
4.10 Biotic Communities

4.10.1 Introduction

The biotic communities analysis addresses the potential of the Master Plan alternatives to affect sensitive biotic communities and sensitive plant and animal species. Biotic communities are regional assemblages of vegetation (flora) characterized by the presence of certain dominant species, which exist together with associated wildlife species (fauna). In addition to direct effects, an analysis of potential indirect impacts from airport operations to sensitive species of flora and fauna from light emissions, air emissions, and noise is also included in this section.

Additional information regarding the affected environment relative to biotic communities and the methodology used to assess baseline conditions and project impacts is included in Technical Report 7, *Biological Resources - Memoranda for the Record on Floral and Faunal Surveys*. Threatened and endangered species of flora and fauna are addressed in Section 4.11, *Endangered and Threatened Species of Flora and Fauna*. Wetlands are addressed in Section 4.12, *Wetlands*.

4.10.2 General Approach and Methodology

This section describes the studies undertaken to characterize the existing biotic communities and the approach taken for comparing existing biotic communities under CEQA baseline conditions with those projected to exist under the No Action/No Project Alternative and the four build alternatives, and, for NEPA, comparing potential impacts under the No Action/No Project Alternative with those projected to occur under the four build alternatives. This section also responds to issues related to biotic communities provided in letters of comment by the resource agencies to the Federal Aviation Administration's (FAA) June 11, 1997 Notice of Intent (NOI) and LAWA's Notice of Preparation (NOP) of a joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR). The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) commented on the combined NOI/NOP in their letters dated July 31, 1997, and August 13, 1997, respectively. Both agencies requested that sensitive biological resources be fully characterized and impacts identified. This section describes the results of surveys undertaken in support of the LAX Master Plan to characterize and determine potential impacts to existing biotic communities (including flora and fauna) and sensitive species. Federal, state, and local regulations relating to biotic communities and sensitive species provide the framework for this analysis and are discussed below.

The federal Migratory Bird Treaty Act makes it unlawful to pursue, capture, kill, or possess or attempt to do the same to any migratory bird or part, nest, or egg of such bird listed in wildlife protection treaties between the United States and Great Britain, Mexico, Japan, and the former Soviet Union. Migratory birds are those species that breed in latitudes different from those in which they winter. Due to its coastal location, LAX is positioned within the migratory path called the Pacific Flyway and open areas within the Master Plan boundaries potentially provide habitat for migratory birds.

Surveys for wintering birds were conducted in January 1995 and again in January 1998.^{457, 458} These surveys were part of a winter bird count, and were single-day surveys. The areas surveyed included all of the Los Angeles/El Segundo Dunes. These surveys were performed as walking transects, visually observing the entire survey area. Eight spring bird surveys were conducted between May 12 and June 29, 1995. Three transect lines were established and walked, beginning at first light. Spring surveys were based on the Southern California Coastal Sage Scrub Scientific Review Panel's Survey Guidelines.⁴⁵⁹ Survey reports are provided in Technical Report 7, *Biological Resources - Memoranda for the Record on Floral and Faunal Surveys*.

⁴⁵⁷ Sapphos Environmental, Inc., Memorandum for the Record 1043-002.M07, 1995 Bird Surveys at the Los Angeles International Airport El Segundo Dunes, March 7, 1996.

⁴⁵⁸ Sapphos Environmental, Inc., Memorandum for the Record 1043-010.M03, Winter Bird Count at El Segundo Dunes 1998/1999, January 4, 1999.

⁴⁵⁹ California Department of Fish and Game, Southern California Coastal Sage Scrub Scientific Review Panel's Survey Guidelines, 1991.

4.10 Biotic Communities

As part of a broader wildlife survey,⁴⁶⁰ Sapphos Environmental Inc., a biological consulting firm, conducted bird surveys on foot along the entire length of the Argo drainage ditch on October 9, 1997. The Argo drainage ditch was subsequently cleared of overgrown vegetation and debris and returned to "as-built" condition under U.S. Army Corps of Engineers (USACOE) Nationwide Permit No. 31. Clearing was performed to accommodate anticipated El Niño storm events predicted for the winter of 1997-1998, and ensuing El Niño storm events. No suitable habitat remains along the Argo drainage ditch for any listed or other sensitive wildlife species. Survey reports are provided in Technical Report 7, *Biological Resources - Memoranda for the Record on Floral and Faunal Surveys*.

Provisions of the federal Coastal Zone Management Act of 1972, discussed in Section 4.14, *Coastal Zone Management and Coastal Barriers*, require states to establish comprehensive programs to designate and manage development within the coastal zone. The California Coastal Act grants authority to the California Coastal Commission (CCC) to regulate development and related resource-depleting activities in a defined coastal zone boundary. Local Coastal Programs (LCPs) are specific long-term management plans prepared by coastal cities and counties and submitted to the CCC for approval. Until the CCC approves the submitted LCP, it retains authority over development within that portion of the coastal zone.

The Los Angeles/El Segundo Dunes has been designated as an Ecologically Sensitive Habitat Area (ESHA) pursuant to Section 30240 of the California Coastal Act. The City of Los Angeles has not finalized an LCP that addresses the Los Angeles/El Segundo Dunes for certification by the CCC. Therefore, development within the Los Angeles/El Segundo Dunes is subject to coastal development permit requirements of the CCC.

In the absence of a finalized LCP, other plans have guided the protection of the Los Angeles/El Segundo Dunes. In 1992, the City of Los Angeles amended the *Westchester-Playa del Rey District Plan* pursuant to Ordinance #167940 to establish the Los Angeles/El Segundo Dunes Specific Plan and applicable land use regulations consistent with the site's environmental sensitivity. The land use regulations apply specifically to habitat restoration and maintenance of the approximately 200-acre El Segundo Blue Butterfly Habitat Restoration Area (Habitat Restoration Area). Subsequently, the City of Los Angeles prepared the *Long-term Habitat Management Plan for the LAX/El Segundo Dunes* in 1994. Since 1995, LAWA has assigned two full-time landscape personnel to perform maintenance activities within the Habitat Restoration Area in support of the El Segundo blue butterfly. In addition, qualified permitted biologists monitor the federally-endangered El Segundo blue butterfly annually.

CEQA requires that the lead government agency disclose the environmental effects of the proposed project activity, as well as feasible alternatives or mitigation measures that would avoid or reduce significant adverse environmental effects, to decision-makers and the public. In evaluating potential effects on biotic communities, the *CEQA Guidelines*⁴⁶¹ recommend that the project sponsor address the following issues: proposed project activities that will adversely affect any riparian habitat, federally-protected wetland, or other sensitive natural community, or any sensitive species either directly or through habitat modification; and proposed activities that will conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state plan.

Biotic communities within the study area were described based on results of field surveys. The surveys were supplemented by reviewing other documentation and regional distribution data for plant and wildlife resources, which include published and unpublished literature, historic and recent aerial photography, and consulting with persons knowledgeable about the area's biology. The California Natural Diversity Database (CNDDB) was consulted early in the EIS/EIR analysis process for information on sensitive habitats and sensitive floral and faunal resources that potentially occur in the region.⁴⁶² Review of the CNDDB⁴⁶³ for the topographic quadrangle in which the project occurs (Venice), as well as adjacent quadrangles (Torrance, Inglewood, San Pedro, Redondo Beach, Beverly Hills, and Hollywood) was also undertaken in 2002, and did not identify any additional endangered, threatened or candidate species.

⁴⁶⁰ Sapphos Environmental, Inc., Memorandum for the Record 1043-007.M02, Wildlife Survey of the Argo Ditch, November 18, 1997.

⁴⁶¹ The State CEQA Guidelines are found in Title 14, Division 6, Chapter 3 of the California Code of Regulations. Appendix G contains a sample environmental checklist form.

⁴⁶² California Department of Fish and Game, California Natural Diversity Database - RareFind 2, Sacramento, 1998.

⁴⁶³ California Department of Fish and Game, California Natural Diversity Database - RareFind 2, Sacramento, 1999.

Analysis of potential impacts to biotic communities within the study area was conducted using the results of directed and qualitative surveys⁴⁶⁴ for each biotic community; the locations of those biotic communities were then compared to the locations of proposed improvements under the No Action/No Project Alternative and the four build alternatives. The analysis focused on the biotic communities, including flora and fauna, described in subsection 4.10.3, *Affected Environment/Environmental Baseline*.

NEPA requires the lead federal agency to disclose the potential environmental consequences of the proposed project and reasonable alternatives and mitigation measures to decision-makers and the public. In evaluating potential impacts on biotic communities, FAA Order 5050.4A, *Airport Environmental Handbook*, and FAA Order 1050.1D, provides that the FAA should consider impacts under Section 4(f) of the Department of Transportation Act (49 USC Chapter 303), impacts on water resources under the Fish and Wildlife Coordination Act, consistent with statewide wildlife conservation plans under the Sikes Act, and biodiversity. Consultation is to be initiated with the U.S. Fish and Wildlife Service as well as other Federal, state, Tribal, and local agencies having administration over fish, wildlife, and plant resources concerning the possible damage to wildlife resources as well as to provide for the development and improvement of such resources.

Surveys for sensitive invertebrates were conducted across the Los Angeles/EI Segundo Dunes and LAX airfield in 1996, 1997, and 1998.^{465, 466} Surveys were conducted utilizing standard survey methodologies. Survey reports are provided in Technical Report 7, *Biological Resources - Memoranda for the Record on Floral and Faunal Surveys*.

General surveys for reptiles and amphibians were performed in 1995, 1996, and 1998 during the spring and summer seasons.^{467, 468} Areas surveyed include: (1) the Los Angeles/EI Segundo Dunes; (2) 100 acres north of Sandpiper Street; (3) north of Westchester Parkway and east of Cum Laude Avenue; (4) west of the south runways and east of Pershing Drive; (5) west of the north runways and east of Pershing Drive; and (6) north and northwest of the north runways and south of Westchester Parkway. Meandering transects were walked in areas with potential reptile and amphibian habitat. Surveys were conducted beginning at 1000 hours when the air temperature exceeded 25° Celsius (C) (77° Fahrenheit (F)), the minimum condition for this survey. Surveys were performed at ten daytime temperatures of 25°C and above to ensure reptiles were active and increase the chances of detection. Rocks and debris found in the areas surveyed were lifted or overturned, looked under, and replaced. Survey reports are provided in Technical Report 7, *Biological Resources - Memoranda for the Record on Floral and Faunal Surveys*.

General small mammal surveys were conducted from May 24 to May 28, 1995.⁴⁶⁹ Three methods were employed: Sherman live traps set at ten to 20 meter intervals along predetermined transect lines; pitfall traps (to survey for shrews and moles) deployed in areas of potential habitat; and walking of transects to sample for scat and other small mammal signs throughout the Los Angeles/EI Segundo Dunes. Survey reports are provided in Technical Report 7, *Biological Resources - Memoranda for the Record on Floral and Faunal Surveys*.

The California Native Plant Protection Act includes measures to preserve, protect, and enhance endangered and rare native plants. The definitions of endangered and rare differ from those contained in the California Endangered Species Act (CESA); however, the list of native plants afforded protection by this Act includes those listed as endangered and threatened under CESA. This Act specifies that no person shall import into this state, or take, possess, or sell within this State any endangered or rare native plant, except in compliance with provisions of the Act. Individual landowners are required to notify the

⁴⁶⁴ Directed surveys are focused surveys conducted for a particular species, seeking habitats for that species alone. Qualitative surveys are more general in nature, documenting all species present within the survey area.

⁴⁶⁵ Frank Hovore and Associates, Report of 1996 Surveys for Sensitive Arthropods at EI Segundo Dunes, 1996.

⁴⁶⁶ Frank Hovore and Associates, LAX Dune Transects - Arthropod Diversity and Sensitive Species Inventory; Preliminary Report of Sampling to Date, 1998.

⁴⁶⁷ Sapphos Environmental, Inc., Memorandum for the Record 1067-001.M23, 1996 Herpetofauna Surveys at the Los Angeles International Airport (LAX) in March and April of 1996 in Support of the LAX Master Plan Environmental Impact Report, May 23, 1996.

⁴⁶⁸ Sapphos Environmental, Inc., Memorandum for the Record 1067-007.M15, Results of Directed Summer Surveys for Sensitive Amphibians, Reptiles, California Brown Pelican, California Least Tern, and the Endangered EI Segundo Blue Butterfly at LAX/EI Segundo Dunes, December 21, 1998.

⁴⁶⁹ Sapphos Environmental, Inc., Baseline Inventory for Small Mammals and Carnivores at the Los Angeles International Airport EI Segundo Dunes Restoration Project Site, Los Angeles County, CA, 1995.

4.10 Biotic Communities

CDFG at least 10 days in advance of changing land uses to allow the CDFG to salvage any endangered or rare native plant material.

Surveys for sensitive plant species were incorporated into annual qualitative plant surveys conducted by Sapphos Environmental, Inc. within the Habitat Restoration Area from 1995 to 1999. Details are provided in Technical Report 7, *Biological Resources - Memoranda for the Record on Floral and Faunal Surveys*. On July 1, 2, 10, and 14, 1998, directed surveys were undertaken for sensitive plant species within the Master Plan boundaries. Surveys were undertaken during the seasons most appropriate for detection of each individual species. Each surveyor was familiar with the characteristics of the target species. The survey pattern consisted of parallel transects approximately six meters apart. All surveys were conducted in accordance with CDFG Guidelines.⁴⁷⁰

A plant community map for the study area was generated in April 1996. On January 4, 2000, biologists from Sapphos Environmental, Inc. surveyed the study area, equipped with the plant community map and a recent aerial photograph to confirm the current extent of each biotic community. As a result, a revised plant community map was generated, and then utilized as a base map from which to analyze impacts under the No Action/No Project Alternative and the four build alternatives. Project alternative maps, provided in Chapter 3, *Alternatives*, of this document, were overlaid onto the baseline conditions plant community map to develop projected plant community maps under the No Action/No Project Alternative and the four build alternatives; each plant community map generated was then planimetered⁴⁷¹ to determine the approximate acreage of each biotic community under the baseline conditions, the No Action/No Project Alternative, and the four build alternatives.

The discussion of biotic communities uses a Mitigation Land Evaluation Procedure (MLEP) to evaluate the effect of each proposed alternative on biotic communities and sensitive flora and fauna within the study area. A MLEP is a method of quantifying habitats using the product of the suitability of the habitat for species in the area, and the areal extent of the habitat. The environmental consequences of the No Action/No Project Alternative and each project build alternative on sensitive flora and fauna were quantified in terms of habitat units,⁴⁷² calculated by multiplying the number of acres within each biotic community by its habitat value. (Acreages were obtained utilizing a planimeter to determine the area associated with each biotic community present in each alternative.) Habitat units were calculated for each of the habitat types present within the study area as compared with a target biotic community identified at reference sites. Historical records for areas within the Master Plan boundaries indicate that the target biotic community is a matrix of Valley Needlegrass Grassland combined with associated vernal pools.^{473, 474} The MLEP procedure was utilized to specifically address this Valley Needlegrass Grassland/Vernal Pool complex historically present in the study area.

Model reference sites, identified as representing optimal habitats for a multitude of floral and faunal species, were used to evaluate the habitats within the study area. The sites were selected based on the presence of extant vernal pool complexes. The reference sites used for this analysis were the Santa Rosa Plateau in Riverside County and the Carrizo Plain Natural Area in San Luis Obispo County. Both of these sites are comprised of native Valley Needlegrass Grassland habitat interspersed with vernal pools, and both support a diverse assemblage of native species in a configuration that maintains habitat function and species viability. Optimal habitat values (HV) were assigned to each of four criteria used to assess habitat quality at the sites: site topography/hydrology (HV = 0.2), flora (HV = 0.2), fauna (HV = 0.2), and ecosystem functional integrity (HV = 0.4). These criteria were developed based on characteristics of the

⁴⁷⁰ California Department of Fish and Game, Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities, August 15, 1997.

⁴⁷¹ A planimeter is an instrument for measuring the area of a plane figure by tracing its boundary line. In order to reflect the margin of error naturally associated with use of this instrument, all acreages are quoted as approximate.

⁴⁷² A habitat unit is the principal unit of comparison in the MLEP. A habitat unit is also the principal unit of comparison in the HEP (Habitat Evaluation Procedure), a methodology developed by the U.S. Fish and Wildlife Service for comparing habitat quality and quantity for a particular species. Mathematically, it is the product of the habitat quality value and the area of available habitat.

⁴⁷³ Pierce, W.D. and D. Pool, The Fauna and Flora of the El Segundo Sand Dunes, Bulletin of the Southern California Academy of Sciences, Vol. 37: 93-97, 1938.

⁴⁷⁴ Los Angeles Extension Company, Inglewood Extension Company, Historical Topographic Map, Source: Johnson, Fein, and Associates, 1918.

same criteria found in an optimal Valley Needlegrass Grassland/Vernal Pool complex;^{475, 476} when combined, the total habitat value for the optimal site is 1.

Each criterion was evaluated for the presence/absence of four specific characteristics, allowing quantification of the suitability of habitats within the study area for the species expected to occur in an optimal Valley Needlegrass Grassland/Vernal Pool complex. The Topography/Hydrology criterion for an optimal Valley Needlegrass Grassland/Vernal Pool complex was assigned a habitat value of 0.2, based on the contribution of a habitat value of 0.05 from each of the following characteristics: mound-depression microrelief, native soils with a slope of less than 10 percent, areas with a period of inundation greater or equal to 30 days, and summer desiccation.⁴⁷⁷ The Floral criterion was assigned a habitat value of 0.2, based on the contribution of a habitat value of 0.05 from each of the following characteristics: vegetative cover greater than 10 percent, native grass cover greater than 10 percent, sensitive vernal pool associated species, and listed vernal pool associated species. The Faunal criterion was assigned a habitat value of 0.2, based on the contribution of a habitat value of 0.05 from each of the following characteristics: domination of native fauna, grassland-associated species, sensitive vernal pool associated species, and listed vernal pool associated species. Each of these characteristics had to show evidence of reproduction. The Ecosystem Functional Integrity criterion⁴⁷⁸ was assigned a habitat value of 0.4, based on the contribution of a habitat value of 0.1 from each of the following characteristics: contiguity with wetland and state-designated sensitive terrestrial habitat, regulatory conservation,⁴⁷⁹ variety of pollinator/dispersal mechanisms present (i.e., wildlife, wind), and contiguous native habitat greater than 40 acres. A summary of the results of the MLEP is presented in **Table F4.10-1**, Mitigation Land Evaluation Procedure for the Master Plan Study Area.

Considerations Related to Indirect Effects

In addition to the analysis of direct impacts, for which the methodology is introduced above, analysis of potential indirect impacts to sensitive species of flora and fauna from light emissions, air emissions, and noise is also presented in this section, according to the following general approach and methodology.

The analysis of potential indirect impacts from lighting conditions considered both existing and future light emissions within the southern half of the El Segundo Blue Butterfly Habitat Restoration Area (Habitat Restoration Area) and was based on the findings documented in Section 4.18, *Light Emissions*. This analysis was substantiated with the findings of published literature.

The analysis of potential indirect impacts from jet exhaust emissions was based on a field investigation of air emissions and deposition on the Los Angeles/El Segundo Dunes, and the findings documented in Section 4.6, *Air Quality*; Appendix S-E, *Supplemental Air Quality Impact Analysis*; and Technical Report S-4, *Supplemental Air Quality Technical Report*. This analysis was substantiated with a review of similar studies conducted at other airports.

⁴⁷⁵ Witham, Carol W., ed., Ecology, Conservation, and Management of Vernal Pool Ecosystems: Proceedings from a 1996 Conference, 1998.

⁴⁷⁶ U.S. Fish and Wildlife Service, Recovery Plan for Vernal Pools of Southern California, 1998.

⁴⁷⁷ These and the following listed characteristics are defined in Jon E. Kelley's "Characterization and Global Distribution of Vernal Pools," in Ecology, Conservation, and Management of Vernal Pool Ecosystems: Proceedings from a 1996 Conference, Carol W. Witham, ed., 1998.

⁴⁷⁸ The functional integrity of an ecosystem is defined as the ability of a given habitat or group of habitats to maintain, over time, the complex interactions between the native flora and fauna characteristics of that habitat or group of habitats.

⁴⁷⁹ Regulatory conservation refers to the established protection and conservation of a habitat as mandated by one or more regulatory agencies having jurisdiction over that habitat.

4.10 Biotic Communities

Table F4.10-1

Mitigation Land Evaluation Procedure for the Master Plan Study Area

	Master Plan Boundaries Habitat Value					Los Angeles/EI Segundo Dunes Habitat Value					
	Habitat Value Reference Sites	Non-Native Grassland/Ruderal	Disturbed/Bare Ground	Landscaped	Developed	Southern Foredune	Southern Dune Scrub	Disturbed Dune Scrub/Foredune	Valley Needlegrass Grassland	Non-Native Grassland/Ruderal	Developed
TOPOGRAPHY/HYDROLOGY	0.20	0.05	0.05	0.00	0.00	0.05	0.05	0.05	0.15	0.15	0.00
Mound-Depression Microrelief	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00
Native Soils w/Slope <10%	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00
Areas w/ Period of Inundation ≥30 days	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Summer Desiccation	0.05	0.05	0.05	0.00	0.00	0.05	0.05	0.05	0.05	0.05	0.00
FLORA	0.20	0.05	0.00	0.05	0.00	0.05	0.05	0.05	0.10	0.05	0.00
>10% Vegetative Cover	0.05	0.05	0.00	0.05	0.00	0.05	0.05	0.05	0.05	0.05	0.00
Native Grasses >10%	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00
Vernal Pool Associated Species	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Listed Vernal Pool Associated Species	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FAUNA	0.20	0.05	0.05	0.00	0.00	0.05	0.05	0.05	0.10	0.00	0.00
Domination of Native Fauna (reproducing)	0.05	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.00	0.00
Grassland-Associated Species (reproducing)	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00
Sensitive Vernal Pool-Associated Species (reproducing)	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Listed Vernal Pool Associated-Species (reproducing)	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ECOSYSTEM FUNCTIONAL INTEGRITY	0.40	0.00	0.00	0.00	0.00	0.30	0.20	0.20	0.30	0.00	0.00
Contiguity w/Wetland and State-Designated Sensitive Terrestrial Habitat Under Regulatory Conservation	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variety of Pollinator/Dispersal Mechanisms Present (Wind, Wildlife)	0.10	0.00	0.00	0.00	0.00	0.10	0.1	0.00	0.10	0.00	0.00
Contiguous Native Habitat >40 acres	0.10	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.10	0.00	0.00
TOTAL HABITAT VALUE (HV)	1.00	0.15	0.10	0.05	0.00	0.45	0.35	0.35	0.65	0.25	0.00

Source: Sapphos Environmental, Inc. 2000.

The analysis of potential noise impacts was based on the findings documented in Section 4.1, *Noise*, and Appendix S-C, *Supplemental Aircraft Noise Technical Report*. This analysis was substantiated with the findings of published literature (see **Table F.4.10-2**, Levels of Noise Causing Disturbance for Sensitive Fauna within the Master Plan Boundaries). Noise thresholds obtained from published literature were used to evaluate potential impacts associated with future noise levels at LAX. Because disturbance was generally indicated by a maximum decibel level rather than duration at a particular decibel, a conservative approach was used and the assumption was made that disturbance occurred at the moment the threshold noise level for a sensitive species was reached. The analysis of noise levels was completed through the computation of different noise metrics at regularly spaced grid points located in areas occupied by sensitive species.

Table F.4.10-2

Levels of Noise Causing Disturbance for Sensitive Fauna within the Master Plan Boundaries

Sensitive and Listed Species Occurring within the Master Plan Boundaries	Species Used to Apply Threshold	Threshold¹	Effects of Threshold
Western Spadefoot Toad	Spadefoot Toad	95 dBA	Emergence from burrows, potentially detrimental to the population if occurs outside the normal breeding season
Silvery Legless Lizard	Mojave Fringe-Toed Lizard	95 db	Hearing loss after less than 9 minutes of exposure
San Diego Horned Lizard	Mojave Fringe-Toed Lizard	95 db	Hearing loss after less than 9 minutes of exposure
Loggerhead Shrike	None	Unknown	Effects of noise unclear
Burrowing Owl	None	Unknown	Effects of noise not documented
Black-Tailed Jackrabbit	Domestic Rabbit	95 db	Enlarged ovaries; persistent estrus; follicular hematomas
Sensitive arthropods	None	Unknown	Effects of sound were difficult to demonstrate; however, the studies that did find effects (including corn earworm moths, flour moths, Indian meal moths) exposed species to prolonged increase of sound (3-4 days).

¹ It is assumed that this threshold is an L_{max}.

Sources: U.S. Air Force and U.S. Fish and Wildlife Service, [Effects of aircraft noise and sonic booms on domestic animals and wildlife: A literature synthesis](#), June 1998. U.S. Fish and Wildlife Service, [Effects of aircraft noise and sonic booms on fish and wildlife: Results of a survey of U.S. Fish and Wildlife Service endangered species and ecological services field offices, refuges, hatcheries, and research centers](#), June 1998.

4.10.3 Affected Environment/Environmental Baseline

The area that lies within the study area comprises approximately 4,260 acres, which support eight distinct biotic communities, as depicted in **Figure F4.10-1**, Biotic Communities: Baseline Conditions. The characteristics of these biotic communities and their presence are discussed later in this subsection under *Baseline Conditions*.

There are six generally designated open areas that make up the affected environment and feature these biotic communities within the study area:

- ◆ The El Segundo Blue Butterfly Habitat Restoration Area (Habitat Restoration Area) located to the west of the airfield, comprised of approximately 202.8 acres. Four biotic communities are represented: Southern Foredune (135.6 acres), Southern Dune Scrub (24.4 acres), Valley Needlegrass Grassland (17.1 acres), and Developed (25.7 acres).
- ◆ Approximately 104.3 acres of non-restructured dunes adjacent to and north of the Habitat Restoration Area, comprised of three biotic communities: Disturbed Dune Scrub/Foredune (74.6 acres), Non-Native Grassland/Ruderal (16.9 acres), and Developed (12.8 acres).
- ◆ Westchester Southside, comprised of three biotic communities: Landscaped (60.55 acres), Disturbed/Bare Ground (4.87 acres), and Non-Native Grassland/Ruderal (124.28 acres).
- ◆ A 40.85-acre area on the east side of the airport, which is comprised of one biotic community, Non-Native Grassland/Ruderal.

4.10 Biotic Communities

- ◆ Open space fragments, totaling approximately 676.37 acres, located within the airfield, comprised of three biotic communities: Non-Native Grassland/Ruderal (553.12 acres), Disturbed/Bare Ground (103.1 acres), and Landscaped (20.15 acres).
- ◆ Open space located in the southeast corner, known as Continental City, of approximately 24.68 acres, which is comprised of one biotic community, Disturbed/Bare Ground.

The largest of the open-space parcels within the study area is the Los Angeles/El Segundo Dunes, the largest extant remnant of one of five major sand dune complexes that historically occurred in California south of San Francisco.⁴⁸⁰ Within the study area, there are approximately 307 acres of dunes and related landforms, 202.8 acres of which are designated as the El Segundo Blue Butterfly Habitat Restoration Area (Habitat Restoration Area).⁴⁸¹ An additional 104.3 acres of dunes and adjacent landforms lie to the north of the Habitat Restoration Area.

The Los Angeles/El Segundo Dunes were relatively undisturbed until the early 1900's when the City of Redondo Beach and community of Venice were developed. With residential development, construction of the Scattergood generating plant, the Chevron Refinery, and Hyperion Wastewater Treatment Plant, the relatively undisturbed dunes were fragmented and reduced to approximately 80 acres. Between 1966 and 1972, LAWA purchased and removed approximately 822 residences from lands located seaward of LAX in order to avoid exposing residents to unhealthy noise levels. The net result of LAWA's acquisitions was the reservation of approximately 307 acres of open area within the largely built-out western portion of Los Angeles.

LAWA owns and manages the 307-acre Los Angeles/El Segundo Dunes and actively maintains the approximately 203 acres of the 307-acre site. Known as the El Segundo Blue Butterfly Habitat Restoration Area, the 203-acre site is home to the federally listed El Segundo blue butterfly. LAWA's habitat conservation and restoration efforts have received national attention. The Habitat Restoration Area is the largest remaining representation of coastal dune community within Los Angeles.

Prior to restoration, small fragments of relatively undisturbed patches of unique coastal dunes scrub communities had been preserved in the Habitat Restoration Area. Ecological restoration within the Habitat Restoration Area, initiated in 1987, has extended the distribution of its constituent plant communities to approximately 202.8 acres.

The study area has the potential to support several species that are designated as endangered, threatened, or sensitive by federal and state resource agencies and the California Native Plant Society (CNPS). Sensitive species are listed along with current status, survey protocol, and occurrence within the study area in **Table F4.10-3**, Other Sensitive Flora and Fauna Species Potentially Occurring Within the Study Area. Federally and state-listed endangered and threatened species that have the potential to occur within the study area are discussed in Section 4.11, *Endangered and Threatened Species of Flora and Fauna*.

There are 20 sensitive plant species designated by federal or state agencies that were determined to have the potential to be present within the study area (**Table F4.10-3**). Surveys conducted for sensitive plant species identified three of these species within the study area. Surveys identified 9,051 individuals of Lewis' evening primrose within the Habitat Restoration Area and an additional 300 (approximately) individuals within the airfield. The El Segundo duneflower was also present within the Habitat Restoration Area, with an extremely small population of only three individuals.

The California spineflower was also located in eight areas within the Habitat Restoration Area; 572 individuals were found. Seventeen sensitive plant species were determined absent within the study area. Distributions of extant populations of sensitive plant species within the study area are depicted in **Figure F4.10-2**, Location of Sensitive Plant Species. As indicated in **Figure F4.10-2**, the majority of sensitive plant species are within the Habitat Restoration Area.

⁴⁸⁰ Barbour, M.G. and A.F. Johnson, "Beach and dune" in Barbour, M.G. and J. Major, (ed.), (2nd ed.), Terrestrial Vegetation of California, 1988.

⁴⁸¹ City of Los Angeles, Ordinance No. 167940, establishing the Los Angeles Airport/El Segundo Dunes Specific Plan Area, approved May 18, 1992.

Table F4.10-3

Other Sensitive Flora and Fauna Species Potentially Occurring within the Study Area

Flora	Status			Habitat Requirements and Distribution
	Federal	State	Local	
<u>Los Angeles Sunflower</u> (<i>Helianthus nuttallii</i> ssp. <i>parishii</i>)	FSC	CNPS 1A	General surveys were conducted as a result of the CNDDDB query, which identified this species as potentially occurring within the Master Plan boundaries. ¹ This species was determined absent as a result of qualitative surveys conducted at the Los Angeles/El Segundo Dunes for 1995, 1996, 1997, 1998, 1999 and directed surveys in 1998 and 2000.	This perennial herb blooms between August and October. ⁴ Marshes and swamps (coastal salt and freshwater). This taxa is historically known from Los Angeles, Orange, and San Bernardino Counties. ⁴ In Los Angeles County, it is known from Cienega, between Los Angeles and Santa Monica; presumed extirpated. ¹
<u>Southern tarplant</u> (<i>Hemizonia parryi</i> ssp. <i>australis</i>)	FSC	S2.1 CNPS 1B	Surveys were conducted based on the results of a CNDDDB ¹ query which identified this species as having the potential to occur within the Master Plan boundaries. Determined absent as a result of qualitative surveys conducted at the Los Angeles/El Segundo Dunes for 1995, 1996, 1997, 1998, 1999 and directed surveys in 1998.	This annual herb blooms between June and November. ⁴ It is associated with margins of marshes and swamps, valley and foothill grassland, and vernal pools. This taxa is historically known from Los Angeles, Orange, Santa Barbara, and San Diego Counties as well as Santa Catalina Island and Baja California. ⁴ In Los Angeles County, it is historically known from Santa Monica, Los Angeles, and Inglewood. Extant populations known from Ballona marshes, Madrona Marsh Nature Preserve, and at Harbor Lake Regional Park. ¹
<u>Coulter's goldfields</u> (<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>)	FSC	CNPS 1B	Surveys were conducted based on the results of a CNDDDB ¹ query which identified this species as having the potential to occur within the Master Plan boundaries. Not found as a result of directed surveys in spring 1998.	This annual herb blooms between February and June. ⁴ It prefers alkali playas and grasslands and vernal pools. ⁵ This taxa is historically known from Kern, Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, Tulare, and Ventura Counties as well as Santa Rosa Island and Baja California. ⁴ Nearest known location is at Ballona Marsh where it was observed in 1934.
<u>Aphanisma</u> (<i>Aphanisma blitoides</i>)	FSC	CNPS 1B	Surveys were conducted based on the results of a CNDDDB ¹ query which identified this species as having the potential to occur within the Master Plan boundaries. Determined absent as a result of qualitative surveys conducted at the Los Angeles/El Segundo Dunes for 1995, 1996, 1997, 1998, 1999 and directed surveys in 1998.	This annual herb blooms between April and May. ⁴ It is found on bluffs and slopes near the ocean in coastal bluff scrub, coastal dunes, and coastal scrub. This taxa is historically known from Los Angeles, Orange, Santa Barbara, San Diego, and Ventura Counties as well as the Channel Islands and Baja California. ^{1,2} In Los Angeles County, it is historically known from the Palos Verdes Hills, presumed extant. ¹
<u>Southcoast saltscale</u> (<i>Atriplex pacifica</i>)	FSC	S2.1 CNPS 1B	Surveys were conducted based on the results of a CNDDDB ¹ query which identified this species as having the potential to occur within the Master Plan boundaries. Determined absent as a result of qualitative surveys conducted at the Los Angeles/El Segundo Dunes for 1995, 1996, 1997, 1998, 1999 and directed surveys in 1998.	This annual herb blooms between March and October. ⁴ It prefers alkali soils from 1-500 meters in coastal scrub, coastal bluff scrub, playas and chenopod scrub. This taxa is historically known from Los Angeles, Orange, Riverside, San Diego, and Ventura Counties as well as the Channel Islands and Baja California. ⁴ In Los Angeles County, it is historically known from San Pedro and Redondo Beach. ¹

4.10 Biotic Communities

Table F4.10-3

Other Sensitive Flora and Fauna Species Potentially Occurring within the Study Area

	Status		Habitat Requirements and Distribution
	Federal	State	
<u>Parish's brittle scale</u> <i>(Atriplex parishi)</i>	FSC	CNPS 1B	Surveys were conducted based on the results of a CNDDDB ¹ query which identified this species as having the potential to occur within the Master Plan boundaries. Determined absent as a result of qualitative surveys conducted at the Los Angeles/EI Segundo Dunes for 1995, 1996, 1997, 1998, 1999 and directed surveys in 1998.
<u>Davidson's salt scale</u> <i>(Atriplex serenana var. davidsonii)</i>		S2.1 CNPS 1B	Surveys were conducted based on the results of a CNDDDB ¹ query which identified this species as having the potential to occur within the Master Plan boundaries. Determined absent as a result of qualitative surveys conducted at the Los Angeles/EI Segundo Dunes for 1995, 1996, 1997, 1998, 1999 and directed surveys in 1998.
<u>Santa Barbara morning-glory</u> <i>(Calystegia sepium ssp. binghamiae)</i>		CNPS 1B	The CNDDDB query ^{1,3} identified this species as having the potential to occur within the Master Plan boundaries. However, suitable habitats not present. Therefore, directed surveys not warranted.
<u>Bright green dudleya</u> <i>(Dudleya virens)</i>	FSC	CNPS 1B	The CNDDDB query ^{1,3} identified this species as having the potential to occur within the Master Plan boundaries. However, suitable habitat is not present. Therefore, directed surveys not warranted.
<u>Mud nama</u> <i>(Nama stenocarpum)</i>		CNPS 2	The CNDDDB query ^{1,3} identified this species as having the potential to occur within the Master Plan boundaries. However, suitable habitat is not present. Therefore, directed surveys not warranted.
<u>Brand's phacelia</u> <i>(Phacelia stellaris)</i>		CNPS 1B	Surveys were conducted based on the results of a CNDDDB query ^{1,3} which identified this species as having the potential to occur within the Master Plan boundaries. Determined absent as a result of qualitative surveys conducted at the Los Angeles/EI Segundo Dunes for 1995, 1996, 1997, 1998, 1999 and directed surveys in 1998.

Table F4.10-3

Other Sensitive Flora and Fauna Species Potentially Occurring within the Study Area

	Status		Habitat Requirements and Distribution
	Federal	State	
<u>El Segundo duneflower</u> <u>(<i>Pholisma paniculatum</i>)</u>	No listing	Local	Sandy soils of coastal dunes. ⁵ Still found at the Los Angeles/El Segundo Dunes in very small numbers. ⁶
<u>Salt spring checkerbloom</u> <u>(<i>Sidalcea neomexicana</i>)</u>		CNPS 2	This perennial herb blooms between March and June. ⁴ It is associated with alkali playas, brackish marshes, chaparral, coastal scrub, lower montane coniferous forest, and Mojavean desert scrub. This taxa is historically known from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and Ventura Counties as well as Arizona, Nevada, Utah, New Mexico, Baja California, and Sonora, Mexico. ⁴ The nearest occurrence is in Santa Monica, from undated collection cited by Jepson in 1936. ¹
<u>Red sand verbena</u> <u>(<i>Abronia maritima</i>)</u>		CNPS 4	This perennial herb blooms between February and November. ⁴ It is associated with coastal dunes and strand below 100 meters. ⁵ This taxa is historically known from Los Angeles, Orange, Santa Barbara, San Luis Obispo, San Diego, and Ventura Counties, the Channel Islands and Baja California. ⁴ It was historically found on the Los Angeles/El Segundo Dunes. ⁷
<u>Lewis' evening primrose</u> <u>(<i>Camissonia lewisii</i>)</u>		CNPS 3	This annual herb blooms between March and June. ⁴ It is found in association with coastal grasslands with sandy or clay soils. ⁵ This taxa is historically known from Los Angeles, Orange, and San Diego Counties and Baja California. ⁴ It is widely distributed over the 200-acre Habitat Restoration Area of the Los Angeles/El Segundo Dunes. Identified within disturbed habitat east of Pershing Drive and west of the north runway.
<u>California spineflower</u> <u>(<i>Mucronea californica</i>)</u>		CNPS 4	This annual herb blooms between March and August. ⁴ It is associated with sandy soils in coastal scrub and chaparral. ⁵ This taxa is historically known from Kern, Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Luis Obispo, San Diego, and Ventura Counties. This species was identified at eight locations on the Los Angeles/El Segundo Dunes.
<u>Seaside red maids</u> <u>(<i>Calandrinia maritima</i>)</u>		CNPS 4	This annual herb blooms between March and May. ⁴ It is associated with sandy soil on sea bluffs. ⁵ This taxa is historically known from Los Angeles, Orange, San Diego, and Ventura Counties, the Channel Islands, and Baja California. ⁴ It was historically known at the Los Angeles/El Segundo Dunes. Nearest known location is at Hermosa Beach, 2.0 miles north of Redondo Beach. ¹

4.10 Biotic Communities

Table F4.10-3

Other Sensitive Flora and Fauna Species Potentially Occurring within the Study Area

	Status		Habitat Requirements and Distribution
	Federal	State	
<u>Ballona cinquefoil</u> (<i>Potentilla multijuga</i>)	FSC	CNPS 1A	Surveys were conducted based on the results of a CNDDDB query ^{1,3} which identified this species as having the potential to occur within the Master Plan boundaries. Not found as a result of directed surveys in summer 1998.
<u>Plummer's mariposa lily</u> (<i>Calochortus plummerae</i>)	FSC	CNPS 1B	Surveys were conducted based on the results of a CNDDDB query ^{1,3} which identified this species as having the potential to occur within the Master Plan boundaries. Determined absent as a result of qualitative surveys conducted at the Los Angeles/EI Segundo Dunes for 1995, 1996, 1997, 1998, 1999 and directed surveys in 1998.
Fauna			
Gastropods			
<u>Trask's snail</u> (<i>Helminthoglypta traskii</i>)	No listing		Surveys were conducted based on the USFWS' letter of comment recommending directed surveys to be conducted within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes. ¹⁶ This species was determined present within the Los Angeles/EI Segundo Dunes as a result of directed gastropod surveys performed in 1996-1998. ⁸
<u>Mimic tryonia</u> (<i>Tryonia imitator</i>)	FSC		This species was identified as a result of the CNDDDB ^{1,2} query which identified this species as having potential to occur within the Master Plan boundaries. This species was determined absent based on lack of suitable habitat, therefore no surveys were warranted.
Insects			
<u>Santa Monica shieldback katydid</u> (<i>Neduba longipennis</i>)	FSC		This species was identified as a result of the CNDDDB ^{1,2} query which identified this species as having potential to occur within the Master Plan boundaries. This species was determined absent based on lack of suitable habitat, therefore, no surveys were warranted.

Table F4.10-3

Other Sensitive Flora and Fauna Species Potentially Occurring within the Study Area

	Status		Habitat Requirements and Distribution
	Federal	State	
<u>El Segundo Jerusalem cricket</u> <i>(Stenopelmatus new species)</i>	No listing	Local	Surveys were conducted based on the USFWS' letter of comment recommending directed surveys to be conducted within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes. ¹⁸ This species was determined present within the Los Angeles/EI Segundo Dunes as a result of directed arthropod insect surveys performed in 1996-1998. ⁹
<u>Belkin's dune fly</u> <i>(Brennania belkini)</i>	No listing	Local	Surveys were conducted based on the USFWS' letter of comment recommending directed surveys to be conducted within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes. ¹⁸ This species was determined present within the Los Angeles/EI Segundo Dunes as a result of directed arthropod insect surveys performed in 1996-1998. ⁹
<u>Wandering skipper</u> <i>(Panoquina errans)</i>		CSC	This species was identified as a result of the CNDDDB ^{1,2} query which identified this species as having the potential to occur within the Master Plan boundaries. This species was determined absent based on directed insect surveys performed in 1996-1998. ⁹
<u>Monarch</u> <i>(Danaus plexippus)</i>	No listing	Local	This species was identified as a result of the CNDDDB ^{1,2} query which identified this species as having the potential to occur within the Master Plan boundaries. This species was determined absent based on the lack of suitable breeding habitat. However, species occurs as an occasional visitor to the Los Angeles/EI Segundo Dunes. ¹⁰
<u>El Segundo goat moth</u> <i>(Comadia intrusia)</i>	No listing	Local	Surveys were conducted based on the USFWS's letter of comment recommending directed surveys to be conducted within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes. ¹⁸ This species is believed to be historically present based on the presence of larval host plant and historical collections. However, this species was determined absent based on directed insect surveys from 1996-1998. ⁹
			Southern foredune and southern dune scrub plant communities. Prefers sand areas and burrows in sand to feed on roots. ¹⁵ Currently only known from the Los Angeles/EI Segundo Dunes. ¹⁴
			Distribution may be limited to subsites with exposed sandy substrates. ^{15, 16} Species is known to occupy the southern foredune and southern dune scrub plant communities. Feeds on flowers. ¹⁵ Adult specimens were observed and collected at the Los Angeles/EI Segundo Dunes area and the LAX International Airport. ¹⁶
			Distributed along a narrow coastal strip from Santa Barbara and Ventura to San Diego County. ¹⁷ Can be found near host plant, saltgrass (<i>Distichlis spicata</i>). ¹ Species found in 1981 at Ballona Wetlands, Playa del Rey area, approximately 1.3 miles north of the Master Plan boundaries. ¹
			Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. ¹ Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, and cypress). ¹ Species has been observed as a fly-over on the Los Angeles/EI Segundo Dunes. ¹⁰
			An obligate species of the bush lupine. Southern dune scrub plant communities of the Los Angeles/EI Segundo Dunes. Known to occur only at the Los Angeles/EI Segundo Dunes; however, its current population at the Dunes is unknown. ¹⁴

4.10 Biotic Communities

Table F4.10-3

Other Sensitive Flora and Fauna Species Potentially Occurring within the Study Area

	Status		Habitat Requirements and Distribution
	Federal	State	
<u>Santa Monica dunes moth</u> <u>(<i>Copeblepharon sanctamonicae</i>)</u>	No listing	Local	Restricted to sand dune environments. An obligate species of sand verbena. ¹⁵ Common in the southern foredune and less abundant in the southern dune scrub. Historically known to occur at the Los Angeles/EI Segundo Dunes. ¹² However, its current population at the Los Angeles/EI Segundo Dunes is unknown. ¹²
<u>Henne's eucosman moth</u> <u>(<i>Eucosa hennei</i>)</u>		CSC	Endemic to the Los Angeles/EI Segundo Dunes, Los Angeles County. Species has been collected from and identified at the Los Angeles/EI Segundo Dunes in 1984. ¹¹
<u>Rivers' dune moth</u> <u>(<i>Euxoa riversii</i>)</u>	No listing		Coastal sand dunes ranging from Santa Barbara County to Baja California and the Channel Islands. Adults were collected on the Los Angeles/EI Segundo Dunes in 1956. ¹²
<u>Ford's sand dune moth</u> <u>(<i>Psammobotys fordii</i>)</u>		CSC	Coastal sand dune and coastal sage scrub habitats. Species collected at the Los Angeles/EI Segundo Dunes in 1955 and 1957. ^{12, 13} Collected in Riverside County as recently as 1973. ⁹

Table F4.10-3

Other Sensitive Flora and Fauna Species Potentially Occurring within the Study Area

	Status		Habitat Requirements and Distribution
	Federal	State	
<u>El Segundo scythrid moth</u> (<i>Scythris new species</i>)	No listing	Local	Coastal sand dune habitat. Has not been identified in recent insect surveys and are presumed to be a new species. ⁹
<u>Lesser dunes scythrid moth</u> (<i>Scythris new species</i>)	No listing	Local	Coastal sand dune habitat. Has not been identified in recent insect surveys and are presumed to be a new species. ⁹
<u>Dune scarab beetle</u> (<i>Aegilla convexa</i>)	No listing	Local	Ocean beaches, dunes. Live beneath the surface of the sand in burrows. Species observed at the Los Angeles/EI Segundo Dunes. ⁹ Collected from Los Angeles County (Fall 1932), Playa del Rey Dunes, Ventura County and San Luis Obispo County. ¹²
<u>Sandy tiger beetle</u> (<i>Cicindela hirticollis gravida</i>)		CSC	Inhabits areas along the coast of California from San Francisco Bay to Northern Mexico. Last seen in 1979 in the Playa del Rey area approximately one mile northwest of the study area. ¹

4.10 Biotic Communities

Table F4.10-3

Other Sensitive Flora and Fauna Species Potentially Occurring within the Study Area

	Status		Habitat Requirements and Distribution
	Federal	State	
<u>Tiger beetle</u> <u>(<i>Cicindela senilis frosti</i>)</u>	No listing	Local	Inhabits marine shoreline, from the central California coast to the salt marshes of San Diego. Inhabits dark-colored mud in the lower zone and dried salt pans in the upper zone. Species last found at Manhattan Beach in 1979, approximately 2.5 miles southwest of the study area. ¹
<u>Globose dune beetle</u> <u>(<i>Coelus globosus</i>)</u>		CSC	Inhabitant of coastal sand dune habitat, from Bodega Head in Sonoma County, south to Ensenada, Mexico. Inhabits foredunes and sand hummocks. Species found at Los Angeles/EI Segundo Dunes. ⁹ Species also found at Las Tunas Beach in 1992 and at the foredunes at Dockweiler State Beach (information suppressed). ¹
<u>South coast dune beetle</u> <u>(<i>Psammodytes macclayi</i>)</u>	No listing		Associated with sand dune systems along coast and flood plains of river systems. Species observed at the Los Angeles/EI Segundo Dunes in 1996-1998. ⁹ Collected at Playa del Rey, L.A. County. ¹³ Records from Los Angeles and Newport Beach. ¹²
<u>Lange's EI Segundo dune weevil</u> <u>(<i>Onychobaris langei</i>)</u>		CSC	Southern foredune and southern dune scrub plant communities. Not observed at Los Angeles/EI Segundo Dunes since 1938. ¹

Table F4.10-3

Other Sensitive Flora and Fauna Species Potentially Occurring within the Study Area

	Status		Habitat Requirements and Distribution
	Federal	State	
Dorothy's El Segundo dune weevil (<i>Trigonoscuta dorotheae</i>)		CSC	Surveys were conducted based on the USFWS's letter of comment ¹⁸ recommending directed surveys to be conducted within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes. In addition, a query of the CNDDDB ^{1, 2} identified this species as having the potential to occur within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes. This species was determined absent within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes as a result of directed insect surveys performed in 1996-1998. ⁹
		Local	Distributed only along coastal southern California from Point Dume to Point Fermin. Southern dune scrub plant community. Species found at Los Angeles/EI Segundo Dunes and Ballona Creek in the 1980's. ⁹
Arachnids			
El Segundo sun spider (<i>Eremobates new species</i>)	No listing		Surveys were conducted based on the USFWS's letter of comment recommending directed surveys to be conducted within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes. ¹⁸ This species was determined present based on directed insect surveys from 1996-1998. ⁹
			A new species, which has yet to be described. It is currently known from the Dunes, and was identified in recent surveys. The full extent of occurrence in this species range is not known.
El Segundo crab spider (<i>Ebo new species</i>)	No listing		Surveys were conducted based on the USFWS's letter of comment recommending directed surveys to be conducted within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes. ¹⁸ This species was presumed present based on directed insect surveys from 1996-1998. ⁹
			Known to be found associated with buckwheat and coast golden bush (<i>Ericomerica ericoides</i>) in the Southern Foredune plant community and Southern Dune Scrub plant community. During the directed surveys the crab spider was not determined to species; however, several genera and species within this spider family were present on vegetation throughout the Los Angeles/EI Segundo Dunes and portions of the airfield.
Trapdoor spider (<i>Aptosichus simus</i>)	No listing		Surveys were conducted based on the USFWS's letter of comment recommending directed surveys to be conducted within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes. ¹⁸ This species was determined present based on directed insect surveys from 1996-1998. ⁹
			An inhabitant of Southern California coastal dunes and the Channel Islands, and ranges from Los Angeles to Ventura County. Species is currently known from the Los Angeles/EI Segundo Dunes as well as Point Dune State Beach, Los Angeles County and Sycamore Cove Beach, Ventura County.
Amphibians			
Western spadefoot toad (<i>Spea hammondi</i>)		CSC	Surveys were conducted based on the USFWS's letter of comment recommending protocol surveys to be conducted within the Master Plan boundaries. ^{18, 19} This species was determined present within the Master Plan boundaries as a result of spring 1996 directed surveys. ²⁰
			Endemic to the Californias; can be found along coastal regions inhabiting open chaparral, foothills, grasslands and, occasionally, woodlands. This population was observed to breed in at least three ephemeral ponds in the south airfield of LAX; may be the only breeding population within trans-coastal Los Angeles County.

4.10 Biotic Communities

Table F4.10-3

Other Sensitive Flora and Fauna Species Potentially Occurring within the Study Area

	Status			Habitat Requirements and Distribution
	Federal	State	Local	
Reptiles				
<u>Southwestern pond turtle</u> <i>(Clemmys marmorata pallida)</i>	FSC	CSC	This species was identified as a result of the CNDDB ^{1,2} query which identified this species as having the potential to occur within the Master Plan boundaries. This species was determined absent based on lack of suitable habitat, therefore no surveys were warranted.	Inhabits permanent or nearly permanent bodies of water in lakes, marshes, streams, reservoirs, and, occasionally, brackish waters. Species found in 1941 on the Venice quadrangle, exact location suppressed. ¹
<u>Silvery legless lizard</u> <i>(Anniella pulchra)</i>	FSC	CSC	Surveys were conducted based on the USFWS's letter of comment recommending directed surveys be conducted within the Master Plan boundaries ¹⁸ and the Los Angeles/El Segundo Dunes. This species was determined present based on directed herpetofauna surveys performed in summer of 1998. ²¹	Can be found along the Pacific slope of the coastal mountains, inhabiting areas with sandy or loose, loamy soils under the sparse vegetation of beaches, riparian, oak woodland, and alluvial fans of the coastal scrub. This species is present at the Los Angeles/El Segundo Dunes, but has not been observed elsewhere within the study area.
<u>Coastal western whiptail</u> <i>(Cnemidophorus tigris multiscutatus)</i>	FSC		This species was identified as a result of the CNDDB ^{1,2} query which identified this species as having the potential to occur within the Master Plan boundaries. This species was determined absent based on lack of suitable habitat, therefore no surveys were warranted.	Inhabits deserts and semi-arid areas with sparse vegetation and open areas. Also found in open, woodland, and riparian areas. Species found at Greenleaf Canyon in the Santa Monica Mountains in 1993.
<u>San Diego horned lizard</u> <i>(Phrynosoma coronatum blainvillei)</i>		CSC	Surveys were conducted based on the USFWS's letter of comment recommending directed surveys be conducted within the Master Plan boundaries ¹⁸ and the Los Angeles/El Segundo Dunes. This species was determined present based on directed herpetofauna surveys performed in summer of 1998. ²¹	Inhabits the coastal strip of southern California from Ventura County south to portions of Baja California. Habitat can be characterized as arid and semi-arid regions with soil that is loose and fine. Occurs at the Los Angeles/El Segundo Dunes and the area north of Sandpiper.
<u>San Diego Mountain kingsnake</u> <i>(Lampropeltis zonata pulchra)</i>	FSC	CSC	This species was identified as a result of the CNDDB ^{1,2} query which identified this species as having the potential to occur within the Master Plan boundaries. This species was determined absent based on lack of suitable habitat, therefore no surveys were warranted.	Restricted to the San Gabriel and San Jacinto Mountains of southern California. Inhabits valley-foothill, coniferous, chaparral, riparian, and wet meadows. Species found in the 1980's at Stunt Ranch and Cold Creek Preserve.

Table F4.10-3

Other Sensitive Flora and Fauna Species Potentially Occurring within the Study Area

	Status		Local	Habitat Requirements and Distribution
	Federal	State		
Birds				
<u>Burrowing owl</u> <i>(Athene cunicularia)</i>		<u>CSC</u>	Surveys were conducted based on the USFWS's letter of comment recommending directed surveys be conducted within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes. ¹⁸ This species was determined present as a winter resident within the Los Angeles/EI Segundo Dunes and determined absent from the Master Plan boundaries (LAX airfield) based on directed winter 1998 surveys. ²² This species was determined not to breed within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes based on directed spring 1998 surveys. ²³	Habitat is comprised of grasslands, agricultural lands, prairies, coastal dunes, and desert floors. A single burrowing owl was observed on several occasions west of the VOR. No nesting occurs on the Los Angeles/EI Segundo Dunes. Species has also been found in vicinity of Playa del Rey, Los Angeles County in 1981.
<u>Tricolored blackbird</u> <i>(Agelaius tricolor)</i>	<u>FSC</u>	<u>CSC</u>	This species was identified as a result of the CNDDDB ^{1,2} query which identified this species as having the potential to occur within the Master Plan boundaries. This species was determined absent based on lack of suitable habitat, therefore no surveys were warranted.	Inhabits wet fields, meadows, and marshes. Requires open water and protected nesting substrate. Species found in the 1980's at Harbor Lake, in the San Pedro area of Los Angeles.
<u>Loggerhead shrike</u> <i>(Lanius ludovicianus)</i>		<u>CSC</u>	Surveys were conducted based on the USFWS's letter of comment recommending directed surveys be conducted within the Master Plan boundaries and the Los Angeles/EI Segundo Dunes. This species was determined present within the Los Angeles/EI Segundo Dunes as a result of directed surveys conducted in spring 1998. ²⁴	Occurs in the central valley and throughout coastal southern regions. Perch sites are essential components of its habitat and are associated with open areas that have well dispersed bushes and trees. Loggerhead shrike is a year-round resident within the LAX airfield open space located to the west of the southern airfield. There were three pairs of loggerhead shrike breeding within the EI Segundo Blue Butterfly Habitat Restoration Area in spring 1998.
Mammals				
<u>San Diego black-tailed jackrabbit</u> <i>(Lepus californicus bennettii)</i>		<u>CSC</u>	This species was observed within the Master Plan boundaries as a result of summer 1997 directed surveys for the Pacific pocket mouse. ²⁵	Inhabits areas where grasses are not abundant, such as deserts, areas of scattered low shrubs, and overgrazed areas. In coastal habitats, they select grassy areas to forage in and retreat to dense shrubcover. This species has been observed in the LAX airfield open space, west of the southern airfield.

ssp. = subspecies.

FSC = United States Fish and Wildlife Service designated Federal Species of Special Concern.

CSC = California Department of Fish and Game designated Species of Special Concern.

CNPS 1A = Plant presumed extinct in California by the California Native Plant Society.

CNPS 1B = Plant considered rare, threatened, or endangered in California by the California Native Plant Society.

CNPS 2 = Plants considered rare, threatened, or endangered in California, but more common elsewhere by the California Native Plant Society.

CNPS 3 = Plants for which more information is needed to determine their status by the California Native Plant Society.

CNPS 4 = Plants considered to be of limited distribution by the CNPS.

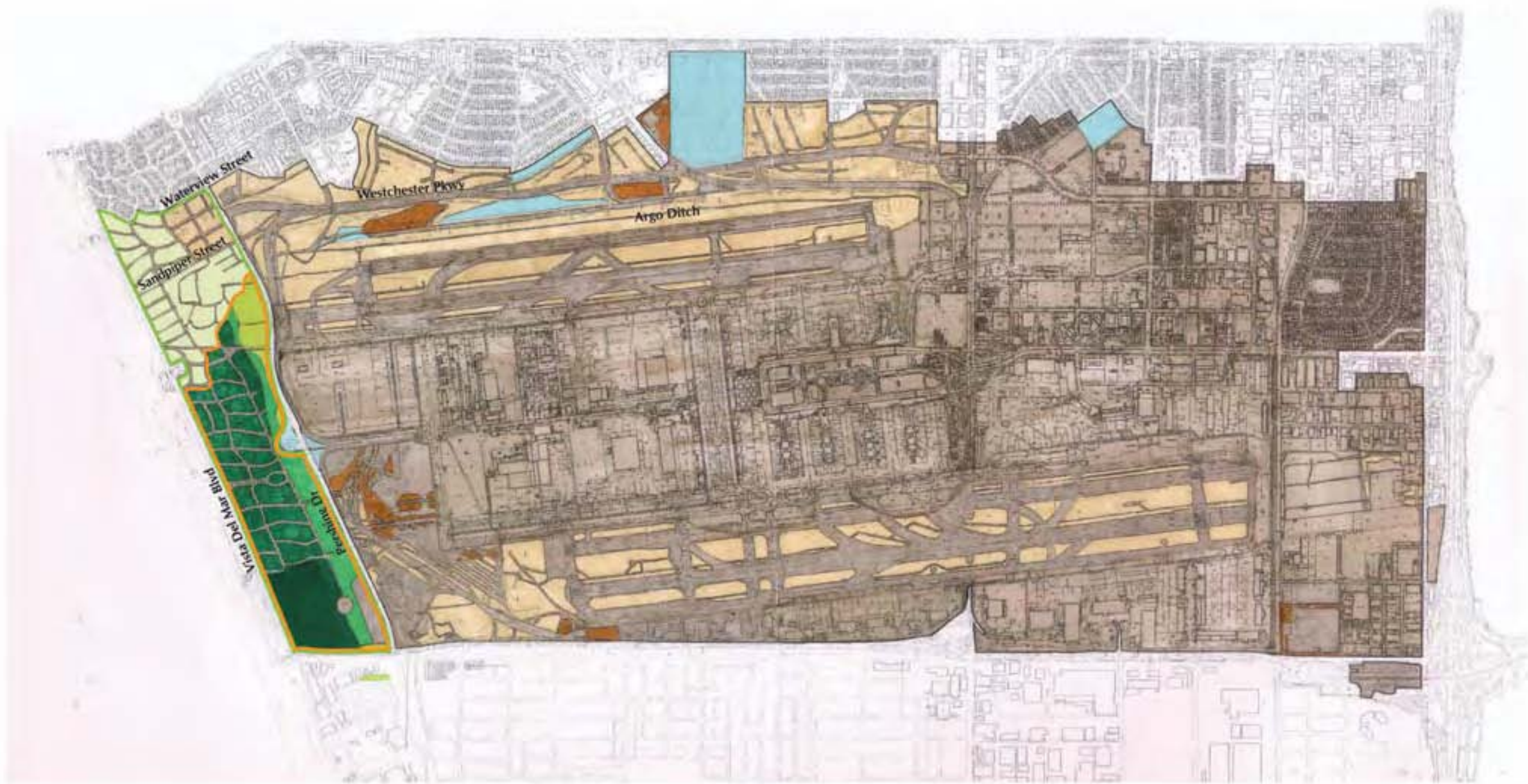
4.10 Biotic Communities

Table F4.10-3











Other Sensitive Flora and Fauna Species Potentially Occurring within the Study Area

	Status			Habitat Requirements and Distribution
	Federal	State	Local	
S2.1 = Designated "very threatened" under the state rank of "2," formerly a federal Category 2 candidate species. Organisms formerly classified as Category 2 were species for which information in possession of the USFWS indicated that proposing to list them as endangered or threatened was possibly appropriate, but for which insufficient data on biological vulnerability was available.				
VOR = Very High Frequency Omni-Directional Radar.				
¹				California Department of Fish and Game, California Natural Diversity Database - Rarefind 2, Sacramento, 1999.
²				California Department of Fish and Game, California Natural Diversity Database - Rarefind 2, Sacramento, 1997.
³				California Department of Fish and Game, California Natural Diversity Database - Rarefind 2, Sacramento, 2000.
⁴				Skinner, Mark W. and Bruce M. Pavlik, <u>California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California, Special Publication No. 1, 5th Edition</u> , California Native Plant Society, 1994.
⁵				Hickman, James C., ed., <u>The Jepson Manual: Higher Plants of California</u> , 1993.
⁶				Sapphos Environmental, Inc., <u>Vegetation Monitoring Report and Schedule for Ongoing Maintenance Activities</u> , 1999.
⁷				Pierce, W.D. and D. Pool, "The Fauna and Flora of the El Segundo Sand Dunes," <u>Bulletin of the Southern California Academy of Sciences</u> , Vol. 37: 93-97, 1938.
⁸				Frank Hovore & Associates, Report of surveys for Trask's landsnail at Los Angeles/El Segundo Dunes, Prepared for Sapphos Environmental, Inc., August 13, 1998.
⁹				Frank Hovore & Associates, Report of sensitive arthropod surveys, Los Angeles International Airport 2015 Master Plan Study Area, 1996-1998, Prepared for Sapphos Environmental, Inc., September 28, 1998.
¹⁰				Sapphos Environmental, Inc., 1999.
¹¹				Arnold, R. A., <u>Studies of the El Segundo Blue Butterfly - 1984, Inland Fisheries Administrative Report 86-4</u> , California Department of Fish and Game, 1986.
¹²				Hawks, D. C., "Los Angeles/El Segundo Dunes Insect Collection," Report prepared for Sapphos Environmental, Inc., 1996.
¹³				Cartwright, "Scarab beetles of the Genus <i>Psammodytes</i> in the Western Hemisphere," <u>Proceedings of the United States National Museum</u> , Vol. 104(3344): 448-449, 1955.
¹⁴				Roth, Barry and F. G. Hochberg, "Two New Species of <i>Helminthoglypta</i> (Gastropoda: Pulmonata) from Southern California, with Comments on the Subgenus <i>Charodotes</i> Pilsbry," <u>The Veliger</u> , 35(4) 338-346, 1992.
¹⁵				Mattoni, R., "Species Diversity and Habitat Evaluation Across the El Segundo Dunes at LAX," Final Report prepared for the Board of Airport Commissioners, 1990.
¹⁶				Frank Hovore & Associates, "Report of 1996 Surveys for Sensitive Arthropods at El Segundo Dunes" Prepared for Sapphos Environmental, Inc., 1996.
¹⁷				Garth, J. S. and J. W. Tilden, <u>California Butterflies</u> , 1986.
¹⁸				U.S. Fish and Wildlife Service, <u>Letter to Mr. David B. Kessler, Federal Aviation Administration, U.S. Department of Transportation</u> , July 31, 1997.
¹⁹				U.S. Fish and Wildlife Service, <u>Letter to Mr. David B. Kessler, Federal Aviation Administration, U.S. Department of Transportation</u> , August 29, 1997.
²⁰				Sapphos Environmental, Inc., Memorandum for the Record 1067-001.M23, <u>1996 Herpetofauna Surveys at the Los Angeles International Airport</u> , 1996.
²¹				Sapphos Environmental, Inc., Memorandum for the Record 1067-007.M15 <u>Results of Directed Summer Surveys for Sensitive Amphibians, Reptiles, California Brown Pelican, California Least Tern, and the Endangered El Segundo Blue Butterfly at LAX/El Segundo Dunes</u> , December 21, 1998.
²²				Sapphos Environmental, Inc., Memorandum for the Record 1067-007.M08, <u>Results of Winter Directed Surveys for Burrowing Owl at LAX/El Segundo Dunes in Support of the LAX 2015 Master Plan Project, February 5 to 25, 1998</u> , April 9, 1998.
²³				Sapphos Environmental, Inc., Memorandum for the Record 1043-008.M02, <u>Results of Spring Directed Surveys for Burrowing Owl at LAX/El Segundo Dunes in Support of the LAX 2015 Master Plan Project, April 17-May 27, 1998</u> , June 15, 1998.
²⁴				Sapphos Environmental, Inc., Memorandum for the Record, 1043-008.M06. <u>Results of Directed Surveys for American Peregrine Falcon, California Least Tern, Southwestern Willow Flycatcher, Least Bell's Vireo and Loggerhead Shrike at LAX/El Segundo Dunes</u> , September 8, 1998.
²⁵				Sapphos Environmental, Inc., Memorandum for the Record, 1067-005.M04, <u>Final Report of Pacific Mouse Survey at LAX/El Segundo Dunes in Support of the LAX 2015 Master Plan Project, September 1 to 26, 1997</u> , January 13, 1998.

Source: Sapphos Environmental, Inc. 2000.



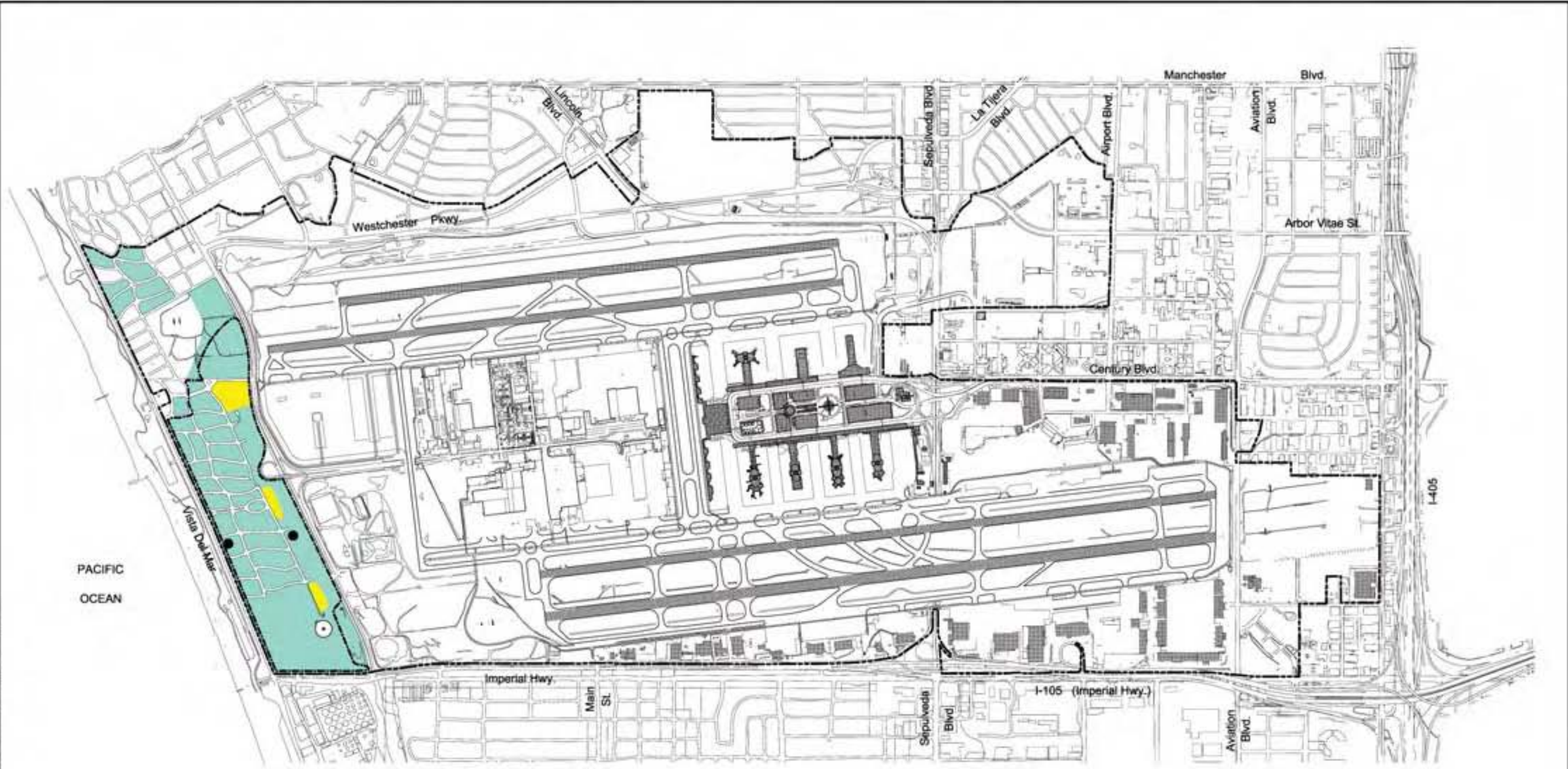
LEGEND

- | | | | | |
|---|---|--|--|---|
|  Southern Foredune |  Disturbed Dune Scrub/Foredune |  Non-Native Grassland/Ruderal |  Landscaped |  Habitat Restoration Area Boundary |
|  Southern Dune Scrub |  Valley Needlegrass Grassland |  Disturbed/Bare Ground |  Developed |  Los Angeles/El Segundo Dunes |

SOURCE: Suphes Environmental, Inc., 2000



DWG: Fig_04_10-02.dwg USDR: reg/mjg DATE: Jan 12, 2004 3:09pm



Source: Sophos Environmental, Inc., 2000.

- LEGEND**
-  LAX Existing Property Line
 -  El Segundo Blue Butterfly Habitat Restoration Area
 -  Lewis' evening primrose
 -  California spineflower
 -  El Segundo duneflower

There were 34 sensitive wildlife species designated by federal or state agencies that were determined to have the potential to occur within the study area (see **Table F4.10-3**). Extensive surveys conducted between 1996 and 1998 for sensitive wildlife species identified 24 of these species within the study area. There are 18 sensitive arthropods present within the study area: 14 sensitive insect species and four sensitive arachnids, all of which were located within the Los Angeles/El Segundo Dunes (see **Figure F4.10-3**, Location of Arthropod Survey Area). One sensitive amphibian was determined present, the western spadefoot toad, which is known to breed in ephemeral ponds in the south airfield (see **Figure F4.10-4**, Location of Sensitive Amphibians and Reptiles). Two sensitive reptiles, the silvery legless lizard and the San Diego horned lizard, were determined present within the Los Angeles/El Segundo Dunes (see **Figure F4.10-4**). Two sensitive bird species, the burrowing owl and the loggerhead shrike, were detected in the Los Angeles/El Segundo Dunes. The range of the loggerhead shrike is also known to include the airfield open space located to the west of the southern airfield (see **Figure F4.10-5**, Location of Sensitive Bird Species). The only sensitive mammal present in the study area is the San Diego black-tailed jackrabbit, which utilizes the open space area located within the southwestern corner of the airfield.⁴⁸²

Baseline Conditions

Eight biotic communities have been identified within the study area. The acreage of each community under baseline conditions is presented in **Table F4.10-4**, Matrix of Acreages for Designated Plant Communities. The habitat value associated with each of these biotic communities, based on the results of the MLEP analysis, is provided in **Table F4.10-5**, Habitat Units of Biotic Communities. Biotic communities are typically named for the dominant or characteristic floral components in the community. Some wildlife species may be limited to a specific community, and be characteristic of that community; however, many wildlife species are associated with several different biotic communities. The biotic communities and vegetation types found within the study area are discussed in detail below. Three of the communities are designated as sensitive by the CDFG: Southern Dune Scrub (CNDDDB Element Code 21330), Southern Fore dune (CNDDDB Element Code 21230), and Valley Needlegrass Grassland (CNDDDB Element Code 42110). Plant communities are described in accordance with designations and definitions provided by Holland (used by the CDFG in the CNDDDB), and are further identified by element code numbers. Additional detail on these biotic communities is provided in Technical Report 7, *Biological Resources - Memoranda for the Record on Floral and Faunal Surveys*.

⁴⁸² Surveys conducted in any given study area document the presence of wildlife within that study area, it cannot be determined definitively whether a sighted species actually lives in the study area or simply utilizes the habitat for its particular resources.

4.10 Biotic Communities

Table F4.10-4

Matrix of Acreages for Designated Plant Communities

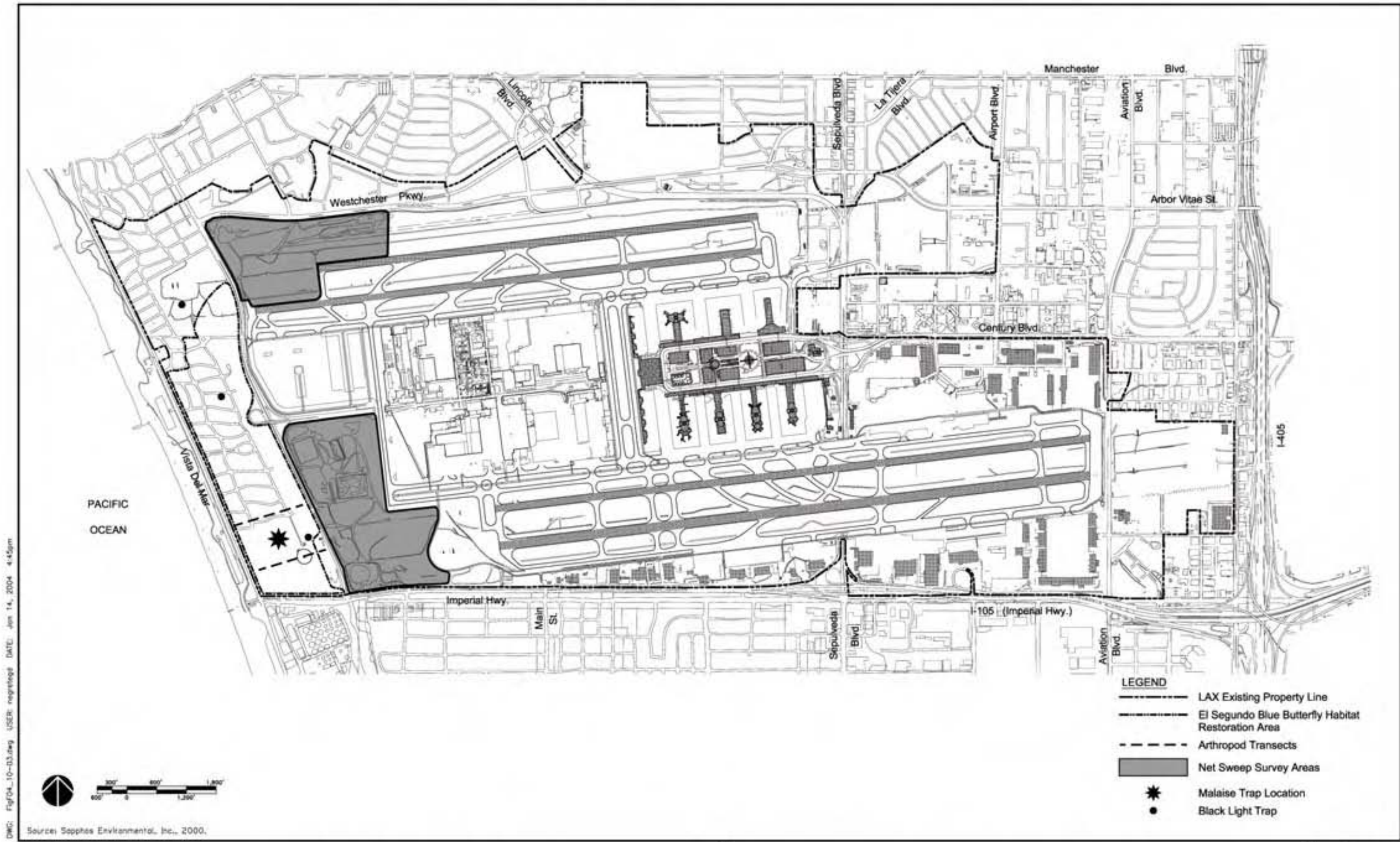
LAX ¹	Baseline	2015 Alternative				
		NA/NP	A	B	C	D
Non-Native Grassland/Ruderal - Existing or Remaining (Impacts As Compared to Baseline)	704.9	580.5 (124.4)	341.5 (363.4)	301.0 (403.9)	398.0 (306.8)	423.1 (281.8)
Disturbed/Bare Ground - Existing or Remaining (Impacts As Compared to Baseline)	103.1	98.8 (4.3)	8.3 (94.8)	7.6 (95.5)	43.3 (59.8)	59.3 (43.8)
Landscaped - Existing or Remaining (Impacts As Compared to Baseline)	79.2	102.1 (-22.9)	132.8 (-53.6)	124.9 (-45.7)	121.0 (-41.9)	102.1 (-22.9)
Developed - Existing or Remaining (Impacts As Compared to Baseline)	2606.3	2712.1 (-105.8)	3326.0 (-719.6)	3454.7 (-848.4)	3194.5 (-588.2)	2991.3 (-385.0)
SUBTOTAL LAX	3493.5	3493.5	3808.6	3888.2	3756.8	3575.8
Non-Project Uses Within Master Plan Boundaries²						
Developed	459.3	459.3	144.2	64.6	196.0	377.0
SUBTOTAL NON-PROJECT USES	459.3	459.3	144.2	24.6	196.0	377.0
Los Angeles/EI Segundo Dunes						
Southern Foredune	135.6	135.6	135.4	135.6	135.6	135.4
Southern Dune Scrub	24.4	24.4	24.3	24.3	24.4	24.4
Disturbed Dune Scrub/Foredune	74.6	74.6	74.0	73.8	73.9	73.8
Valley Needlegrass Grassland	17.1	17.1	16.7	16.9	17.1	16.6
Non-Native Grassland/Ruderal	16.9	16.9	16.9	16.9	16.9	16.9
Developed	38.6	38.6	39.9	39.7	39.3	40.1
SUBTOTAL DUNES	307.2	307.2	307.2	307.2	307.2	307.2
TOTAL MASTER PLAN BOUNDARIES³	4260	4260	4260	4260	4260	4260

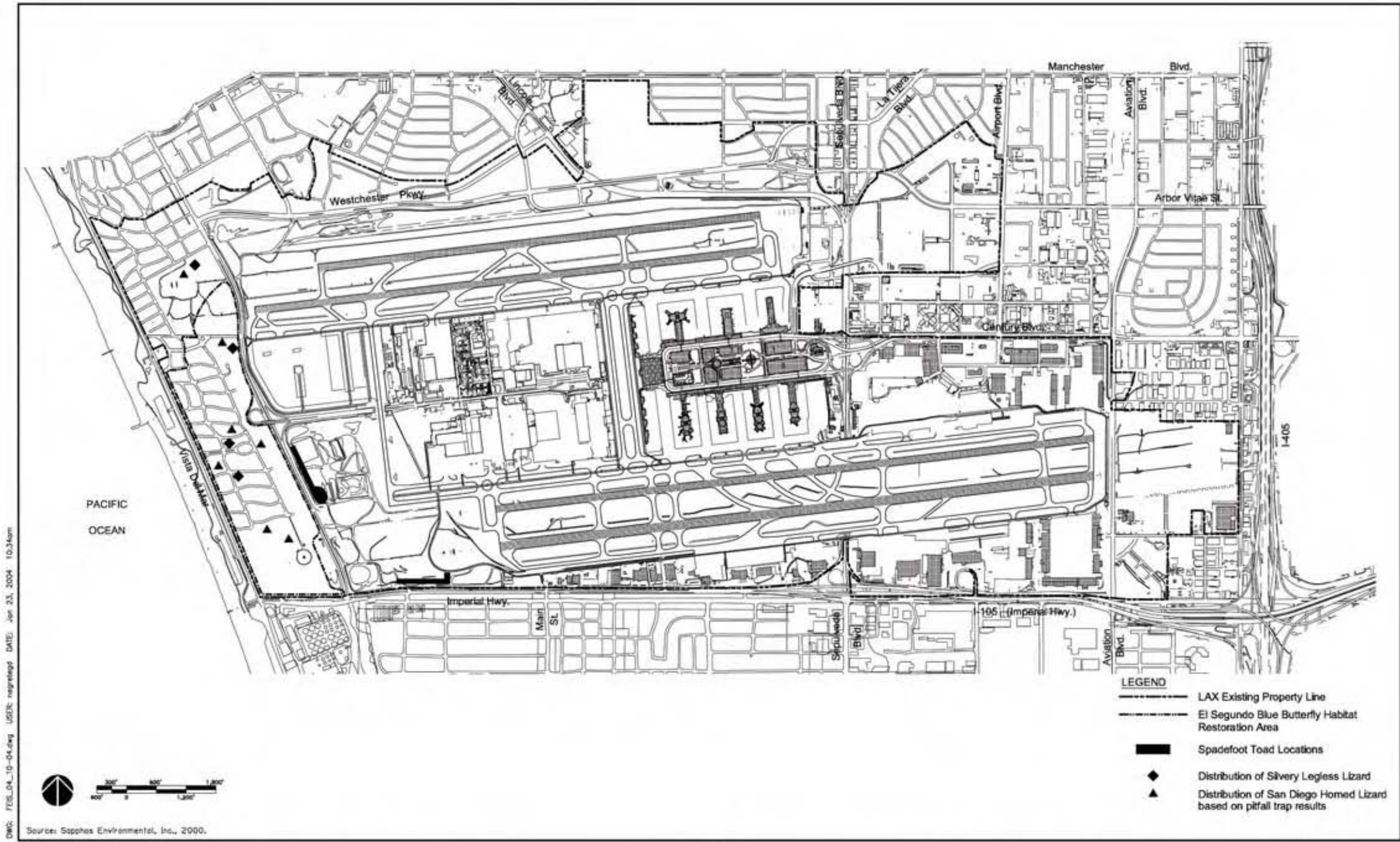
¹ Includes existing airport boundaries or Master Plan boundaries for a given alternative; excludes the Los Angeles/EI Segundo Dunes.

² Represents parcels that are outside the Master Plan boundaries for a given alternative but that appear in the composite environmental baseline.

³ Represents a composite of existing airport boundaries and all potential Master Plan boundaries considered under the four build alternatives.

Source: Sapphos Environmental, Inc., 2002.





LAX Master Plan Final EIS/EIR

Location of Sensitive Amphibians and Reptiles

Figure F4.10-4

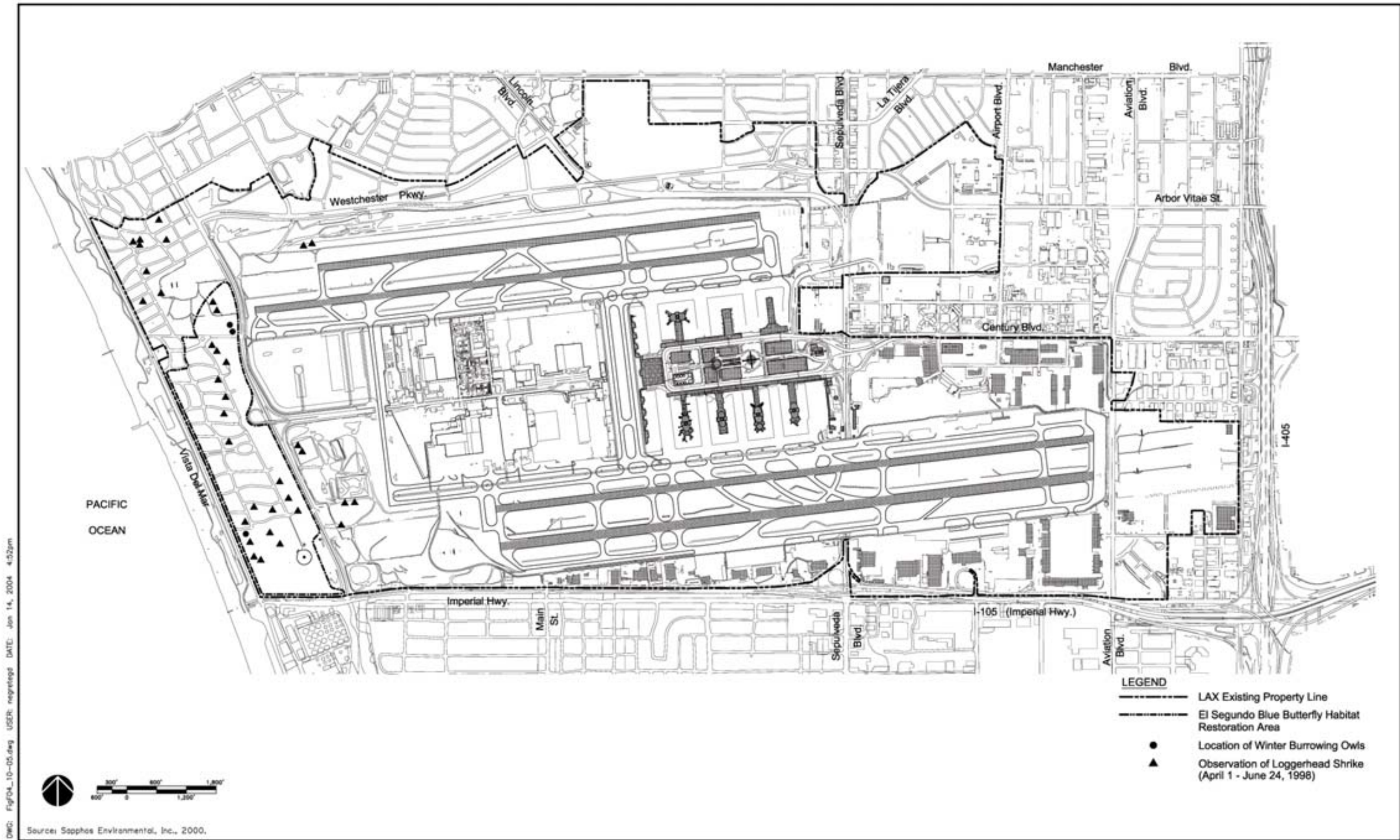


Table F4.10-5

Habitat Units of Biotic Communities

LAX ¹	Habitat Value	Baseline (acres)	Baseline Habitat Units	2015 (acres)					2015 Habitat Units				
				NA/NP	A	B	C	D	NA/NP	A	B	C	D
Non-Native Grassland/Ruderal	0.15	704.9	105.7	580.5	341.59	301.0	398.0	423.1	87.08	51.23	45.15	59.7	63.5
Disturbed/Bare Ground	0.10	103.1	10.31	98.8	8.3	7.6	43.3	59.3	9.88	0.83	0.76	4.33	5.93
Landscaped	0.05	79.2	3.96	102.1	132.8	124.9	121.0	102.1	5.11	6.64	6.25	6.05	5.11
Developed	0.00	2606.3	0.00	2712.1	3326.0	3454.7	3194.5	2991.3	0.00	0.00	0.00	0.00	0.00
SUBTOTAL	-	3493.5	119.97	3493.5	3808.6	3888.2	3756.8	3575.8	102.1	58.70	52.16	70.10	74.54
Los Angeles/El Segundo Dunes²													
Southern Foredune	0.45	135.6	61.02	135.6	135.4	135.6	135.6	135.4	61.02	60.93	61.02	61.02	60.93
Southern Dune Scrub	0.35	24.4	8.54	24.4	24.3	24.3	24.4	24.4	8.54	8.50	8.50	8.54	8.54
Disturbed Dune Scrub/Foredune	0.35	74.6	26.11	74.6	74.0	73.8	73.9	73.8	26.11	25.90	25.83	25.87	25.83
Valley Needlegrass Grassland	0.65	17.1	11.15	17.1	16.7	16.9	17.1	16.6	11.15	10.86	10.9	11.15	10.79
Non-Native Grassland/Ruderal	0.25	16.9	4.23	16.9	16.9	16.9	16.9	16.9	4.23	4.23	4.23	4.23	4.23
Developed	0.00	38.6	0.00	38.6	39.7	37.7	39.3	40.1	0.00	0.00	0.00	0.00	0.00
SUBTOTAL	-	307.2	111.05	307.2	307.2	307.2	307.2	307.2	111.05	110.42	110.57	110.81	110.32

¹ Includes existing airport boundaries or Master Plan boundaries for a given alternative; excludes the Los Angeles/El Segundo Dunes.

² Mitigation for impacts within the Los Angeles/El Segundo Dunes will occur at a 1:1 ratio as is appropriate for state-designated sensitive habitat. Habitat units for biotic communities within the Los Angeles/El Segundo Dunes are provided for information purposes only and are not used in any analysis.

Source: Sapphos Environmental, Inc. 2002.

Southern Foredune (CNDDDB Element Code 21230)

Southern Foredune plant communities are typically dominated by perennial species with a high proportion of suffrutescent (slightly woody at base) plants up to 30 cm tall. Species such as red sand verbena (*Abronia maritima*), beach burr (*Ambrosia* sp.), and the non-native sea rocket (*Cakile* sp.) usually occur in exposed sites, and pink sand verbena (*Abronia umbellata*) and morning-glory (*Calystegia* sp.) in less exposed sites.⁴⁸³ Establishment of these plants reduces the amount of blowing sand, partially stabilizing the dunes.

The Southern Foredune community, identified on the map in **Figure F4.10-1**, is inhabited by a number of wildlife species, including the federally-listed El Segundo blue butterfly (*Euphilotes battoides allyni*). This and other listed endangered wildlife species are discussed in Section 4.11, *Endangered and Threatened Species of Flora and Fauna*. Historical surveys have recorded a large number of wildlife species, many of which no longer occur at the Los Angeles/El Segundo Dunes, including 151 species of invertebrates.

⁴⁸³ Holland, R. F., *Preliminary Descriptions of the Terrestrial Natural Communities of California*, Non-Game Heritage Program, California Department of Fish and Game, 1986.

4.10 Biotic Communities

Within the study area, 135.6 acres of this community are found within the Habitat Restoration Area west of Pershing Drive. Relatively undisturbed areas (about 40 acres) surrounding the Very High Omni Range Navigation Beacon provide the most representative example of this community. Ecological restoration efforts undertaken between 1987 and 1994 have restored an additional 95.6 acres. The host plant and primary food source for the El Segundo blue butterfly, coast buckwheat (*Eriogonum parvifolium*), is found in this biotic community. Southern Foredune may intergrade with Southern Dune Scrub.⁴⁸⁴

Southern Dune Scrub (CNDDDB Element Code 21330)

Southern Dune Scrub is a dense coastal scrub community of scattered shrubs, subshrubs, and herbs, generally less than 1 meter in height, often developing considerable cover, and often succulent.⁴⁸⁵ Characteristic species include saltbush (*Atriplex leucophylla*), California croton (*Croton californicus*), desert tea (*Ephedra californica*), coast goldenbush (*Isocoma menziesii* var. *vernonioides*), bush lupine (*Lupinus chamissonis*), box thorn (*Lycium brevipes*), prickly pear (*Opuntia littoralis*), lemonade-berry (*Rhus integrifolia*), jojoba (*Simmondsia chinensis*), and the non-native crystalline iceplant (*Mesembryanthemum crystallinum*). Along the coast, Southern Dune Scrub intergrades with the Southern Foredune plant community.⁴⁸⁶ Many of the wildlife species in the Southern Foredune are also in the Southern Dune Scrub community.

Southern Dune Scrub is considered by the CDFG Heritage Program to be among the most highly imperiled natural communities in California. The Los Angeles/El Segundo Dunes contain virtually the only remaining example of this plant community in mainland Southern California. Within the study area, the Southern Dune Scrub community is found only within the Habitat Restoration Area along the steep slope of the backdune (see **Figure F4.10-1**). It is comprised of 24.4 acres. The host plant and primary food source for the El Segundo blue butterfly, coast buckwheat, is found in this biotic community. Because the backdune is subject to lower thermal stress and wind dehydration, the vegetative cover of the Southern Dune Scrub community is typically denser than the Southern Foredune community.

Valley Needlegrass Grassland (CNDDDB Element Code 42110)

The deflation plain east of the backdune consists of loosely consolidated (incipient) sandstone covered to variable depths with aeolian (wind-transported) sand. Such deflation areas are commonly found behind coastal dune systems and, where they are eroded down to or near the water table, commonly support vernal pools.⁴⁸⁷ Limited information is available regarding the historic vegetation of the deflation plain of the Los Angeles/El Segundo Dunes and of the sand-dominated substrates that extend inland from it because extensive disturbance occurred before any botanical studies could be conducted. Historical documents refer to the area as "meadow." Recently, the area has been referred to as the "Los Angeles Coastal Prairie."⁴⁸⁸ It is considered here as an instance of Valley Needlegrass Grassland as classified by Holland. According to Pierce and Pool,⁴⁸⁹ the "meadow" was historically composed of the perennial nodding needlegrass (*Nassella [Stipa] cernua*), several annual native grasses, and a number of flowering forbs (herbaceous plants that are not grasses but are associated with grasses). A photograph of the area taken in 1938 shows a predominance of forbs over grasses.

Many common species of birds are known to utilize this biotic community, including western meadowlark (*Sturnella neglecta*), English sparrow (*Passer domesticus*), killdeer (*Charadrius vociferous*), and mourning dove (*Zenaida macroura*). Butterflies and moths known from this community are the cabbage white butterfly (*Pieris rapae*), the buckeye (*Junonia coenia*), and the common hairstreak (*Strymon melinus*).

⁴⁸⁴ Holland, R. F., Preliminary Descriptions of the Terrestrial Natural Communities of California, Non-Game Heritage Program, California Department of Fish and Game, 1986.

⁴⁸⁵ Holland, R. F., Preliminary Descriptions of the Terrestrial Natural Communities of California, Non-Game Heritage Program, California Department of Fish and Game, 1986.

⁴⁸⁶ Holland, R. F., Preliminary Descriptions of the Terrestrial Natural Communities of California, Non-Game Heritage Program, California Department of Fish and Game, 1986.

⁴⁸⁷ Barbour, M.G. and A.F. Johnson, "Beach and dune," in Barbour, M.G. and J. Major, (ed.) 2nd Edition, Terrestrial Vegetation of California, 1988.

⁴⁸⁸ Mattoni, Rudi and Travis R. Longcore, "The Los Angeles Coastal Prairie, A Vanished Community," Crossosoma 23(2): 71-102, 1997.

⁴⁸⁹ Pierce, W. D. and D. Pool, "The Fauna and Flora of the El Segundo Sand Dunes," Bull. So. Calif. Acad. Sci., 37:93-97, 1938.

Reptiles known to occur in this community include the side-blotched lizard (*Uta stansburiana*) and southern alligator lizard (*Gerrhonotus multicarinatus*).

This biotic community has been significantly altered and degraded by development activities. The floral components typically associated with it are now almost completely absent due to extensive grading and paving and the invasion of exotic annual grasses. No vernal pools exist today. The Valley Needlegrass Grassland community occupies 17.1 acres within the Habitat Restoration Area, and is limited to three distinct areas adjacent to and west of Pershing Drive (**Figure F4.10-1**).

Disturbed Dune Scrub/Foredune

This community is made up of 74.6 acres and is located north of the Habitat Restoration Area, south of Waterview Street, west of Pershing Drive, east of Vista del Mar Boulevard, and is bisected by Sandpiper Street (see **Figure F4.10-1**). This biotic community is heavily disturbed and is dominated by invasive species that drive out native vegetation. Non-native species present include: acacia, iceplant, exotic annual grasses, and several large patches of giant reed (*Arundo donax*). The few coastal dune elements are patchy and include burbush, dunes evening primrose, bush lupine, pink sand verbena, and deerweed. Coast buckwheat, a plant species necessary to support the El Segundo blue butterfly, is absent from this site. Structural remnants belonging to former residences and an abundance of varied debris can be found among the sandy substrate.

Non-Native Grassland (CNDDDB Element Code 42220)/Ruderal

Non-Native Grassland/Ruderal areas are those that have been subjected to past disturbance. They are dominated by exotic annual grasses with non-native forbs interspersed. Historical aerials of this area reveal that it once supported a vernal pool/grassland complex (CNDDDB Element Code 44321). However, repeated grading (cut and fill) has modified the substrate to an extent that no vernal pools are extant.

The red fox (*Vulpes vulpes*) has invaded this community and uses it for foraging. Birds commonly found foraging and nesting in this biotic community include western meadowlarks (*Sturnella neglecta*), English sparrows, killdeer, mourning doves, American kestrels (*Falco sparverius*) and red-tailed hawks (*Buteo jamaicensis*). The same butterflies, moths, and reptiles found within the Valley Needlegrass Grassland community are found here.

This biotic community is comprised of 721.8 acres and is heavily fragmented throughout the study area (see **Figure F4.10-1**). It includes a portion of the Los Angeles/El Segundo Dunes that was once a residential area, and areas along the northern perimeter of the study area that were also historically residential. This biotic community is also represented between the runways and taxiways on the airfield, which undergoes regular operations maintenance and is routinely mowed.

Disturbed/Bare Ground

This biotic community is dominated by bare ground and is comprised of approximately 103.1 acres. It is represented in several areas: north of the airfield between Westchester Parkway and Argo Ditch; an area between the Habitat Restoration Area and the remote terminal area of the airport; the area known as Continental City; and two isolated areas along the southern perimeter of the study area adjacent to Imperial Highway (see **Figure F4.10-1**). Historical aerials of this area reveal that it also once supported a Vernal Pool/Grassland complex (CNDDDB Element Code 44321). However, repeated grading (cut and fill) over the past 50 years has modified the substrate so that no vernal pools are present today.

Wildlife species associated with this community include the red fox, house mouse, European garden snail, house finch, and western fence lizard. Three sensitive species are known to occupy this biotic community: the loggerhead shrike, western spadefoot toad, and San Diego black-tailed jackrabbit.

In response to the recommendations of the USFWS, a jurisdictional delineation for vernal pools and a soil characterization study was conducted within the disturbed portion of the Master Plan boundaries. A discussion of the jurisdictional delineation is provided in Section 4.12, *Wetlands*.

Landscaped

Areas within the study area that support landscaped vegetation, totaling 79.2 acres, include a golf course located within the northern boundary, a small park located in the northeast sector, and most roadway medians (see **Figure F4.10-1**). Landscape treatments are variable, and include lawn and ornamental

4.10 Biotic Communities

tree plantings. Ornamental shrubs, groundcover, and annual plantings are also present. In general, Landscaped areas support very few species of wildlife. No sensitive species of wildlife known to occur within the study area are known to occur in Landscaped areas.

Developed

Developed areas within the study area occupy 2644.9 acres and include the airfield, terminals, parking, roads, and support facilities (see **Figure F4.10-1**).

Considerations Related to Indirect Effects

In addition to direct effects on biotic communities, this analysis considers indirect effects to these resources resulting from potential project-related impacts on air quality and noise, and potential increases in light emissions. The following summary of environmental baseline conditions related to air quality, noise, and light emissions is included to provide context to the discussion of indirect impacts in subsection 4.10.6, *Environmental Consequences*.

Air

Existing air quality in the study area is discussed in detail in Section 4.6, *Air Quality*, and Technical Report 4, *Air Quality Technical Report*. Appendix S-E, *Supplemental Air Quality Impact Analysis*, and Technical Report S-4, *Supplemental Air Quality Technical Report*, provide additional detail on the methodologies used to estimate emissions, analyze ambient air quality concentrations, and identify mitigation options. The general meteorological conditions at LAX are heavily influenced by the airport's proximity to the Pacific Ocean to the west. Prevailing wind direction at LAX is from west-southwest with an average wind speed of roughly 8 knots (9.2 mph or 4.1 m/s). Mobile and stationary sources of pollutants operate predominantly on the east side of the airport, resulting in peak concentrations of chemicals measured on the east side of the airfield and along the eastern LAX boundary.

A study conducted in 1998 characterized particulate aircraft emissions in the vicinity of LAX, and assessed the potential for deposition and environmental impacts of these particles in the Los Angeles/El Segundo Dunes (Dunes).⁴⁹⁰ Results indicated that concentrations of trace metals in ambient levels of particulate matter less than 10 microns (PM₁₀) were within expected values for urban locations. Ambient air levels of trace elements in the Dunes were not significantly different than a reference site (Palos Verdes Peninsula), except in the cases of phosphorus (lower in the Dunes) and thallium (higher in the Dunes). Levels of trace elements in the tissue of California buckwheat in the Dunes were not significantly different from the reference site, except in the cases of arsenic and boron (lower in the northern foredune) and vanadium (higher in the Dunes). Dust analyzed from the surface of buckwheat plants in the Dunes contained a significant proportion of inorganic components, sea salt, and other salts. Carbon from soot (particles from jet engine exhaust), is not a major fraction of the dust. The study concluded that, in general, hydrocarbon distributions in soil, water, and ambient particles in the Dunes were not directly linked to aircraft activities at LAX. These results suggest that dust and accompanying residual chemical components from airport operations deposited in the Dunes are probably not significant and/or are dissipated over large distances from the airport beyond the Dunes becoming diluted during aerial transport.

Air quality analyses undertaken to estimate future background concentrations are based on existing ambient air quality measurements, including the current contribution from LAX sources. Modeled airport contributions were added to the background values and then compared to the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS). This methodology is conservative in its estimate of future emissions since airport sources are implicitly included in the calculated future background concentrations. Actual emissions may be lower. Emissions inventories were analyzed for carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), sulfur dioxide (SO₂), and PM₁₀.

Ozone (O₃), a secondary pollutant derived from reactions of NO_x and VOC in the presence of sunlight, can cause considerable damage to vegetation. The air quality monitoring station that measures ozone concentrations nearest to LAX is located in Hawthorne, 0.6 miles south of the LAX southeast property

⁴⁹⁰ Venkatesan, M.I. and K.A. Boyle, *Analyses of Hydrocarbons and Trace Metals in Environmental Samples in Support of Los Angeles International Airport 2015 Master Plan Expansion Project EIS/EIR*, June 28, 1999.

line. Since the Hawthorne monitoring station is not on-site, the highest O₃ value from 1996 to 1998 was used to describe existing air quality for O₃, again a conservative estimate. Ozone concentrations around the airport were estimated by the Southern California Air Quality Management District (SCAQMD) in the 1997 Air Quality Management Plan (AQMP).

Biotic communities within the Los Angeles/El Segundo Dunes have undergone restoration efforts for over a decade. Concurrent monitoring efforts undertaken by the LAWA have indicated that vegetation is flourishing.⁴⁹¹ Likewise, over the past decade, annual monitoring efforts for the El Segundo blue butterfly have resulted in a general increasing trend. Based on this information, it can be ascertained that flora and fauna at LAX are not adversely affected by existing air quality.

Light Emissions

Light emissions in the Dunes are described in detail in Section 4.18, *Light Emissions*, and Technical Report 9, *Light Emissions Technical Report*. Lighting in the Dunes, which includes the Habitat Restoration Area, currently consists of navigational aids and security lighting for two small buildings. The approach lighting systems in the Dunes are only used under two conditions: after midnight when planes approach from the west, and during "Santa Ana" conditions when planes land from the west. Lighting settings range from 1 (dimkest) to 5 (brightest). Typically, lights are set at 3, and only under foggy conditions are lights set at 5. All security lights are on motion detection settings and are not on when motion stops. Some light spills into the Habitat Restoration Area from streetlights on Vista del Mar; however, this is minimal. There is additional spillover from street lights along Pershing Drive, the majority of which is minimal except for where street lighting is adjacent to a portion of the backdune habitat. This particular area has consistently had observations of the highest numbers of El Segundo blue butterfly during a decade of monitoring efforts. The spillover covers an area of approximately 3.1 acres which consists of 1.5 percent of the total acreage for the Habitat Restoration Area. The El Segundo blue butterfly is addressed in Section 4.11, *Endangered and Threatened Species of Flora and Fauna*. Light emissions within the Habitat Restoration Area range from 0.004 to 0.26 foot candles (*fc*). For a point of reference, illumination associated with natural conditions ranges from 0.004 *fc* for a moonless night, 25.0 *fc* for dawn and 125.0 *fc* for a bright day.

The following species are those that occur within the LAX Master Plan boundaries that are nocturnal or have the potential to be active after sunset: black-tailed jackrabbit, western spadefoot toad, silvery legless lizard, burrowing owl, El Segundo Jerusalem cricket, El Segundo sun spider, the trapdoor spider, dune scarab beetle, and sensitive moth species. The black-tailed jackrabbit is primarily a diurnal species although it is known to be active after sunset. The black-tailed jackrabbit and the burrowing owl can be active in the nighttime; although they are more frequently active at dusk and dawn. The western spadefoot toad is nocturnal. A study by Pearson⁴⁹² showed that the peak of activity occurred right after sundown, with a smaller peak before sunrise, with minimal activity in the early morning hours (11:00 p.m. - 2:00 a.m.). Legless lizards appear to be active mostly during the morning and evening. They have also been observed on the surface at night, however, this is a function of the temperature of the substrate rather than light.⁴⁹³ The burrowing owl is primarily crepuscular, hunting at dusk and dawn, although it will hunt throughout a 24 hour period.⁴⁹⁴ The El Segundo Jerusalem cricket spends the majority of its life underground burrowing the soils, only occasionally wandering to the surface. The El Segundo sun spider is a ground dweller and an excellent excavator, and wanders by night in search of small invertebrate animals which are their prey. The trapdoor spider lives in colonies with numerous burrows and rarely strays from the immediate vicinity of the burrow opening. Males are sometimes seen crawling over ground after rain events searching for females, presumably flushed out of their nests. The dune scarab

⁴⁹¹ Sapphos Environmental, Inc., *Memorandum for the Record 1043-010.M05*, "Subject: 1998-1999 Vegetation Monitoring Report and Schedule for on-going Maintenance Activities, El Segundo Blue Butterfly Habitat Restoration Area at LAX", February 28, 2000.

⁴⁹² Pearson, Paul G., "Population Ecology of the Spadefoot Toad, *Scaphiopus H. Holbrookii* (Harlan)," *Ecological Monographs*, Vol. 25, No. 3, 1955, pg. 240.

⁴⁹³ California Department of Fish and Game, Habitat Conservation Planning Branch, [California's Plants and Animals](http://www.dfg.ca.gov/hcpb/species), <http://www.dfg.ca.gov/hcpb/species>.

⁴⁹⁴ California Department of Fish and Game, Habitat Conservation Planning Branch, [California's Plants and Animals](http://www.dfg.ca.gov/hcpb/species), <http://www.dfg.ca.gov/hcpb/species>.

4.10 Biotic Communities

beetle emerges when light intensity decreases to 4 *fc*.⁴⁹⁵ The sensitive moths potentially present within the Los Angeles/El Segundo Dunes are primarily nocturnal species that typically fly toward light.

Based on the levels of light that spill onto the Dunes at the present time, and the presence of sensitive species within this area, it appears that current lighting conditions do not adversely affect sensitive species at LAX.

Noise

Existing noise levels in the study area are described in detail in Section 4.1, *Noise*, and Appendix D, *Aircraft Noise Technical Report*. Noise levels are quantified by several different metrics, explained in Section 1.2, Standard Aircraft Noise Descriptors, of Appendix D, computed at regularly spaced noise monitoring stations. The locations of noise monitoring stations are shown as grid points in **Figure F4.10-6**, Regularly Spaced Grid Point Locations. These metrics include the Community Noise Equivalent Level (CNEL), Noise Level Day-Night (L_{dn}), the Maximum Noise Level (L_{max}), and the duration (in minutes) that each site will be exposed to noise above various decibel levels. The grid points located in areas occupied by sensitive species are as follows: E04, E05, E06, F04, F05, and F06. **Table F4.10-6**, Regular Grid Point Assessment - Aircraft L_{max} (decibels), and **Table F4.10-7**, Regular Grid Point Assessment - Aircraft Time Above 95 Decibels in Minutes, below, provide data for these grid points for the average annual day of operation.

As indicated in the tables, under 1996 baseline conditions, maximum noise levels at five of the six grid point locations within the Los Angeles/El Segundo Dunes and the western portion of the airport exceed the 95 decibel threshold identified in **Table F4.10-2** (see **Table F4.10-6**), although the total time above this decibel level is very limited (see **Table F4.10-7**). Nevertheless, sensitive species currently reside at LAX, including locations subject to high noise levels.

As noted in the Federal Aviation Administration's *Aviation Noise Effects*,⁴⁹⁶ "the effects of aviation noise on animals . . . have revealed that the effects are highly species dependent and that the degree of the effect may vary widely." Literature was reviewed to obtain thresholds of noise specific to the sensitive fauna occurring within the Master Plan boundaries.^{497, 498} The spadefoot toad was the only species occurring within the Master Plan boundaries for which specific information could be found. Incomplete and contradictory information was found regarding noise impacts to passerines⁴⁹⁹ such as the loggerhead shrike, which is present at LAX. A study by the Alaska Bird Observatory, which compared a control site to a test site that was exposed to aircraft noise, found that there were no major differences in the nesting productivity of the most abundant species, and the nesting success was high and similar for both the control site and the test site.⁵⁰⁰ However, the maximum noise level at the test site was 80.8 decibels, considerably lower than the maximum noise level at LAX. Additionally, sample sizes were too small to conduct statistical analysis. The literature synthesis produced by the USFWS provides information on poultry, waterbirds, raptors, and songbirds.⁵⁰¹ The effects include alarm responses with return to normal behavior within 10 seconds, lower hatching and fledging success, and nest abandonment. None of the species included in this literature synthesis were similar enough to the loggerhead shrike to be able to determine effects from increases in noise. For other species present at LAX, the most compatible species information available was used. **Table F4.10-2** shows the sensitive species occurring within the Master Plan boundaries, the species that were used for determining the noise level (threshold) at which normal species' behaviors are disturbed, and the effects of that noise level.

⁴⁹⁵ Hardy, Alan, and Fred Andrews. "Studies in the Coleoptera of Western Sand Dunes," *The Coleopterists Bulletin*. 40 (2), 1986, pp. 127-139.

⁴⁹⁶ Newman, J. S. and Cristy R. Beattie, *Aviation Noise Effects*. U.S. Department of Transportation, FAA Office of Environment and Energy, Report No. FAA-EE-85-2, Washington, D.C, March 1985.

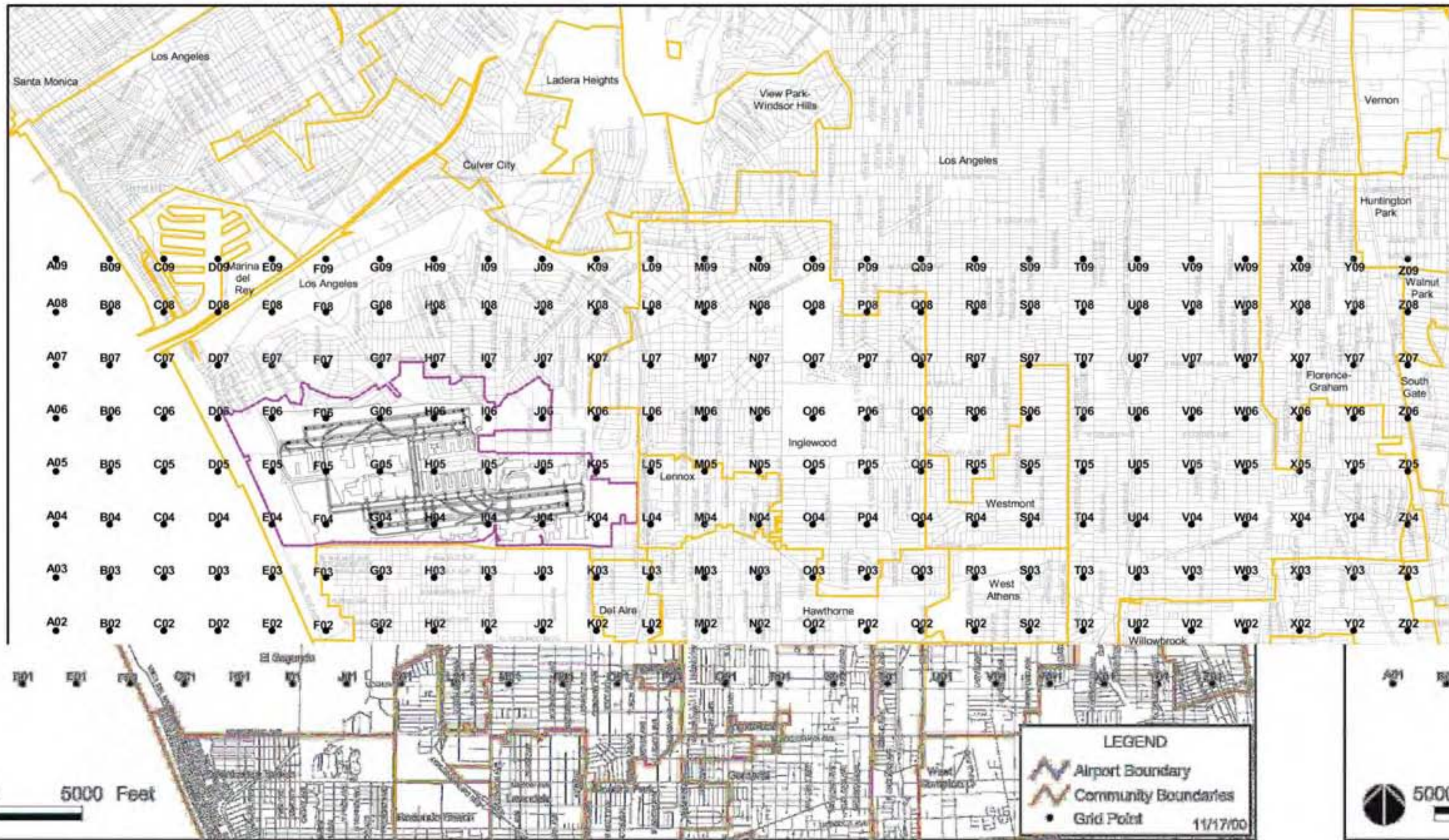
⁴⁹⁷ U.S. Air Force and U.S. Fish and Wildlife Service, *Effects of aircraft noise and sonic booms on domestic animals and wildlife: A literature synthesis*, June 1998.

⁴⁹⁸ U.S. Fish and Wildlife Service, *Effects of aircraft noise and sonic booms on fish and wildlife: Results of a survey of U.S. Fish and Wildlife Service endangered species and ecological services field offices, refuges, hatcheries, and research centers*, June 1998.

⁴⁹⁹ Passerines are perching birds, technically members of the order Passeriformes. Birds in this order are characterized by having four toes, three directed forward and one backward, all joining the foot at the same level.

⁵⁰⁰ Bartecchi, K. M., *Effects of military overflights on nesting neotropical migrants*, January 2001.

⁵⁰¹ U.S. Air Force and U.S. Fish and Wildlife Service, *Effects of aircraft noise and sonic booms on domestic animals and wildlife: A literature synthesis*, June 1998.



4.10 Biotic Communities

Table F4.10-6

Regular Grid Point Assessment - Aircraft L_{max} (decibels)

Grid Location				Amt of Change From 1996	Amt of Change From 2000	A	Amt of Change From 1996	Amt of Change From 2000	Amt of Change From NA/NP	B	Amt of Change From 1996	Amt of Change From 2000	Amt of Change From NA/NP	C	Amt of Change From 1996	Amt of Change From 2000	Amt of Change From NA/NP	D	Amt of Change From 1996	Amt of Change From 2000	Amt of Change From NA/NP
	1996	2000	NA/NP	1996	2000		1996	2000	NA/NP		1996	2000	NA/NP		1996	2000	NA/NP		1996	2000	NA/NP
E04	104.9	104.0	98.8	-6.1	-5.2	98.8	-6.1	-5.2	0	97.6	-7.3	-6.4	-1.2	98.8	-6.1	-5.2	0	98.8	-6.1	-5.2	0
E05	105.6	108.2	90.6	-15	-17.6	94.7	-10.9	-13.5	4.1	89.7	-15.9	-18.5	-0.9	90	-15.6	-18.2	-0.6	92.8	-12.8	-15.4	2.2
E06	106.8	99.3	97.9	-8.9	-1.4	93.4	-13.4	-5.9	-4.5	90.9	-15.9	-8.4	-7.0	96.5	-10.3	-2.8	-1.4	90.7	-16.1	-8.6	-7.2
F04	108.2	107.5	101.7	-6.5	-5.8	101.3	-6.9	-6.2	-0.4	104	-4.2	-3.5	2.3	101.2	-7	-6.3	-0.5	101.2	-7	-6.3	-0.5
F05	94.6	94	86.9	-7.7	-7.1	91.7	-2.9	-2.3	4.8	88	-6.6	-6.0	1.1	88.3	-6.3	-5.7	1.4	90.5	-4.1	-3.5	3.6
F06	114.2	106.7	103.3	-10.9	-3.4	140.9	26.7	34.2	37.61	105.2	-9	-1.5	1.9	117.4	3.2	10.7	14.1	97.3	-16.9	-9.4	-6.0

Source: Landrum & Brown, 2000 and 2003.

Table F4.10-7

Regular Grid Point Assessment - Aircraft Time Above 95 Decibels in Minutes

Grid Location				Amt of Change From 1996	Amt of Change From 2000	A	Amt of Change From 1996	Amt of Change From 2000	Amt of Change From NA/NP	B	Amt of Change From 1996	Amt of Change From 2000	Amt of Change From NA/NP	C	Amt of Change From 1996	Amt of Change From 2000	Amt of Change From NA/NP	D	Amt of Change From 1996	Amt of Change From 2000	Amt of Change From NA/NP
	1996	2000	NA/NP	1996	2000		1996	2000	NA/NP		1996	2000	NA/NP		1996	2000	NA/NP		1996	2000	NA/NP
E04	3	0.9	0.1	-2.9	-0.8	0.1	-2.9	-0.8	0	0.1	-2.9	-0.8	0	0.1	-2.9	-0.8	0	0.1	-2.9	-0.8	0
E05	1.2	0.0	0	-1.2	0.0	0	-1.2	0.0	0	0	-1.2	0.0	0	0	-1.2	0.0	0	0	-1.2	0.0	0
E06	1.4	0.0	0	-1.4	0.0	0	-1.4	0.0	0	0	-1.4	0.0	0	0.1	-1.3	0.1	0.1	0	-1.4	0.0	0
F04	5	2.8	1.1	-3.9	-1.7	0.8	-4.2	-2.0	-0.3	0.4	-4.6	-2.4	-0.7	0.7	-4.3	-2.1	-0.4	0.8	-4.2	-2.0	-0.3
F05	0	0.0	0	0	0.0	0	0	0.0	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0	0
F06	1.8	0.6	0.6	-1.2	0.0	0.1	-1.7	-0.5	-0.5	0.1	-1.7	-0.5	-0.5	1.5	-0.3	0.9	0.9	0.3	-1.5	-0.3	-0.3

Source: Landrum & Brown, 2000 and 2003.

4.10 Biotic Communities

Based on the analysis of existing noise levels at locations occupied by sensitive species, and the presence of sensitive species within these areas, it appears that current noise conditions do not adversely affect sensitive species at LAX.

4.10.4 Thresholds of Significance

4.10.4.1 CEQA Thresholds of Significance

Significant impacts to biotic communities would occur in the Master Plan area if direct and indirect changes in the environment, which may be caused by a particular build alternative, potentially could result in one or more of the following future conditions:

- ◆ A substantial reduction (greater than 10 percent) in locally designated natural communities including state-designated sensitive habitats, Ecologically Sensitive Habitat Areas (ESHAs), and habitat preservation areas designated pursuant to local ordinances. Specifically, a substantial reduction (greater than 10 percent) in the Habitat Restoration Area (designated as such by City of Los Angeles Ordinance 167940).
- ◆ A conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plans.
- ◆ A substantial net reduction in federal- or state-listed or otherwise sensitive plants, pursuant to the California Native Plant Protection Act.
- ◆ Interference with habitat (e.g., from the introduction of noise, light) such that normal species behaviors are disturbed to a degree that may diminish the chances for long-term survival of a sensitive species, pursuant to the *Draft L.A. CEQA Thresholds Guide*.
- ◆ A substantial adverse effect, either directly or through habitat modifications, on any candidate, sensitive, or special status species.
- ◆ Substantial interference with the movement of any native fish or wildlife species or with established wildlife corridors, or impede the use of a native wildlife nursery site.
- ◆ Removal of occupied nesting habitat during the breeding season (March 15 to August 15) or harassment of any bird species afforded protection under the Migratory Bird Treaty Act.
- ◆ A significant reduction (greater than 10 percent) of a biotic community designated as sensitive by the Coastal Zone Management Act. Specifically, a reduction in size of the Habitat Restoration Area or the encompassing Los Angeles/EI Segundo Dunes, including adjacent open areas.

These thresholds were adapted from criteria and guidance contained in the Migratory Bird Treaty Act, the Coastal Zone Management Act, the *Draft L.A. CEQA Thresholds Guide*, and the California Native Plant Protection Act. These guidelines are also consistent with Appendix G of the *State CEQA Guidelines*. They are utilized because they address the potential concerns relative to biotic communities associated with the Master Plan build alternatives; namely, the reduction or take of sensitive flora, fauna, or habitat.

An evaluation of whether or not an impact on biological resources would qualify as significant must consider both the resource itself and how that resource fits into a regional context. The criteria for determining significance of impacts are based on the importance of the resource, the proximity of the resource to the project site, the proportion of the resource that would be affected, the sensitivity of the resource to the type of impact being considered, and the extent and degree of the proposed impact.

4.10.4.2 Federal Standards

Significant impacts to biotic communities would occur under the NEPA when, based on consultation with Federal and state agencies having specialized expertise, the FAA determines that the proposed action may jeopardize the continued existence of a species or result in the destruction or adverse modification of critical habitat. The Federal standards are similar to the CEQA future conditions relating to conflicts with state habitat conservation plans, interference with habitat, direct or indirect substantial adverse effects through modifications of habitat, removal or nesting habitat during nesting season or harassment of species protected under the Migratory Bird Treaty Act, and designation of sensitive biotic communities under the Coastal Zone Management Act.

4.10.5 Master Plan Commitments

No Master Plan commitments for biotic communities are proposed. However, the following Master Plan commitment from another environmental discipline is relevant to this analysis:

◆ **LI-3. Lighting Controls (Alternatives A, B, C, and D).**

This commitment is provided in its entirety in Chapter 5, *Environmental Action Plan*.

4.10.6 Environmental Consequences

This section describes the potential environmental effects of the No Action/No Project Alternative and the four build alternatives on biotic communities. For each alternative, the potential direct effects are discussed as they relate to biotic communities and sensitive flora and fauna. Also included are discussions of the potential indirect impacts to sensitive species of flora and fauna resulting from potential changes in air quality, noise, and light emissions associated with airport operations.

As described in the Analytical Framework discussion in the introduction to Chapter 4, the basis for determining impacts under CEQA is different from that of NEPA. Under CEQA, the impacts of a proposed project and alternatives are measured against the "environmental baseline," which is normally the physical conditions that existed at the time the Notice of Preparation was published (i.e., June 1997, or 1996 when a full year of data is appropriate, for the LAX Master Plan Draft EIS/EIR). As such, the CEQA analysis in this Final EIS/EIR uses the environmental baseline, or in some cases an "adjusted environmental baseline," as the basis by which to measure and evaluate the impacts of each alternative. Under NEPA, the impacts of each action alternative (i.e., build alternative) are measured against the conditions that would otherwise occur in the future if no action were to occur (i.e., the "No Action" alternative). As such, the NEPA analysis in this Final EIS/EIR uses the No Action/No Project Alternative as the basis by which to measure and evaluate the impacts of each build alternative (i.e., Alternatives A, B, C, and D) in the future (i.e., at buildout in 2015 or, for construction-related impacts, selected future interim year). Based on this fundamental difference in the approach to evaluating impacts, the nature and significance of impacts determined under CEQA are not necessarily representative of, or applicable to, impacts determined under NEPA. The following presentation of environmental consequences should, therefore, be reviewed and considered accordingly.

4.10.6.1 No Action/No Project Alternative

Direct Impacts

Figure F4.10-7, Plant Communities: No Action/No Project Alternative, maps locations of biotic communities under implementation of this alternative by 2015. The acreage of each plant community is presented in **Table F4.10-4**. The habitat value associated with each of these biotic communities, based on the results of the MLEP analysis, is provided in **Table F4.10-5**. Under the No Action/No Project Alternative, for LAX itself (that is, excluding the Los Angeles/El Segundo Dunes), there would be a potential net reduction of 17.87 habitat units ($119.97 - 102.1 = 17.87$)⁵⁰² (see **Table F4.10-5**). Included in this potential net reduction of habitat units is the removal of approximately 300 mature trees due to implementation of LAX Northside. The loss of mature trees would constitute an adverse impact because they are utilized by raptors for nursery sites.

It is assumed that routine maintenance of the open areas within the Master Plan boundaries would continue, and that no change would occur to existing biotic communities. Given these conditions, it is assumed that sensitive species currently found on the airfield would remain extant.

Indirect Impacts

As stated in Section 4.6, *Air Quality* (subsection 4.6.6), under the No Action/No Project Alternative there would be an increase in CO, NO_x, SO₂, and PM₁₀ from operational and construction emissions. The locations of the peak concentrations reflected in the increase for CO, NO_x and SO₂ were documented on the eastern portion of the airport boundary, between two and four miles away from the sensitive biological

⁵⁰² Subtotal No Action/No Project Alternative habitat units subtracted from subtotal Environmental Baseline habitat units, rounded off.

4.10 Biotic Communities

receptors located within the Los Angeles/El Segundo Dunes. The general meteorological conditions at LAX are heavily influenced by the airport's proximity to the Pacific Ocean to the west. Prevailing wind direction at LAX is from west-southwest with an average wind speed of roughly 8 knots (9.2 mph or 4.1 m/s). The distance of the sensitive biological resources from the CO, NO_x, and SO₂ peak operational and construction concentrations together with the prevailing winds diminishes the likelihood of impacts to sensitive biological resources from an increase in CO, NO_x and SO₂ from operational and construction emissions. Moreover, a 1998 study of PM₁₀ in the vicinity of LAX suggests that dust and accompanying residual chemical components from airport operations deposited in the Los Angeles/El Segundo Dunes are probably not significant and/or are dissipated over large distances from the airport beyond the Dunes becoming diluted during aerial transport. Therefore, under the No Action/No Project Alternative there would not be potential air quality impacts to biotic communities, including sensitive floral and faunal species. Construction activities are not anticipated to result in deposition of fugitive dust within state-designated sensitive habitats within the Los Angeles El Segundo Dunes, including the Habitat Restoration Area.

Under the No Action/No Project Alternative, no change in ambient lighting conditions would occur west of the airport, including the Los Angeles/El Segundo Dunes and the Habitat Restoration Area. Therefore, impacts to biotic communities, including sensitive floral and faunal species, would remain the same as under baseline conditions.

Under the No Action/No Project Alternative, all metrics show a decrease in noise level in comparison to the 1996 environmental baseline conditions; therefore, no noise impacts to sensitive wildlife species would occur.

4.10.6.2 Alternative A - Added Runway North

Direct Impacts

Figure F4.10-8, Plant Communities: Alternative A - Added Runway North, maps locations of biotic communities under implementation of Alternative A at the 2015 buildout of the LAX Master Plan improvements. The acreage of each plant community is presented in **Table F4.10-4**. The habitat value associated with each of these biotic communities, based on the results of the MLEP analysis, is provided in **Table F4.10-5**.

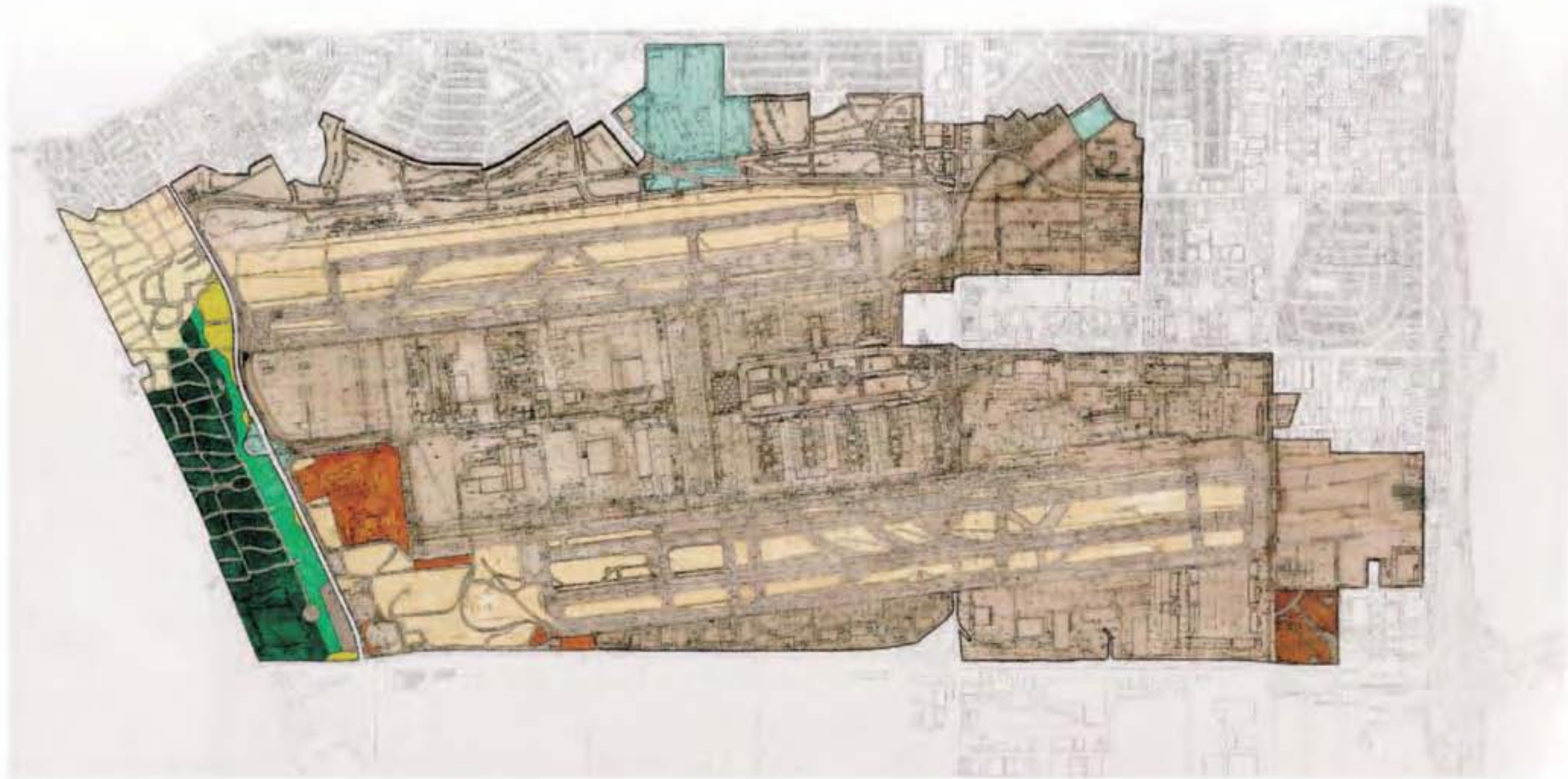
Alternative A contains various features that are especially pertinent to the analysis of biotic community impacts. Implementation of Alternative A, for LAX itself (that is, excluding the Los Angeles/El Segundo Dunes), would result in a net reduction of 61.27 habitat units (119.97-58.70 = 61.27) when compared to baseline habitat units (refer to **Table F4.10-5**). Contributions to the net reduction of 61.27 habitat units derive from the reduction of 54.47 habitat units or 363.4 acres of Non-Native Grassland/Ruderal community; the reduction of 9.48 habitat units or 94.8 acres of Disturbed/Bare Ground community and the increase of 2.68 habitat units or 53.6 acres of Landscaped community (54.47 + 9.48-2.68 = 61.27 habitat units).

Reduction in habitat units is primarily the result of conversion of open space containing Non-Native Grassland/Ruderal and Disturbed/Bare Ground to Landscaped and Developed areas. Non-Native Grassland/Ruderal open areas have a greater overall habitat value (measured in habitat units) than Landscaped and Developed areas. Loss of 61.27 habitat units is considered a significant impact.⁵⁰³









Under Alternative A, installation of navigational aids and associated service roads would result in impacts to 58,476 square feet (1.34 acres) of state-designated sensitive habitat within the Los Angeles/El Segundo Dunes, which is considered to be a significant impact, including 30,261 square feet (0.70 acre) within the Habitat Restoration Area. Within this area, 8,514 square feet (0.20 acre) of habitat occupied by the El Segundo blue butterfly would be impacted (see Section 4.11, *Endangered and Threatened Species of Flora and Fauna* (subsection 4.11.6)).

One sensitive plant species, Lewis' evening primrose, which is comprised of approximately 300 individuals, has been determined to be present on the westerly end of the existing north runway. The

⁵⁰³ Loss of open space adjacent to the sensitive habitat areas in the Los Angeles/El Segundo Dunes is considered a significant impact requiring mitigation pursuant to the California Coastal Act.



LEGEND




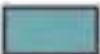




- | | | | |
|---|---|--|--|
|  Southern Foredune |  Disturbed Dune Scrub/Foredune |  Non-Native Grassland/Ruderal |  Landscaped |
|  Southern Dune Scrub |  Valley Needlegrass Grassland |  Disturbed/Bare Ground |  Developed |

SOURCE: Sappho Environmental, Inc., 2000





LEGEND

- | | | | |
|---|---|--|--|
|  Southern Foredune |  Disturbed Dune Scrub/Foredune |  Non-Native Grassland/Ruderal |  Landscaped |
|  Southern Dune Scrub |  Valley Needlegrass Grassland |  Disturbed/Bare Ground |  Developed |

SOURCE: Sappho Environmental, Inc., 2000



Lewis' evening primrose is designated by CDFG as a state sensitive species. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance. Implementation of Alternative A would result in grading and subsequent loss of the plant and its habitat. This species is widely distributed within the Habitat Restoration Area immediately to the west of the presently occupied site, with more than 10,000 individuals observed during directed surveys. Loss of approximately 300 individuals of this species within the study area is considered a significant impact.

Implementation of Alternative A would result in impacts, either directly or through habitat modification, to the California spineflower, which is considered to be a significant impact.

Implementation of Alternative A would not result in impacts, either directly or through habitat modification, to the El Segundo duneflower.

Implementation of Alternative A also would result in the loss of the existing western spadefoot toad population that currently inhabits 2.01 acres of Disturbed/Bare Ground and 6.96 acres of Non-Native Grassland/Ruderal within the southwestern portion of the Air Operation Area (AOA). Direct impacts would result from the conversion of 0.3 habitat units (equivalent to 2.01 acres of ephemerally wetted areas within Disturbed/Bare Ground community currently used as breeding ponds) and the conversion of 1.04 habitat units (equivalent to 6.96 acres of adjacent upland habitat comprised of Non-Native Grassland/Ruderal plant community) to developed land no longer capable of supporting this species. Loss of habitat for the existing western spadefoot toad population is considered a significant impact. The western spadefoot toad is designated by CDFG as a Species of Special Concern. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance.

Implementation of Alternative A would also result in the loss of San Diego black-tailed jackrabbit individuals and their habitat within the southwest AOA which consists of 58.16 acres of Disturbed/Bare Ground and 60.59 acres of Non-Native Grassland/Ruderal. Direct impacts would result from conversion of 5.82 habitat units (equivalent to 58.16 acres of Disturbed/Bare Ground) and 9.09 habitat units (equivalent to 60.59 acres of Non-Native Grassland/Ruderal) plant communities to developed land acres no longer capable of supporting this species. Loss of habitat and all individuals of the black-tailed jackrabbit are considered significant impacts. The San Diego black-tailed jackrabbit is designated by CDFG as a Species of Special Concern. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance.

Implementation of Alternative A would also result in the displacement of loggerhead shrike and the loss of 113.71 acres of habitat consisting of Non-Native Grassland/Ruderal and 58.16 acres of Disturbed/Bare Ground communities. Direct impacts would result from conversion of 17.06 habitat units (equivalent to 113.71 acres of Non-Native Grassland/Ruderal community) and 5.82 habitat units (equivalent to 58.16 acres of Disturbed/Bare Ground community) to developed land acres no longer capable of supporting this species. Loss of habitat for loggerhead shrike is considered a significant impact. The loggerhead shrike is designated by CDFG as a Species of Special Concern. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance.

Implementation of Alternative A would result in impacts to 58,476 square feet (1.34 acres) of state-designated sensitive habitat that support sensitive arthropods, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl. Although impacts to 58,476 square feet (1.34 acres) constitutes only 0.50 percent of extant habitat within the Los Angeles/El Segundo Dunes, construction activities could potentially result in the loss of individuals of sensitive arthropod species, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl, which is considered to be a significant impact.

Implementation of Westchester Southside would also result in the removal of approximately 300 mature trees. The loss of mature trees would constitute a significant impact because they are utilized by raptors for nursery sites.

As indicated in **Tables F4.10-4** and **F4.10-5**, the conversion of (i.e., impacts to) designated plant communities and habitats under Alternative A would be greater than those under the No Action/No Project Alternative.

Implementation of Alternative A, for LAX itself (that is excluding the Los Angeles/El Segundo Dunes), would result in a net reduction of 43.4 habitat units ($102.1 - 58.70 = 43.3$) when compared to the No Action/No Project Alternative. Reduction in habitat units results primarily from the conversion of open

4.10 Biotic Communities

areas containing Non-Native Grassland/Ruderal and Disturbed/Bare Ground habitats to Landscaped and Developed areas.

Indirect Impacts

As stated in Section 4.6, *Air Quality* (subsection 4.6.6), under Alternative A there would be an increase in CO, NO_x, SO₂, and PM₁₀ from increased aircraft operations and construction. Due to prevailing wind conditions, peak concentrations would occur within the eastern portion of the airport away from the locations of sensitive species, thus implementation of Alternative A would not result in significant air quality impacts to biotic communities, including sensitive floral and faunal species. Construction activities, including staging and stockpiling of materials, proximal to the Los Angeles El Segundo Dunes, including the Habitat Restoration Area, have the potential to result in deposition of fugitive dust within state-designated sensitive habitats, especially during construction of the ring road, parking facility, West Terminal/Concourses, and Automated People Mover components of the proposed project, which is considered to be a significant impact.

Implementation of Alternative A would result in an increase in ambient light levels by an estimated maximum of 0.34 *fc* in the Habitat Restoration Area due to the development of the West Terminal Area (WTA) and parking structure. The addition of a northern runway would also change navigational aid lighting in the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area. An increase in light emissions could result in potential impacts to biotic communities, including sensitive fauna species. An increase in light emissions would result in impacts only to fauna that are nocturnal (active at night) or crepuscular (active at dusk and dawn). The following species are those that occur within the LAX Master Plan boundaries that are nocturnal or crepuscular: the El Segundo Jerusalem cricket, the El Segundo sun spider, the trapdoor spider, the dunes scarab beetle, sensitive moth species, the black-tailed jackrabbit, the western spadefoot toad, the silvery legless lizard, and the burrowing owl. An increase in light emissions would, therefore, not have significant adverse effects on Trask's snail, Belkin's dunefly, Monarch butterfly, the globose dune beetle, the south coast dune beetle, the El Segundo crab spider, the San Diego horned lizard, or the loggerhead shrike.

It is not anticipated that an increase in light emissions would modify the behavior of the El Segundo Jerusalem cricket to a degree that would diminish its chances for long-term survival since there would be no adverse effect on mating, foraging, or predation. An increase in light emissions could potentially increase the foraging behavior of the El Segundo sun spider; however, it is not anticipated that its behavior would be modified to a degree that would diminish its chances for long-term survival since there would be no adverse effect on mating. It is not anticipated that an increase in light emissions would modify the behavior of the trapdoor spider to a degree that would diminish its chances for long-term survival since there would be no adverse effect on mating, foraging, or predation. Light emissions within the Habitat Restoration Area would range from 0.344 to 0.60 *fc*, therefore it is not anticipated that an increase in light emissions would modify the behavior of the dune scarab beetle to a degree that would diminish its chances for long-term survival. An increase in light emissions could potentially modify behaviors of the sensitive moth species to a degree that may diminish the chances for long-term survival. It is anticipated that implementation of Master Plan Commitment LI-3 would reduce potential impacts to below the level of significance. For these reasons, light emissions are not anticipated to have significant impacts to sensitive arthropod species located within the Los Angeles/El Segundo Dunes.

An increase in light could increase the activity of the Black-tailed jackrabbit and the burrowing owl at nighttime; however, their primary predators, coyotes, foxes and hawks, are diurnal and increased nighttime activity would not make the black-tailed jackrabbit or the burrowing owl more susceptible to predation. The silvery legless lizard can be active at night, however, this is a function of temperature rather than light. The western spadefoot toad is nocturnal and an increase in light could expose the western spadefoot toad to higher levels of predation due to increased visibility; however, within the LAX airfield, the predominant predator of the western spadefoot toad is the gopher snake. The gopher snake locates prey primarily utilizing non-visual cues such as vibration and chemosensory stimuli. For these reasons, light emissions are not anticipated to have significant impacts to sensitive wildlife species located within the Los Angeles/El Segundo Dunes.

Implementation of Alternative A could potentially result in impacts as a result of noise to sensitive wildlife species. The level at which noise becomes a disturbance to the spadefoot toad, the silvery legless lizard, the San Diego horned lizard, and the black-tailed jackrabbit is 95 decibels. The only increase in L_{max}

compared to 1996 baseline conditions would occur at grid point F06, located north of the north airfield. At all other grid points, the L_{max} would decrease compared to baseline. None of the species listed above were observed in the vicinity of grid point F06. As a result, Alternative A would have no significant noise-related impacts on the spadefoot toad, the silvery legless lizard, the San Diego horned lizard, or the black-tailed jackrabbit.

Two observations of loggerhead shrike were made near grid point F06, and one pair of loggerhead shrike may be nesting in the north airfield. As indicated in subsection 4.10.2, *General Approach and Methodology*, the effects of noise on loggerhead shrike are unclear, and no noise thresholds can be established for this species based on available scientific evidence. It should be noted that grid point F06, where loggerhead shrike have been observed, had an L_{max} of 114.2 decibels in 1996, although the time above 95 decibels was extremely limited (1.8 minutes). Under Alternative A, the L_{max} at F06 would be 140.9 decibels, although the time above 95 decibels would decrease to 0.1 minutes. This L_{max} would only occur on the runway, not at adjacent locations where the loggerhead shrike may occur. Moreover, based on evidence that loggerhead shrike exist in areas currently subject to high levels of noise, adverse impacts on loggerhead shrike as a result of increased noise are not expected to occur. Finally, due to the lack of a scientific threshold, the declaration of a significant adverse impact would be speculative. As per Section 15145 of the State CEQA Guidelines, an EIR should not engage in speculation.

The burrowing owl is a winter resident at the Dunes and absent from the airfield. It was determined not to breed within the Master Plan boundaries, including the Dunes; therefore impacts from noise are not considered to cause interference such that normal species behaviors would be disturbed to a degree that may diminish the chances for long-term survival of the species.

Occupied habitat of sensitive arthropods is adjacent to grid points E04 and E05. As indicated in subsection 4.10.2, *General Approach and Methodology*, the effects of noise on arthropods are unclear, and no noise thresholds can be established based on available scientific evidence. Studies that did show an impact on moths and other insects exposed the species to prolonged increase in sound of several days. It should be noted that most metrics at grid points E04 and E05 would decrease from the 1996 environmental baseline conditions, however, there would be an increase in the metric Aircraft Time Above 65 decibels. The increase would be a maximum of 25 minutes; however, as this is a total increase and is not an increase of a sustained time period, it is not expected to result in substantial impacts to sensitive arthropods. Due to the lack of a scientific threshold, the declaration of a significant adverse impact would be speculative.

The indirect impacts associated with Alternative A would be greater than those of the No Action/No Project Alternative, based on the comparative differences in the levels of construction and operations activities.

4.10.6.3 Alternative B - Added Runway South

Direct Impacts

Figure F4.10-9, Plant Communities: Alternative B - Added Runway South, maps locations of biotic communities under implementation of Alternative B at the 2015 buildout of the LAX Master Plan improvements. The acreage of each plant community is presented in **Table F4.10-4**. The habitat value associated with each of these biotic communities, based on the results of the MLEP analysis, is provided in **Table F4.10-5**.

Alternative B contains various features that are especially pertinent to the analysis of biotic community impacts. Implementation of Alternative B, for LAX itself (that is, excluding the Los Angeles/EI Segundo Dunes), would result in a net reduction of 67.81 habitat units ($119.97 - 52.16 = 67.81$) when compared to baseline habitat units (see **Table F4.10-5**). Contributions to the net reduction of 67.81 habitat units derive from the reduction of 60.55 habitat units or 403.9 acres of Non-Native Grassland/Ruderal community; the reduction of 9.55 habitat units or 95.5 acres of Disturbed/Bare Ground community and the increase of 2.29 habitat units or 45.7 acres of Landscaped community ($60.55 + 9.55 - 2.29 = 67.81$ habitat units) (see **Tables F4.10-4** and **F4.10-5**). As under Alternative A, reduction in habitat units is primarily the result of conversion of open areas containing Non-Native Grassland/Ruderal and Disturbed/Bare Ground to Landscaped and Developed areas. Non-Native Grassland/Ruderal open areas have a greater overall habitat value (measured in habitat units) than Landscaped and Developed areas. Loss of 67.81 habitat units is considered a significant impact.

4.10 Biotic Communities

Under Alternative B, installation of navigation aids and associated service roads would result in impacts to 50,492 square feet (1.16 acres) of state-designated sensitive habitat within the Los Angeles/El Segundo Dunes, which is considered to be a significant impact, including 16,811 square feet (0.39 acre) within the Habitat Restoration Area. Within this area, 2,316 square feet (0.05 acre) of habitat occupied by the El Segundo blue butterfly would be impacted (see Section 4.11, *Endangered and Threatened Species of Flora and Fauna* (subsection 4.11.6)).

As described under Alternative A, one sensitive plant species, Lewis' evening primrose, which is comprised of approximately 300 individuals, has been determined to be present on the westerly end of the existing north runway. The Lewis' evening primrose is designated by CDFG as a state sensitive species. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance. Implementation of Alternative B would result in grading and subsequent loss of the plant and its habitat. This species is widely distributed over the 200-acre Habitat Restoration Area immediately to the west of the presently occupied site, with more than 10,000 individuals observed during directed surveys. Loss of approximately 300 individuals of this species within the study area is considered a significant impact.

Alternative B would not result in impacts to the El Segundo duneflower or the California spineflower.

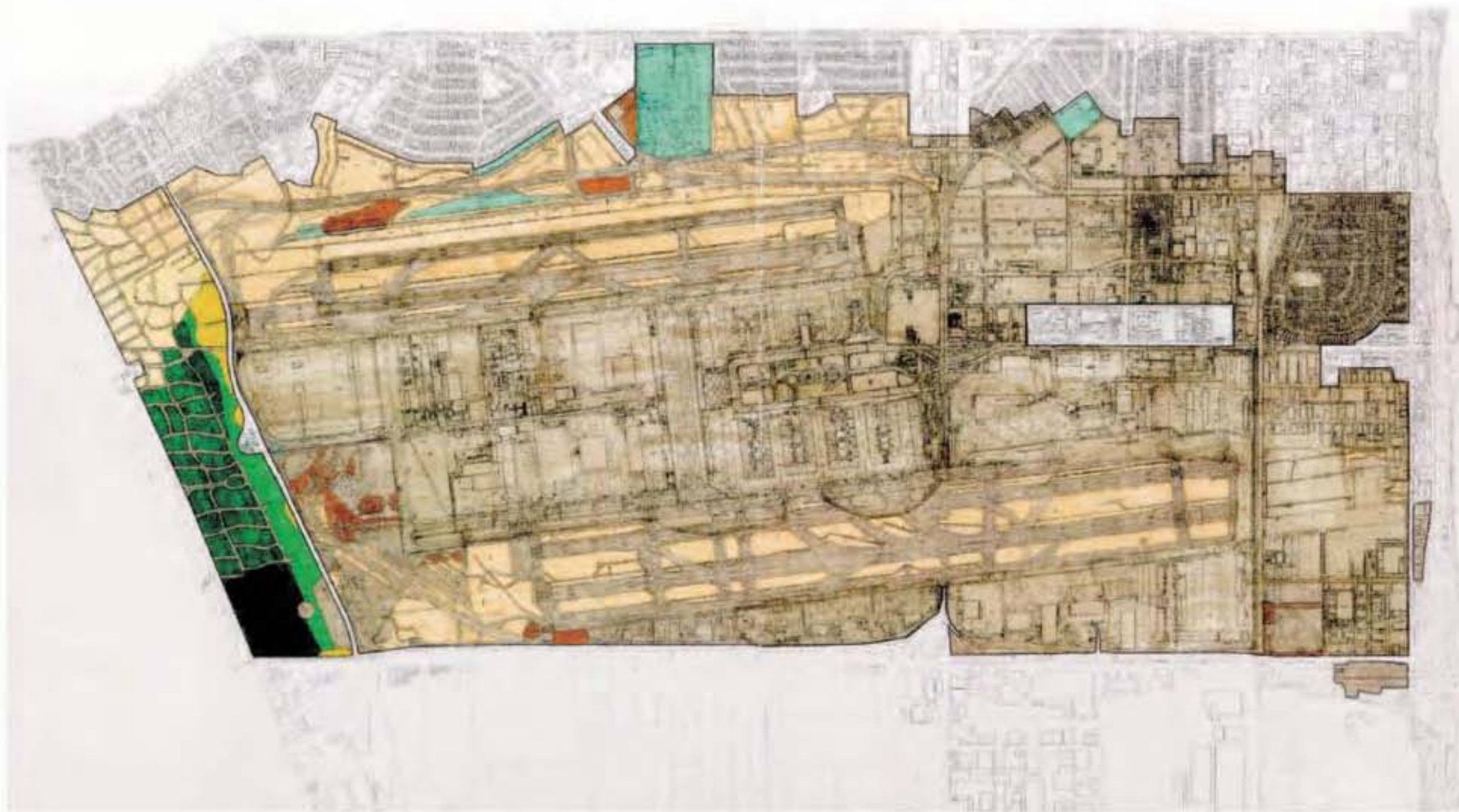
Implementation of Alternative B would also result in the loss of the existing western spadefoot toad population that currently inhabits 2.01 acres of Disturbed/Bare Ground and 6.96 acres of Non-Native Grassland/Ruderal within the southwestern portion of the AOA. Direct impacts would result from conversion of 0.3 habitat units (equivalent to 2.01 acres of ephemerally wetted areas within Disturbed/Bare Ground community currently used as breeding ponds) and 1.04 habitat units (equivalent to 6.96 acres of adjacent upland habitat comprised of Non-Native Grassland/Ruderal plant community) to developed land no longer capable of supporting this species. Loss of habitat for the existing western spadefoot toad population is considered a significant impact. The western spadefoot toad is designated by CDFG as a Species of Special Concern. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance.

Implementation of Alternative B would result in the loss of San Diego black-tailed jackrabbit individuals and their habitat within the southwest AOA consisting of 58.16 acres of Disturbed/Bare Ground and 60.59 acres of Non-Native Grassland/Ruderal plant communities. Direct impacts would result from conversion of 5.82 habitat units (equivalent to 58.16 acres of Disturbed/Bare Ground) and 9.09 habitat units (equivalent to 60.59 acres of Non-Native Grassland/Ruderal) plant communities to developed land acres no longer capable of supporting this species. Loss of habitat and all individuals of the black-tailed jackrabbit are considered significant impacts. The San Diego black-tailed jackrabbit is designated by CDFG as a Species of Special Concern. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance.



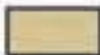





Implementation of Alternative B would also result in the displacement of loggerhead shrike and the loss of 113.71 acres of habitat consisting of Non-Native Grassland/Ruderal and 58.16 acres of Disturbed/Bare Ground communities. Direct impacts would result from conversion of 17.06 habitat units (equivalent to 113.71 acres of Non-Native Grassland/Ruderal community) and 5.82 habitat units (equivalent to 58.16 acres of Disturbed/Bare Ground community) to developed land acres no longer capable of supporting this species. Loss of habitat for loggerhead shrike is considered a significant impact. The loggerhead shrike is designated by CDFG as a Species of Special Concern. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance.

Implementation of Alternative B would result in impacts to 50,492 square feet (1.16 acres) of state-designated sensitive habitat that support sensitive arthropods, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl. Although impacts to 50,492 square feet (1.16 acres) constitutes only 0.50 percent of extant habitat within the Los Angeles/El Segundo Dunes, construction activities could potentially result in the loss of individuals of sensitive arthropod species, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl, which is considered a significant impact.

Implementation of Westchester Southside would also result in the removal of approximately 300 mature trees. The loss of mature trees would constitute a significant impact because they are utilized by raptors for nursery sites.



LEGEND

- | | | | |
|---|---|--|--|
|  Southern Foredune |  Disturbed Dune Scrub/Foredune |  Non-Native Grassland/Ruderal |  Landscaped |
|  Southern Dune Scrub |  Valley Needlegrass Grassland |  Disturbed/Bare Ground |  Developed |

SOURCE: Saphos Environmental, Inc., 2000



As indicated in **Tables F4.10-4** and **F4.10-5**, the conversion of (i.e., impacts to) designated plant communities and habitats under Alternative B would be greater than those under the No Action/No Project Alternative.

Implementation of Alternative B, for LAX itself (that is excluding the Los Angeles/El Segundo Dunes), would result in a net reduction of 49.94 habitat units ($102.1 - 52.16 = 49.94$) when compared to the No Action/No Project Alternative. Reduction in habitat units results primarily from the conversion of open areas containing Non-Native Grassland/Ruderal and Disturbed/Bare Ground habitats to Landscaped and Developed areas.

Indirect Impacts

Implementation of Alternative B would not result in potentially significant air quality impacts to biotic communities. Potential indirect impacts to flora and fauna resulting from increased concentrations of air pollutants would be the same as Alternative A. As with Alternative A, implementation of Alternative B would not result in potentially significant air quality impacts to biotic communities due to the prevailing wind conditions and the location of peak concentrations of air pollutants within the eastern portion of the airport. Construction activities, including staging and stockpiling of materials proximal to the Los Angeles El Segundo Dunes, including the Habitat Restoration Area, have the potential to result in deposition of fugitive dust within state-designated sensitive habitats, especially during construction of the ring road, parking facility, West Terminal/Concourses, and Automated People Mover components of the proposed project, which is considered to be a significant impact.

Implementation of Alternative B could result in potential impacts to biotic communities, including sensitive fauna species, as a result of increases in light emissions. As with Alternative A, levels of ambient lighting in the Habitat Restoration Area are expected to increase by 0.34 *fc*. Alternative B would change navigational aid lighting in the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area. As discussed for Alternative A, the increase in ambient light levels of 0.34 *fc* and changes in navigational aid lighting are not anticipated to have significant impacts on biotic communities, including sensitive floral and faunal species, in the Dunes.

For Alternative B there is no increase in L_{max} compared to 1996 baseline conditions. Therefore, implementation of Alternative B would not result in significant impacts from noise to sensitive wildlife species.

The indirect impacts associated with Alternative B would be greater than those of the No Action/No Project Alternative, based on the comparative differences in the levels of construction and operation activities.

4.10.6.4 Alternative C - No Additional Runway

Direct Impacts

Figure F4.10-10, Plant Communities: Alternative C - No Additional Runway, maps locations of biotic communities under implementation of Alternative C at the 2015 buildout of the LAX Master Plan improvements. The acreage of each plant community is presented in **Table F4.10-4**. The habitat value associated with each of these biotic communities, based on the results of the MLEP analysis, is provided in **Table F4.10-5**.

Alternative C contains various features that are especially pertinent to the analysis of biotic community impacts. Implementation of Alternative C, for LAX itself (that is, excluding the Los Angeles/El Segundo Dunes), would result in a net reduction of 49.87 habitat units ($119.97 - 70.10 = 49.87$) (refer to **Table F4.10-5**). Contributions to the net reduction of 49.87 habitat units derive from the reduction of 46.0 habitat units or 306.8 acres of Non-Native Grassland/Ruderal community; the reduction of 5.98 habitat units or 59.8 acres of Disturbed/Bare Ground community and the increase of 2.09 habitat units or 41.9 acres of Landscaped community ($46.0 + 5.98 - 2.09 = 49.87$ habitat units).

As under Alternatives A and B, the reduction in habitat units is primarily the result of conversion of open areas containing Non-Native Grassland/Ruderal and Disturbed/Bare Ground to Landscaped and Developed areas. Non-Native Grassland/Ruderal open areas have a greater overall habitat value (measured in habitat units) than Landscaped and Developed areas. Loss of 49.87 habitat units is considered a significant impact.

4.10 Biotic Communities

Under Alternative C, installation of navigation aids and associated service roads would result in impacts to 30,210 square feet (0.69 acre) of state-designated sensitive habitat within the Los Angeles/El Segundo Dunes, which is considered to be a significant impact. There would be no impacts within the Habitat Restoration Area, including occupied habitat of the El Segundo blue butterfly.

As under Alternatives A and B, there is one sensitive plant species, Lewis' evening primrose, that has been determined to be present on the westerly end of the existing north runway. Implementation of Alternative C would result in grading and subsequent loss of approximately 300 individuals of the plant and its habitat. This species is widely distributed within the Habitat Restoration Area immediately to the west of the presently occupied site, with more than 10,000 individuals observed during directed surveys. Loss of approximately 300 individuals of this species within the study area is considered a significant impact. The Lewis' evening primrose is designated by CDFG as a state sensitive species. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance.

Implementation of Alternative C would not result in impacts to the El Segundo duneflower or the California spineflower.

Implementation of Alternative C would also result in the loss of the existing western spadefoot toad population that currently inhabits 2.01 acres of Disturbed/Bare Ground and 6.96 acres of Non-Native Grassland/Ruderal within the southwestern portion of the AOA. Direct impacts would result from conversion of 0.3 habitat units (equivalent to 2.01 acres of ephemeral wetted areas within Disturbed/Bare Ground community currently used as breeding ponds) and 1.04 habitat units (equivalent to 6.96 acres of adjacent upland habitat comprised of Non-Native Grassland/Ruderal plant community) to developed land no longer capable of supporting this species. Loss of habitat and the existing western spadefoot toad population is considered a significant impact. The western spadefoot toad is designated by CDFG as a Species of Special Concern. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance.

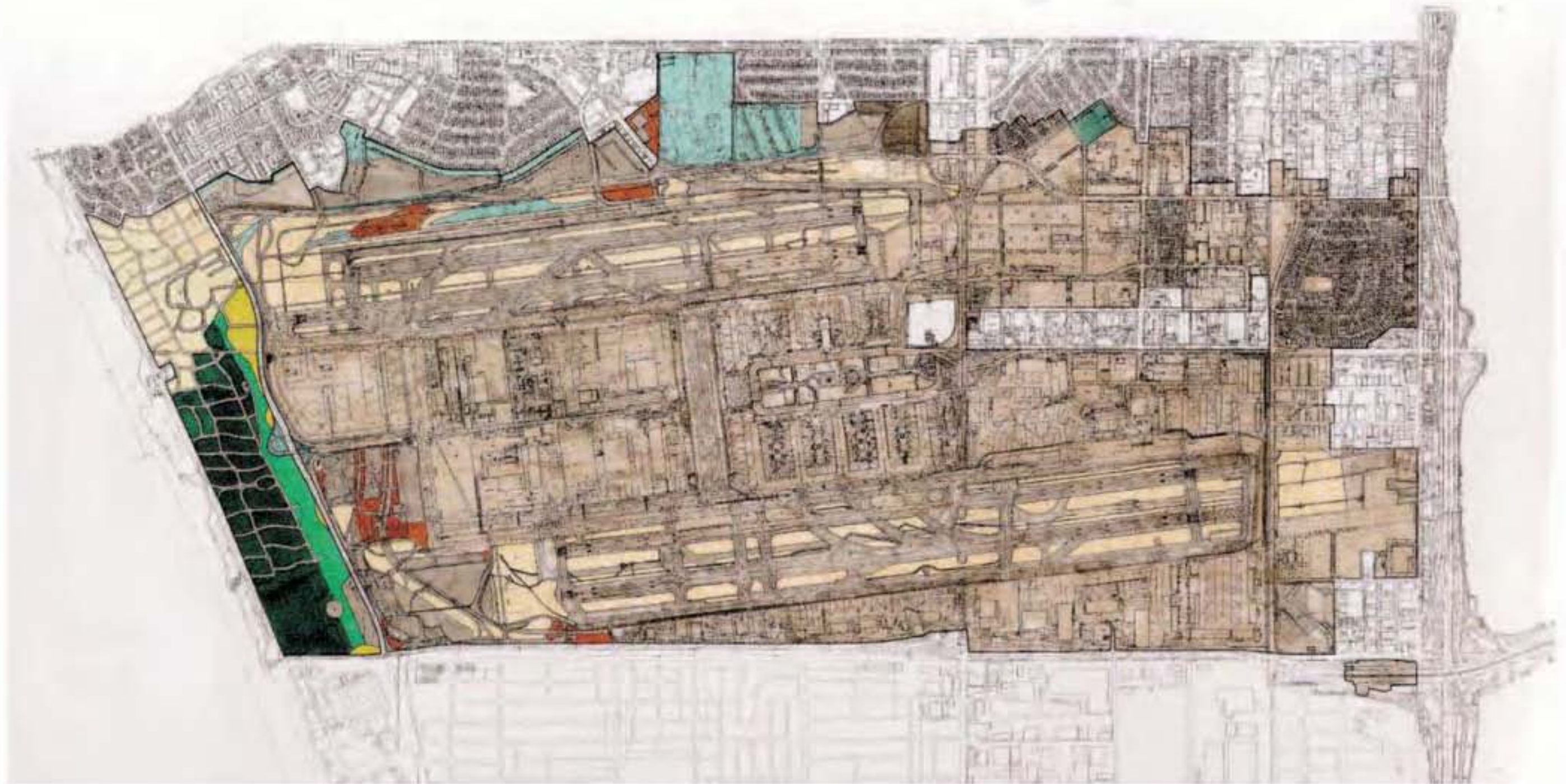
Implementation of Alternative C would also result in the loss of San Diego black-tailed jackrabbit individuals and their habitat within the southwest AOA consisting of 58.16 acres of Disturbed/Bare Ground and 60.59 acres of Non-Native Grassland/Ruderal plant communities. Direct impacts would result from conversion of 5.82 habitat units (equivalent to 58.16 acres of Disturbed/Bare Ground) and 9.09 habitat units (equivalent to 60.59 acres of Non-Native Grassland/Ruderal) to developed land acres no longer capable of supporting this species. Loss of habitat and all individuals of the black-tailed jackrabbit are considered significant impacts. The San Diego Black-tailed jackrabbit is designated by CDFG as a Species of Special Concern. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance.

Implementation of Alternative C would also result in the displacement of loggerhead shrike and the loss of 113.71 acres of habitat containing Non-Native Grassland/Ruderal and 58.16 acres of Disturbed/Bare Ground communities. Direct impacts would result from conversion of 17.06 habitat units (equivalent to 113.71 acres of Non-Native Grassland/Ruderal community) and 5.82 habitat units (equivalent to 58.16 acres of Disturbed/Bare Ground community) to developed land acres no longer capable of supporting this species. Loss of habitat for loggerhead shrike is considered a significant impact. The loggerhead shrike is designated by CDFG as a Species of Special Concern. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance.









Implementation of Alternative C would result in impacts to 30,210 square feet (0.69 acre) of state-designated sensitive habitat that support sensitive arthropods, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl. Although impacts to 30,210 square feet (0.69 acre) constitutes only 0.50 percent of extant habitat within the Los Angeles/El Segundo Dunes, construction activities could potentially result in the loss of individuals of sensitive arthropod species, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl, which is considered a significant impact.

Implementation of Westchester Southside would also result in the removal of approximately 300 mature trees. The loss of mature trees would constitute a significant impact because they are utilized by raptors for nursery sites.

As with Alternatives A and B, impacts to plant communities and associated habitats would be greater under Alternative C than under the No Action/No Project Alternative.



LEGEND

- | | | | |
|---|---|--|--|
|  Southern Foredune |  Disturbed Dune Scrub/Foredune |  Non-Native Grassland/Ruderal |  Landscaped |
|  Southern Dune Scrub |  Valley Needlegrass Grassland |  Disturbed/Bare Ground |  Developed |

SOURCE: Saphos Environmental, Inc., 2000



Implementation of Alternative C, for LAX itself (that is excluding the Los Angeles/El Segundo Dunes), would result in a net reduction of 32 habitat units ($102.1 - 70.10 = 32$) when compared to the No Action/No Project Alternative. Reduction in habitat units results primarily from the conversion of open areas containing Non-Native Grassland/Ruderal and Disturbed/Bare Ground habitats to Landscaped and Developed areas.

Indirect Impacts

Implementation of Alternative C would not result in potentially significant air quality impacts to biotic communities. Potential indirect impacts to flora and fauna resulting from increased concentrations of air pollutants would be the same as Alternatives A and B. As with Alternatives A and B, implementation of Alternative C would not result in potentially significant air quality impacts to biotic communities due to the prevailing wind conditions and the location of peak concentrations of air pollutants within the eastern portion of the airport. Construction activities, including staging and stockpiling of materials proximal to the Los Angeles El Segundo Dunes, including the Habitat Restoration Area, have the potential to result in deposition of fugitive dust within state-designated sensitive habitats, especially during construction of the ring road, parking facility, West Terminal/Concourses, and Automated People Mover components of the proposed project, which is considered to be a significant impact.

Implementation of Alternative C could result in potential impacts to biotic communities, including sensitive floral and faunal species, as a result of increases in light emissions. As with Alternatives A and B, levels of ambient lighting in the Habitat Restoration Area are expected to increase by 0.34 *fc*. In addition, Alternative C would change navigational aid lighting in the Los Angeles/El Segundo Dunes. There would be no impacts within the Habitat Restoration Area. As discussed for Alternatives A and B, the increase in ambient light levels of 0.34 *fc* and changes in navigational aid lighting are not anticipated to have significant impacts on biotic communities, including sensitive floral and faunal species, in the Dunes.

Implementation of Alternative C could potentially result in impacts as a result of noise to sensitive wildlife species. The only increase in L_{max} compared to 1996 baseline conditions would occur at grid point F06. As with Alternative A, changes in noise levels are not expected to result in significant impacts to sensitive arthropods, the spadefoot toad, the silvery legless lizard, the San Diego horned lizard, and the black-tailed jackrabbit. Although the loggerhead shrike was observed near grid point F06, the L_{max} of 117.4 decibels at this location under Alternative C would only be 3.2 decibels greater than under baseline conditions, and the time above 95 decibels would decrease to 1.5 minutes. As discussed under Alternative A, impacts to this species are not expected and are considered speculative.

As with Alternatives A and B, the indirect impacts of Alternative C would be greater than those of the No Action/No Project Alternative.

4.10.6.5 Alternative D - Enhanced Safety and Security Plan

Direct Impacts

Figure F4.10-11, Plant Communities: Alternative D - Enhanced Safety and Security Plan, maps locations of biotic communities under implementation of Alternative D at the 2015 buildout of the LAX Master Plan improvements. The acreage of each plant community is presented in **Table F4.10-4**. The habitat value associated with each of these biotic communities, based on the results of the MLEP analysis, is provided in **Table F4.10-5**.

A description of the facilities associated with Alternative D is provided in Chapter 3, *Alternatives*. Implementation of Alternative D, for LAX itself (that is, excluding the Los Angeles/El Segundo Dunes), would result in a net reduction of 45.43 habitat units when compared to baseline habitat units ($119.97 - 74.54 = 45.43$) (see **Tables F4.10-4 and F4-10.5**). Contributions to the net reduction of 45.43 habitat units derive from the reduction of 42.2 habitat units or 281.8 acres of Non-Native Grassland/Ruderal community; the reduction of 4.38 habitat units or 43.8 acres of Disturbed/Bare Ground community; and the increase of 1.15 habitat units or 22.9 acres of Landscaped community.

Reduction in habitat units is primarily the result of conversion of open space that contains Non-Native Grassland/Ruderal and Disturbed/Bare Ground to Developed areas. Non-Native Grassland/Ruderal open areas have a greater overall habitat value (measured in habitat units) than Developed areas. Loss of 45.43 habitat units is considered a significant impact.

4.10 Biotic Communities

Under Alternative D, construction of navigational aids and associated service roads would result in impacts to 66,675 square feet (1.53 acres) of state-designated sensitive habitat within the Los Angeles/EI Segundo Dunes, which is considered to be a significant impact, including 33,334 square feet (0.77 acre) within the Habitat Restoration Area. Within this area, 10,597 square feet (0.24 acre) of habitat occupied by the EI Segundo blue butterfly would be impacted (see Section 4.11, *Endangered and Threatened Species of Flora and Fauna* (subsection 4.11.6)).

One sensitive plant species, Lewis' evening primrose, is widely distributed within the Habitat Restoration Area of the Los Angeles/EI Segundo Dunes. The Lewis' evening primrose is designated by the CDFG as a state sensitive species. Implementation of Alternative D would potentially result in the loss of individuals from installation of navigational aids and associated service roads within the Habitat Restoration Area, which is considered a significant impact.

Implementation of Alternative D would result in impacts to 66,675 square feet (1.53 acres) of state-designated sensitive habitat that support sensitive arthropods, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl. Although impacts to 66,675 square feet (1.53 acres) constitutes only 0.50 percent of extant habitat within the Los Angeles/EI Segundo Dunes, construction activities could potentially result in the loss of individuals of sensitive arthropod species, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl, which is considered a significant impact.

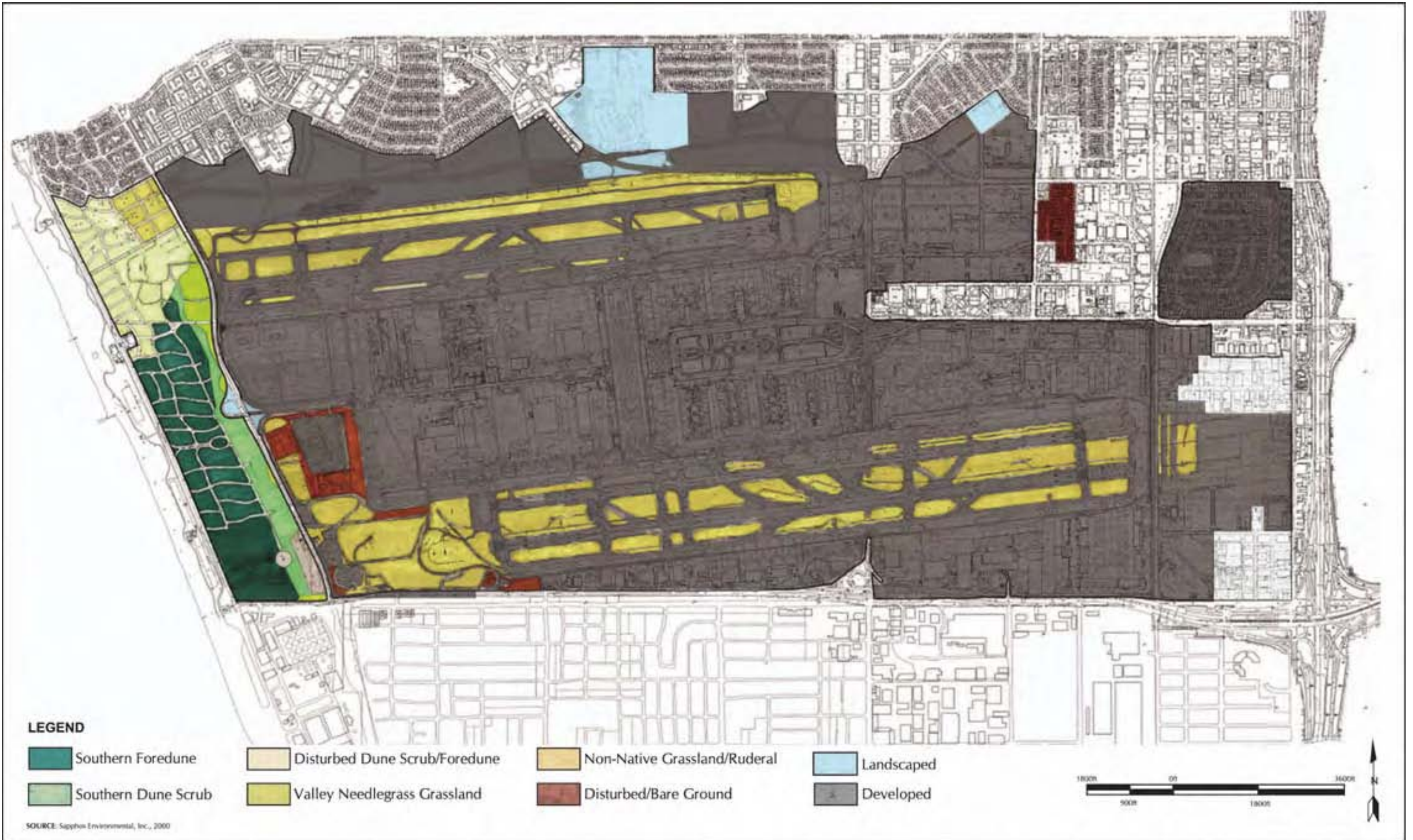
Implementation of Alternative D would result in the loss of the existing western spadefoot toad population that currently inhabits 2.01 acres of Disturbed/Bare Ground and 6.96 acres of Non-Native Grassland/Ruderal within the southwestern portion of the Airport Operations Area (AOA). The western spadefoot toad is designated by CDFG as a Species of Special Concern. Direct impacts would result from conversion of 0.3 habitat units (equivalent to 2.01 acres of ephemeral wetted areas within Disturbed/Bare Ground community currently used as breeding ponds) and 1.04 habitat units (equivalent to 6.96 acres of adjacent upland habitat comprised of Non-Native Grassland/Ruderal plant community) to developed land no longer capable of supporting this species. Loss of habitat for the existing western spadefoot toad population is considered a significant impact.

Implementation of Alternative D would result in the loss of San Diego black-tailed jackrabbit individuals and their habitat within the southwest AOA consisting of 23.76 acres of Disturbed/Bare Ground. Direct impacts would result from conversion of 2.38 habitat units (equivalent to 23.76 acres of Disturbed/Bare Ground) plant communities to developed land acres no longer capable of supporting this species. Loss of habitat and all individuals of the black-tailed jackrabbit are considered significant impacts. The San Diego black-tailed jackrabbit is designated by CDFG as a Species of Special Concern. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance.

Implementation of Alternative D would also result in the displacement of loggerhead shrike and the loss of 49.97 acres of habitat consisting of Non-Native Grassland/Ruderal and 33.287 acres of Disturbed/Bare Ground communities. Direct impacts would result from conversion of 7.5 habitat units (equivalent to 49.97 acres of Non-Native Grassland/Ruderal community) and 3.33 habitat units (equivalent to 33.28 acres of Disturbed/Bare Ground community) to developed land acres no longer capable of supporting this species. Loss of habitat for loggerhead shrike is considered a significant impact. The loggerhead shrike is designated by CDFG as a Species of Special Concern. This species would be adversely affected through habitat modification, which is a CEQA threshold of significance.

Implementation of LAX Northside would result in the removal of approximately 300 mature trees. The loss of mature trees would constitute a significant impact because they are utilized by raptors for nursery sites.

Implementation of Alternative D, for LAX itself (that is excluding the Los Angeles/EI Segundo Dunes), would result in a net reduction of 27.56 habitat units ($102.1 - 74.54 = 27.56$) when compared to the No Action/No Project Alternative. Reduction in habitat units would result primarily from the conversion of open areas containing Non-Native Grassland/Ruderal and Disturbed/Bare Ground habitats to Landscaped and Developed areas.



Indirect Impacts

Implementation of Alternative D would not result in potentially significant air quality impacts to biotic communities. Potential indirect impacts to flora and fauna resulting from increased concentrations of air pollutants would be the same as other build alternatives. As with the other build alternatives, implementation of Alternative D would not result in potentially significant air quality impacts to biotic communities due to the prevailing wind conditions and the location of peak concentrations of air pollutants within the eastern portion of the airport. However, construction activities, including staging and stockpiling of materials proximal to the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area, have the potential to result in deposition of fugitive dust within state-designated sensitive habitats, which is considered to be a significant impact.

Levels of ambient lighting in the Habitat Restoration Area are expected to increase by approximately 0.34 *fc* or less due to the development of the parking facility. The increase in ambient light levels of approximately 0.34 *fc*, and changes in navigational aid light are not anticipated to have significant impacts on biotic communities, including sensitive flora and fauna, species, in the Dunes. As indicated above, Alternative D would also change navigational aid lighting in the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area. As with Alternatives A, B, and C, the increase in ambient light levels of 0.34 *fc* and changes in navigational aid lighting (with implementation of Master Plan Commitment LI-3) are not expected to have significant impacts on biotic communities, including sensitive floral and faunal species, in the Dunes.

For Alternative D there is no increase in L_{max} , compared to 1996 baseline conditions. All three noise metrics decrease when compared to the 1996 environmental baseline; therefore, implementation of Alternative D would not result in significant impacts from noise to sensitive wildlife species.

As with the other build alternatives, indirect impacts associated with Alternative D would be greater than those of the No Action/No Project Alternative.

4.10.7 Cumulative Impacts

The cumulative impacts to biotic communities associated with the No Action/No Project Alternative and Alternatives A, B, C, or D, in combination with other past, present, and probable future projects, are discussed below. As discussed under subsection 4.10.3, *Affected Environment/Environmental Baseline*, approximately 4,260 acres, supporting eight distinct biotic communities, are present within the study area. Areas surrounding the study area consist largely of developed areas with little or no habitat value. However, two biologically significant open space areas, the Ballona Wetlands and the Ballona Bluffs, remain extant within the vicinity of the study area. Residential, commercial, and industrial development in the coastal zone has eliminated the majority of natural communities historically present.

4.10.7.1 No Action/No Project Alternative

Direct Impacts

Under the No Action/No Project Alternative, 124.4 acres of Non-Native Grassland/Ruderal and 4.3 acres of Disturbed/Bare Ground would be impacted as a result of the approved LAX Northside and Continental City projects.

The Playa Vista project has proposed to develop 111 acres of disturbed/developed area that was previously used in conjunction with Hughes Aircraft operations. While the original proposal for the Playa Vista Second Phase Project included development within the Ballona Wetlands, the revised proposal for Playa Vista, presented in November 2002, does not have any development or improvements occurring in the Ballona Wetlands. The Catellus Residential Group is developing approximately 44 acres on the Ballona Bluffs.

The combined loss of habitat from these two projects, in conjunction with the LAX Northside project under the No Action/No Project Alternative, would not result in cumulative impacts to biotic communities. This alternative would contribute little to the overall cumulative impacts to biotic communities.

4.10 Biotic Communities

Indirect Impacts

Cumulative air quality impacts under the No Action/No Project Alternative are not expected to result in adverse effects to biotic communities, including sensitive flora and fauna, which are located between the western terminus of the airfield and the Pacific Ocean. Cumulative air quality impacts are described in detail in Section 4.6, *Air Quality* (subsection 4.6.7).

Cumulative impacts from light emissions under the No Action/No Project Alternative, in association with the LAX Northside, Continental City, and proposed Playa Vista project, are not expected to result in adverse effects to biotic communities, including sensitive floral and faunal species. These projects are located to the north of the Master Plan boundaries and their removed distance to the nearest sensitive receptors would result in no light emission impacts. Cumulative light emissions impacts are described in detail in Section 4.18, *Light Emissions* (subsection 4.18.7).

Cumulative impacts from noise under the No Action/No Project Alternative are not expected to result in adverse effects to sensitive wildlife species. No other projects are expected to create additional, cumulative noise within the noise contours of LAX. Cumulative noise impacts are described in detail in Section 4.1, *Noise* (subsection 4.1.7).

4.10.7.2 Alternatives A, B, and C

Direct Impacts

There would be no net loss of habitat value as a result of the proposed Master Plan improvements under Alternatives A, B, and C, as recommended mitigation measures are adequate to reduce project impacts to below the level of significance. Given the down-scaling of the proposed Playa Vista Second Phase Project in November 2002, which, as currently proposed, would involve the conversion of 61 acres of undeveloped disturbed land to urban uses and no development/improvement in the Ballona Wetlands, the potential for cumulatively considerable impacts to the biotic resources in the vicinity of LAX is now considered to be very limited. The cumulative impacts to biotic communities from development of Alternative A, B, or C in combination with other past, present, and probable future projects in the area, including the Playa Vista project and the Cattelus residential development, are considered to be less than significant.

Additional impacts to biotic communities may occur from development associated with the growth-inducing impacts of Alternatives A, B, and C. The impacts are anticipated to be very limited because such development would likely occur primarily as urban infill, and the individual projects associated with such new development would be subject to environmental review and mitigation requirements as appropriate.

Indirect Impacts

Cumulative air quality impacts under Alternatives A, B, and C are not expected to result in adverse effects to biotic communities, including sensitive flora and fauna as a result of distance from sensitive receptors combined with the general meteorological conditions at LAX. Cumulative air quality impacts are described in detail in Section 4.6, *Air Quality* (subsection 4.6.7).

The increase in light emissions associated with Alternatives A, B, or C and the proposed Playa Vista project would be ambient in nature and the distance between the sites would not result in cumulatively significant impacts. Cumulative light emissions impacts are described in detail in Section 4.18, *Light Emissions* (subsection 4.18.7).

Cumulative impacts from noise under Alternatives A, B, and C are not expected to result in adverse effects to sensitive wildlife species. No other projects are expected to create additional, cumulative noise within the noise contours of LAX. Cumulative noise impacts are described in detail in Section 4.1, *Noise* (subsection 4.1.7).

4.10.7.3 Alternative D - Enhanced Safety and Security Plan

Direct Impacts

Alternative D would result in impacts to 281.8 acres of Non-Native Grassland/Ruderal and 43.8 acres of Disturbed/Bare Ground.

There would be no net loss of habitat value as a result of the proposed Master Plan improvements under Alternative D as recommended mitigation measures are adequate to reduce potential project impacts to below the level of significance. Given the down-scaling of the proposed Playa Vista Second Phase Project in November 2002, which, as currently proposed, would involve the conversion of 61 acres of undeveloped disturbed land to urban uses and no development/improvement in the Ballona Wetlands, the potential for cumulatively considerable impacts to the biotic resources in the vicinity of LAX is now considered to be very limited. The cumulative impacts to biotic communities from development of Alternative D, and other projects in the area, including the Playa Vista project and the Cattelus residential development, are considered to be less than significant.

Additional impacts to biotic communities may occur from development associated with the growth-inducing impacts of Alternative D. The impacts are anticipated to be very limited because such development would likely occur primarily as urban infill, and the individual projects associated with such new development would be subject to environmental review and mitigation requirements as appropriate.

Indirect Impacts

Cumulative air quality impacts under Alternative D are not expected to result in adverse effects to biotic communities, including sensitive flora and fauna, as a result of distance from sensitive receptors combined with the general meteorological conditions at LAX. Cumulative air quality impacts are described in detail in Section 4.6, *Air Quality* (subsection 4.6.7).

Cumulative light emissions impacts under Alternative D are not expected to result in adverse effects to biotic communities, including sensitive flora and fauna. Cumulative light emissions impacts are described in detail in Section 4.18, *Light Emissions* (subsection 4.18.7).

Cumulative impacts from noise under Alternative D are not expected to result in adverse effects to sensitive wildlife species. Cumulative noise impacts are described in detail in Section 4.1, *Noise* (subsection 4.1.7).

4.10.8 Mitigation Measures

- ◆ **MM-BC-1. Conservation of State-Designated Sensitive Habitat Within and Adjacent to the El Segundo Blue Butterfly Habitat Restoration Area (Alternatives A, B, C, and D).**

LAWA or its designee shall take all necessary steps to ensure that the state-designated sensitive habitats within and adjacent to the Habitat Restoration Area are conserved and protected during construction, operation, and maintenance. These steps shall, at a minimum, include the following:

Implementation of construction avoidance measures in areas where construction or staging are adjacent to the Habitat Restoration Area. Prior to the initiation of construction of LAX Master Plan components to be located adjacent to the Habitat Restoration Area, LAWA or its designee shall conduct a pre-construction evaluation to identify and flag specific areas of state-designated sensitive habitats located within 100 feet of construction areas. Subsequent to the pre-construction evaluation, LAWA or its designee shall conduct a pre-construction meeting and provide written construction avoidance measures to be implemented in areas adjacent to state-designated sensitive habitats. Construction avoidance measures include erecting a 10-foot-high tarped chain-link fence where the construction or staging area is adjacent to state-designated sensitive habitats to reduce the transport of fugitive dust particles related to construction activities. Soil stabilization, watering, or other dust control measures, as feasible and appropriate, shall be implemented to reduce fugitive dust emissions during construction activities within 2,000 feet of the El Segundo Blue Butterfly Habitat Restoration Area, with a goal to reduce fugitive dust emissions by 90 to 95 percent. In addition, to the extent feasible, no grading or stockpiling for construction activities should take place within 100 feet of a state-designated sensitive habitat. LAWA or its designee shall incorporate provisions for the identification of additional construction avoidance measures to be implemented adjacent to state-

4.10 Biotic Communities

designated sensitive areas. All construction avoidance measures that address Best Management Practices shall be clearly stated within construction bid documents. In addition, LAWA shall include a provision in all construction bid documents requiring the presence of a qualified environmental monitor. Construction drawings shall indicate vegetated areas within the Habitat Restoration Area as "Off-Limits Zone."

Ongoing maintenance and management efforts for the El Segundo Blue Butterfly Habitat Restoration Area. LAWA or its designee shall ensure that maintenance and management efforts prescribed in the Habitat Management Plan (HMP) for the Habitat Restoration Area shall continue to be carried out as prescribed.

Pre-Construction Surveys to determine presence/absence of California spineflower. Under Alternative A, only, pre-construction surveys will be undertaken during the optimum time of year to determine the presence/absence of individuals of California spineflower within the proposed area of impact within the Habitat Restoration Area. The California spineflower is known to be sparsely distributed in subsite 3 within the Habitat Restoration Area. Should the species be determined present, individuals will be salvaged and relocated to a suitable location within the Habitat Restoration Area. Prior to construction, LAWA or its designee shall develop and implement a relocation plan to avoid the potential loss of individuals from the installation of navigational aids and associated service roads. Relocation efforts shall be undertaken by a qualified biologist, in coordination with CDFG.

◆ **MM-BC-2. Conservation of Floral Resources: Lewis' Evening Primrose (Alternatives A, B, C, and D).**

LAWA or its designee shall prepare and implement a plan to compensate for the loss of individuals of the sensitive Lewis' evening primrose, currently located at the westerly end of the north runway and within the Habitat Restoration Area. LAWA or its designee shall collect seed from those plants to be removed, and properly clean and store the collected seed until used. If possible, seeds shall be collected in multiple years to ensure an adequate seed supply for planting. A mitigation site of suitable habitat equal to the area of impact shall be delineated within areas of the Los Angeles/El Segundo Dunes as described in MM-BC-10. Collected seed shall be broadcast (distributed) after the first wetting rain. LAWA or its designee shall implement a monitoring plan to monitor the establishment of individuals of Lewis' evening primrose for a period of not more than five years. Performance criteria shall include the establishment of an equal number of plants as that impacted in the first year following the distribution of seed within the mitigation site. Performance criteria shall also include confirmation of recruitment for two years following the first year flowering is observed and establishment of individuals throughout the mitigation area within three years following the first year flowering is observed. Monitoring shall be undertaken in the manner set forth in MM-BC-5.

◆ **MM-BC-3. Conservation of Floral Resources: Mature Tree Replacement (Alternatives A, B, C, and D).**

LAWA or its designee shall prepare and implement a plan to compensate at a ratio of 2:1 for the loss of approximately 300 mature trees, which would occur as a result of implementation of the LAX Northside/Westchester Southside project. The plan shall include provisions to census and map all mature trees with a diameter of at least 8 inches at breast height, which may be removed due to implementation of the Westchester Southside Plan. This information shall be gathered prior to initiation of construction. The plan shall include a program by which replacement (at a ratio of 2:1) of all impacted mature trees shall be included in plans prepared for landscape treatments within the Master Plan boundaries, which would then be implemented by LAWA. The species of newly planted replacement trees shall be local native tree species to the greatest extent feasible. Each mitigation tree shall be at least a 15-gallon or larger specimen.

◆ **MM-BC-4. Conservation of Faunal Resources (Alternatives A, B, and C).**

LAWA or its designee shall develop and implement a relocation and monitoring plan to compensate for the loss of 1.34 habitat units (0.3 habitat units + 1.04 habitat units) of occupied western spadefoot toad habitat and for the loss of western spadefoot toad individuals currently in the southwestern portion of the AOA. LAWA or its designee shall identify possible relocation sites in consultation with the CDFG and USFWS and shall develop and implement a monitoring plan to monitor the success of the relocated tadpoles for a period of not more than five years. LAWA or its designee shall relocate

the western spadefoot toad population currently inhabiting three locations on the AOA. One potential site is the Madrona Marsh Nature Center in Torrance, 20 miles south of LAX, which supports several vernal pools and one large pond capable of supporting western spadefoot toads.⁵⁰⁴ Spadefoot toad experts suggest the best approach to accomplish relocation is to transport tadpoles and metamorphs only, as adults return to their birth site.⁵⁰⁵ Site preparation shall include confirmation by a permitted biologist that no predators, such as mosquitofish or bullfrogs, are present within the proposed relocation site or in waterways surrounding the relocation site. The CDFG has suggested that if the first relocation effort is not successful, another attempt should be made the following year.⁵⁰⁶ Therefore, western spadefoot toads shall be collected two consecutive years prior to construction activities taking place in existing occupied spadefoot toad habitat. In addition, since the western spadefoot toad is known to become reproductively mature within three years, an additional performance criterion shall be the identification of tadpoles at the relocation site between years three and four. The success criteria should be 50 percent survival of all tadpoles and metamorphs for the first, second, and third years following the last relocation. This shall be accomplished through a five-year monitoring plan, with bi-monthly monitoring between January 31 and June 1, to document the success of this relocation effort.

LAWA or its designee shall develop and implement a relocation and monitoring plan to compensate for the loss of 14.91 habitat units (5.82 habitat units + 9.09 habitat units) of occupied San Diego black-tailed jackrabbit habitat located within the AOA. LAWA or its designee shall relocate the San Diego black-tailed jackrabbit population currently inhabiting the AOA. Relocation efforts shall be coordinated with CDFG. The San Diego black-tailed jackrabbit shall be captured on the AOA using live traps and shall be released into the Habitat Restoration Area. Compensation for the loss of 14.91 habitat units shall be the utilization of at least 14.91 habitat units within the Los Angeles/El Segundo Dunes by the San Diego black-tailed jackrabbit individuals relocated to the site. Black-tailed jackrabbit is currently absent from the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 14.91 habitat units are described in MM-BC-5 and include 13.52 habitat units from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Fore dune; and 59.68 habitat units from restoration of Disturbed Dune Scrub/Fore dune to Southern Fore dune. LAWA or its designee shall implement a monitoring plan to monitor the success of the relocated individuals for a period of not more than five years. Performance criteria shall include confirmed success of survival for three years of the San Diego black-tailed jackrabbit within the Habitat Restoration Area. This shall be accomplished through a quarterly monitoring plan to document the success or failure of this relocation effort.

LAWA or its designee shall compensate for the loss of areas utilized by loggerhead shrike currently located on the western airfield and composed of 22.88 habitat units (17.06 habitat units + 5.82 habitat units). Compensation for the loss of 22.88 habitat units of habitat utilized by the loggerhead shrike shall be the utilization of at least 22.88 habitat units within the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 22.88 habitat units are described in MM-BC-5 and include 13.52 habitat units from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Fore dune; and 59.68 habitat units from restoration of Disturbed Dune Scrub/Fore dune to Southern Fore dune. Compensation for the loss of at least 22.88 habitat units shall take place prior to construction. LAWA or its designee shall implement a monitoring program for a period of not more than five years. Performance criteria shall include the use of at least 22.8 habitat units by the loggerhead shrike for foraging and nesting. Monitoring shall take place quarterly for the first three years and biannually thereafter. Monitoring shall be timed appropriately to include monitoring during the breeding period, which is between February and June.

As a means of minimizing incidental take of active nests of loggerhead shrike, LAWA or its designee shall have all areas to be graded surveyed by a qualified biologist at least 14 days before construction

⁵⁰⁴ Wright, Walt, Madrona Marsh Nature Center, Personal Communication, April 28, 1998.

⁵⁰⁵ Fisher, Dr. Robert, California State University San Diego, Frank Hovore, Hovore and Associates, Dr. Steve Moray, U.S. Fish and Wildlife Service, Personal Communication, April 28, 1998.

⁵⁰⁶ Maxwell, Dwayne, California Department of Fish and Game, Letter to Dr. Brad Blood, Sapphos Environmental, Inc., April 29, 1998.

4.10 Biotic Communities

activities begin to ensure maximum avoidance to active nests for loggerhead shrike. Construction avoidance measures shall include flagging of all active nests for loggerhead shrike and a 300 feet wide buffer area shall be designated around the active nests. A biological monitor shall be present to ensure that the buffer area is not infringed upon during the active nesting season, March 15 to August 15. In addition, LAWA or its designee shall require that vegetation clearing within the designated 300 feet buffer be undertaken after August 15 and before March 15.

LAWA or its designee shall conduct pre-construction surveys to determine the presence of individuals of sensitive arthropod species, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl within the proposed area of impact within the Los Angeles/EI Segundo Dunes. Surveys will be conducted at the optimum time to observe these species. Should an individual be observed, they will be relocated to suitable habitat for that species within the Habitat Restoration Area. Prior to construction, LAWA or its designee shall develop and implement a relocation plan to avoid the potential loss of individuals from the installation of navigational aids and associated service roads. Relocation efforts shall be undertaken by a qualified biologist, in coordination with CDFG.

◆ MM-BC-5. Replacement of Habitat Units (Alternative A).

LAWA or its designee shall undertake mitigation for the loss of habitat units resulting from implementation of Alternative A. Implementation of Alternative A would result in the loss of 61.27 habitat units. These habitat units shall be replaced at a ratio of 1:1 within the Los Angeles/EI Segundo Dunes. Opportunities for compensation for the loss of 61.27 habitat units include 13.52 habitat units (16.9 acres x 0.8 Habitat Value) from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Fore dune (36.11 acres of streets within the Los Angeles/EI Segundo Dunes x 0.5 x 0.8 Habitat Value); and 59.68 habitat units from restoration of Disturbed Dune Scrub/Fore dune to Southern Fore dune (74.6 acres x 0.8 Habitat Value). A habitat value of 0.8 is considered to be the maximum feasible target value for restoration and enhancement of biotic communities. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland restoration efforts consist of site preparation, propagation and planting of species characteristic of the Valley Needlegrass Grassland community at the Los Angeles/EI Segundo Dunes, and maintenance and monitoring of the restoration site. The species to be planted include native perennials as described in the Long-Term Habitat Management Plan for Los Angeles Airport/EI Segundo Dunes.⁵⁰⁷ The characteristic species include nodding needlegrass (*Nasella cernua*): 1,500 plants/habitat unit; white everlasting (*Gnaphalium microcephalum*): 40 plants/habitat unit; doveweed (*Eremocarpus setigerus*): 40 plants/habitat unit; California croton (*Croton californica*): 45 plants/habitat unit; and dune primrose (*Camissonia chieranthifolia*): 70 plants/habitat unit.⁵⁰⁸ Site preparation includes physical demarcation of the site, mapping of the restoration site onto a one inch equals 40 feet aerial photograph, and removal of all non-native species (weed abatement). Removal of non-native herbaceous species shall take place by mowing prior to seed set, raking to remove cut material, and hand-pulling the remainder. Removal of non-native shrubs shall be undertaken by cutting and daubing with herbicide. Propagation and planting of nodding needlegrass shall be accomplished by propagation from seed collected on-site during late spring/early summer. Seed shall be properly cleaned, dried, and stored until used. In late summer, nodding needlegrass seed shall be propagated at an on-site nursery in two-inch thimble pots and properly maintained. Nodding needlegrass shall be planted at a rate of 1,500 plants per habitat unit within Non-Native Grassland/Ruderal community, within the Los Angeles/EI Segundo Dunes, which has undergone site

⁵⁰⁷ Environmental Science Associates in Association with Sapphos Environmental, Inc. and Rudolf H. T. Mattoni, Ph. D. Long-term Habitat Management Plan for Los Angeles Airport/EI Segundo Dunes. Prepared for City of Los Angeles, Environmental Affairs Department, July 23, 1992.

⁵⁰⁸ Mattoni, R., EI Segundo Sand Dunes Revegetation at LAX, Report, Contract C-86086, City of Los Angeles, Environmental Affairs Department, November 16, 1994.

preparation as described above. Planting shall take place in the fall or after the first wetting rain. Maintenance of restoration plantings shall consist of adequate irrigation and weed abatement. Given the irregularity of rainfall in southern California, supplemental irrigation shall be provided for two years to ensure the successful establishment of mitigation plantings. Irrigation of the site shall be adjusted to adequately provide for the establishment of the out-plantings. Weed abatement shall take place on a quarterly basis for a period of five years. Monitoring shall be undertaken on a quarterly basis for the first three years following planting, and twice a year thereafter. Monitoring shall consist of qualitative and quantitative monitoring; quantitative monitoring shall take place once a year. Performance criteria to be met include the attainment of at least a 10 percent cover of native cover in the first year and 20, 30, 40, and 45 percent cover of native species over a five-year period as determined by the point-intercept transect method (the CDFG has adopted a 10 percent threshold of native cover as its criteria for significance of native grasslands).⁵⁰⁹ This plan assumes the performance criteria outlined above shall be met. If monitoring discerns any failure in performance goals, remedial plantings shall be undertaken. Habitat restoration shall be conducted by a qualified habitat restoration specialist.

Southern Foredune restoration efforts consist of site preparation, propagation, and planting of the species characteristic of the Southern Foredune community at the Los Angeles/El Segundo Dunes, and maintenance and monitoring of the restoration site. The species to be planted include primary and secondary perennial plants as described in the Long-Term Habitat Management Plan for Los Angeles Airport/El Segundo Dunes.⁵¹⁰ Site preparation, propagation and planting, and maintenance and monitoring shall take place as described above. Performance criteria to be met include the attainment of 10, 20, 30, 40, and 45 percent cover of native species over a five-year period as determined by the point-intercept method. The Long-Term Habitat Management Plan for Los Angeles Airport/El Segundo Dunes assumes the performance criteria stated above shall be met. If monitoring discerns any failure in performance goals, remedial plantings shall be undertaken. Habitat restoration shall be conducted by a qualified habitat restoration specialist.

Any combination of habitat replacement completed by LAWA or its designee drawn from the above-listed opportunities that equals at least 61.27 habitat units shall be considered sufficient replacement for the loss of habitat units resulting from implementation of Alternative A.

◆ **MM-BC-6. Replacement of Habitat Units (Alternative B).**

LAWA or its designee shall undertake mitigation for the loss of habitat units resulting from implementation of Alternative B. Implementation of Alternative B would result in the loss of 67.81 habitat units. These habitat units shall be replaced at a ratio of 1:1 within the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 67.81 habitat units include 13.52 habitat units (16.9 acres x 0.8 Habitat Value) from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Foredune (36.11 acres of streets within the Los Angeles/El Segundo Dunes x 0.5 x 0.8 Habitat Value); and 59.68 habitat units from restoration of Disturbed Dune Scrub/Foredune to Southern Foredune (74.6 acres x 0.8 Habitat Value). A habitat value of 0.8 is considered to be the maximum feasible target value for restoration and enhancement of biotic communities. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland and Southern Foredune restoration efforts shall be the same as described under Alternative A.

⁵⁰⁹ Keeley, Jon E., "The California Valley Grassland," in Allan A. Schoenherr (ed.). Endangered Plant Communities of Southern California, Southern California Botanists Special Publication, No. 3, 1990, p. 17.

⁵¹⁰ Environmental Science Associates in Association with Sapphos Environmental, Inc. and Rudolf H. T. Mattoni, Ph. D., Long-term Habitat Management Plan for Los Angeles Airport/El Segundo Dunes, prepared for City of Los Angeles, Environmental Affairs Department, July 23, 1992, pp. B-1.

4.10 Biotic Communities

Any combination of habitat replacement completed by LAWA or its designee drawn from the opportunities listed under Alternative A that equals at least 67.81 habitat units shall be considered sufficient replacement for the loss of habitat units resulting from implementation of Alternative B.

◆ **MM-BC-7. Replacement of Habitat Units (Alternative C).**

LAWA or its designee shall undertake mitigation for the loss of habitat units resulting from implementation of Alternative C. Implementation of Alternative C would result in the loss of 49.87 habitat units. These habitat units shall be replaced at a 1:1 ratio within the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 49.87 habitat units include: 13.52 habitat units (16.9 acres x 0.8 Habitat Value) from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Foredune (36.11 acres of streets within the Los Angeles/El Segundo Dunes x 0.5 x 0.8 Habitat Value); and 59.68 habitat units from restoration of Disturbed Dune Scrub/Foredune to Southern Foredune (74.6 acres x 0.8 Habitat Value). A habitat value of 0.8 is considered to be the maximum feasible target value for restoration and enhancement of biotic communities. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland and Southern Foredune restoration efforts shall be the same as described under Alternative A.

Any combination of habitat replacement completed by LAWA or its designee drawn from the opportunities listed under Alternative A that equals at least 49.87 habitat units shall be considered sufficient replacement for the loss of habitat units resulting from implementation of Alternative C.

◆ **MM-BC-8. Replacement of Habitat Units (Alternative D).**

LAWA or its designee shall undertake mitigation for the loss of habitat units resulting from implementation of Alternative D. Implementation of Alternative D would result in the loss of 45.43 habitat units. These habitat units shall be replaced at a 1:1 ratio within the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 45.43 habitat units include 13.52 habitat units (16.9 acres x 0.8 Habitat Value) from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Foredune (36.11 acres of streets within the Los Angeles/El Segundo Dunes x 0.5 x 0.8 Habitat Value); and 59.68 habitat units from restoration of Disturbed Dune Scrub/Foredune to Southern Foredune (74.6 acres x 0.8 Habitat Value). A habitat value of 0.8 is considered to be the maximum feasible target value for restoration and enhancement of biotic communities. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland and Southern Foredune restoration efforts shall be the same as described under Alternative A.

Any combination of habitat replacement completed by LAWA or its designee drawn from the opportunities listed under Alternative D that equals at least 45.43 habitat units shall be considered sufficient replacement for the loss of habitat units resulting from implementation of Alternative D.

◆ **MM-BC-9. Conservation of Faunal Resources (Alternative D).**

LAWA or its designee shall develop and implement a relocation and monitoring plan to compensate for the loss of 1.34 habitat units (0.3 habitat units + 1.04 habitat units) of occupied western spadefoot toad habitat and for the loss of western spadefoot toad individuals currently in the southwestern portion of the AOA. LAWA or its designee shall identify possible relocation sites in consultation with

the CDFG and USFWS and shall develop and implement a monitoring plan to monitor the success of the relocated tadpoles for a period of not more than five years. LAWA or its designee shall relocate the western spadefoot toad population currently inhabiting three locations on the AOA. One potential site is the Madrona Marsh Nature Center in Torrance, 20 miles south of LAX, which supports several vernal pools and one large pond capable of supporting western spadefoot toads.⁵¹¹ Spadefoot toad experts suggest the best approach to accomplish relocation is to transport tadpoles and metamorphs only, as adults return to their birth site.⁵¹² Site preparation shall include confirmation by a permitted biologist that no predators, such as mosquitofish or bullfrogs, are present within the proposed relocation site or in waterways surrounding the relocation site. The CDFG has suggested that if the first relocation effort is not successful, another attempt should be made the following year.⁵¹³ Therefore, western spadefoot toads shall be collected two consecutive years prior to construction activities taking place in existing occupied spadefoot toad habitat. In addition, since the western spadefoot toad is known to become reproductively mature within three years, an additional performance criterion shall be the identification of tadpoles at the relocation site between years three and four. The success criteria should be 50 percent survival of all tadpoles and metamorphs for the first, second, and third years following the last relocation. This shall be accomplished through a five-year monitoring plan, with bi-monthly monitoring between January 31 and June 1, to document the success of this relocation effort.

LAWA or its designee shall develop and implement a relocation and monitoring plan to compensate for the loss of 2.38 habitat units of occupied San Diego black-tailed jackrabbit habitat located within the AOA. LAWA or its designee shall relocate the San Diego black-tailed jackrabbit population currently inhabiting the AOA. Relocation efforts shall be coordinated with CDFG. The San Diego black-tailed jackrabbit shall be captured on the AOA using live traps and shall be released into the Habitat Restoration Area. Compensation for the loss of 2.38 habitat units shall be the utilization of at least 2.38 habitat units within the Los Angeles/El Segundo Dunes by the San Diego black-tailed jackrabbit individuals relocated to the site. Black-tailed jackrabbit is currently absent for the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 2.38 habitat units include 13.52 habitat units from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Fore dune; and 59.68 habitat units from restoration of Disturbed Dune Scrub/Fore dune to Southern Fore dune. LAWA or its designee shall implement a monitoring plan to monitor the success of the relocated individuals for a period of not more than five years. Performance criteria shall include confirmed success of survival for three years of the San Diego black-tailed jackrabbit within the Habitat Restoration Area. This shall be accomplished through a quarterly monitoring plan to document the success or failure of this relocation effort.

LAWA or its designee shall compensate for the loss of areas utilized by loggerhead shrike currently located on the western airfield and composed of 10.83 habitat units (equivalent to 83.25 acres). Compensation for the loss of 10.83 habitat units of habitat utilized by the loggerhead shrike shall be the utilization of at least 10.83 habitat units within the Los Angeles/El Segundo Dunes. Opportunities for compensation for the loss of 10.83 habitat units include 13.52 habitat units from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 14.4 habitat units from removal and restoration of 50 percent of the existing roadways to Southern Fore dune; and 59.68 habitat units from restoration of Disturbed Dune Scrub/Fore dune to Southern Fore dune. Compensation for the loss of at least 10.83 habitat units shall take place prior to construction. LAWA or its designee shall implement a monitoring program for a period of not more than five years. Performance criteria shall include the use of at least 10.83 habitat units of improved habitat by the loggerhead shrike for foraging and nesting. Monitoring shall take place quarterly for the first three years and biannually thereafter. Monitoring shall be timed appropriately to include monitoring during the breeding period, which is between February and June.

⁵¹¹ Wright, Walt, Madrona Marsh Nature Center, Personal Communication, April 28, 1998.

⁵¹² Fisher, Dr. Robert, California State University San Diego, Frank Hovore, Hovore and Associates, Dr. Steve Moray, U.S. Fish and Wildlife Service, Personal Communication, April 28, 1998.

⁵¹³ Maxwell, Dwayne, California Department of Fish and Game, Letter to Dr. Brad Blood, Sapphos Environmental, Inc., April 29, 1998.

4.10 Biotic Communities

As a means of minimizing incidental take of active nests of loggerhead shrike, LAWA or its designee shall have all areas to be graded surveyed by a qualified biologist at least 14 days before construction activities begin to ensure maximum avoidance to active nests for loggerhead shrike. Construction avoidance measures shall include flagging of all active nests for loggerhead shrike and a 300 feet wide buffer area shall be designated around the active nests. A biological monitor shall be present to ensure that the buffer area is not infringed upon during the active nesting season, March 15 to August 15. In addition, LAWA or its designee shall require that vegetation clearing within the designated 300 feet buffer be undertaken after August 15 and before March 15.

LAWA or its designee shall conduct pre-construction surveys to determine the presence of individuals of sensitive arthropod species, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl within the proposed area of impact within the Los Angeles/El Segundo Dunes. Surveys will be conducted at the optimum time to observe these species. Should an individual be observed, they will be relocated to suitable habitat for that species within the Habitat Restoration Area. Prior to construction, LAWA or its designee shall develop and implement a relocation plan to avoid the potential loss of individuals from the installation of navigational aids and associated service roads. Relocation efforts shall be undertaken by a qualified biologist, in coordination with CDFG.

◆ **MM-BC-10. Replacement of State-Designated Sensitive Habitat (Alternative A).**

LAWA or its designee shall undertake mitigation for the loss of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area. Installation of navigational aids and associated service roads under Alternative A would result in impacts to 58,476 square feet (1.34 acre) of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including 30,261 square feet (0.70 acre) within the Habitat Restoration Area (of which 8,514 square feet (0.20 acre) are within habitat occupied by the El Segundo blue butterfly). These square feet shall be replaced at a no net loss ratio of 1:1 within the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area. The replacement of 58,476 square feet (1.34 acres) of State-designated sensitive habitat shall be undertaken through restoration of 58,476 square feet (1.34 acres). Opportunities for restoration include: 16.9 acres of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 36.11 acres from removal and restoration of 50 percent of the existing roadways to Southern Fore-dune; and 74.6 acres of Disturbed Dune Scrub/Foredune to Southern Fore-dune. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland restoration efforts consist of site preparation, propagation and planting of Valley Needlegrass Grassland species, and maintenance and monitoring of the restoration site as described in MM-BC-5, Replacement of Habitat Units (Alternative A).

Southern Fore-dune restoration efforts consist of site preparation, propagation, and planting of the species characteristic of the Southern Fore-dune community at the Los Angeles/El Segundo Dunes, and maintenance and monitoring of the restoration site as described in MM-BC-5, Replacement of Habitat Units (Alternative A).

Replacement of the 8,514 square feet (0.20 acre) of habitat occupied by the El Segundo blue butterfly shall be undertaken as described in MM-ET-2, El Segundo Blue Butterfly Conservation: Habitat Restoration (Alternatives A and B).

◆ **MM-BC-11. Replacement of State-Designated Sensitive Habitat (Alternative B).**

LAWA or its designee shall undertake mitigation for the loss of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area. Installation of navigational aids and associated service roads under Alternative B would result in impacts to 50,492 square feet (1.16 acres) of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including 16,811 square feet (0.39) within the Habitat Restoration Area (of which 2,316 square feet (0.05 acre) are within habitat occupied by the El Segundo blue butterfly). These square feet shall be replaced at a no net loss ratio of 1:1 within the Los Angeles/El Segundo Dunes, including

the Habitat Restoration Area. The replacement of 50,492 square feet (1.16 acres) of State-designated sensitive habitat shall be undertaken through restoration of 50,492 square feet (1.16 acres). Opportunities for restoration include: 16.9 acres of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 36.11 acres from removal and restoration of 50 percent of the existing roadways to Southern Foredune; and 74.6 acres of Disturbed Dune Scrub/Foredune to Southern Foredune. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland and Southern Foredune restoration efforts shall be implemented the same as described under Alternative A.

Replacement of the 2,316 square feet (0.05 acre) of habitat occupied by the El Segundo blue butterfly shall be undertaken as described in MM-ET-2, El Segundo Blue Butterfly Conservation: Habitat Restoration (Alternatives A and B).

◆ **MM-BC-12. Replacement of State-Designated Sensitive Habitat (Alternative C).**

LAWA or its designee shall undertake mitigation for the loss of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, not including the Habitat Restoration Area. Installation of navigational aids and associated service roads under Alternative C would result in impacts to 30,210 square feet (0.69 acre) of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, not including the Habitat Restoration Area. These square feet shall be replaced at a no net loss ratio of 1:1 within the Los Angeles/El Segundo Dunes, not including the Habitat Restoration Area. The replacement of 30,210 square feet (0.69 acres) of State-designated sensitive habitat shall be undertaken through restoration of 30,210 square feet (0.69 acres). Opportunities for restoration include: 16.9 acres of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 36.11 acres from removal and restoration of 50 percent of the existing roadways to Southern Foredune; and 74.6 acres of Disturbed Dune Scrub/Foredune to Southern Foredune. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland and Southern Foredune restoration efforts shall be implemented the same as described under Alternative A.

◆ **MM-BC-13. Replacement of State-Designated Sensitive Habitat (Alternative D).**

LAWA or its designee shall undertake mitigation for the loss of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area. Installation of navigational aids and associated service roads under Alternative D would result in impacts to 66,675 square feet (1.53 acres) of State-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including 33,334 square feet (0.77 acre) within the Habitat Restoration Area (of which 10,597 square feet (0.24 acre) are within habitat occupied by the El Segundo blue butterfly. These square feet shall be replaced at a no net loss ratio of 1:1 ratio within the Los Angeles/El Segundo Dunes. The replacement of 66,675 square feet (1.53 acres) of State-designated sensitive habitat shall be undertaken through restoration of 66,675 square feet (1.53 acres). Opportunities for restoration include: 16.9 acres of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 36.11 acres from removal and restoration of 50 percent of the existing roadways to Southern Foredune; and 74.6 acres of Disturbed Dune Scrub/Foredune to Southern Foredune. The restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall consider and comply with the provisions of the FAA Advisory Circular 150/5200-33 regarding hazardous wildlife attractants on or near airports. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA

4.10 Biotic Communities

and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

Valley Needlegrass Grassland restoration efforts consist of site preparation, propagation and planting of Valley Needlegrass Grassland species, and maintenance and monitoring of the restoration site as described in MM-BC-5, Replacement of Habitat Units (Alternative A).

Southern Foredune restoration efforts consist of site preparation, propagation, and planting of the species characteristic of the Southern Foredune community at the Los Angeles/El Segundo Dunes, and maintenance and monitoring of the restoration site as described in MM-BC-5, Replacement of Habitat Units (Alternative A).

Replacement of the 10,597 square feet (0.24 acre) of habitat occupied by the El Segundo blue butterfly shall be undertaken as described in MM-ET-4, El Segundo Blue Butterfly Conservation: Habitat Restoration (Alternative D).

4.10.9 Level of Significance After Mitigation

4.10.9.1 Alternative A - Added Runway North

Implementation of Mitigation Measures MM-BC-1 through MM-BC-5, and MM-BC-10 would reduce impacts to biotic communities to a level that is less than significant.

4.10.9.2 Alternative B - Added Runway South

Implementation of Mitigation Measures MM-BC-1 through MM-BC-4 and Measures MM-BC-6, and MM-BC-11 would reduce the impacts to biotic communities to a level that is less than significant.

4.10.9.3 Alternative C - No Additional Runway

Implementation of Mitigation Measures MM-BC-1 through MM-BC-4 and Measures MM-BC-7, and MM-BC-12 would reduce the impacts to biotic communities to a level that is less than significant.

4.10.9.4 Alternative D - Enhanced Safety and Security Plan

Implementation of Mitigation Measures MM-BC-1 through MM-BC-3, MM-BC-8, MM-BC-9, and MM-BC-13 would reduce the impacts to biotic communities to a level that is less than significant.