morgan	Air New Zealand Limited
Brian Kay	Air Tahiti Nui
Andre Anderson	Air Transport Inc/ATI Jets (CYO)
Ed Wilson	Air Transport International
Stephen Tucker	AirNet Systems, Inc
Jaden Kushner	AirSprint Canada (ASP)
James A. Elian	AirSprint US, Inc. (HAB)
Rob Amsler	AirTran Airways (TRS)
Lynae Craig	Alaska Airlines (ASA)
Richard Ide	All Nippon Airways (ANA)
Thayne Klingler	Allegiant Air (AAY)
Captain Jim Kaiser	American Airlines (AAL)
Ronald Thomas	American Airlines (AAL)
Mr. Brian Lander	Ameriflight, LLC (AMF)
Ed Cook	Amerijet International
Richard Carpenter	Amerijet International
Teak Biondo	Ameristart Jet Charter, Inc. (AJI)
Ralph Myers	Asiana Airlines
Chris Agnini	Atlas Air Cargo/Polar Air Cargo
Lew Allen	Atlas Air, Inc (GTI)
Melvin Wagoner	Avcenter Inc
Eric Sanchez	Aviation Advisor Inc. (LKF)
Kellee Valentine	Aviation Consultants, Inc.
Gordon Isachsen	Avjet Corporation
Herbst Axel	Cargolux Airlines Int'l S.A.
Walter Calzadilla	Cargolux Italia (ICV)
Captain Geoff Marinko	Cathay Pacific Airways (CPA)
Captain Neil Phillips	Cathay Pacific Airways (CPA)
Mr. Charlie Pai	China Airlines (CAL)
Captain George Weng	China Airlines (CAL)
Captain Guo-Hsiung Fann	China Airlines (CAL)
Robert Chin	China Airlines (CAL)
James Li	China Cargo Airlines
Duan Phillip	China Eastern Airlines
XU/CANHUI	China Southern Airlines
Mr. Zhang Tao	China Southern Airlines
Stelios D. Rapis	Chrysler Aviation, Inc.
Cliff Holt	Clay Lacy
Todd Naugle	Compass Airlines (CPZ)
Enrique Medina Brand	Contact Integrated Services
Jorge Campbell	Copa Airlines
J. J. Sloan	Corporate Flight International, Inc. (VHT)
Richard Hopkins	D&D Aviation
Flight Ops Atlanta	Delta Airlines (DAL)
Gary Cabriales	Delta Airlines (DAL)
Tony Roberts	Delta Private Jets
Ryan Pike	DesertJet, LLC (DJR)
Garcia, Joel	Disney
Jim Koutsopanagos	Eagle Aircraft
Noam Doron	EL AL Airlines (ELY)
Captain Edo Sharon	El Al Israel Airlines (ELY)
Alex Chang	EVA Air (EVA)
Bernie Lin	EVA Air (EVA)
Linda Gann	EVA Air (EVA)
Richard Y. Yeh	EVA Air (EVA)
Coty Mao	EVA Airways CORP.
Chip Carter	Evergreen International Airlines, Inc.

List of Individuals and Organizations Contacted
14 CFR Part 150 Noise Exposure Map Update
Los Angeles International Airport

Full Name	Agency
Dion Glenn	F & L Aviation
Captain Dan L. Delane	FedEx (FDX)
Jason Weiss	FlextJet (LXJ)
Bill Bilger	Flight Options (OPT)
Nick Erb	Flightexec
John Maloney	Florida West International Airways (RF)
Ken Wilson	FLTPlan, LLC
JP Thibodeau	Frontier Airlines (FFT)
Captain Steve Woodfine	Gama Aviation Ltd
Ron Rhoads	Gowan Company, LLC
Captain Brent Rollins	Great Lakes Airlines (GLA)
JD Hood	Horizon Air (QXE)
Lamar Haugaard	Horizon Air (QXE)
Michael Cary	IFL Group, Inc. (TSU)
Sandra Miracle	IFL Group, Inc. (TSU)
Masakazu Douglas	Japan Airlines (JAL)
Bill Thomas	Jet Aviation Holdings
Mike Kopp	Jet Linx Aviation LLC (JTL)
Edward Clark	Jet Northwest LLC
James Daulton	JetBlue Airways (JBU)
Greg Marcussen	JetSelect Aviation (OHC)
Frank Westbrook	JetSuite Air (RSP)
Timothy Slater	KaiserAir, Inc.
Peter Sanderlin	Kalitta Air
Bradley K Clark	Kalitta Charters (KFS)
Ms. Linda Perdue	Key Lime Air, Inc. (LYM)
Kevin Kong	Korean Air (KAL)
TaeHa Park	Korean Air (KAL)
Carlos Olmedo	LACSA Airlines (LRC)
Jacqueline Lefort	Lan Chile & Lan Peru Airlines
Tim Miller	Lockheed Martin Corp
Fokko Doyen	Lufthansa Cargo
Stefan Lau	LUFTHANSA GERMAN AIRLINES
John Jorgensen	Mach 1 Charter
Enrique Garcia	Mas Air Cargo (MAA)
Reggie Hopwood	McNeely Charter Service Inc.
Alvin Isaacs	Mesa Air Group
Jorge U. Morales	MGM Resorts International
John Passwater	Miami Air International
Mike Moravec	MIDWEST AVIATION (DZR)
Pablo F. Montoya	Monty Aviation, LLC
Wade Tefft	Mountain Aviation (FTH)
Captain Arthur Clark	Netjets (EJA)
Eric Lampert	Netjets (EJA)
Ms. Yuko Toyama	Nippon Cargo Airlines (NCA)
Hiroshi Ikeya	Nippon Cargo Airlines (NCA)
Chad Seedorf	Northern Illinois Flight Center DBA:N-Jet
James Wayne	Northrop Grumman
Stephen Ricard	Northrop Grumman Aviation Division
Bob Zeng	Omni Air International
James Straley	Omni Air International
Harve Camelin	Pak West Airlines
Jason Martinelli	Pegasus Elite Aviation (PEG)
Adrian M. Ingles	Philippine Airlines
Rex Aldanese	Philippine Airlines
Phil Dacy	Priester Aviation, LLC.
Tim Lomakin	Regency Air
John Burruel	Reno Flying Service
Bart Wooldridge	Republic Airlines
Taesik Kim	Samsung Techwin C., Ltd
Tom Mason	Sands Aviation
Max Rosenberg	Santa Barbara Aviation
Gary Helmeid	SC Aviation
Jason Middleton	Scott Aviation, dba Siver Air (SIS)
Ron Turner	Simon Aviation
Michael Wang	Singapore Air

List of Individuals and Organizations Contacted
14 CFR Part 150 Noise Exposure Map Update
Los Angeles International Airport

Full Name	Agency
Captain Eri Oon	Singapore Air Cargo
Jack Thomas	Sky King Aviation
Captain Hovik Grozian	Skywest Airlines (SKW)
John Laber	SkyWest Airlines (SKW)
Fred Lohden	Solairus/Sunset Aviation (TWY)
Don Hall	Southern Air Inc.
Perry Clausen	Southwest Airlines (SWA)
Rich Dancaster	Spirit Airlines (NKS)
Richard Scord	Spring Mountain Enterprises
Jeff Curl	Starbase Aviation (SBE)
Peku Karu	Starjet Inc
Todd LaSalle	Sun Country Airlines (SCX)
Chuck Bertrand	Sunwest Aviation Ltd.
Alan W. Jones	SunWest Aviation, Inc.
Carlos Olmedo	TACA Airlines
Richard Sedgwick	Target Corp
Mr.Suravudhi Kosoltrakul	Thai Airways International LTD.
Scott Henely	Travel Management Company (TMC)
Jay Arcemont	TWC Aviation
Philippe Raux	Unijet SA
Captain Glen McGeary	United Airlines (UAL)
Captain John Buyer	United Airlines (UAL)
Captain Lawrence Ellis	United Airlines (UAL)
Karl Blackmun	United Parcel Service (UPS)
Richard Peck	Universal Jet Aviation
Dave Surridge	US Airways
Matt Sears	USA Jet Airlines
Kirk Demers	Virgin Australia (VOZ)
Captain Brian Sheehy	Virign America (VRD)
Ramez Reno	Volaris Airlines (VOI)
Brydon Knibbs	Volo Aviation LLC
Thomas E. Jordan	West Air, Inc.
Pete Hudes	West Coast Charters
Jim Potter	Western Air Charter dba Jet Edge International (EDG)
Christopher Watts	Worldwide Jet Charter
Christy Hutchison	XOJET INC (XOJ)
Captain Wang Xi	Yangtze River Express Cargo
June Lehrman	City of Culver City
Stephen Murray	City of Culver City
John Nachbar (City Manager)	City of Culver City
Todd Tipton	City of Culver City
Carl Jacobson (Mayor Pro Tem)	City of El Segundo
James O'Neill	City of El Segundo
Dick Croxall	City of El Segundo
Mike Cassidy	City of Hermosa Beach
Michael DiVirgilio	City of Hermosa Beach
Jim Withrow	City of Inglewood
David Esparza	City of Inglewood
Brian Bergman (Mayor)	City of La Habra Heights
Sam Andreano	City of La Habra Heights
Gary Sugano	City of Lomita
Bernard Parks (City Council Member)	City of Los Angeles (Council District 8)
Christine Dixon	City of Los Angeles (Council District 8)
Cesar Ruiz	City of Los Angeles (Council District 8)
Berny Motto	City of Los Angeles (Council District 8)
Mike Bonin (City Council Member)	City of Los Angeles (Council District 11)
Jessica Duboff	City of Los Angeles (Council District 11)
Wayne Powell	City of Manhattan Beach
Chris Arriola	City of Monterey Park
Cesar Vega	City of Monterey Park
Paul Talbot	City of Monterey Park
Rey Alfonso	City of Monterey Park
Vickie Banando	City of Monterey Park
Amy Ho	City of Monterey Park
Blake LaMar	City of Palos Verdes Estates
Petra Schneider	City of Ranchos Palos Verdes

List of Individuals and Organizations Contacted
14 CFR Part 150 Noise Exposure Map Update
Los Angeles International Airport

Full Name	Agency
So Kim	City of Ranchos Palos Verdes
Susan Brooks (Mayor Pro Tem)	City of Ranchos Palos Verdes
Carolynn Petru	City of Ranchos Palos Verdes
Matt Waters	City of Ranchos Palos Verdes
Steve Aspel	City of Redondo Beach
Patrick Furey (Mayor)	City of Torrance
Rolan Morel (LAX Tower)	Federal Aviation Administration (FAA)
Faviola Garcia (Western-Pacific Region, Office of the Regional Administrator)	Federal Aviation Administration (FAA)
Steve May (Western-Pacific Region, Office of the Regional Administrator)	Federal Aviation Administration (FAA)
Victor Globa (FAA ADO)	Federal Aviation Administration (FAA)
Sherry Avery (LAX Tower)	Federal Aviation Administration (FAA)
Jeff Cunnyngham (LAX Tower)	Federal Aviation Administration (FAA)
Barry Davis (So Cal TRACON)	Federal Aviation Administration (FAA)
Pat Anderson (So Cal TRACON)	Federal Aviation Administration (FAA)
Thomas Roche	Federal Aviation Administration (FAA)
Dennis Roberts	Federal Aviation Administration (FAA)
Sam Shrimpton	Federal Aviation Administration (FAA)
Stephen Lloyd	Federal Aviation Administration (FAA)
Mark Tellier	Federal Aviation Administration (FAA)
Brian Johnson	Federal Aviation Administration (FAA)
Yvonne Bedford	Ladera Heights Civic Association
Didier Tais	Ladera Heights Civic Association
Don Knabe (County Supervisor)	Los Angeles County Supervisor, 4th District
Steve Napolitano	Los Angeles County Supervisor, 4th District
Mark Ridley-Thomas (County Supervisor)	Los Angeles County Supervisor, 2nd District
Erin Stennis	Los Angeles County Supervisor, 2nd District
Danna Cope	LAX Area Advisory Committee
Linda Peterson	LAX Area Advisory Committee
John Dragone	LAX Area Advisory Committee
Martin Rubin	North Westdale Neighborhood Association (NWNA)
Philip Crimmins	State of California - Dept of Aeronautics
JoAnn Williams	United Homeowners Association
Alan Guttman	United Homeowners Association
Denny Schneider	Westchester Neighbors Association
Robert Acherman	Westchester Neighbors Association
Kelley Brown	Area Resident
Rudy Withcomb	Area Resident
Cecil Carpio	Area Resident
Lynne Shapiro	Area Resident
Mike Stevens	Area Resident
Richard Root	Area Resident
Edgar Saenz	Area Resident
John Keho	Area Resident
John H. Bailey	Area Resident
Christopher Kelley (Pilot)	United Airlines
Glen McGeary (Pilot)	United Airlines
Dan Delane (Pilot)	FedEx
Paul Cassel (Pilot)	FedEx
Sheree Weber	FedEx
John Laber (Pilot)	SkyWest
Clint Simmons	Area Resident
Sonia Ffrench-Pitts	Area Resident
Christine Wood	Area Resident
John Keho	Area Resident
Philip Crimmins	Caltrans Division of Aeronautics MS-40
Ombudsman	Andrews Joint Airforce Base
Leon Borja	City of Los Angeles Mayors Office
Greg Carpenter (City Manager)	City of El Segundo
Doug Carstens	Chatten-Brown & Carstens
Lawrence Hefetz	County of Los Angeles
John F. Kraptli	County of Los Angeles
Barbara Lichman	Buchalter Nemer
Brenda Martinez-Sidhom	Stakeholder Liaison Office
Gabriel Ross	Shute, Mihaly & Weinberger LLP
Carol Schwab	City of Culver City
E. Clement Shute	Shute, Mihaly & Weinberger LLP

List of Individuals and Organizations Contacted
14 CFR Part 150 Noise Exposure Map Update
Los Angeles International Airport

Full Name	Agency
Osa Wolff	Shute, Mihaly & Weinberger LLP
Carmen Sainz	Los Angeles County Department of Regional Planning
Dean Edwards	Los Angeles County Department of Regional Planning
Christopher Jackson	City of Inglewood Economic and Community Development Department
Ray Gomez	County of Los Angeles, Residential Sound Insulation Program
Bettye Griffith	City of Inglewood Residential Sound Insulation Program
Evelyn Quintanilla (Chief of Airport Planning)	Los Angeles World Airports

APPENDIX G
Public Comments and Responses

G.1 Introduction

Comments submitted by local agencies and the general public during the 14 CFR Part 150 Noise Exposure Map Update are provided on the following pages. Responses to the public and agency comments are provided after each of the individual comments.

G.1.1 Public Workshops Round 1

Twelve (12) comment forms were submitted at or soon after the May 12, 2014 Public Workshop. **Two (2)** comment forms were submitted at or soon after the May 13, 2014 Public Workshop. The comment forms appear at the back of this appendix. Responses to the issues raised in each comment form are provided in **Table G-1**.

G.1.2 Public Workshop Round 2

Public workshops for the 14 CFR Part 150 Noise Exposure Map Update were also conducted on May 11, 2015 and May 12, 2015. No comments were submitted at either workshop.

G.1.3 Comments Submitted Through the Project Website

Information regarding the 14 CFR Part 150 Noise Exposure Map Update for Los Angeles International Airport was uploaded to a publicly accessible website maintained by LAWA (http://www.lawa.org/LAXPart150.aspx). The Draft Noise Exposure Map Report was uploaded to the website on May 9, 2015. Public comments regarding Draft Noise Exposure Map Report were accepted until June 9, 2015 and could be submitted via e-mail through a link on the website. No comments were submitted through the project website.

G.1.4 Other Comments

The City of El Segundo submitted a comment letter on June 9, 2015. The comment letter appears at the back of this Appendix. Responses to issues raised in the comment letter are provided in **Table G-2**.

TABLE G-1
PUBLIC COMMENTS AND RESPONSES - MAY 2014 PUBLIC WORKSHOPS

Comment	Commenter	Comment/Question	Response
A-1	Mercy Cavazos	Requesting a copy of slides of presentation.	Slide presentation was provided to the commenter.
B-1	Carroll David	The noise exposure update program is a welcome idea or renewed idea. Not only speak to the environmental friendly but also shows the concerns of the human aspect to society.	Comment noted.
B-2	Carroll David	I am hopeful that this program will provide assistance to the many who are affected by noise disturbance.	The purpose of the LAX NEM Update is to define the existing and future aircraft noise exposure in the environs of LAX. Decisions regarding noise mitigation eligibility and funding will be made under a separate process.
C-1	Idorlph Edwards	Please inform me if the noise zone changes. I get more than my share of airplane noise from where I live.	Commenter added to the LAWA's interested party's mailing list.
D-1	Hazel Ferron	What are the requirements to be eligible for the program?	See response to comment B-2.
D-2	Hazel Ferron	Who determines who gets these windows?	See response to comment B-2.
D-3	Hazel Ferron	Who monitors the noise and where is the boundary?	LAWA monitors aircraft noise using 39 noise monitors located throughout the communities surrounding LAX. However, in accordance with 14 CFR Part 150, the boundary for any future noise mitigation program will be based on modeled aircraft noise levels. The LAX NEM Update is the first step in that process.
D-4	Hazel Ferron	Airplane flies directly over my house.	Comment noted.
E-1	Sonia French-Pitts	On behalf of the residence on 8801-8855 Cimarron Street, we would appreciate any new noise assessment done to our neighborhood.	Comment noted.
E-2	Sonia French-Pitts	We have spoken to our Council Rep. Parks, attended the roundtable for years and to date no one has addressed our complaints. The noise and the emissions have been endless. We have supplied videos of the planes that show the name of the airlines, which is how low the planes fly over our homes.	The update of the LAX NEM will identify the current and future aircraft noise exposure in the LAX environs.
E-3	Sonia French-Pitts	If any further information is needed please feel free to contact me.	Commenter added to the LAWA's interested party's mailing list.
F-1	Mayra Manchilla	I live around Manchester and Normandie. The Friday evening of the La Brea earthquake had many planes that flew over the neighborhood land enough to block noise and shake the house. When the earthquake swayed the houses I thought a plane had flown by. Realistically, if LAX continues to be a busy terminal, I'm afraid there's nothing windows can fix or a new house foundation can provide.	Comment noted.
G-1	Liliana Matlock	Please keep me up to date with future plans	Commenter added to the LAWA's interested party's mailing list for this 14 CFR Part 150 NEM Update.

TABLE G-1 (Continued)
PUBLIC COMMENTS AND RESPONSES - MAY 2014 PUBLIC WORKSHOPS

Comment	Commenter	Comment/Question	Response
H-1	Esther May	I look forward to community update info as the study continues to confirm need for expanse of sound insulation.	Commenter added to the LAWA's interested party's mailing list for this 14 CFR Part 150 NEM Update.
I-1	Linda Murray	I have a problem with the airplane coming so close to the house that my windows shake and TV mess up constantly. Sometimes you can also see the numbers on the airplane which cause the whole house to shake and cannot hear the person on the telephone and also drop calls.	Comment noted.
J-1	Clint Simmons	What Street or roadway will be used for the north limits for FAR Part 150 noise exposure?	The CNEL 65 decibel aircraft noise contour will serve as the boundary for NEM Update in accordance with Table 1 of 14 CFR Part 150.
J-2	Clint Simmons	My concern is the downwind leg for VFR landings at LAX.	The downwind leg for VFR landings was included in the inputs for the LAX NEM update.
J-3	Clint Simmons	Will the public have an opportunity to present their concerns before the final report is adopted?	Yes, a second set of public workshops was held after the release of the Draft LAX NEM report. Advanced notice of the public workshops was provided.
K-1	Linda J. Ware	What are some of the requirements?	The commenter may be referring to sound insulation which is not a part of the LAX NEM Update. Any future sound insulation program will be based on the updated LAX NEM. Details regarding the residential sound insulation program can be obtained at www.LAWA.org.
K-2	Linda J. Ware	Does it matter whether you own your home or not?	Only property owners are eligible for program participation, and decide whether to accept the treatments.
K-3	Linda J. Ware	How long will it take?	The LAX NEM Update will be submitted to the FAA for review and acceptance in mid-2015.
K-4	Linda J. Ware	Is there anything that we need to be doing?	Continue to stay informed about the LAX NEM Update by visiting the project website.
L-1	Bernard and Sandra Washington	Can the neighbors request an independent assessment of the noise level in support of the FAA data?	Neighbors may request an independent assessment of aircraft noise levels, however, the LAX NEM Update is being prepared in compliance with 14 CFR Part 150, which is the federal standard for assessing aircraft noise exposure and determines the mitigation funding eligibility area.
L-2	Bernard and Sandra Washington	Based on the 84th Place Block Clubs experiences and tracking of the noise disturbance, we are requesting a re-evaluation of the boundaries that qualify households for sound proofing.	The LAX NEM Update will establish the 2015 and 2020 CNEL 65 decibel noise contour boundary. Any future sound insulation program will be based on the updated LAX NEM. Details regarding the residential sound insulation program can be obtained at www.LAWA.org.

TABLE G-1 (Continued)
PUBLIC COMMENTS AND RESPONSES - MAY 2014 PUBLIC WORKSHOPS

Comment	Commenter	Comment/Question	Response
L-3	Bernard and Sandra Washington	It is our belief that the continuous vibration (24 hours/7 days) is causing damage to house and causing frustration due to the on-going adjustment of TV and radios.	Comment noted.
L-4	Bernard and Sandra Washington	We have collected data over the last 30 days of recorded noise, pictures and have called into noise hotline and reported airplane numbers on the belly of plane.	Comment noted.
M-1	Gloria and Jack Wilson	My concern is that the airplanes are flying very low and they fly directly over our house. They are so low that we are able to read what's on the belly of the plane.	Comment noted.
M-2	Gloria and Jack Wilson	The planes are loud, vibrating the house shaking the windows. I would like to know how the decibels are measured and how often and how come the flight pattern has been changed since flights are coming every 5 minutes. I'm sure the current flight pattern is outdated in this day and age.	Under 14 CFR Part 150, aircraft noise is calculated using the Community Noise Equivalent Level (CNEL) which is a 24-hour average of noise with additional weighting for evening and nighttime events. The flight patterns used to develop the CNEL contours were based on actual radar flight tracks for LAX arrivals and departures.
N-1	Christine Wood	Please add me to your mailing list.	Commenter added to the LAWA's interested party's mailing list.

TABLE G-2
RESPONSES TO ISSUES RAISED IN THE JUNE 9, 2015 LETTER FROM THE CITY OF EL SEGUNDO

Comment	Response
O-1	Thank you for your comments. LAWA anticipates that the FAA will accept the updated Noise Exposure Map Report by the end of 2015.
O-2	The author of this comment is correct that the Community Noise Equivalent Level (CNEL) 65 decibel (dB) noise contour shown on the 2020 Noise Exposure Map (NEM) is generally larger than the "Alternative D" CNEL 65 dB contour and that it envelops a higher number of homes within the City of El Segundo.
O-3	14 CFR Part 150 Section 150.21 specifies that the future NEM (in this case the 2020 NEM) must be based on reasonable assumptions regarding the type and frequency of aircraft operations, airport layout, flight patterns, and runway use for a forecast period that is at least five years in the future. The 2020 NEM included in the Draft Noise Exposure Map Report for Los Angeles International Airport is based on reasonable assumptions regarding future operations and flight patterns at LAX. Since the shift of aircraft operations from the north complex to the south complex will be a temporary condition (i.e., during the construction of the RSA improvements in 2016), FAA would not consider it reasonable to use the temporary runway use data included in the environmental documents for the Runway 6R-24L Runway Safety Area (RSA) Improvement Project to develop the 2020 NEM. As discussed on page 3-10 of the NEM, runway threshold shifts associated with the Runway 7L-25R and 6R-24L RSA improvements are reflected in the 2020 NEM.
O-4	The 2014 Terminal Area Forecast (TAF) for LAX is an unconstrained forecast of future demand and was developed by the FAA without considering the capacity of LAX. Nonetheless, in the 2014 TAF, the FAA predicted there will be approximately 77.1 Million Annual Passengers (MAP) in 2020 to correspond with the operations forecast used in the NEM update. The FAA's forecast is simply a forecast of demand and does not reflect any analysis of the passenger handling capacity of the Airport or a commitment by Los Angeles World Airports.

A

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 13, 2014

Comment Form

Please use the space below to provide your questions and comments regarding the FAR Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. Your comments and/or questions will be reviewed and considered during the Update. Your participation in the process is appreciated. If you wish to receive future project updates please provide your contact information below.

A-1

Requesting a copy of slides of presentation.

[redacted]

Thank you.

Name/Address:

B

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 13, 2014

Comment Form

Please use the space below to provide your questions and comments regarding the FAR Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. Your comments and/or questions will be reviewed and considered during the Update. Your participation in the process is appreciated. If you wish to receive future project updates please provide your contact information below.

B-1 The Noise Exposure update program is a welcome idea OR renewed idea not only Speak to the invironmental but Friendly but also shows the concerns of the human aspect to Society.

B-2 I am Hopeful that this program will Provide assistant to the Many who Are in need of affected by Noise disturbances.

Name/Address:

Carroll David
[redacted]
Los Angeles, CA 90044

C

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 12, 2014

Comment Form

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C-1 Please inform me if the noise Zone change. I get more than my share of Airplane noise from where i live.

Name/Address: Idorlph Edwards

[redacted]

Los Angeles, CA 90047

G-7

Mr. Idorlph Edwards
9127 S Wilton Pl.
Los Angeles, CA 90047

D

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 12, 2014

Comment Form

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D-1 1. What are the requirements to be eligible for the program ?

D-2 Who determine who gets these window

D-3 Who monitor the noise and where is the boundry

D-4 Air plane flies directly over my house

Name/Address:
Hazel Ferron
[redacted]
LA, CA 90047

E

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 12, 2014

Comment Form

Please use the space below to provide your questions and comments regarding the FAR Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. Your comments and/or questions will be reviewed and considered during the Update. Your participation in the process is appreciated. If you wish to receive future project updates please provide your contact information below.

On behalf of the residence on 8301 - 8855 Cimarron Street we would appreciate any new noise assessment done to our neighborhood. We have spoken to our Council Rep. Parks, attended the round table for years and to date no one has addressed our complaints. The noise and the emissions have been endless. We have supplied videos of the planes that show the name of the airlines, which is how low the planes fly over our homes.

E-1

E-2

If any further information is needed please feel free to contact me.

E-3

Sonia F French - Cimarron Street Neighborhood Watch President

[redacted]

Los Angeles CA 90047

sffr23@aol.com

Name/Address: Sonia F French- Pitts

[redacted]

LA 90047

[redacted]

F

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 12, 2014

Comment Form

Please use the space below to provide your questions and comments regarding the FAR Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. Your comments and/or questions will be reviewed and considered during the Update. Your participation in the process is appreciated. If you wish to receive future project updates please provide your contact information below.

F-1

I live around Manchester + Normandie. The Friday evening of the La Brea earthquake I had many planes that flew over the neighborhood and enough to block noise and shake the house. When the earthquake swayed the house I thought a plane had flown by.

Realistically, if LAX continues to be a busy terminal, I'm afraid there's nothing windows can fix or a new house foundation can provide.

Thank you.

Name/Address: Mayra Mancilla
[redacted]
Los Angeles, CA. 90044

G

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 12, 2014

Comment Form

Please use the space below to provide your questions and comments regarding the FAR Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. Your comments and/or questions will be reviewed and considered during the Update. Your participation in the process is appreciated. If you wish to receive future project updates please provide your contact information below.

G-1 Please keep me up to date with future plans:

LILIANA MATLOCK
[redacted]
L.A Ca. 90044

Name/Address:

H

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 12, 2014

Comment Form

Please use the space below to provide your questions and comments regarding the FAR Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. Your comments and/or questions will be reviewed and considered during the Update. Your participation in the process is appreciated. If you wish to receive future project updates please provide your contact information below.

Key question regarding sound insulation for homes in the area designated as "end of block" was answered. I look forward to community update info as the study continues to confirm need for expanse of sound insulation

H-1

Name/Address: Esther May [redacted] Inglewood 90303

I

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 12, 2014

Comment Form

Please use the space below to provide your questions and comments regarding the FAR Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. Your comments and/or questions will be reviewed and considered during the Update. Your participation in the process is appreciated. If you wish to receive future project updates please provide your contact information below.

I-1 I have a problem with the airplane comes so close to the house that the Windows shake and T.V. Mess up Constantly. Sometimes you can also see the number on the airplane which cause ~~the~~ ~~Windows also shake in the~~ Cause house. the Whole house to shake and cannot hears the person on the telephone and also drop calls.

Name/Address:

Frida Murray
[redacted]
Los Angeles, Calif. 90044
6/13/14

J

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 12, 2014

Comment Form

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J-1 WHAT STREET OR ROADWAY WILL BE USED FOR THE NORTH LIMITS ~~OF~~ FOR FAR PART 150 NOISE EXPOSURE?

J-2 MY CONCERN IS THE DOWNWIND LEG FOR VFR LANDINGS AT LAX.

J-3 WILL THE PUBLIC HAVE AN OPPORTUNITY TO PRESENT THEIR CONCERNS BEFORE THE FINAL REPORT IS ADOPTED?

Name/Address:

CLINT SIMMONS
[redacted]
L.A. 90016

E-MAIL [redacted]

K

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 12, 2014

Comment Form

Please use the space below to provide your questions and comments regarding the FAR Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. Your comments and/or questions will be reviewed and considered during the Update. Your participation in the process is appreciated. If you wish to receive future project updates please provide your contact information below.

K-1 What are some of the requirements? Does it matter whether you own your home or not? How long will it take. Is there anything that we need to be doing?

K-2

K-3

K-4

Name/Address:

Linda J. Ware
[redacted]
Los Angeles, CA. 90047-3516

L

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 12, 2014

Comment Form

Please use the space below to provide your questions and comments regarding the FAR Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. Your comments and/or questions will be reviewed and considered during the Update. Your participation in the process is appreciated. If you wish to receive future project updates please provide your contact information below.

L-1 Question: Can the neighbors request an independent assessment of the noise level in support of the FAA DATA?

Comment: Based on the 84th Place Blockclubs experiences & tracking of the Noise Disturbance, we are requesting a re-evaluation of the boundries that qualify households for sound proofing.

L-2

Comment: It is our belief that the contenions vibration (24 hrs / 7 days) is causing damage to house + causing frustration due to the on-going adjustment of TVs + radios.

L-3

COMMENT: We have collect Data over the last 30 days & recorded noise, pictures and have called in to Noise Hotline & reported Airplane numbers on the Belly of plane.

L-4

Note: Tim a retired employee of Boeing + familer with airplanes.

Name/Address:

Bernard & Sandra Washington [redacted] Los Angeles, CA 90049-2215

M

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 12, 2014

Comment Form

Please use the space below to provide your questions and comments regarding the FAR Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. Your comments and/or questions will be reviewed and considered during the Update. Your participation in the process is appreciated. If you wish to receive future project updates please provide your contact information below.

M-1 My concern is that the airplanes are flying very low & they fly directly over our house. They are so low that we are able to read whats on the belly of the plane. The planes are loud & vibrating the house shaking the windows. I would like to know how the decibles are measured & how often & how come the flight pattern has not been changed since flights are coming every five minutes. I'm sure the current flight pattern is outdated in this day & age.

M-2

Name/Address: GLORIA & JACK WILSON

[redacted]

LOS ANGELES, CA 90044

N

Los Angeles World Airports

FAR Part 150 Noise Exposure Map Update
Los Angeles International Airport
Public Information Workshop
May 12, 2014

Comment Form

Please use the space below to provide your questions and comments regarding the FAR Part 150 Noise Exposure Map Update Study for Los Angeles International Airport. Your comments and/or questions will be reviewed and considered during the Update. Your participation in the process is appreciated. If you wish to receive future project updates please provide your contact information below.

N-1 Please add me to your mailing list..

Christine Wood
[redacted]
Inglewood, CA 90305
[redacted]

Name/Address:

O

City of El Segundo

Office of the City Manager

Elected Officials:

Suzanne Fuentes,
Mayor
Carl Jacobson,
Mayor Pro Tem
Dave Atkinson,
Council Member
Marie Fellhauer,
Council Member
Michael Dugan,
Council Member
Tracy Weaver,
City Clerk
Crista Binder,
City Treasurer

Appointed Officials:

Greg Carpenter,
City Manager
Mark D. Hensley,
City Attorney

Department Directors:

Misty Cheng,
(Interim) Finance
Kevin Smith,
Fire Chief
Martha Dijkstra,
Human Resources
Debra Brighton,
Library Services
Sam Lee,
Planning and
Building Safety
Mitch Tavera,
Police Chief
Stephanie Katsouleas,
Public Works
Meredith Petti,
Recreation & Parks

www.elsegundobusiness.com

June 9, 2015

Kathryn Pantoja
Environmental Affairs Officer
Environmental Services Division – Noise Management
Los Angeles World Airports
P.O. Box 92216
Los Angeles, CA 90009-2216

Re: LAX Noise Exposure Maps

Dear Ms. Pantoja:

On behalf of the City of El Segundo, thank you for the opportunity to review the draft Noise Exposure Map ("NEM") Update documents. Participating in the NEM Update process is critical to El Segundo because the final NEM will likely be the main driver of eligibility for funding under El Segundo's Residential Sound Insulation ("RSI") program. El Segundo expects to be actively involved in the update process until the FAA's ultimate approval of the NEM. O-1

After reviewing the draft NEM Update documents, El Segundo perceives that the 2020 NEM 65 dB contour would generally be larger, and encompass more homes in El Segundo, than the "Alternative D" 65 dB contour, which the FAA has made the boundary for noise mitigation funding in El Segundo after 2015. El Segundo is encouraged that its preliminary analysis shows that the 2020 NEM would include approximately 470 El Segundo residences within the 65 dB contour that otherwise would fall outside of the Alternative D 65 dB contour. O-2

We nonetheless have concerns about the NEM Update. Foremost, LAWA must ensure that the NEM Update accounts for all reasonably foreseeable airport operations as required by Part 150 (*see* 14 C.F.R. § 150.21), including temporary shifts in operations that will result in corresponding temporary expansions of the 65 dB noise contour in El Segundo. The environmental documents for the Runway 6R/24L Safety Area Improvements Project ("RSA North Project"), for instance, indicate that the noise contour in El Segundo will temporarily expand in the first half of 2016 due to shifting of flight operations to the south airfield runways. *See* Environmental Assessment for Runway 6R/24L O-3

350 Main Street, El Segundo, California 90245-3813
Phone (310) 524-2300

Safety Area Improvements Project Exhibit 4-3. The 2020 NEM 65 db contour does not currently include many of the 75 homes identified by LAWA staff as impacted by the RSA North Project. El Segundo requests additional explanation regarding how temporary noise impacts such as those from the RSA North Project, and other noise impacts that are likely to recur due to periodic facility closures for maintenance, are reflected in the NEM Update.

O-3 cont.

Second, El Segundo is eager to better understand how LAWA's use of the 2014 Terminal Area Forecast ("TAF") for the purpose of preparing the 2020 NEM relates to LAX's maximum operational capacity of 78.9 million annual passengers ("MAP"), as envisioned by the 2004 LAX Master Plan ("Master Plan"). LAWA appears, based on data in the NEM Update, to be committing itself to maintain 2020 passenger numbers well below 78.9 MAP. The NEM Update should nevertheless provide a clear MAP "equivalent" for the 2020 operations forecast, and explain how the MAP equivalent would compare with the 78.9 MAP cap in the Master Plan.

O-4

Please provide additional clarity with regard to the issues above and ensure that the NEM Update complies with Part 150 by accounting for all reasonably foreseeable operations that cause any noise impact above state thresholds, regardless of duration. El Segundo looks forward to assisting LAWA in these efforts.

Respectfully,

Greg Carpenter,
City Manager, City of El Segundo

CC: City of El Segundo Mayor and City Council

APPENDIX H
Los Angeles International Airport Airspace Overview

H.1 Introduction

This technical appendix describes visual flight rules transition routes, standard terminal arrivals, and departure procedures associated with Los Angeles International Airport.

H.2 Visual Flight Rules Transition Routes

The LAX Class B airspace includes VFR transition routes that general aviation aircraft use to avoid heavily congested IFR routes within the airspace. The names of these transition routes include the Coliseum Route, Hollywood Park Route, Mini Route, Shoreline Route, and the Los Angeles Special Flight Rules Area.

The Coliseum Route takes VFR aircraft northwest to southeast and vice-versa from Van Nuys to Miles Square Park at altitudes between 8,500 and 9,500 feet MSL east of LAX over the L.A. Coliseum. This route may not be available when LAX is in its east flow operation.

The Hollywood Park Route takes aircraft northwest to southeast and vice-versa from Van Nuys to the Queen Mary at altitudes between 7,000 and 10,000 feet MSL just east of LAX. This route may not be available when LAX is in east flow operation.

The Mini Route takes aircraft northwest to southeast and vice-versa from Santa Monica to the Hawthorne and Interstate 405 Freeway over LAX. ATC clearance from the LAX ATCT is required for this route.

The Shoreline Route takes aircraft northwest to southeast and vice-versa from Van Nuys to the Vincent Thomas Bridge at altitudes between 5,500 and 6,500 feet MSL just west of LAX over the VOR.

The Los Angeles Special Flight Rules Area is a route that takes aircraft from Santa Monica over LAX and south along the Interstate 405 Freeway and vice-versa. The maximum speed in this area for aircraft is 140 knots indicated airspeed (KIAS). Aircraft navigating southeasterly shall be in level flight at 3,500 feet MSL. Aircraft navigating northwesterly shall be in level flight at 4,500 feet MSL. In this area, communication with ATC is not required, however, there is an air-to-air frequency where aircraft communicate with each other their location, altitude, and direction of flight. The VFR transition routes are depicted on **Exhibit H-1**.

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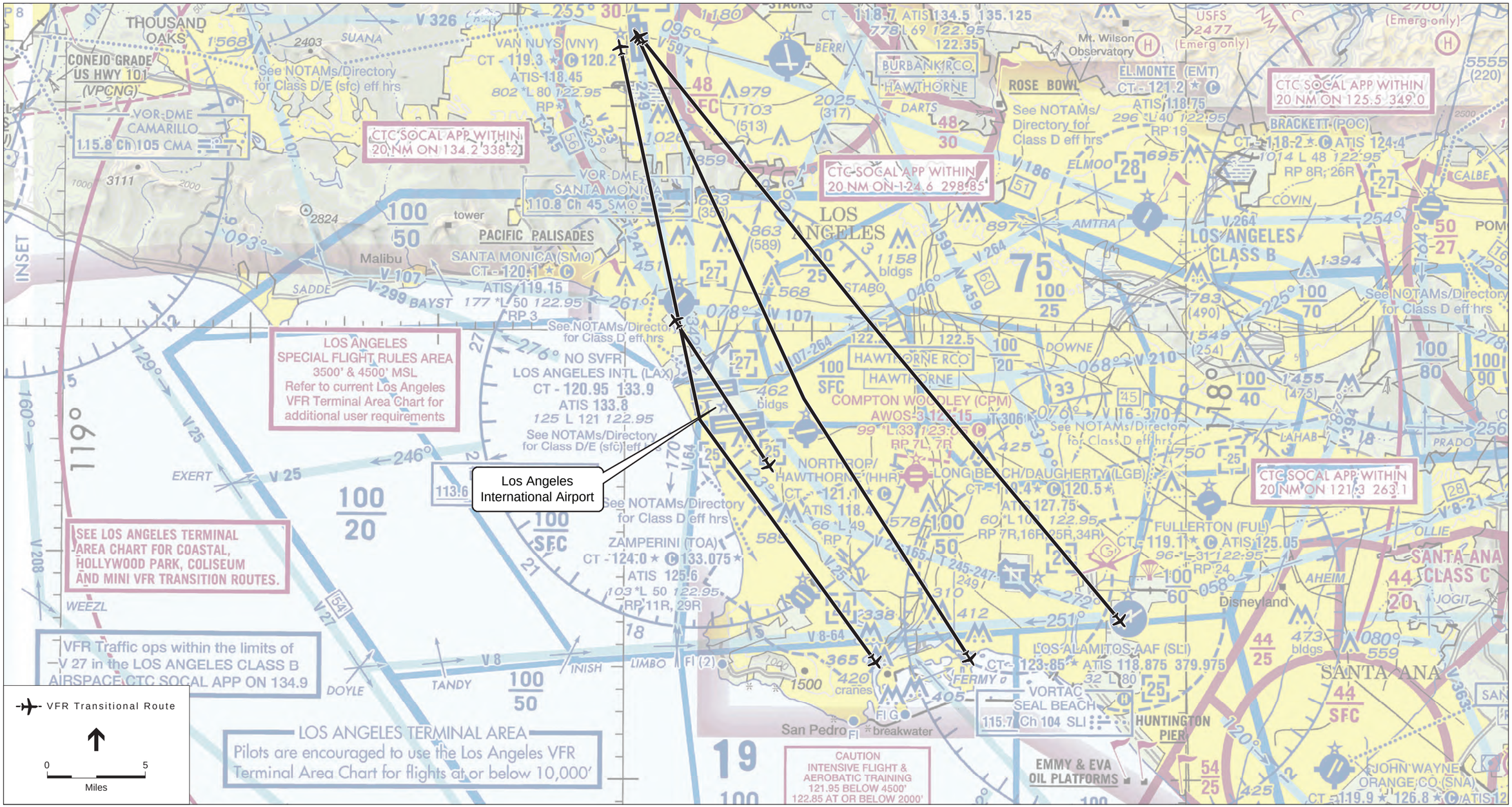

SOURCE: Federal Aviation Administration, 2013; ESA Airports 2014
NOTE: Not for Navigational Use

Exhibit H-1
Visual Flight Rules Transitional Routes

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H.3 Standard Terminal Arrivals and Departure Procedures

The Los Angeles airspace is structured so that arriving aircraft can be safely and efficiently transitioned from the en route environment to the approach control environment and from the approach control environment to the airfield proper; these structures are known as Standard Terminal Arrivals (STARs). Likewise, the airspace is structured so that departing aircraft can transition from airfield to the terminal environment and ultimately to the en route environment; these structures are known as Departure Procedures (DPs). As discussed previously, aircraft flying in and out of LAX follow these precise routes depending on the operational flow of the Airport. STARs and DPs are a combination of lateral, vertical, and speed commands along a set of fixes (intersections) or waypoints that are typically pre-programmed into the aircraft's flight management system (FMS), and executed upon ATC clearance. As the FAA continues to revamp the national airspace system and its procedures within, as part of NextGen and the Metroplex system, newer RNAV (GPS) arrival and departure procedures are being created to provide benefits to both ATC and pilots by reducing communications, reducing flight time and distance, lowering fuel burn due to more efficient flight profiles, and increasing predictability.

When flying a STAR or DP, the pilot will follow waypoints or fixes that are either ground based or RNAV (GPS) based depending on aircraft capability. In conventional procedures, fixes are defined by the location of a navigational aid (e.g. VORTACs and VORs) or determined by reference to these navigational aids such as DME intersections. The advantage of the RNAV STARs and DPs are that waypoints are defined by longitude and latitude, and allow aircraft to fly a more direct course from point to point instead of from navigational aid to navigational aid. STARs and DPs may serve more than one airport in an area, and a single airport may have multiple STARS and DPs such as LAX. Each of the published lateral navigation procedures are referenced in the following sections. Standard Terminal Arrival Routes to LAX are depicted on **Exhibit H-2**. Departure Procedures at LAX are depicted on **Exhibit H-3**.

H.3.1 Standard Terminal Arrivals

A STAR is an ATC IFR arrival route established to simplify aircraft clearance delivery and assist in the aircraft's transition between the en route and approach portions of the flight. The San Diego TRACON and LAX ATC use 17 STARs to route aircraft into the Los Angeles area. Currently there are three RNAV (GPS) arrival procedures and 14 conventional arrival procedures as shown in **Table H-1**. The names of the RNAV (GPS) arrival procedures are the BUFIE THREE, KEACH ONE, and the SYMON ONE arrivals. The names of the conventional arrival procedures include the BASET THREE, DOWNE FOUR, KIMMO THREE, LEENA FOUR, MOORPARK THREE, OCEAN TWO, OLDEE ONE, REDEYE TWO, REEDR THREE, RIIVR TWO, SADDE SIX, SEAVU TWO, SHIVE ONE, and the VISTA TWO arrivals.

TABLE H-1
STANDARD TERMINAL ARRIVAL ROUTES, LOS ANGELES INTERNATIONAL AIRPORT

Procedure Name	Procedure Type	Arrival Direction
BASET THREE	Conventional	East/Northeast
DOWNE FOUR	Conventional	East/Northeast
KIMMO THREE	Conventional	North/Northwest
LEENA FOUR	Conventional	North/Northwest
MOORPARK THREE	Conventional	North/Northwest
OCEAN TWO	Conventional	South/Southwest/Southeast
OLDEE ONE	Conventional	South/Southwest/Southeast
REDEYE TWO	Conventional	East/Northeast
REEDR THREE	Conventional	East/Northeast
RIIVR TWO	Conventional	East/Northeast
SADDE SIX	Conventional	North/Northwest
SEAVU TWO	Conventional	East/Northeast
SHIVE ONE	Conventional	South/Southwest/Southeast
VISTA TWO	Conventional	South/Southwest/Southeast
BUFIE THREE	RNAV	South/Southwest/Southeast
KEACH ONE	RNAV	North/Northwest
SYMON ONE	RNAV	North/Northwest

NOTE: RNAV = Area Navigation
SOURCE: AirNav.com, August 2014.

North/Northwest

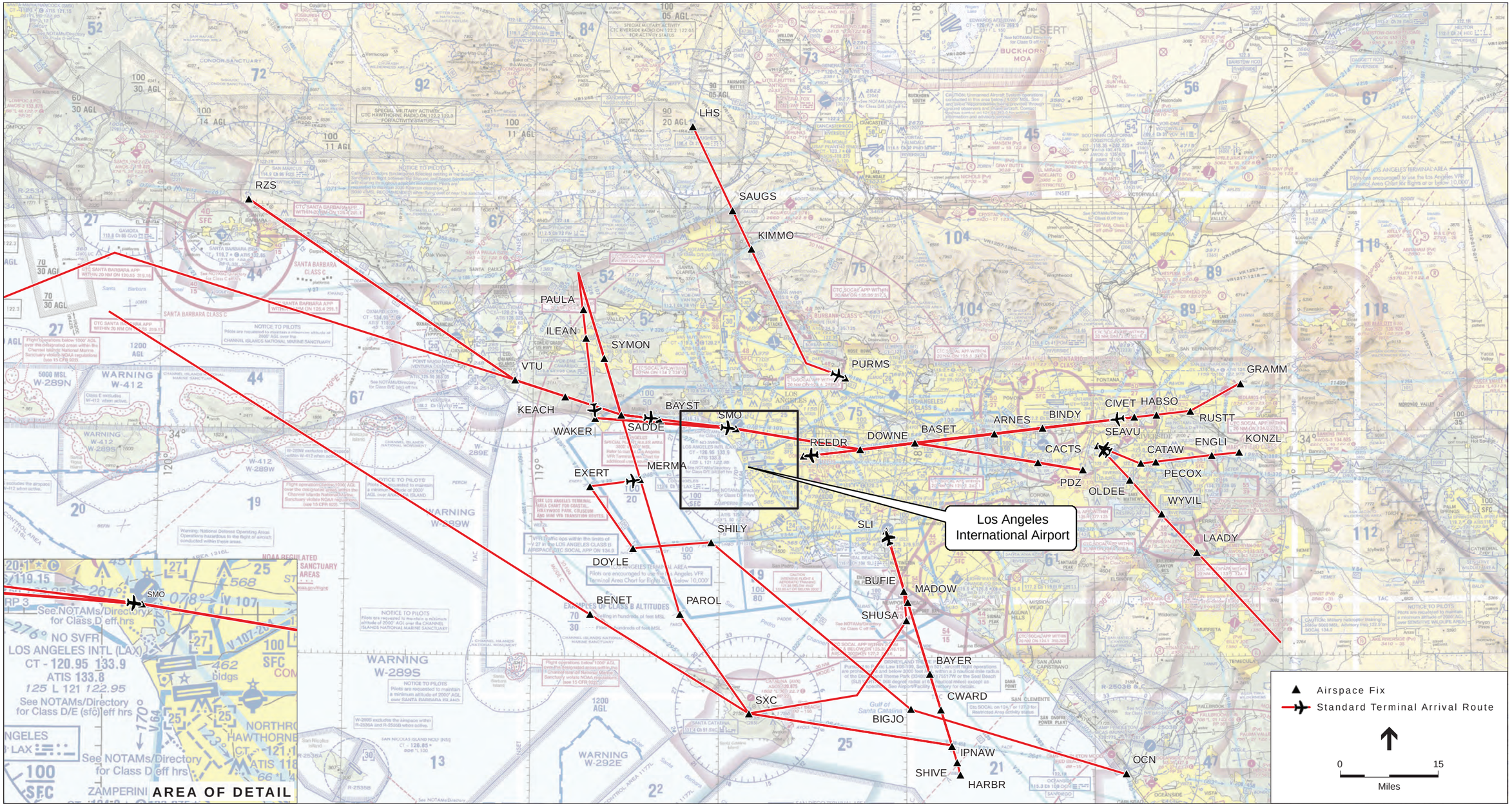
Aircraft entering the LAX airspace from the north/northwest are generally assigned the KEACH ONE RNAV arrival, the KIMMO THREE arrival, the LEENA FOUR arrival, the MOORPARK THREE arrival, the SADDE SIX arrival, or the SYMON ONE RNAV arrival.

KEACH ONE RNAV – Aircraft are routed from the west/northwest to the Ventura VOR located approximately 33 nm northwest of LAX, and then to the Santa Monica VOR located 5 nm north of LAX. From this point, aircraft are radar vectored to the final approach phase. This arrival is for turbojet aircraft only.

KIMMO THREE – Aircraft are routed from the north to the KIMMO fix, located approximately 28 nm north of LAX, south to the PURMS fix located approximately 16 nm northeast of LAX. From this point, aircraft are radar vectored to the final approach phase. This arrival is for non-turbojet aircraft only.

LEENA FOUR – This arrival is unconventional in that it routes aircraft from the northwest and southwest to the Santa Catalina VOR located on Santa Catalina Island south of the Airport, then west to the IPNAW intersection located 47 nm southeast of LAX, and then to the Seal Beach VOR located 20 nm southeast of the Airport. From this point, aircraft are radar vectored to the final approach phase.

MOORPARK THREE – Aircraft are routed from the north and northwest to the Fillmore VOR located 33 nm northwest of LAX, and then to the WAKER intersection located 22 nm northwest of LAX. From this point, aircraft are radar vectored to the final approach phase.



SOURCE: Federal Aviation Administration, 2013; ESA Airports, 2014
NOTE: Not for Navigational Use

Exhibit H-2
LAX Standard Terminal Arrival Routes

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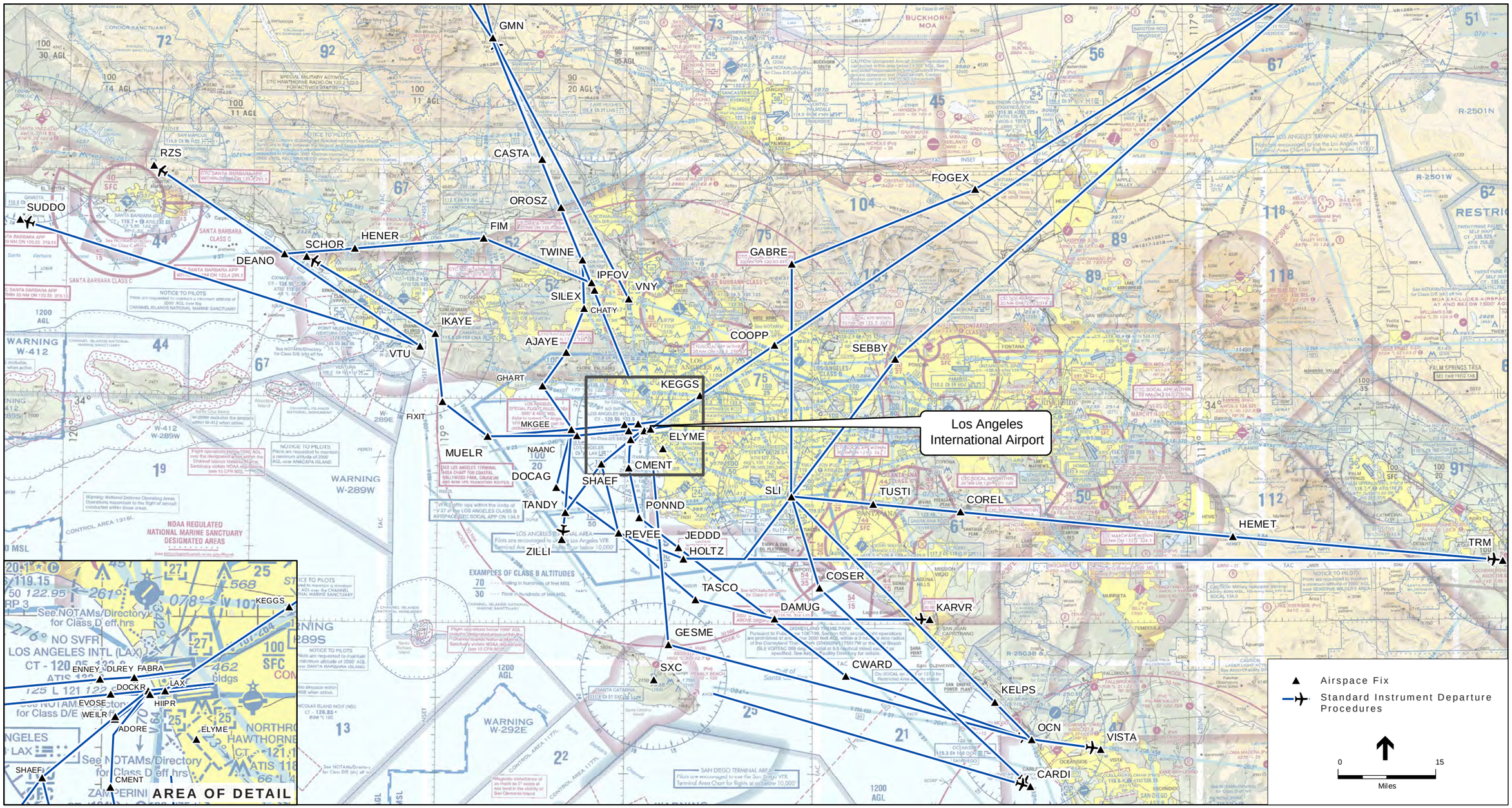

SOURCE: Federal Aviation Administration, 2013; ESA Airports, 2014
NOTE: Not for Navigational Use

Exhibit H-3
LAX Departure Procedures

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SADDE SIX – Aircraft are routed to the SADDE intersection located 18 nm northwest of LAX, and then to the Santa Monica VOR. From this point, aircraft are radar vectored to the final approach phase.

SYMON ONE RNAV – Aircraft are routed from the north to the Fillmore VOR located 33 nm northwest of LAX and then to the SADDE waypoint located 18 nm northwest of LAX. From this point, aircraft direct to the Santa Monica VOR where they are radar vectored to the final approach phase. This arrival is for turbojet aircraft only.

East/Northeast

Aircraft entering the LAX airspace from the east/northeast are generally assigned the BASET THREE arrival, the DOWNE FOUR arrival, the REDEYE TWO arrival, the REEDR THREE arrival, the RIIVR TWO arrival, or the SEAVU TWO arrival.

BASET THREE – Aircraft are routed from the east to the BASET intersection located 22 nm east of the Airport, and then are routed west to the REEDR intersection located 8 nm east of LAX where aircraft are then radar vectored to the final approach phase.

DOWNE FOUR – Aircraft are routed from the east to the CIVET intersection located 52 nm east of the Airport, and then routed west to the WAKER intersection located 22 nm northwest of LAX. From this point, aircraft are radar vectored to the final approach phase. This arrival is utilized for noise abatement between 12:00 a.m. and 6:30 a.m. local time.

REDEYE TWO – Like the BASET and DOWNE arrivals, aircraft are routed from the east to the BASET intersection, then to the DOWNE intersection, and then to the northwest to the WAKER intersection. From this point, aircraft are radar vectored to the final approach phase. This arrival is utilized for noise abatement between 12:00 a.m. and 6:30 a.m. local time.

REEDR THREE – Aircraft are routed from the east to the CIVET intersection, and then to the REEDR intersection located 8 nm east of the LAX VOR. Aircraft then fly a 220° heading and are radar vectored to the final approach phase.

RIIVR TWO – Aircraft are routed from the northeast to the GRAMM intersection located 66 nm east of LAX. From GRAMM, aircraft are routed to the RUSTT intersection located 59 nm east of LAX, and then to the RIIVR intersection located 49 nm east of LAX. From this point, aircraft are radar vectored to the final approach phase.

SEAVU TWO – Aircraft are routed from the Twentynine Palms VOR located 132 nm east of the airport to the SEAVU intersection 46 nm east of the Airport. From this point, aircraft are radar vectored to the final approach phase.

South/Southwest/Southeast

Aircraft entering the LAX airspace from the south/southwest/southeast are generally assigned the BUFIE THREE RNAV arrival, the OCEAN TWO arrival, the OLDEE ONE arrival, the SHIVE ONE arrival, or the VISTA TWO arrival.

BUFIE THREE RNAV – Aircraft are routed from the Santa Catalina VOR to the FITOW waypoint located approximately 34 nm south of LAX, and then north to the Seal Beach VOR located 20 nm southeast of LAX. From this point aircraft fly a 330° heading and are radar vectored to the final approach phase. This arrival is for turbojet aircraft only.

OCEAN TWO – Aircraft are routed from the Julian VOR located approximately 103 nm southeast of LAX to the northwest to the MERMA intersection located 14 nm west of the LAX VOR. From this point, aircraft are radar vectored to the final approach phase.

OLDEE ONE – Aircraft are routed from the Julian VOR to the SEAVU intersection located 46 nm east of the Airport. From this point, aircraft are radar vectored to the final approach phase.

SHIVE ONE – Aircraft are routed from the HARBR intersection located 50 nm southeast of the Airport to the Seal Beach VOR. From this point, aircraft are radar vectored to the final approach phase.

VISTA TWO – Aircraft are routed from the Julian VOR to the SHIVE intersection located 49 nm southeast of LAX. From there aircraft make a north turn toward the Seal Beach VOR where they are radar vectored to the final approach phase.

H.3.2 Departure Procedures

Aircraft departing LAX are often assigned a specific DP before departure as shown in **Table H-2**. A DP is a published IFR procedure that provides a standard route from the runway to the appropriate en route structure. In some cases, a DP may have an associated transition, which is a published procedure that connects the end of the DP to one of several en route structures. DPs are designed to separate departing aircraft from arriving aircraft, provide for efficient interception of an outbound course, avoid noise-sensitive areas near an airport, simplify the issuance of departure clearances, and reduce radio communication.

Similar to the published standard terminal arrival procedures (i.e., STARs), departure procedures at LAX include a mix of RNAV and conventional procedures. Currently there are eight RNAV departures, and 12 conventional departures for a total of 20. The names of the RNAV departures are: CASTA FOUR, FIXIT TWO, HOLTZ NINE, JEDDD ONE, KARVR THREE, MUELR ONE, OSHNN FOUR, and the ZILLI ONE departures. The names of the conventional DPs include: CATALINA FIVE, CHATY TWO, GABRE EIGHT, GORMAN FOUR, IMPER ONE, LAXX SEVEN, LOOP SEVEN, PERCH NINE, SAN DIEGO SIX, SEAL BEACH FIVE, SEBBY EIGHT, and the VENTURA FIVE departures.

TABLE H-2
DEPARTURE PROCEDURES, LOS ANGELES INTERNATIONAL AIRPORT

Procedure Name	Procedure Type	Departure Direction
CATLINA FIVE	Conventional	South/East
CHATY TWO	Conventional	North/West
GABRE EIGHT	Conventional	North/West
GORMAN FOUR	Conventional	North/West
IMPER ONE	Conventional	South/East
LAXX SEVEN	Conventional	South/East
LOOP SEVEN	Conventional	North/West
PERCH NINE	Conventional	North/West
SAN DIEGO SIX	Conventional	South/East
SEAL BEACH FIVE	Conventional	South/East
SEBBY EIGHT	Conventional	North/West
VENTURA FIVE	Conventional	North/West
CASTA FOUR	RNAV	North/West
FIXIT TWO	RNAV	North/West
HOLTZ NINE	RNAV	South/East
JEDDD ONE	RNAV	South/East
KARVR THREE	RNAV	South/East
MUELR ONE	RNAV	North/West
OSHNN FOUR	RNAV	North/West
ZILLI ONE	RNAV	South/East

NOTE: RNAV = Area Navigation.
SOURCE: AirNav.com, August 2014.

North/West

Aircraft departing LAX airspace to the north and west are generally assigned the CASTA FOUR RNAV departure, the FIXIT TWO RNAV departure, the CHATY TWO departure, the GABRE EIGHT departure, the GORMAN FOUR departure, the LOOP SEVEN departure, MUELR ONE RNAV departure, the OSHNN FOUR RNAV departure, the PERCH NINE departure, the SEBBY EIGHT departure, or the VENTURE FIVE departure.

CASTA FOUR RNAV – This departure is for turbojet aircraft only, and used when aircraft depart LAX on westerly headings and are routed north/northwest to the CASTA waypoint located 38 nm north of LAX, and then as filed.

FIXIT TWO RNAV – This departure is for turbojet aircraft only, and used when aircraft depart LAX on westerly headings and are routed west to the FIXIT waypoint located 28 nm west of LAX, and then as filed.

CHATY TWO – This is a radar vector departure for non-turbojet aircraft departing LAX on easterly headings, 040° when departing the northern runways, and 070° heading when departing

on the south runways. The aircraft are then radar vectored to the LAX 323° radial to the CHATY intersection located 20 nm north of LAX. Aircraft are then routed as filed.

GABRE EIGHT – This is a radar vector departure for aircraft departing LAX to the east on an assigned heading of 070°. Aircraft departing from the north runways fly the 070° heading to the LAX VOR three DME and turn to a 055° heading. Departures are then radar vectored onto the 345° radial off of the Seal Beach VOR to GABRE intersection, and then as filed.

GORMAN FOUR – This is a radar vector departure for aircraft departing LAX both to the east and the west for this departure, depending on the runways in use, on a heading of 070° to the east, or 250° to the west. Aircraft departing from the north runways to the east fly to the LAX VOR three DME and turn to a 055° heading. Aircraft are then radar vectored to radials off of the LAX VOR or the Santa Monica VOR to the Gorman VOR located 56 nm north of LAX, and then as filed.

LOOP SEVEN – This is a radar vector departure for aircraft departing LAX westerly on a 250° heading remaining within 15 nm of the LAX VOR. Aircraft departing from the south runways fly west on the 250° heading to the Santa Monica VOR 160° radial, and then fly a 235° heading. Aircraft are then radar vectored back to the LAX VOR, and continue northeast to the Daggett VOR located 110 nm from the LAX VOR, and then as filed.

MUELR ONE RNAV – This departure is for turbojet aircraft only for aircraft departing LAX on a westerly heading and are routed west to the MUELR waypoint located 22 nm west of LAX, and then northwest as filed.

OSHNN FOUR RNAV – This departure is for aircraft departing LAX to the west and that are unable to fly the LOOP SEVEN DP. Aircraft are routed south to the OSHNN waypoint located 22 nm south of LAX. Aircraft then fly north to the Daggett VOR and then as filed. This departure is typically used for aircraft departing LAX between 9:00 p.m. and 7:00 a.m. local time.

PERCH NINE – This is a radar vector departure for aircraft departing LAX both to the east and the west for this departure, depending on runways in use, on a heading of 070° to the east or 250° to the west. They are then radar vectored to the DINTY or FICKY intersections located 211 nm and 208 nm respectively, and then as filed.

SEBBY EIGHT – This is a radar vector departure for aircraft unable to fly the LOOP SEVEN DP. Aircraft depart LAX to the west on a 250° heading and then radar vectored to the 022° radial off of the Seal Beach VOR to the SEBBY intersection located 34 nm northeast of LAX, and then to the Daggett VOR as filed. This departure is typically used for aircraft departing LAX and are unable to fly the LOOP SEVEN DP between 9:00 p.m. and 7:00 a.m. local time.

VENTURA FIVE – This is a radar vector departure for aircraft departing LAX both to the east and the west for this departure, depending on runways in use, on a heading of 070° to the east or 250° to the west. Aircraft are then radar vectored to the Ventura VOR located 34 nm northwest of

LAX and then as filed out to the DINTY intersection. This departure is typically used for aircraft departing LAX between 9:00 p.m. and 7:00 a.m. local time.

South/East

Aircraft departing LAX airspace to the south and east are generally assigned the CATALINA FIVE departure, the HOLTZ NINE RNAV departure, the IMPER ONE departure, the JEDDD ONE RNAV departure, the KARVR THREE RNAV departure, the LAXX SEVEN departure, SAN DIEGO SIX departure, the SEAL BEACH FIVE departure, or the ZILLI ONE RNAV departure.

CATALINA FIVE – This is a radar vector departure for aircraft departing LAX to the east on a 070° heading. Aircraft are radar vectored south to the Santa Catalina VOR located 34 nm south of LAX, and then as filed.

HOLTZ NINE RNAV – Aircraft depart LAX to the west and are routed south to the HOLTZ waypoint located 18 nm south of the Airport, and then east as filed.

IMPER ONE – Aircraft depart LAX both to the east and the west for this departure, depending on runways in use, on a heading of 070° to the east or 250° to the west. Aircraft are then radar vectored to the Seal Beach VOR for easterly departures, or to the 160° radial off of the LAX VOR, and then fly the departure southeast to the Imperial VOR located 160 nm southeast of LAX, and then as filed.

JEDDD ONE RNAV – This departure is for turboprop aircraft only departing LAX Runways 25L and 25R to the west. Aircraft are routed south to the JEDDD waypoint located 19 nm south of LAX, and then fly southeast as filed.

KARVR THREE RNAV – Aircraft depart LAX to the west and are routed south to the KARVR waypoint located 45 nm southeast of LAX, and then fly south, and then southeast as filed.

LAXX SEVEN – This is a radar vector departure for turbojet aircraft only departing LAX both to the east and the west for this departure, depending on runways in use, on heading of 070° to the east, and 250° to the west respectively. Aircraft are then radar vectored to the Seal Beach VOR and then east, or southeast as filed.

SAN DIEGO SIX – This is a radar vector departure for non-turbojet aircraft unable to fly the LAXX SIX DP only. Aircraft depart LAX both to the east and the west for this departure, depending on runways in use, on a heading of 070° to the east or 250° to the west. They are then radar vectored to the Seal Beach VOR for easterly departures, and the Santa Catalina 091° radial for westerly departures to the CARDI intersection located 69 nm southeast of LAX, and then southeast as filed.

SEAL BEACH FIVE – This is a radar vector departure for turbojet aircraft unable to fly the LAXX SIX DP only. Aircraft depart LAX both to the east and the west for this departure,

depending on runways in use, on a heading of 070° to the east or 250° to the west. They are then radar vectored to the Seal Beach VOR, and then as filed.

ZILLI ONE RNAV – Aircraft depart LAX to the west for this procedure and are routed to the ZILLI waypoint located approximately 22 nm southwest of LAX, and then southwest as filed.

Final

LOS ANGELES INTERNATIONAL AIRPORT

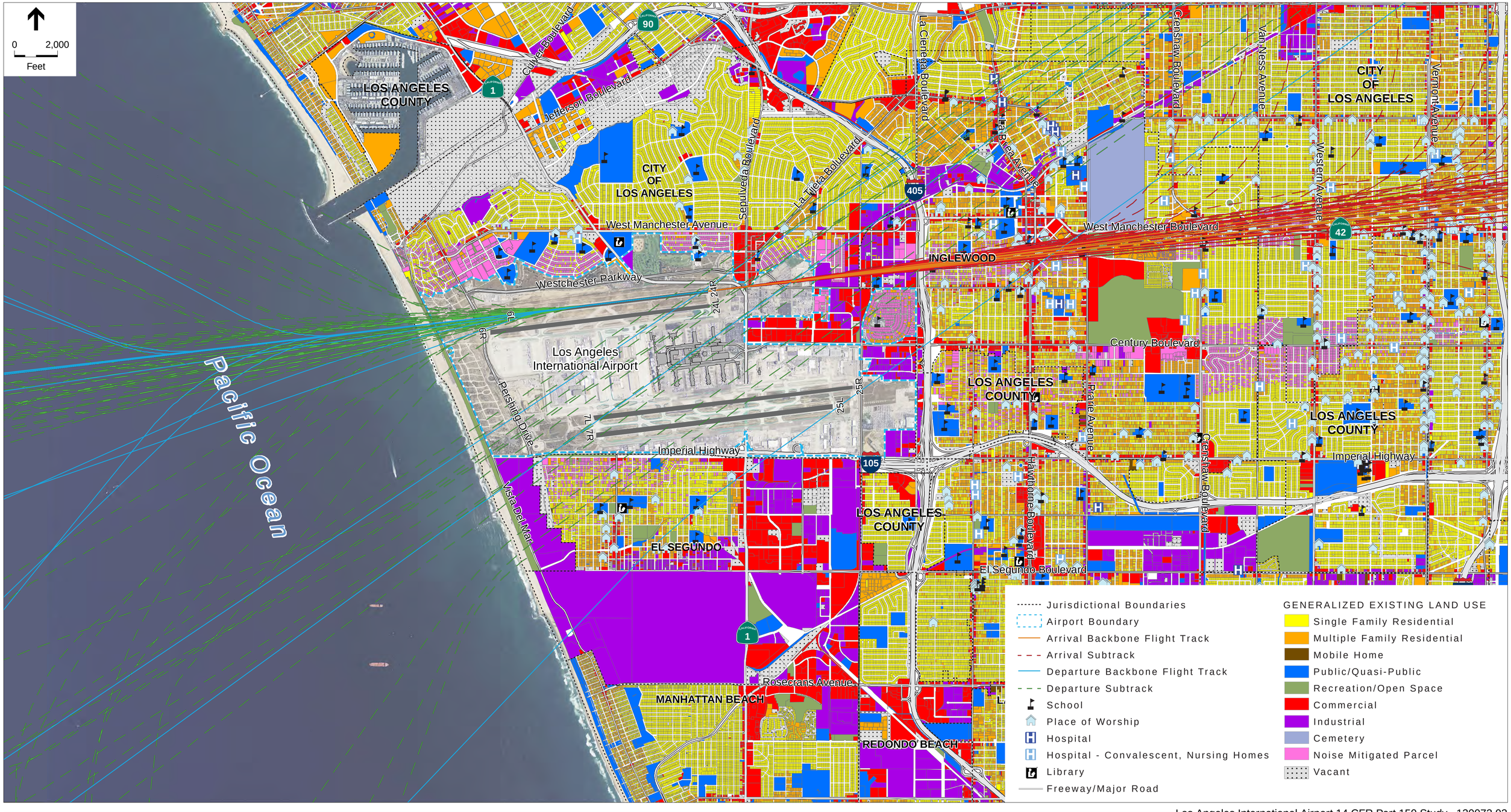
Title 14, Code of Federal Regulations (CFR) Part 150 Noise Exposure Map Report Update

Appendix I: Oversized Maps

Prepared for
City of Los Angeles
Los Angeles World Airports

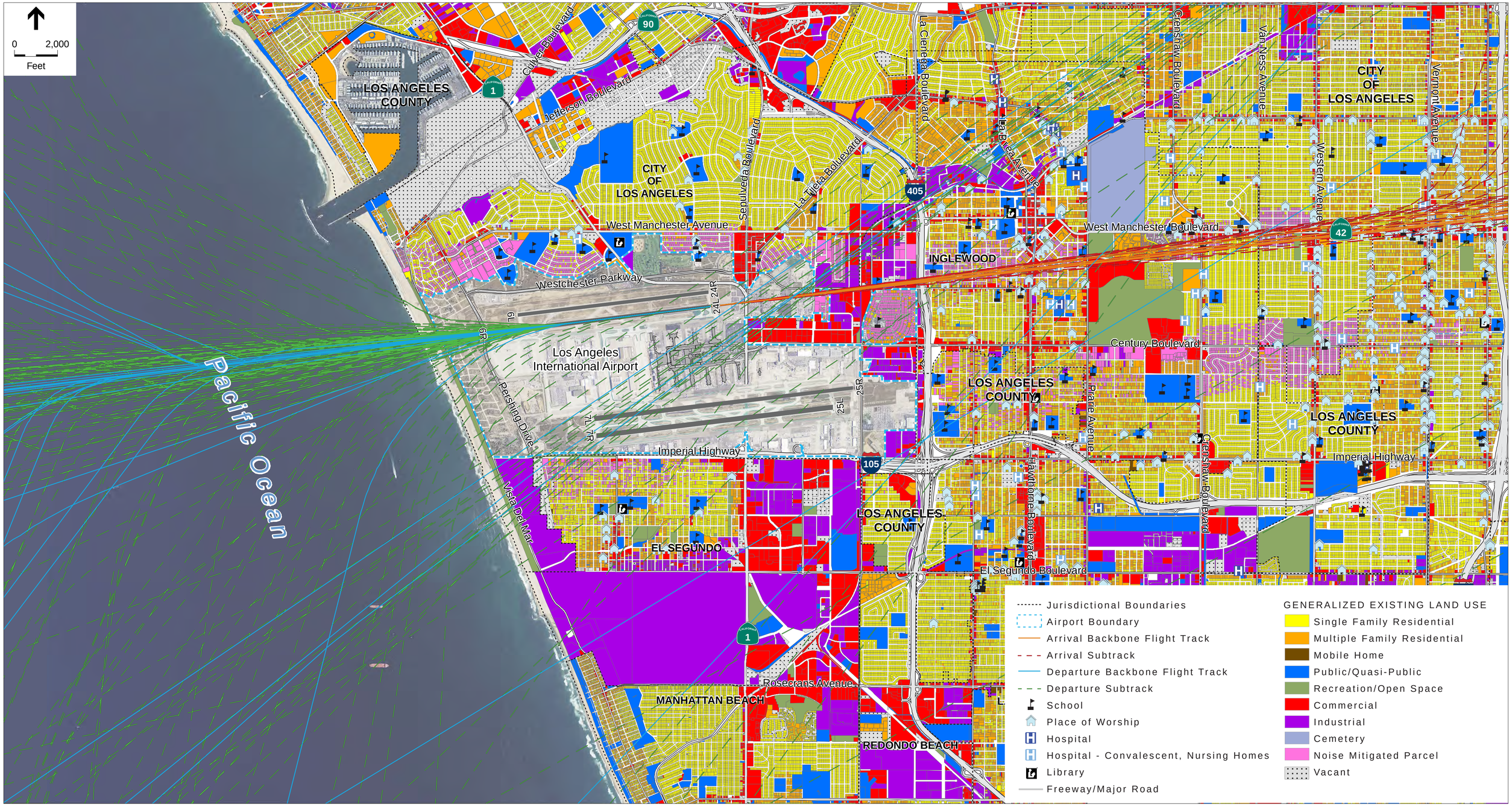
August 2015

ESA Airports



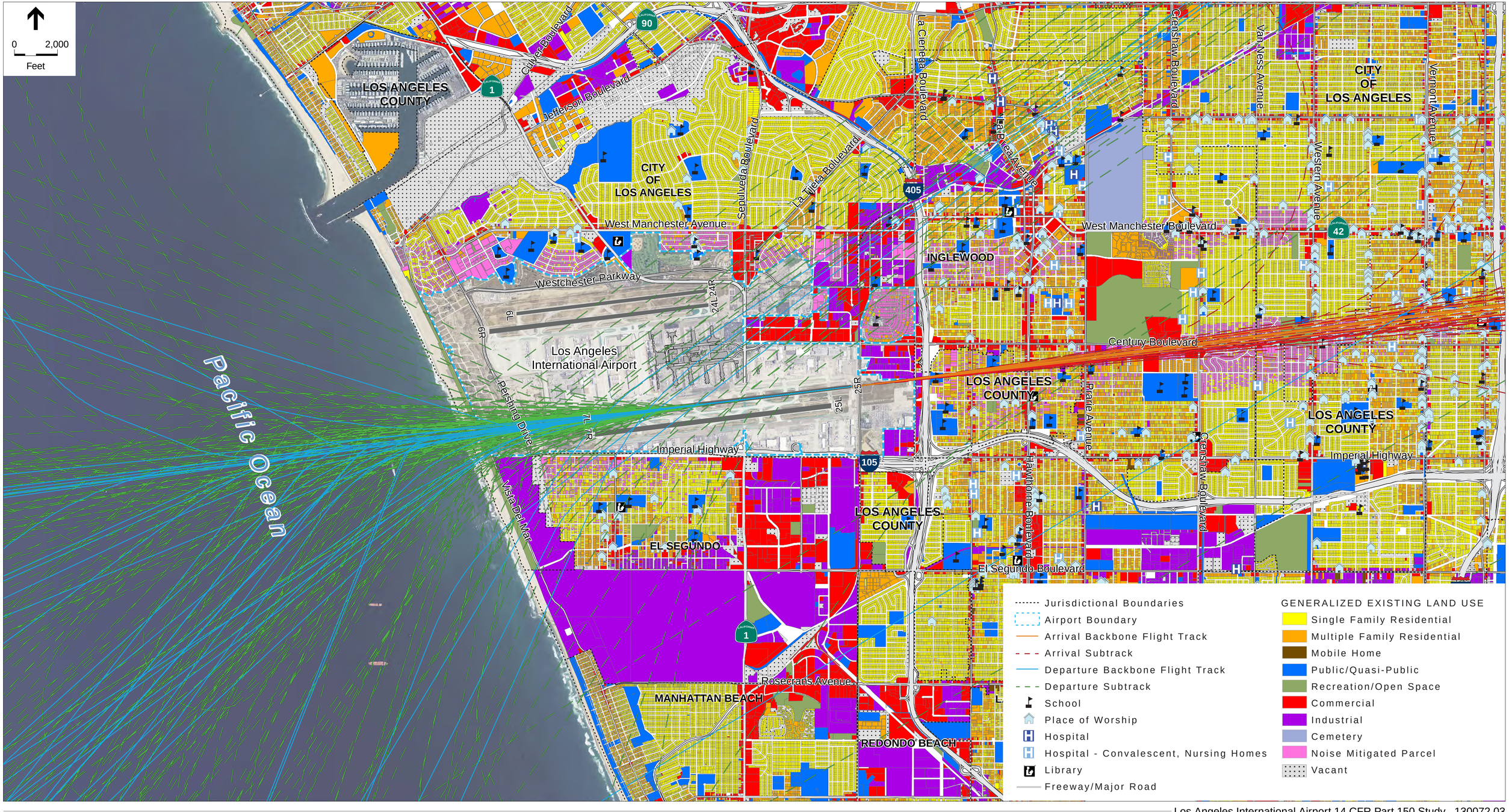
SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-3
INM Arrival and Departure Flight Tracks – Runway 24R



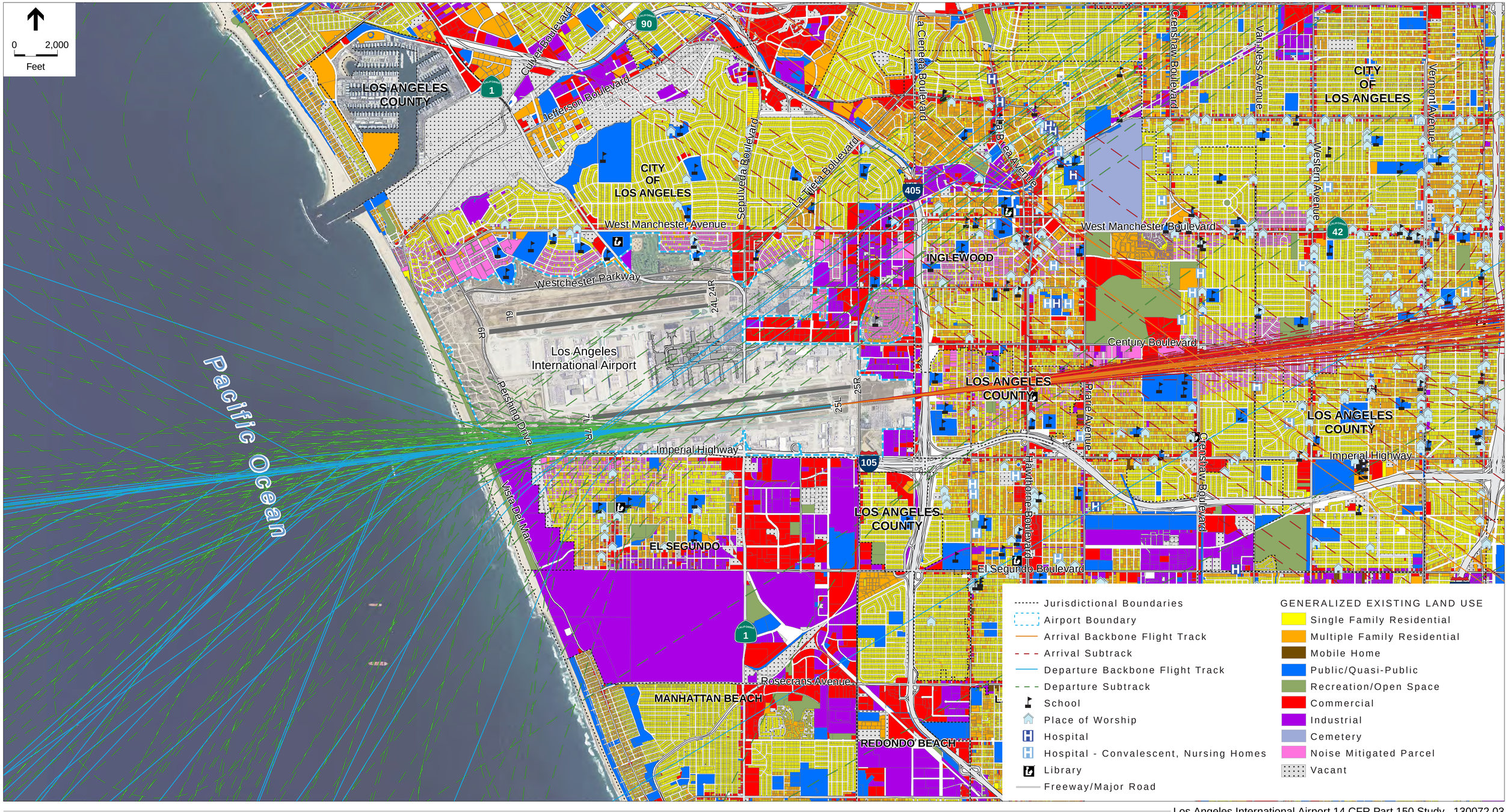
SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-4
INM Arrival and Departure Flight Tracks – Runway 24L



SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-5
INM Arrival and Departure Flight Tracks – Runway 25R



SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

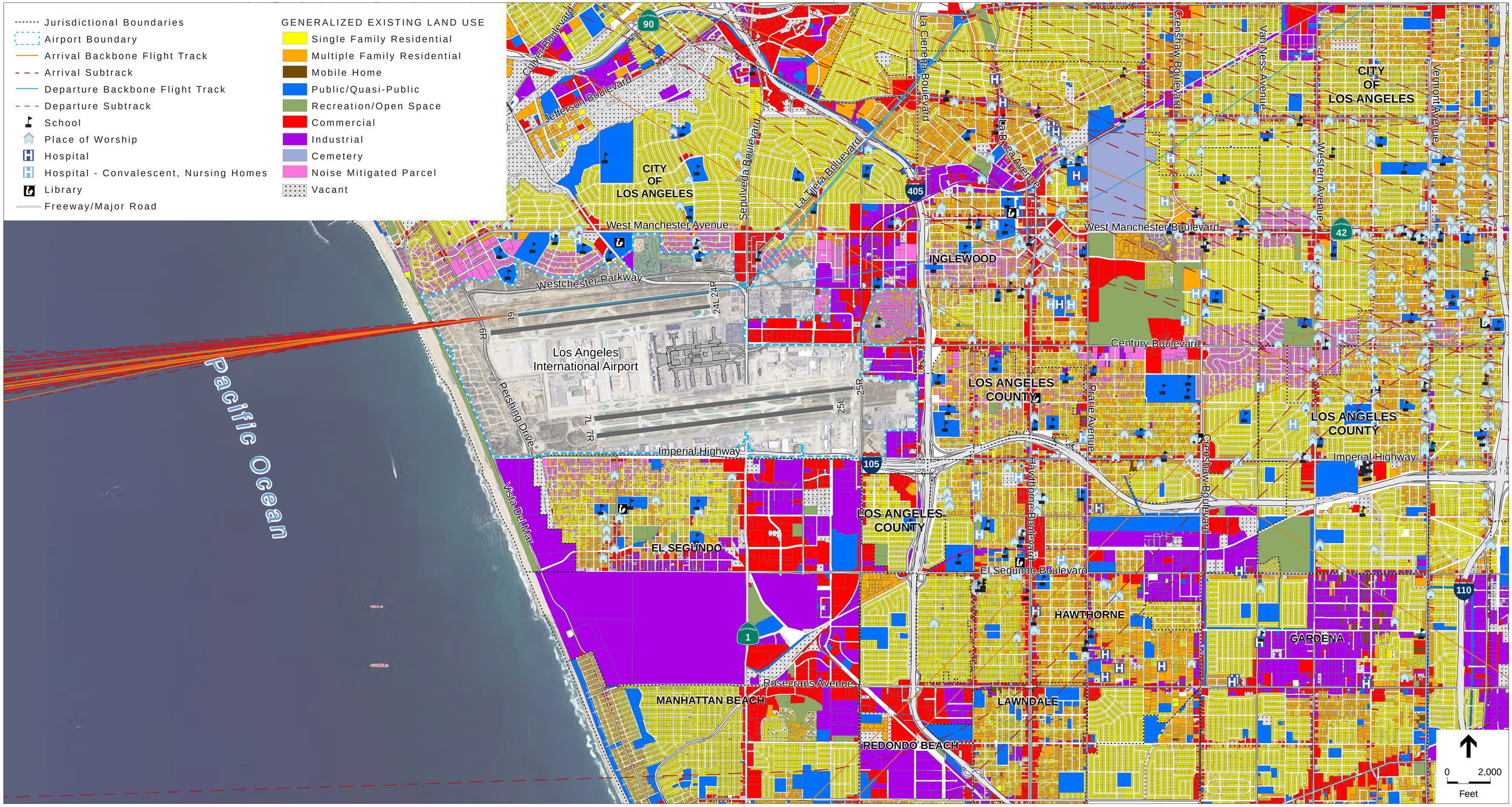
Exhibit 4-6

INM Arrival and Departure Flight Tracks – Runway 25L

Jurisdictional Boundaries
Airport Boundary
Arrival Backbone Flight Track
Arrival Subtrack
Departure Backbone Flight Track
Departure Subtrack
School
Place of Worship
Hospital
Hospital - Convalescent, Nursing Homes
Library
Freeway/Major Road

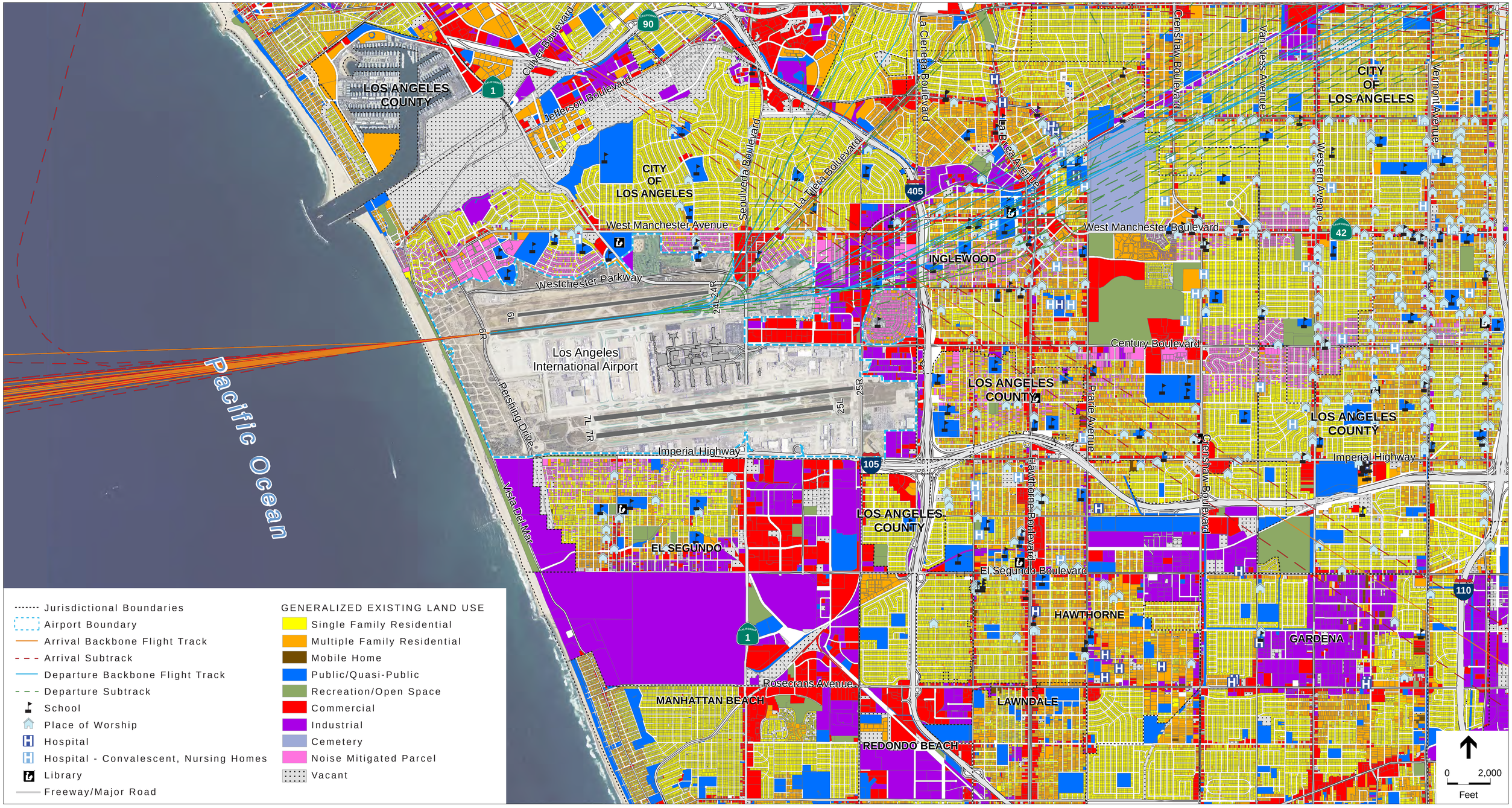
GENERALIZED EXISTING LAND USE

Single Family Residential
Multiple Family Residential
Mobile Home
Public/Quasi-Public
Recreation/Open Space
Commercial
Industrial
Cemetery
Noise Mitigated Parcel
Vacant



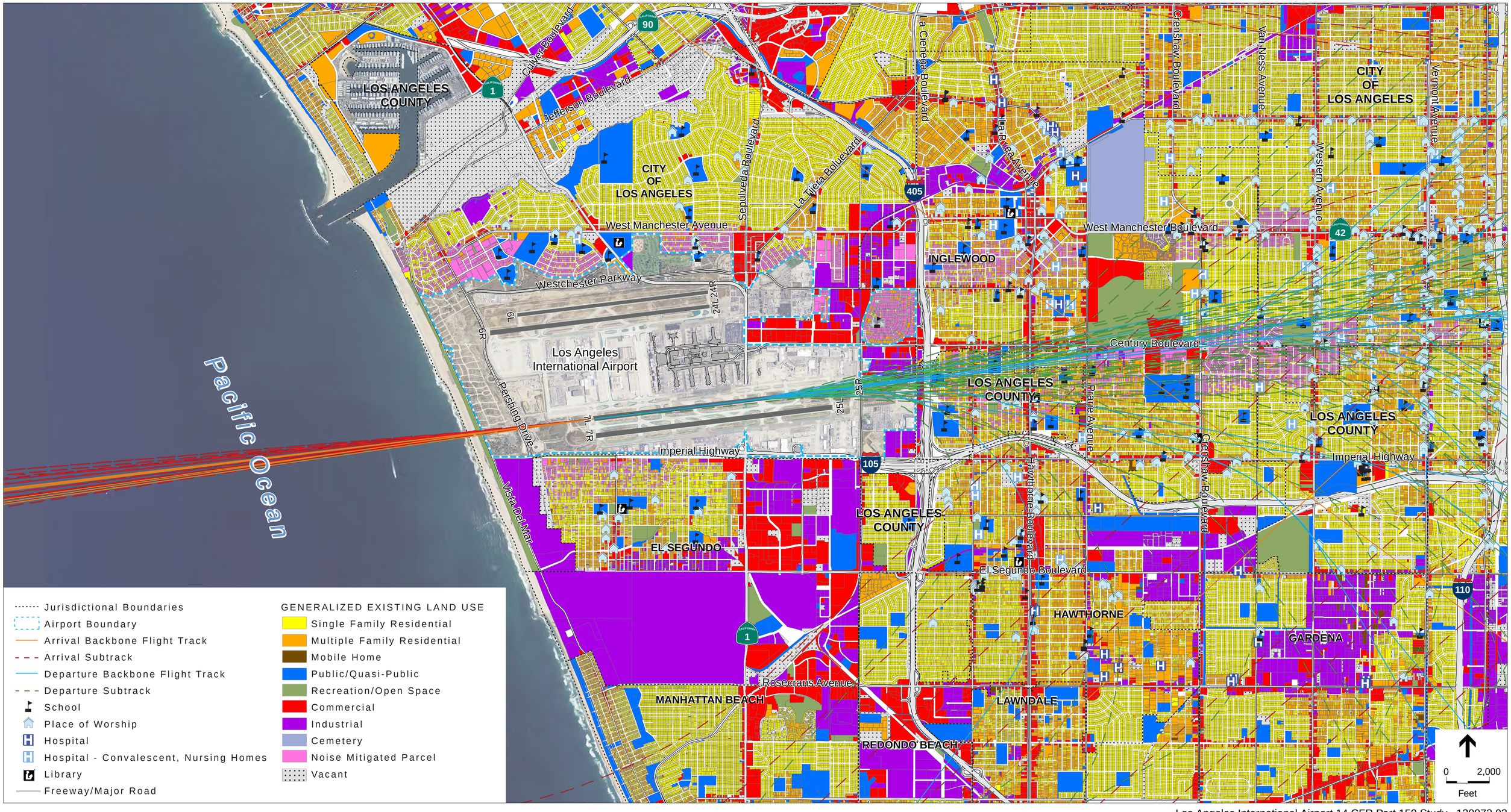
SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-7
INM Arrival and Departure Flight Tracks – Runway 06L



SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-8
INM Arrival and Departure Flight Tracks – Runway 06R



SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

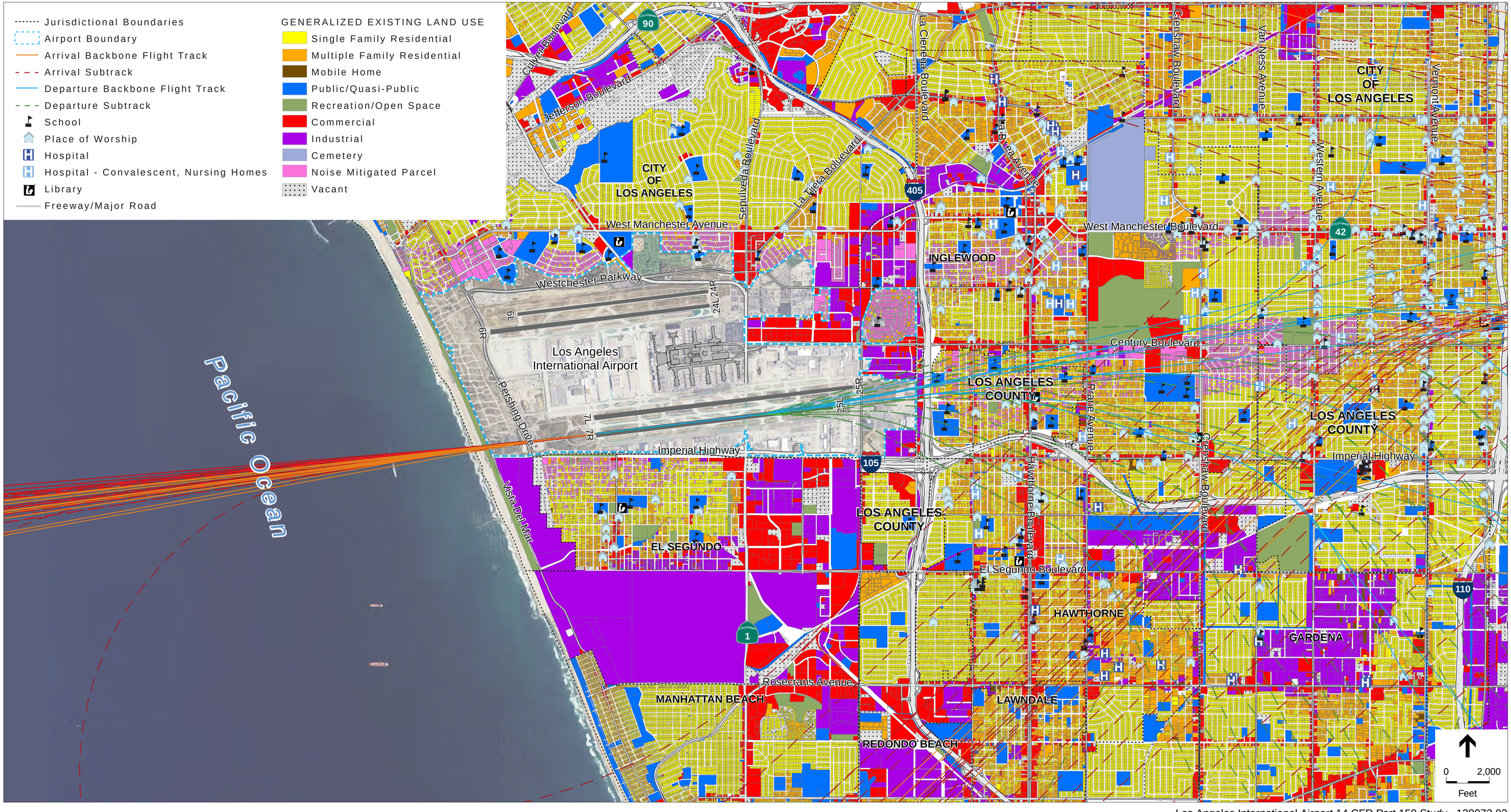
Exhibit 4-9

INM Arrival and Departure Flight Tracks – Runway 07L

Jurisdictional Boundaries
Airport Boundary
Arrival Backbone Flight Track
Arrival Subtrack
Departure Backbone Flight Track
Departure Subtrack
School
Place of Worship
Hospital
Hospital - Convalescent, Nursing Homes
Library
Freeway/Major Road

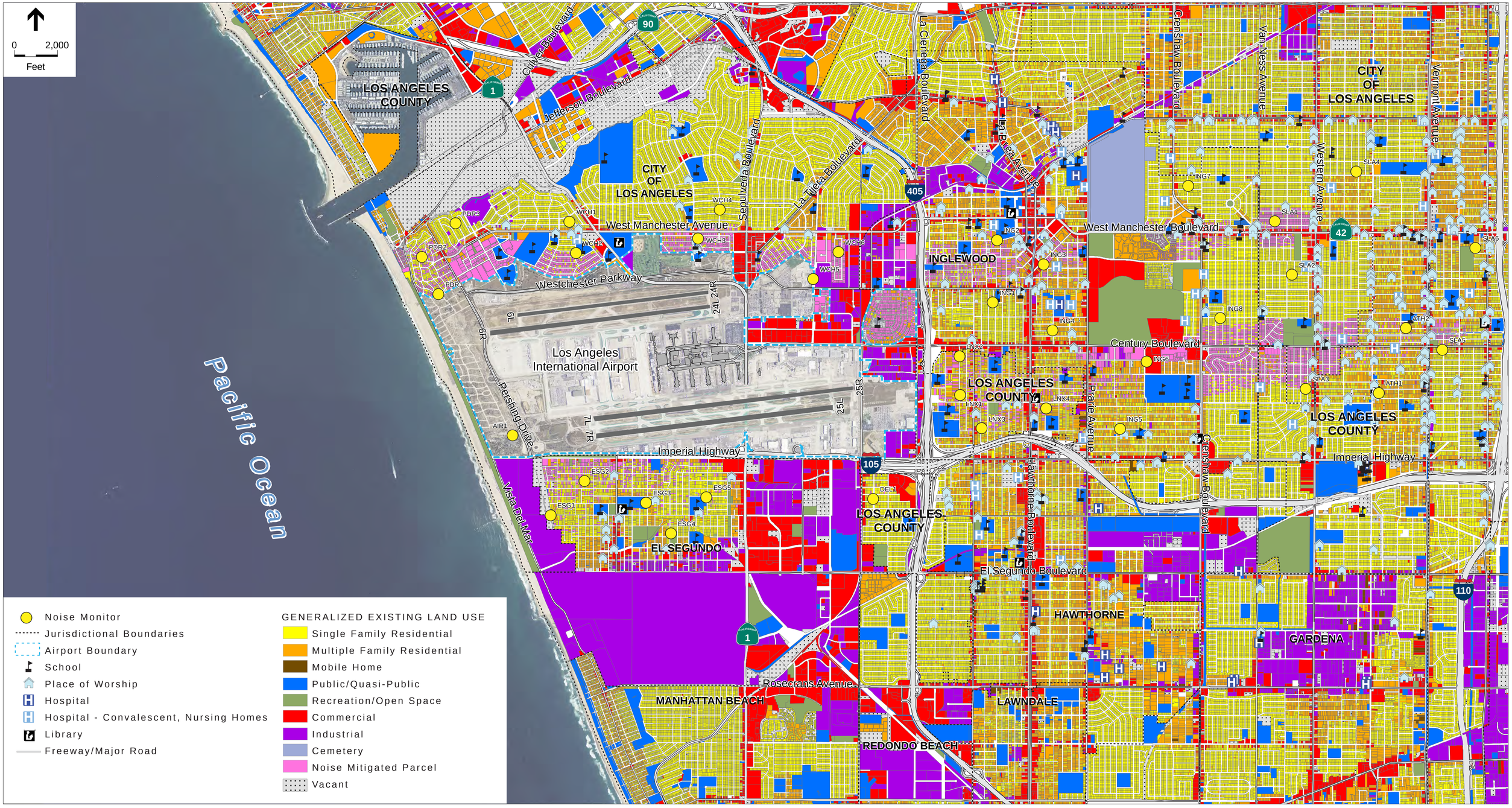
GENERALIZED EXISTING LAND USE

Single Family Residential
Multiple Family Residential
Mobile Home
Public/Quasi-Public
Recreation/Open Space
Commercial
Industrial
Cemetery
Noise Mitigated Parcel
Vacant



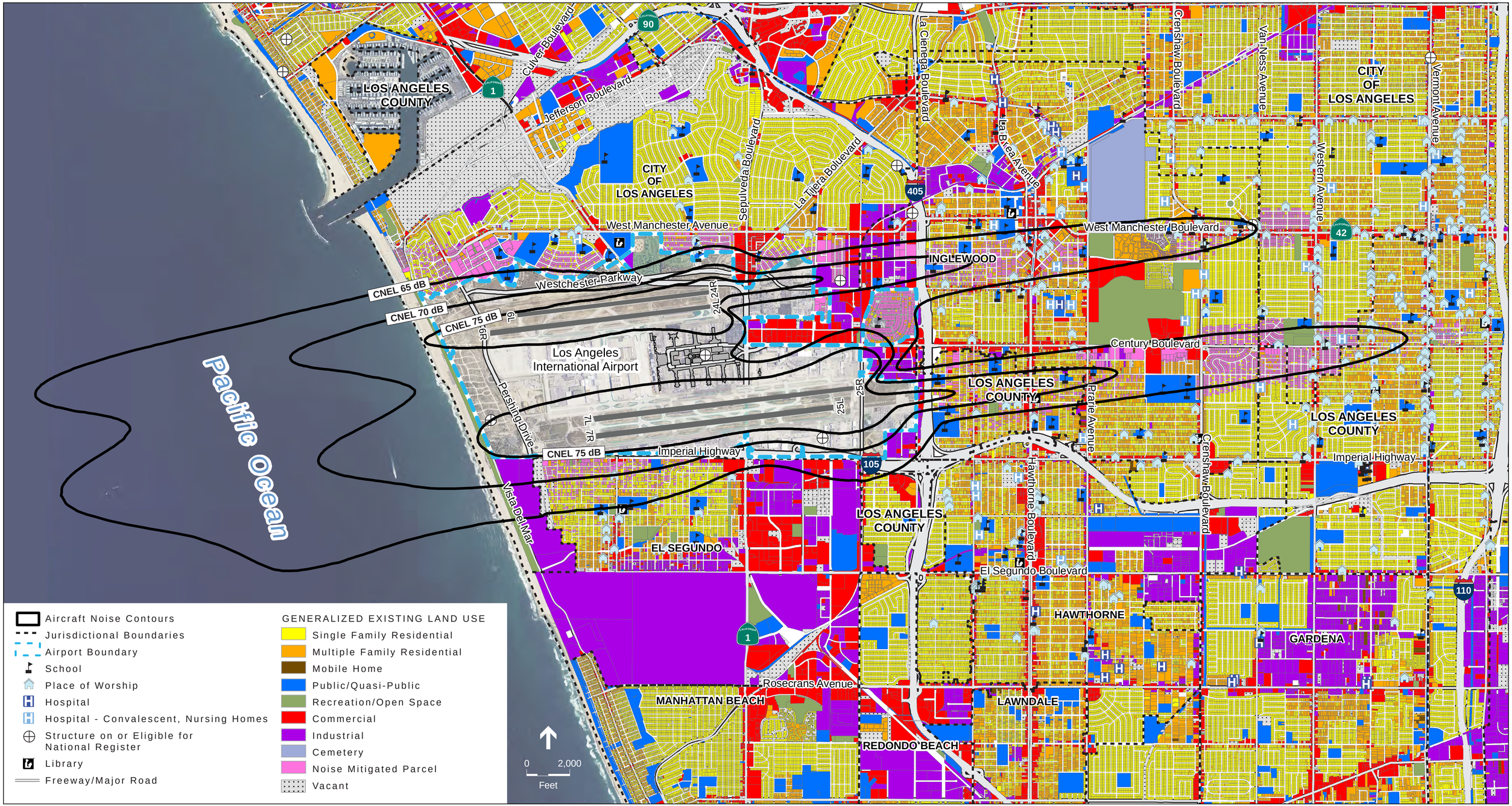
SOURCES: ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: INM = Integrated Noise Model

Exhibit 4-10
INM Arrival and Departure Flight Tracks – Runway 07R



SOURCES: LAWA, 2014; ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTE: The following LAX noise monitors are outside the geographic extents of the exhibit – SLA7, SLA8, and SLA9.

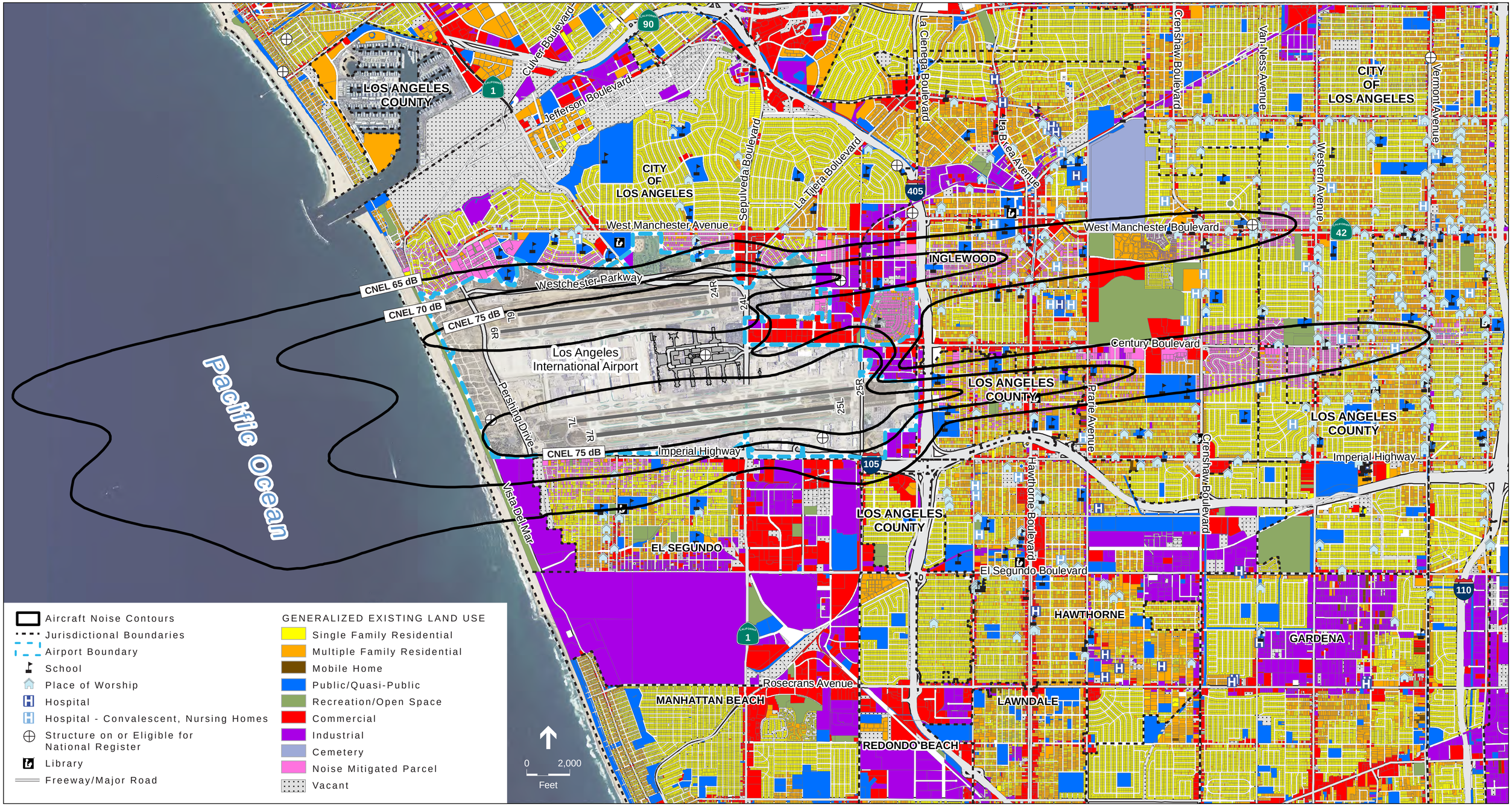
Exhibit 4-11
Location of Noise Monitors in the Vicinity of Los Angeles International Airport



SOURCES: LAWA, 2014; ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTES: CNEL = Community Noise Equivalent Level; dB = Decibel.

Exhibit 5-1

2015 Noise Exposure Map (Existing Conditions) - Los Angeles International Airport



SOURCES: LAWA, 2014; ESA Airports, 2014; ESRI ArcGIS Online, 2011; ESRI World Imagery - Aerial; PCR Services Corporation, 2012
NOTES: CNEL = Community Noise Equivalent Level; dB = Decibel.

Exhibit 5-2

2020 Noise Exposure Map (Future Conditions) - Los Angeles International Airport