

---

## 4.18 Light Emissions

### Overview

The provision of adequate and appropriate lighting is a fundamental safety requirement in the design of any large facility, especially an airport and its associated roadways. Nevertheless, light spill, light that shines beyond the area intended for illumination, can be a source of annoyance on adjoining properties, particularly for residences where light spill might disturb sleep or privacy. This section addresses the potential for project-related light sources to impact nearby uses or interfere with aviation activities.

The study area for this section includes areas within, and adjacent to, the Master Plan boundary including the LAX/EI Segundo Dunes, areas along the proposed LAX Expressway right-of-way, the Westchester Southside site, as well as areas proposed for off-site fuel farm locations. A change in light emissions would cause a significant impact if it increased lighting intensity more than 2 footcandles at the property line of a residential property. A significant impact would also occur if installed lighting or signage in an airport hazard area would cause glare that would impair a pilot's ability to operate an aircraft, or if the new lighting could be confused with aeronautical lights.

### Key Conclusions

With a few exceptions, most changes and increases in airport-related lighting would take place within current airport boundaries, and away from residential uses in adjacent communities. Low light intensity, distance from off-site sensitive uses, conditions imposed along the Westchester Southside boundary, and landscape buffers and setbacks would generally prevent adverse impacts.

- ◆ No adverse lighting impacts would be anticipated for the No Action/No Project Alternative.
- ◆ For each of the Master Plan build alternatives, mitigation would be required for potential light emission impacts from the LAX Expressway.
- ◆ For Alternative B, mitigation would be required for light emissions from one section of the proposed airport ring road.

Analysis has shown that none of the alternatives would cause glare that would impair pilot performance, or would involve installation of lighting that could be confused with aeronautical lights.

### Environmental Action Plan

Design of facilities at LAX would conform to professional standards intended to focus lighting, reduce light spill and glare, and ensure that proposed lighting would not interfere with aviation activities. Land use compatibility, zoning and landscaping programs would be implemented as Master Plan Commitments to reduce light spill and glare as summarized below.

- ◆ The LAWA Neighborhood Compatibility Program described in Section 4.2, *Land Use* would provide landscaped buffers and setbacks along the northern and southern boundaries of the airport, in part to shield residential areas from light sources. In addition, the Compatibility Program would locate airport uses and activities with potential adverse effects as far from adjacent residential neighborhoods as feasible.
- ◆ LAWA would comply with key provisions currently contained in the City of Los Angeles LAX Northside Ordinance (No. 159,526). Provisions in the ordinance related to lighting would be maintained with development of the Westchester Southside project.
- ◆ For Alternative B, LAWA would provide a minimum 20-foot landscape buffer along the ring road as part of development plans. Plans would specify that, in addition to the landscaped buffer, lighting be located, shielded, and directed downward to avoid light spillover or direct glare.

Each of the build alternatives would include development of the LAX Expressway, which could potentially impact residential uses located along the proposed right-of-way. As part of final design for the LAX Expressway LAWA would take steps to eliminate any significant light spill impacts. Baseline measurements would be made of the current light levels near light sensitive receptors adjacent to the LAX Expressway and an assessment would be conducted to identify change to lighting conditions as a result of the LAX Expressway. If it is determined that adverse lighting effects would occur, a landscaped buffer area, setbacks, lighting design, and other techniques would be used to make sure that impacts are mitigated to less than significant levels.

## 4.18 Light Emissions

---

### Related Topics

For more information on the LAWA Neighborhood Compatibility Program, please consult Section 4.2, *Land Use*. For further information regarding the LAX/EI Segundo Dunes please refer to Section 4.10, *Biotic Communities*, and Section 4.11, *Endangered and Threatened Species of Flora and Fauna*.

### 4.18.1 Introduction

The light emissions analysis addresses the potential for the Master Plan alternatives to cause adverse lighting effects. Technical Report 9, *Light Emissions* contains detailed information regarding plans and guidelines governing light emissions that apply to the Draft LAX Master Plan alternatives; field survey data on existing lighting conditions; and analysis of future lighting effects. Potential impacts associated with potential lighting effects on biological resources within the EI Segundo Blue Butterfly Habitat Restoration Area (Habitat Restoration Area) are discussed in Section 4.10, *Biotic Communities*, and 4.11, *Endangered and Threatened Species of Flora and Fauna*.

### 4.18.2 General Approach and Methodology

A light source emits luminous power which is measured in candlepower (*cp*). The unit used to measure illumination is the footcandle (*fc*) which represents the illumination cast by a one-*cp* light source on an area of one square foot, as measured at a distance of one foot from the light source. 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.<sup>575</sup> Luminance, or photometric brightness, is the measure in footcandles of reflected energy emitted from a specific source in a specific direction over a standard area. Light spill is the light that shines beyond the area intended for illumination. It is caused by the uncontrolled direct component from luminaries, or light reflected from the ground surface. Light spill can be a source of annoyance on adjoining properties, particularly residences when sleep or privacy is disturbed.

The study area for the analysis comprises areas within and adjacent to existing and proposed LAX boundaries, areas along the proposed LAX Expressway right-of-way, and at the Off-Site Fuel Farm locations proposed for the Scattergood Generating Station and oil refinery located south of the airport properties (see **Figure 4.18-1**, Illuminance Measurement Locations and Sensitive Receptor Areas), as described in Chapter 4, *Affected Environment, Consequences and Mitigation Measures*. The study's objective was to identify changes in light sources from current to future conditions that would significantly increase the illumination of light-sensitive receptors (i.e., residential uses, some commercial and institutional uses, and natural areas). This objective is consistent with FAA Orders 5050.4A and 1050.1D, Change 4, to provide a "...description of potential annoyance from airport lighting and measures to minimize the effects...."

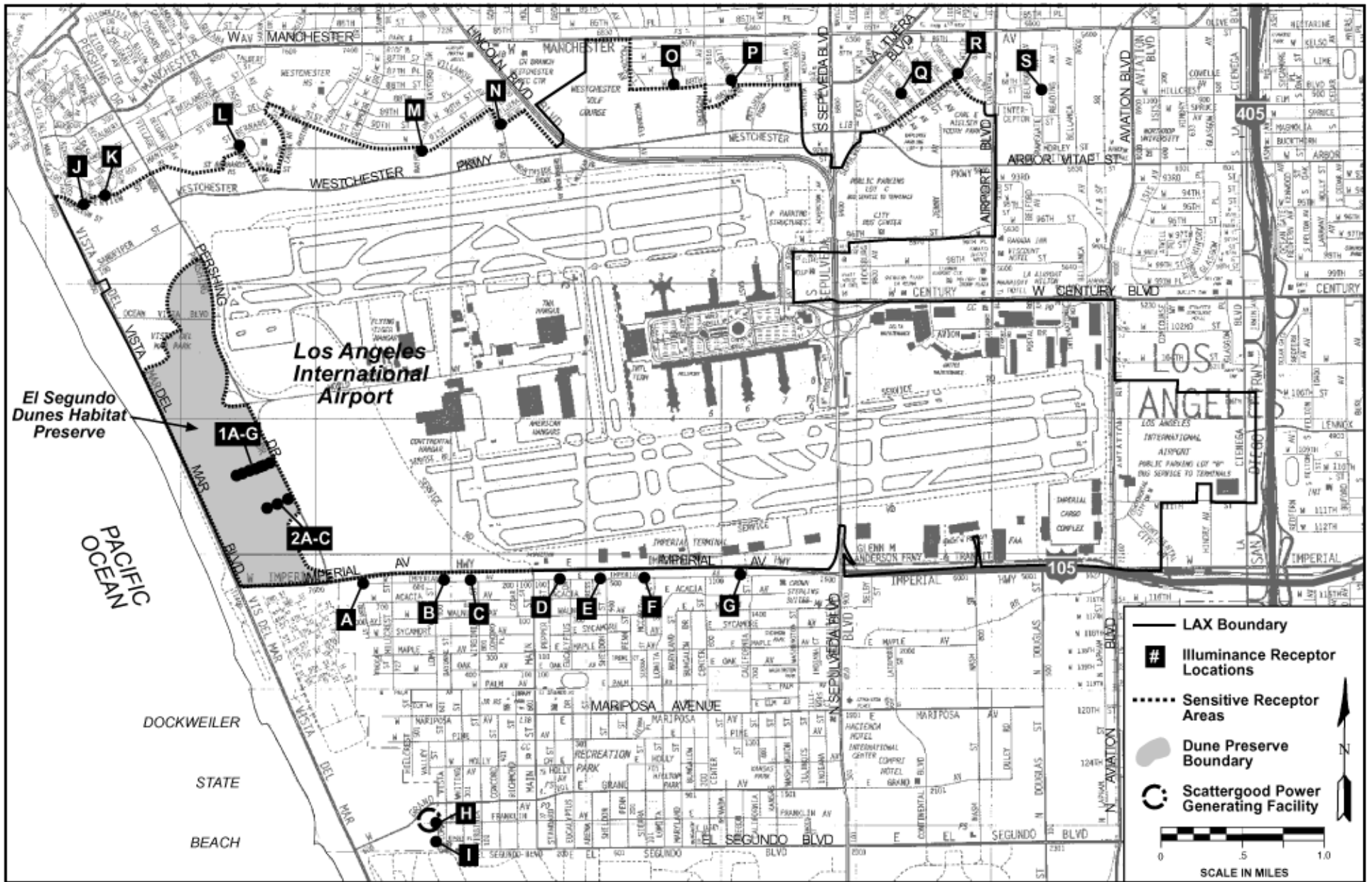
The potential light emissions and impacts of the proposed build alternatives were determined by evaluating the current facility site plans and observing current airport light sources (i.e., parking lots, cargo complexes, street lighting); surveying and documenting lighting conditions and effects on sensitive receptors; and, assessing future lighting effects based on the proposed site plans and design features of the alternatives.

Field surveys documented existing lighting conditions, identified the major light sources visible from airport periphery roadways and adjacent residential neighborhoods, and measured lighting intensity in areas where the project has the potential to increase illuminance and affect sensitive receptors. These measurements were used as reference sources to define the baseline for quantifying increases in illumination. Measurements were taken at key points within the EI Segundo Blue Butterfly Habitat Restoration Area, and at areas along the perimeter of the airport where proposed development would be close enough to potentially affect residential land uses. Measurements were also taken at the Scattergood Generating Station, where a LAX off-site fuel farm is proposed.

Given the absence of precise development and lighting plans at this point in the planning process, surveys were completed of existing illuminance sources such as airport parking lots, terminals, hangars, high-density commercial areas, moderate density commercial areas, retail areas, and tank farms. The results of these measurements were transposed on the development areas for each alternative.

---

<sup>575</sup> International Commission on Illumination, March 2000, available: <http://www.cie.co.at/ciecb>.



Los Angeles International Airport  
Master Plan

Illuminance Measurement Locations and  
Sensitive Receptor Areas

Figure  
4.18-1

Lighting increases in residential areas and in the Habitat Restoration Area were estimated from the transposition of the reference illuminance source on the alternative area using the principle of illuminance = candlepower/distance.<sup>576</sup> The most likely affected receptors identified in the field surveys were used to estimate the change in illuminance from existing ambient conditions to future ambient conditions expected with new development under each Master Plan alternative. Conclusions regarding impacts take into account offsetting effects associated with proposed Master Plan Commitments and adherence to current airport lighting guidelines.

### 4.18.3 Affected Environment/Environmental Baseline

#### Relevant Plans, Regulations and Guidelines

The following discussion addresses relevant local plans, zoning regulations, and other approvals that are in effect both on and off the airport within the light emissions study area. These plans and policies, in addition to the existing conditions described below, establish the baseline conditions to which the Master Plan alternatives will be compared when assessing their future lighting effects.

#### **Los Angeles International Airport Interim Plan**

The Community Plan currently in effect for LAX is the *Los Angeles International Airport Interim Plan*. The Interim Plan was intended as a short term, general guide for coordinating the development of airport facilities with that of the surrounding communities. The Plan remains in effect until a new Master Plan document is adopted by the City Council to revise the Interim Plan. Relative to lighting, the LAX Interim Plan Element stipulates that: "Glare . . . resulting from airport operations facilities shall be maintained at the boundaries of the Airport at an acceptable level."<sup>577</sup> The Interim Plan includes features such as an Airport Buffer Area "located along the northerly and southerly boundaries of the airport, to shield adjoining residential properties from noise, glare, odor, vibration and other consequences of aircraft and airport operations." The Interim Plan further discusses the construction of both a landscaped barrier between the airport and the community designed to take into account its visual impact, including point light sources.

#### **LAX Northside Design Plan and Development Guidelines**

As changes in development are proposed for the Westchester Southside site (formerly the site of the proposed LAX Northside project), existing LAX Northside guidelines and ordinance provisions for lighting in this area are relevant to this evaluation. The *LAX Northside Design Plan and Development Guidelines* state: "The positive night time image of LAX Northside is important because it conveys a safe, secure, well designed, and organized development area. Special lighting of areas such as key intersections, transit stops and public plazas will greatly enhance the aesthetic character of the development area. The use of special lighting will be accomplished without impacting the surrounding neighborhoods or airport operations." One of the conditions imposed on the LAX Northside project states "All lighting shall be directed onto the site and no flood-lighting shall be located as to be seen directly by the adjacent residential areas. This condition shall not preclude the installation of low-level security lighting." The City ordinance establishing Qualifying ([Q]) conditions (zoning conditions of approval defined as [Q] zoning conditions) for development of the LAX Northside property (Ordinance No. 159,526) also defines height restrictions, setback requirements, and landscape guidelines that also serve to reduce potentially adverse lighting effects, as further described in Technical Report 9, *Light Emissions Technical Report*.

#### **City of Los Angeles Zoning and Municipal Code**

The City of Los Angeles Zoning Code, Section 12.50, Airport Approach Zoning Regulations, establishes special airport zoning regulations for land use around LAX in order to prevent the creation or establishment of airport hazards. These zoning regulations are primarily directed toward height limits but also address light emissions, to avoid potential hazards to aircraft resulting from illuminated signs and structures within airport hazard areas.

The City of Los Angeles Municipal Code, Section 91.6205 M. and Section 93.0117 regulate light spillover in residential areas. These regulations would apply to development along the airport periphery. Since

---

<sup>576</sup> International Commission on Illumination, March 2000, available: <http://www.cie.co.at/ciecb>.

<sup>577</sup> City of Los Angeles, Los Angeles International Airport Interim Plan, adopted by City Council as an element of the General Plan in January, 1981.

## 4.18 Light Emissions

---

the City of Los Angeles Code defines a 2-footcandle increase for residential areas as significant, this same 2-footcandle threshold was used to determine the significance of illuminance and spillover estimates for future conditions.

### Existing Conditions

#### **LAX Light Sources**

LAX and its surrounding environment generate light emissions common in highly urbanized areas. Certain airport facilities visible from the airport periphery emit intensities of light that are noticeably above average ambient light conditions.

Illumination sources associated with the Central Terminal Area (CTA) include street lights, security lights, roof perimeter lights, parapet lights, and terminal entrance lights. The hangar facilities immediately west of the CTA adjacent to World Way West between the North Airfield and South Airfield complexes have roof perimeter lights and light emits from the interiors of these structures. The roof perimeter and parapet lights, shielded and directed down, generally do not spill over 30 feet onto the surrounding areas. Interior light coming from hangars does not generally spill over beyond the hangar doors. While contributing to urbanized ambient light conditions, the CTA and World Way West facilities are at distances of 2,500 to 3,000 feet or more from sensitive residential receptors and, as evidenced by lighting measurements at these sites, cause no light spillover in residential areas on the south and north perimeters of the airport.

Lighting on the North Airfield and South Airfield complexes include aircraft lighting aids and navigational systems provided to facilitate aircraft identification, approach/landing, takeoff, and taxiing operations at night and in adverse weather. This lighting comprises airport beacons, approach lighting, runway/taxiway guidance lighting, runway end identifier lights (REILs) and apron/ramp floodlighting, and ground lighting/markings. Lighting associated with the airfields is generally low to the ground, low in intensity, and located at least 800 feet from sensitive residential receptor areas on the south and north perimeters of the airport. In general, runway/taxiway lights are directed to the direction of the runway or taxiway and not off the pavement. Further discussion of FAA standards for airfield and terminal area lighting aids and navigational systems at all U.S. airports is found in Technical Report 9, *Light Emissions Technical Report*.

The Imperial Terminal (on the south central area of the airport) and the Imperial Cargo Complex (the southeast) are both adjacent to, but set back over 50 feet, from Imperial Highway. Each has a mix of light sources that are visible from commercial and/or industrial land uses on the south side of Imperial Highway. The shielded roof perimeter lights are directed down and do not spill off-site. The Century Cargo Complex next to Century Boulevard has a 10-foot setback; the lighting associated with the complex is shielded and directed down and does not spill over off-site.

Parking Lots C and D, located near Sepulveda Boulevard and Westchester Parkway, have 6-foot fences and walls, set within 15-foot landscaped buffers along the street frontages. The parking lot lights are similar in intensity to the adjacent streetlights. Although located throughout the parking lot, these lights are not at the perimeters; they are shielded and directed down, and do not spill over beyond the parking surfaces.

Lighting on the LAX/EI Segundo Dunes (Dunes), which includes the El Segundo Blue Butterfly Habitat Restoration Area (Habitat Restoration Area) west of Pershing Drive, currently consists of aeronautical obstruction identification lights and security lighting for two small buildings. This lighting, while visible, is low in profile. Street lights on Pershing Drive emit amber light and older low profile street lights found along Vista del Mar, adjacent to the Dunes, emit white light at low intensities. Pershing Drive separates the Dunes from developed areas of the airport to the east by over 50 feet. Airport light sources in this area east of Pershing Drive are less intense than those found on the remainder of the airport site and primarily comprise airfield lighting.

Under current conditions, LAX illumination provides for the safe and secure movement of pedestrians and vehicles, and does not interfere with the nighttime visibility of control tower operators and incoming pilots. There are no buildings, structures or facilities on the LAX site that generate substantial adverse glare.

#### **Existing Lighting**

Of the lighting sources described, those that are located in proximity to sensitive receptors are most pertinent for analysis. Sensitive receptors are primarily concentrated along the airport's northern and southern edges, and within the airport next to the Habitat Restoration Area at the western end of the site. These areas, and sites proposed for acquisition under the build alternatives, were the subject of lighting

measurements to document existing lighting conditions. **Figure 4.18-1**, depicts areas of sensitive receptors and the locations of lighting measurement sites. Existing lighting conditions in these areas are described here.

### **Southern Boundary**

The land uses to the south of LAX in the City of El Segundo are separated from the airport by Imperial Highway, Imperial Avenue, and the Imperial Strip, a 7.35 acre landscaped open space corridor that parallels Imperial Highway. These three areas create a buffer between the southern boundary of LAX and the land uses located south of LAX and west of Sepulveda Boulevard. In combination with building setbacks, the land uses south of LAX and west of Sepulveda Boulevard are separated from LAX land uses by over 250 feet. While some of the adjacent sensitive receptor views of the LAX site are blocked by the parkway buffer, others have a direct view of LAX. While LAX light sources are visible to certain residences and a hotel oriented toward LAX, the distance of at least 250 feet is such that they are not affected by light spillover or high ambient lighting levels. Current lighting levels at the receptor sites along the airports southern boundary (see **Figure 4.18-1**, Sites A-G) range from 0.03 to 0.63 *fc*.

The office buildings along Imperial Highway located east of Sepulveda Boulevard and west of Aviation Boulevard contribute to the illumination in the immediate area with their own light sources, which include illuminated exterior walls, building security lighting, light emanating from building interiors, illuminated signs, and parking lot lights.

### **Western Boundary**

The LAX/El Segundo Dunes (Dunes) are located at the west end of the LAX property, between Pershing Drive and Vista del Mar. About 200 contiguous acres of the Dunes are designated as the El Segundo Blue Butterfly Habitat Restoration Area (Habitat Restoration Area), located approximately between Imperial Highway and World Way West. This area is being preserved to maintain and promote natural conditions and habitat that support the endangered El Segundo blue butterfly and other sensitive species.

Lighting on the Dunes currently consists of navigational aids and security lighting. The navigational aids consist of two instrument landing system localizers, two middle markers, approach lighting systems (ALS), approach lighting system flashers (ALSF), and building security lights. The approach lights in the Dunes consist of 14 ALS light standards each containing six steady burning lights and 14 ALSF-2 flashing approach lights. Five ALS and ALSF-2 standards are located in the Habitat Restoration Area.

A series of lighting measurements were obtained to assess the landing light systems in the sand dune area to the west of the north runways. The lighting systems in the Dunes area are only used under two conditions, after midnight when planes approach from the west, and during "Santa Ana" conditions when aircraft land from the west. There are five different lighting settings from 1 (dimmiest) to 5 (brightest); 5 only used during very foggy weather. Typically, the setting is 3, which is what the lights were set at during field measurements. Depending on the angle of the measurement, maximum readings for the ALS light systems at a distance of four feet ranged from 0.13 to 14.31 *fc*. For the ALSF-2 lights, which when operative flash about two times per second, maximum readings at four feet from the lamp, depending on angle, ranged from 0.46 to 9.05 *fc*.

There are also motion-sensitive security lights on the radar/radio building on the southern edge of the Dunes area. A direct reading of these security lights, in the immediate downward facing arc of the two flood bulbs, was 44.05 *fc* for an area of four feet in diameter. At a distance of 15 feet from the flood light area, the illuminance was 7.93 *fc*. At 30 feet from the flood light area, the illuminance was 2.46 *fc*. All of the security lights were on motion detection settings and went off when the motion stopped.

Street lights on Pershing Drive emit amber light and older low profile street lights found along Vista del Mar adjacent to the Habitat Restoration Area emit white light at low intensities. Some light spills into the Habitat Restoration Area from these streetlights; the extent of coverage varies depending on dune topography and the height of adjacent light standards. Greater spillover occurs along Pershing Drive where the streetlights are higher, particularly on the west side of the World Way West overpass where a grouping of high non-amber light standards illuminate a wide area. Lighting measurements taken within the southern half of the Habitat Restoration Area with lighting exposure from Pershing Drive ranged from 0.004 to 0.26 *fc* (**Figure 4.18-1**, Sites 1A-G and 2A-C).

## **4.18 Light Emissions**

---

### **Northern Boundary/LAX Northside**

The residential area north of LAX and west of Sepulveda Boulevard is separated by at least 1,000 feet from existing airport facilities by the Westchester Parkway, the Dunes, or the vacant LAX Northside area. Where direct views of LAX are available, they are distant and generally look across the dimly and unlit dunes or the LAX Northside area (except for the Westchester Golf Course). The Westchester Golf Course provides lighting for evening golf course use. This lighting is visible from surrounding off-site areas. Lighting measurements along this northern boundary (see **Figure 4.18-1**, Sites J-P), ranged from 0.01 to 0.37 *fc*. The residential area north of LAX and east of Sepulveda Boulevard is adjacent to existing airport parking facilities. Parking lot lighting is visible from surrounding off-site areas. Lighting measurements along this portion of the northern boundary (see **Figure 4.18-1**, Sites Q-S), ranged from 0.02 to 0.25 *fc*.

### **Century Corridor**

Light sources along Century Boulevard, next to the LAX Century Cargo Complex, include light from billboards, hotels, commercial buildings, and street lights. In general, illuminance emanating from this area is more noticeable than that from the airport site. The hotel buildings along Century Boulevard are the only light sensitive receptors within these areas. There is no spillover onto the hotel buildings from airport sources and airport lighting effects are generally less apparent than the hotel's own environmental lighting.

The areas proposed for acquisition along the airport's east perimeter and Century Boulevard corridor under the build alternatives are fully urbanized and developed with a mix of residential, commercial, and industrial uses. The levels of lighting in these areas are comparable to similar with this mix in an urban area, and there are no major light sources that conflict with adjacent uses.

Along Aviation Boulevard, between Century Boulevard and Imperial Highway, there are no light sources installed that are known to produce glare or lighting effects that distract or confuse pilots on final approach to the airport from the east. Similar controls on light sources apply to other areas on and adjacent to the airport where interference with pilot and Airport Traffic Control Tower operations must be avoided.

### **Proposed LAX Expressway Right-of-Way**

Potential sensitive receptors adjacent to the proposed LAX Expressway right-of-way (ROW) are single-family and multi-family residential units along the south side of Thornburn Street and the north side of 74th Street and Midfield Avenue. The residences face away from the proposed LAX Expressway ROW, Centinela Creek, and the 405 Freeway. Street and vehicle lights from the I-405 Freeway are visible at night from the rear windows of these residences, yet the grade difference, setback, and landscape buffers between the freeway and these properties are such that direct light spillover does not currently occur. A more detailed and comprehensive description of existing conditions for these and other areas along the proposed LAX Expressway ROW is provided in Appendix K, *Supplemental Environmental Evaluation for LAX Expressway and State Route 1 Improvements*.

### **Proposed LAX Off-Site Fuel Farm Sites**

The multi-family and single-family homes along the west side of Loma Vista Street in El Segundo are directly adjacent to the southeast boundary of the Los Angeles Department of Water and Power (LADWP) Scattergood Generating Station. Existing lighting on this portion of the LADWP site, which is one of two sites close to LAX that are being considered for a new Off-Site Fuel Farm, is limited to a few streetlights and limited pole-mounted lighting used for security and to illuminate areas surrounding the water tanks currently located on the site. Most of the site is dimly lit and there are no significant light levels spillover from the proposed fuel farm site to the adjacent residential uses along Loma Vista Street. Lighting measurements along this residential interface with the proposed fuel farm site range from 0.01 to 1.37 *fc*, which are levels that do not conflict with residential uses. There are no sensitive receptors located within a quarter mile of the proposed oil refinery site located south of the airport.

## **4.18.4 Thresholds of Significance**

### **4.18.4.1 CEQA Thresholds of Significance**

A significant light emissions impact would occur if the direct and indirect changes in the environment that may be caused by the particular build alternative would potentially result in the following future condition:

- ◆ An increase in lighting intensity of more than 2 footcandles as measured at the property line of a residential property.

A significant glare (reflected light) impact would occur if the direct and indirect changes in the environment that may be caused by the particular build alternative would potentially result in the following future condition:

- ◆ Installation of lighting or signage within an airport hazard area that would make it difficult for pilots to distinguish between said lights and aeronautical lights, or result in glare in the eyes of pilots that would impair their ability to operate aircraft.<sup>578</sup>

These thresholds of significance are utilized because they address the potential concerns relative to light and glare emissions associated with the Master Plan build alternatives, namely spillover of light on sensitive uses and introduction of glare that would impair operation of aircraft. The first threshold reflects general direction provided in the *Draft L.A. CEQA Thresholds Guide*, and specifies the 2-footcandle increase from the City of Los Angeles Municipal Code. The threshold for significant glare is also derived from the City of Los Angeles Municipal Code.

### 4.18.4.2 Federal Standards

There are no federal standards that define significance for light emission impacts.

### 4.18.5 Master Plan Commitments

As addressed in Section 4.18.6, *Environmental Consequences*, implementation of Master Plan Alternative B would have potential light emission impacts related to the ring road. In recognition of these potential impacts, LAWA has included the commitments listed below in the Master Plan, coded “LI” for “light emissions.”

- ◆ **LI-1. Ring Road Landscaping.**

Under Alternative B, prior to approval of final plans for the ring road and the roadway proposed to connect Airport Boulevard to Bellanca Avenue, the alignments of these roadways will be modified by LAWA to provide a minimum 20-foot landscaped setback between residential properties on Morely Street. Said plans will also locate and direct lighting to avoid direct glare or light spillover effects on the residential properties. Baseline measurements of ambient lighting will be made prior to construction of the ring road. The baseline data will be used to estimate potential change in ambient lighting conditions with development of the ring road. Plantings within the setback shall include dense evergreen trees and other vegetation selected and located so that roadway lighting is sufficiently screened to ensure that lighting intensity does not increase by more than 2 footcandles over existing levels at the property lines of affected residential uses. Aesthetic enhancement of views along the ring road will also be achieved.

As addressed in Section 4.18.6 below, implementation of Master Plan Alternatives A, B, and C should not involve building materials that could generate glare that could pose a hazard to aviation. In recognition of this, LAWA has included the following commitment:

- ◆ **LI-2. Use of Non-Glare Generating Building Materials.**

Under Alternatives A, B, and C, prior to approval of final plans LAWA will ensure that proposed LAX facilities will be constructed of non-reflective materials and will not contain undifferentiated expanses of glass.

- ◆ **LI-3. Lighting Controls.**

Prior to final approval of plans for new lighting, LAWA will conduct reviews of lighting type and placement to ensure that lighting will not interfere with aeronautical lights or otherwise impair Airport Traffic Control Tower or pilot operations. Plan reviews will also ensure, where feasible, that lighting is shielded and focused to avoid glare or unnecessary light spillover.

The following Master Plan Commitments from other environmental disciplines are also relevant to this analysis:

---

<sup>578</sup> City of Los Angeles, *Municipal Code*, Section 12.50, March 31, 2000.

## 4.18 Light Emissions

---

- ◆ LU-1. Incorporation of City of Los Angeles Ordinance No. 159,526 [Q] Zoning Conditions for LAX Northside into the Westchester Southside Project.
- ◆ LU-4. Neighborhood Compatibility Program.

### 4.18.6 Environmental Consequences

#### 4.18.6.1 No Action/No Project Alternative

The No Action/No Project Alternative (described in Section 3.2.4, *No Action/No Project Alternative*), contains several features that are especially pertinent to the analysis of light emission impacts. Some of these features are taxiway improvements, parking facilities and cargo development.

#### LAX Light Sources

Taxiway improvements for the South Airfield and North Airfield will provide high-speed exit taxiways for runways. Lighting associated with the airfields, including the taxiways, is described in Technical Report 9, *Light Emissions Technical Report*. In general, runway/taxiway lights are directed to the direction of the runway and not off the runway. Light sources associated with the taxiway improvements could be visible from off-site vantages to the south and north; but due to their low intensity and distance from off-site sensitive uses, no adverse effects are expected.

A privately operated, long-term 1,000-stall parking facility is expected to be constructed on the northwest corner of Aviation and Century Boulevards. New and replacement cargo facilities would be added near the existing cargo facilities along the south side of Century Boulevard and along Imperial Highway. The ongoing development of approximately 714,000 square feet (SF) of new cargo facilities would demolish more than 434,000 SF of older cargo facilities, resulting in a net increase in cargo space of 280,000 SF. The proposed facilities would be constructed of non-reflective materials and would have few, if any, windows or undifferentiated expanses of glass. Plan review by LAWA would continue to ensure that materials that could present a nuisance or safety hazard from reflective glare are not used. Therefore, the No Action/No Project Alternative would not generate adverse glare.

Lighting effects from the No Action/No Project Alternative along the airport boundaries where there are sensitive uses are discussed below.

#### Lighting Conditions - 2005/2015

Of the lighting sources described for the No Action/No Project Alternative, those that are located in proximity to sensitive receptors are the focus of this analysis. **Figure 4.18-1** depicts areas of sensitive receptors and the locations of lighting measurement sites. Changes in illuminance from ambient conditions at the receptor locations from the southern boundary, western boundary, northern boundary, and the Scattergood site with the greatest estimated increase in light intensity are presented in **Table 4.18-1**, Estimated 2015 Lighting Change. Existing lighting conditions in these areas under the No Action/No Project Alternative are described here, by airport area.

#### **Southern Boundary**

New and replacement cargo facilities would be added near the existing cargo facilities along Imperial Highway. These new facilities would incrementally increase ambient light levels due to an intensification of cargo uses within the currently developed and lighted area. Standards for cargo-building lighting provided in the Airport's Air Cargo Facilities Design Guidelines<sup>579</sup> would be applied to the new facilities, reducing visible illumination. The relatively small increase in illumination combined with a distance to the nearest sensitive receptor of approximately 1,600 feet would avoid impacts on sensitive receptors.

Development of the currently vacant Continental City project site would be phased: 1.2 million square feet (MSF) of office space and 40,000 SF of retail space to be constructed by 2005 and 3 MSF of office and hotel space and 100,000 SF of retail space constructed by 2015. New sources of light associated with this development would include security lights, light emanating from building interiors, illuminated billboards and signs, street lights, and safety and security lighting. The Continental City project light sources are expected to be similar in type and operational hours to those in surrounding commercial and

---

<sup>579</sup> The Airport's Air Cargo Facilities Design Guidelines building lighting guidelines are described in Technical Report 9, *Light Emissions Technical Report*.

industrial land uses. As there are no light-sensitive receptors in the vicinity of the Continental City project site, there would be no lighting impacts on sensitive receptors associated with the project.

**Western Boundary**

Under the No Action/No Project Alternative, no change in ambient lighting conditions would occur west of the airport.

**Northern Boundary/LAX Northside**

The approved LAX Northside project would introduce new sources of nighttime illumination immediately north of LAX. Development of LAX Northside would be phased: approximately 1.82 MSF of entitled improvements completed by 2005 and approximately 4.5 MSF by 2015. This project would be visible from neighboring areas of Westchester, especially from residences immediately adjacent on 91st Street and Saint Bernard Street. Some of the proposed land uses are more likely to operate during evening and nighttime hours and utilize more night lighting than others. Of the land uses proposed for LAX Northside, the airport-related businesses have higher levels of nighttime illumination than low-to-mid-rise office and research park structures, one- and two-story restaurants and retail shops, and hotels. These airport-related uses are planned for areas south of Westchester Parkway, farthest from the neighboring community.

The northern edge of LAX Northside has been planned for uses such as office buildings, research parks, and retail shops that do not normally operate during late hours. The LAX Northside adjacent residential communities would be separated from these uses by a range of 15 to 50 feet due to ordinance setback requirements and from intervening roadways and portions of a walking and bicycling greenway system that is proposed to parallel the northern border of LAX Northside. Despite these design components, converting the vacant LAX Northside area to urban conditions would result in a noticeable increase in ambient light levels.

Changes in illuminance from ambient conditions at receptor locations adjacent to LAX Northside are presented in **Table 4.18-1**. As shown in the table, ambient lighting conditions along the LAX Northside residential interface are expected to increase by 0.8 *fc*. This estimated increase would not exceed the 2-footcandle threshold established in the City of Los Angeles Municipal Code. This result is supported in part by the design that meets the conditions of the LAX Northside Ordinance,<sup>580</sup> which requires that lighting be directed onto the site and that no flood-lighting be located within direct view of adjacent residential areas. Additionally, the neighboring communities would be separated by an area of ranging from 15 to 50 feet, which would incorporate a landscaped buffer, further reducing lighting effects.

**Table 4.18-1**

**Estimated 2015 Lighting Change (footcandles, *fc*)**

<b>Receptor<sup>1</sup></b>	<b>Existing Illuminance<sup>2</sup></b>	<b>No Action/ No Project</b>	<b>Alternative A</b>	<b>Alternative B</b>	<b>Alternative C</b>
A Southern Boundary	0.11 <i>fc</i>	Change = 0	Change = 0.09	Change = 0.09	Change = 0.09
I Scattergood	0.3 <i>fc</i>	Change = 0	Change = 0	Change = 0.9	Change = 0
L Northern Boundary	0.03 <i>fc</i>	Change = 0.8	Change = 0.8	Change = 0.8	Change = 0.8
1C Habitat Restoration Area	Change = 0.05 <i>fc</i>	Change = 0	Change = 0.34	Change = 0.34	Change = 0.34

<sup>1</sup> Receptors A, I, L, and 1C were concluded to be the potentially worst-impacted locations (the location with the greatest increase in lighting intensity) for the Southern Boundary, Scattergood Generating Station, Northern Boundary, and Habitat Restoration Area, respectively. City code defines an increase in lighting intensity of more than 2 footcandle as measured at the property line of a residential property as significant.

<sup>2</sup> Illuminance values shown are averages across the horizontal plane (0° to 180°).

Source: PCR, 2000.

<sup>580</sup> The ordinance establishing [Q] conditions for development of the LAX Northside property (Ordinance No. 159,526).

## **4.18 Light Emissions**

---

Under the No Action/No Project Alternative, the airport proceeds with its Aircraft Noise Mitigation Program (ANMP), a plan to acquire up to 148 acres of residential uses in the City of Los Angeles, east of the airport. Under the No Action/No Project Alternative, the Manchester Square and Belford residential areas are assumed to be cleared of structures. No impacts associated with lighting would occur as a result of this action. Instead, relocation of these uses would reduce ambient lighting conditions in the Belford and Manchester Square areas.

### **Century Corridor**

The light sources associated with the new cargo facilities, located south of Century Boulevard and east of Sepulveda Boulevard, while visible from adjacent off-site commercial and industrial buildings, would also be replaced with sources similar to existing commercial and industrial light sources on and adjacent to these new facilities. The adjacent off-site commercial and industrial uses are largely airport-related and with the exception of adjacent hotels, are not considered sensitive uses. Effects on the hotels would not be adverse, as existing light emissions at the hotel sites are high, and the locations and focus of light fixtures, in conformance with the Air Cargo Facilities Design Guidelines,<sup>581</sup> would prevent light spill and adverse glare.

### **Construction**

Construction activities on the airport may involve nighttime activities that would require lighting of work areas. More concentrated and substantial construction would occur at the LAX Northside and Continental City project sites. Other construction activities would not be as extensive and widespread or in view along primary roadway or airport approaches. The lighting associated with these construction activities would be necessarily focused downward, oriented toward airport property, and away from adjacent sensitive residential uses. Furthermore, construction hours within the project areas would be restricted in accordance with municipal code requirements. Because no nighttime construction or construction lighting will occur in areas close enough to disturb residential uses, no impacts from construction lighting are expected with development of the No Action/No Project Alternative.

### **4.18.6.2 Alternative A - Added Runway North**

Alternative A (described in Section 3.2.5, *Alternative A – Added Runway North*) contains various features that are especially pertinent to the analysis of light emission impacts. Some of these features are runway, taxiway, parking facilities, cargo, fuel farm, and roadway development.

#### **LAX Light Sources - 2005**

Alternative A adds several new sources of nighttime illumination on the LAX site. The relocation and lengthening of Runway 24L would involve relocating and adding airfield lighting. Lighting associated with the airfields, including the taxiways, is described in Technical Report 9, *Light Emissions Technical Report*. Light sources associated with the runway and taxiway improvements could be visible from off-site vantages to the north; but, due to their low intensity and distance of over 900 feet from off-site sensitive uses, no significant effects are expected. Light sources associated with improvements to the Central Terminal and the new parking facilities in the CTA would be remote from and would not affect sensitive receptors. Additional nighttime illumination would result from improvements to the proposed West Terminal Area, new ancillary facilities on the eastern end of the LAX site, the proposed parking facilities located on the western end of the LAX site, the redeveloped Century Cargo Complex, the new East Imperial Cargo Complex and ramp, the La Cienega Cargo Complex, the South Cargo Complex, and portions of the proposed Green Line extension.

Proposed LAX facilities would be constructed of non-reflective materials and would not contain undifferentiated expanses of glass. Master Plan Commitments LI-2, and LI-3 have been developed by LAWA to ensure that no building materials or light sources are introduced that could generate glare which would pose a hazard to aviation. Therefore, Alternative A is not expected to generate substantial adverse glare.

Lighting effects from Alternative A along the airport boundaries where there are sensitive uses are discussed below.

---

<sup>581</sup> The Airport's Air Cargo Facilities Design Guidelines building lighting guidelines are described in Technical Report 9, *Light Emissions Technical Report*.

## **Lighting Conditions - 2005**

### **Southern Boundary**

Alternative A would reduce the existing density of airport facilities on Imperial Highway west of Sepulveda Boulevard in the areas directly north of the residences in El Segundo, reducing levels of lighting in that area. Partial development of a new four-level parking structure, rental car facility, and commercial vehicle holding area (50 percent built by 2005) would occur on the southwest corner of the LAX site near Imperial Highway and Pershing Drive. Light sources associated with the parking structure (roof perimeter lights, parapet lights, security lights, and light from structure interiors) and parking lot lighting from the rental car and commercial vehicle holding areas would be visible from the multi-family residential area south of Imperial Highway. However, an improved roadway ROW and buffer strip would separate this residential area from the new parking facilities next to Imperial Highway by over 300 feet. Proposed landscaping of the airport grounds and street frontages around the parking structure would provide further screening for the residential area from these light sources.

With the intervening buffer area, roadways, and landscaping, the lower elevation of the southern LAX boundary, (all factors which reduce the possibility of light spillover), no adverse lighting effects on these sensitive uses are expected. Changes in the illuminance of ambient conditions at these receptor locations due to implementation of Alternative A are presented in **Table 4.18-1**. As shown, the 0.09 *fc* increase expected in ambient lighting conditions along the south side of LAX, which is well below the 2-footcandle threshold established by City code.

Although the increase in ambient lighting conditions along the south side of LAX under Alternative A would not result in significant impacts, there would be greater levels of ambient lighting than under the No Action/No Project Alternative.

### **Western Boundary**

As described above, the new WTA and parking structure would involve nighttime illumination associated with a variety of lighting sources. As with existing light sources, these new light sources would be directed or shielded to remain on-site, away from LAX site perimeters, focused on proposed terminal and parking facilities. Even with careful placement and design, the new light sources for the WTA and parking facilities would increase ambient light levels over those now at the west end of the airport.

As shown in **Table 4.18-1**, ambient lighting conditions in the Habitat Restoration Area due to development of the WTA are expected to increase by an estimated 0.34 *fc*. With the addition of a northern runway, Alternative A would also change navigational aid lighting. Existing facilities would be relocated as necessary, and 2 ALS light standards and four ALSF-2 light standards would be added in the Habitat Restoration Area. No addition to security lighting would be expected. The potential effects on biological resources within the Habitat Restoration Area are discussed in Sections 4.10, *Biotic Communities*, and 4.11, *Endangered and Threatened Species of Flora and Fauna*.

Although the increase in ambient lighting conditions along the western end of LAX under Alternative A would not result in significant impacts, there would be greater levels of ambient lighting when compared to the No Action/No Project Alternative.

### **Northern Boundary/Westchester Southside**

Under Alternative A, the Westchester Southside project (formerly the site of the proposed LAX Northside) would increase ambient light levels on the site, and potentially in its vicinity, now vacant except for the Westchester Municipal Golf Course. In 2015, Westchester Southside would be built out with 2.62 MSF, overall reducing commercial/industrial development density over the 4.5 MSF approved in the original LAX Northside project.

Conditions of approval (zoning conditions defined as [Q] zoning conditions) that currently apply to LAX Northside are to be incorporated in the proposed Westchester Southside subdivision map and ordinance. As these conditions would require setbacks and buffer areas, no significant effects due to light spillover on sensitive receptors are expected. Changes in illuminance from ambient conditions at receptor locations adjacent to Westchester Southside are presented in **Table 4.18-1**. As shown in the table ambient lighting conditions are expected to increase by 0.8 *fc*, within the 2-footcandle threshold established in the City of Los Angeles Municipal Code and, therefore, not significant.

## 4.18 Light Emissions

---

Construction of the Westchester Parkway/Sepulveda Boulevard interchange will require acquisition of single-family homes, and reconfiguring Kittyhawk, Fleetwing, Earhart, and DeHaviland Avenues. Nighttime illumination associated with the interchange, as well as new employee parking and rental car facilities located further to the south would create urbanized lighting conditions that would be screened from the view of sensitive residential receptors in the neighborhood north of Will Rogers Street. The Alternative A site plan identifies existing and proposed landscaped berms and buffer areas adjacent to and for all residential areas running from Aviation Boulevard on the east to Pershing Drive on the west. East of Sepulveda Boulevard, a landscaped earth berm is proposed along the airport boundary screening residential areas from direct views of airport facilities as well as the upgraded Westchester Parkway/Arbor Vitae Street. This screening would eliminate direct views of lighting associated with the Westchester Parkway/Sepulveda Boulevard interchange and the parking and rental car facilities. In addition to the screening provided by the proposed earth berms, the neighborhoods would be separated from the Westchester Parkway/Sepulveda Boulevard interchange by a distance of at least 150 feet, and from the parking and rental car facilities by a distance of at least 600 feet. With the berm and landscape buffer area, and the distance from residential areas, significant spillover of LAX light emissions onto sensitive receptors in this area is not expected.

The increase in ambient lighting conditions along the north side of LAX under Alternative A would not result in significant impacts and would result in an increase of 0.8 *fc* in ambient lighting conditions similar to that expected with the No Action/No Project Alternative.

### Century Corridor

Nighttime illumination from new and redeveloped cargo facilities and ancillary uses on the eastern end of the LAX site along La Cienega Boulevard would be visible from adjacent off-site commercial and industrial buildings. Similar to existing cargo complexes, light sources are expected to be shielded and directed down so no light spillover extends off-site. The adjacent off-site commercial and industrial uses, not considered sensitive uses, produce light emissions of similar intensity as those associated with the existing and proposed LAX cargo facilities. Therefore, no impacts in these areas are expected.

Similarly, airport cargo and maintenance facilities that are proposed adjacent to Century Boulevard would not encroach on existing setbacks, and light sources are expected to be shielded and directed down so no light spillover extends off-site. Effects on the hotels in this area would not be significant, as under existing conditions the entire area around the hotels is developed and brightly lit, and lighting associated with new development is not expected to meaningfully increase ambient lighting levels. Furthermore, the location and focus of light fixtures, in conformance with the Air Cargo Facilities Design Guidelines,<sup>582</sup> would also prevent adverse lighting impacts.

Within the acquisition areas along the airport's east perimeter and Century Boulevard corridor, airport-related uses will replace commercial and/or industrial uses. The adjacent off-site commercial and industrial uses are not considered sensitive receptors and produce light emissions of similar intensity to those expected with proposed LAX light sources. New airport cargo and ancillary facilities would be subject to LAX design guidelines that specify landscaping buffers with walls and landscaped parkways to screen light emissions and airport activity. No impacts in these areas are expected. Therefore, as with the No Action/No Project Alternative, no impacts from Alternative A are expected along the Century Boulevard corridor and the eastern end of LAX.

### Light Sources - 2015

Additional sources of nighttime illumination would be associated with Alternative A development by the year 2015. The construction of a new runway on the North Airfield will add airfield lighting to the north end of the LAX site. The construction of a new Runway 24R with a centerline 400 feet north of the existing Runway 24R centerline, the relocating and lengthening of Runway 24C, and upgrade of Runways 25R and 25L involve replacing existing airfield lighting and installing new airfield lighting runway extensions and additions. Lighting associated with the airfields including the taxiways are described in Technical Report 9, *Light Emissions Technical Report*. In general, runway/taxiway lights are directed to the direction of the runway and not off the runway.

---

<sup>582</sup> The Airport's Air Cargo Facilities Design Guidelines building lighting guidelines are described in Technical Report 9, *Light Emissions Technical Report*.

Light sources associated with the runway improvements, taxiway improvements, and the ring road could be visible from off-site vantages to the south and north; but due to their low intensity, intervening development within Westchester Southside, and the distance from off-site sensitive uses, approximately 250 feet from the nearest residences to the north, no significant effects are expected. Additional nighttime illumination would also be created by the remainder of the proposed parking facilities at the southwest end of the LAX site and new South Cargo Complex, the La Cienega Cargo Complex, the employee parking located at the eastern end, the extension of the Metropolitan Transportation Authority (MTA) Green Line and the new LAX Expressway. Full build out of the Westchester Southside area and the Continental City project site would occur.

### **Lighting Conditions - 2015**

#### **Southern Boundary**

On Imperial Highway west of Sepulveda Boulevard, replacing the existing cargo facilities with the proposed On-site Fuel Farm would result in similar light sources. The light sources associated with the remainder of the new parking facilities on the southwest corner of the LAX site would be visible from the multi-family residential uses to the south of LAX. However, with the intervening buffer area, roadways and landscaping, the lower elevation of the LAX site, and a distance of over 300 feet, no adverse lighting effects on these sensitive uses are expected.

The proposed Green Line extension in Alternative A extends from the existing Aviation Station paralleling the southern airport boundary on the north side of Imperial Highway until it turns north and terminates at the proposed West Terminal Area. Most of the extension is below grade except for a portion located approximately between the Aviation Station and Nash Street. Illumination associated with the Green Line extension could be visible at this portion of the extension to commercial land uses located south of Imperial Highway. These adjacent off-site commercial uses, however, are not considered sensitive uses; therefore, no significant impacts from Green Line sources would occur.

Although the increase in ambient lighting conditions of 0.09 *fc* along the south side of LAX under Alternative A would not result in significant impacts, there would be greater levels of ambient lighting than under the No Action/No Project Alternative.

#### **Western Boundary**

The remainder of the proposed parking facilities located at the southwest end of the LAX site would be constructed by 2015. As shown in **Table 4.18-1**, ambient lighting conditions on the Habitat Restoration Area are expected to increase by an estimated 0.34 *fc* by full build out of Alternative A. The potential effects on biological resources within the El Segundo Blue Butterfly Habitat Restoration Area are discussed in Sections 4.10, *Biotic Communities*, and 4.11, *Endangered and Threatened Species of Flora and Fauna*.

Although the increase in ambient lighting conditions along the western end of LAX under Alternative A would not result in significant impacts, there would be greater levels of ambient lighting than under the No Action/No Project Alternative.

#### **Northern Boundary/Westchester Southside**

The remainder of the Westchester Southside project not completed by 2005 would be constructed by 2015. As shown in **Table 4.18-1**, ambient lighting conditions on the northern boundary of LAX are expected to increase by an estimated 0.8 *fc* by full build out of Alternative A. Within the 2-footcandle threshold established in the City of Los Angeles Municipal Code, this estimated increase would not be significant.

The increase in ambient lighting conditions along the north side of LAX under Alternative A would not result in significant impacts and would result in an increase of 0.8 *fc* in ambient lighting conditions similar to that expected with the No Action/No Project Alternative.

#### **Century Corridor**

Effects of nighttime illumination associated with the new cargo facilities and the new employee parking on the eastern end of the LAX site in 2015 would be similar to those previously discussed for Alternative A in 2005. Adjacent off-site uses are not sensitive and light spillover onto sensitive receptors is not expected

## 4.18 Light Emissions

---

from LAX cargo complex sources. Therefore, as with the No Action/No Project Alternative, no impacts from Alternative A are expected along the Century Boulevard corridor and the eastern end of LAX.

### Proposed LAX Expressway Routes

Portions of the proposed LAX Expressway alignments in Alternative A extend from the SR-90 paralleling the I-405 Freeway to the proposed ring road. Single- and multi-family residences along Thornburn Street, 74<sup>th</sup> Street, and Midfield Avenue would be adjacent to an above-grade portion of the LAX Expressway on the west side of the I-405 and along Hyde Park Boulevard, Ash Avenue, and Centinela Boulevard on the east side of the I-405 would be subject to increases in lighting, as described in Appendix K, *Supplemental Environmental Evaluation for LAX Expressway and State Route 1 Improvements*.

Because final design plans for the Expressway have not yet been developed, the specific nature and potential for adverse lighting effects on Thornburn Street's residential uses and other areas, as previously described, along the Expressway is difficult to determine. However, given the proximity of the ROW uses, and the possible loss of some of the existing landscape buffer on the east side of Centinela Creek, there are potentially significant impacts. Depending on the proximity and grade of the Expressway in this area, and the ability to provide a landscaped buffer, direct spillover onto these sensitive uses could occur.

A more comprehensive discussion of impacts and mitigation associated with the LAX Expressway alternatives is provided in Appendix K, *Supplemental Environmental Evaluation for LAX Expressway and State Route 1 Improvements*.

The potential significant lighting impact associated with the LAX Expressway under Alternative A would not occur under the No Action/No Project Alternative, as this alternative would not include an expressway.

### Construction

Major areas of extensive and widespread construction activity would be focused at the eastern end of the airport at the Continental City project site, in areas to the north, at the WTA, and along the northern boundary of the airport at Westchester Southside and areas east of Sepulveda Boulevard. Construction activities on the airport may involve nighttime activities that would require lighting of work areas. This lighting would be necessarily focused downward, oriented toward airport property, and away adjacent sensitive residential uses. Furthermore, construction hours within the project areas adjacent to sensitive uses would be restricted in accordance with municipal code requirements. Because no nighttime construction or construction lighting would occur in areas close enough to disturb residential uses, no significant impacts from construction lighting are expected with development of the project.

Lighting impacts associated with construction of the LAX Expressway are discussed in Appendix K, *Supplemental Environmental Evaluation for LAX Expressway and State Route 1 Improvements*.

Although the increase in ambient lighting conditions associated with construction activities under Alternative A would not result in significant impacts, there would be greater levels of ambient lighting than under the No Action/No Project Alternative.

### 4.18.6.3 Alternative B - Added Runway South

Alternative B (described in Section 3.2.6, *Alternative B - Added Runway South*) contains various features that are especially pertinent to the analysis of light emission impacts. Some of these features are runway, taxiway, parking facilities, cargo, fuel farm, and roadway development.

#### LAX Light Sources - 2005

The new sources of nighttime illumination on the LAX site associated with Alternative B are similar to those proposed in Alternative A. Although the runway/airfield improvements proposed would result in new or relocated light sources in this area of the LAX site, their low intensity and distance from off-site sensitive uses are not expected to result in significant effects. As under Alternative A, no off-site spillover is expected from Central Terminal Area improvements. Additional nighttime illumination would be associated with improvements to the proposed West Terminal Area; with the proposed parking facilities located at the center, north, and west ends of the LAX site; and the Century Cargo Complex, La Cienega Cargo Complex, Imperial Cargo Complex East, and Imperial Cargo Complex.

Lighting effects from Alternative B along the airport boundaries where there are sensitive uses are discussed below.

---

## **Lighting Conditions - 2005**

Lighting conditions and their effects on sensitive receptors under Alternative B are described below. As concluded for Alternative A, Alternative B would not generate substantial adverse glare.

### **Southern and Western Boundaries and Century Corridor**

Changes in ambient lighting conditions would be similar to those described under Alternative A, and no significant impacts to sensitive receptors are expected.

Although the increase in ambient lighting conditions along the southern and western boundaries of LAX under Alternative B would not result in significant impacts, there would be greater levels of ambient lighting than under the No Action/No Project Alternative.

### **Northern Boundary/Westchester Southside**

New light sources for Westchester Southside would be the same as those proposed in Alternative A. No significant impacts to sensitive receptors are expected in this area. The construction of the Westchester Parkway/Sepulveda Boulevard interchange would require acquisition of single-family homes east of Sepulveda Boulevard and reconfigure Kittyhawk, Fleetwing, Earhart, and DeHaviland Avenues. The Alternative B site plan screens the interchange from the neighborhood north of Will Rogers Street. The interchange would be screened from adjacent single-family homes at Croydon, Earhart, and Fleetwing Avenues. With provision of the landscaped buffer area, light emissions would not spill over into sensitive receptors and the level of illumination would be similar to existing area street lighting.

The increase in ambient lighting conditions along the north side of LAX under Alternative B would not result in significant impacts and would result in an increase of 0.8 *fc* in ambient lighting conditions similar to that expected with the No Action/No Project Alternative.

## **LAX Light Sources - 2015**

The new sources of nighttime illumination on the LAX site associated with Alternative B by the year 2015 would be similar to Alternative A with a few exceptions. Alternative B relocates the airport's fuel farm off-site to either a portion of the Scattergood Generating Station site or to a portion of the oil refinery located south of the airport. Without the northern runway that Alternative A proposes, Alternative B would add navigational aid lighting to the Habitat Restoration Area (see Section 4.10, *Biotic Communities*). Additionally, construction of the ring road and associated street lighting under Alternative B would occur in close proximity to residential uses east of Sepulveda and north of Arbor Vitae Street in the Ramsgate residential area.

## **Lighting Conditions - 2015**

### **Southern Boundary**

The proposed Green Line extension in Alternative B extends north from the existing Aviation Station paralleling Aviation Boulevard until it terminates at the intersection of Century and Aviation Boulevards. Most of the extension is below grade and on the LAX site, therefore, no light spillover into off-site sensitive receptors is expected.

All existing cargo along the southern boundary would be relocated east of Sepulveda Boulevard, adjacent to commercial and industrial uses not considered sensitive uses. New ancillary facilities would be located slightly west of existing ancillary facilities on the southern border. The light sources associated with these ancillary structures (roof perimeter lights and security lights) would be visible from the residential area south of Imperial Highway. However, an improved roadway ROW and buffer strip would separate this residential area from the new ancillary facilities next to Imperial Highway by over 300 feet. Proposed landscaping of the airport grounds and street frontages around the parking structure would provide further screening of light sources from this residential area. With the intervening buffer area, roadways and landscaping, the lower elevation of the southern LAX boundary, and a distance of over 300 feet, no adverse lighting effects on these sensitive uses are expected. Similar to Alternative A, as shown in **Table 4.18-1**, ambient lighting conditions along the south side of LAX are expected to increase by 0.09 *fc* by full build out of Alternative B. This increase is well below the 2-footcandle threshold of the City's code.

Although the increase in ambient lighting conditions along the southern boundary of LAX under Alternative B would not result in significant impacts, there would be greater levels of ambient lighting than under the No Action/No Project Alternative.

## **4.18 Light Emissions**

---

### **Western Boundary, Westchester Southside Area, and Century Corridor**

Changes in ambient lighting conditions would be similar to those described under Alternative A, and no significant impacts to sensitive receptors are expected.

Although the increase in ambient lighting conditions along the western boundary, Westchester Southside Area, and the Century Boulevard corridor of LAX under Alternative B would not result in significant impacts, there would be greater levels of ambient lighting than under the No Action/No Project Alternative.

### **Northern Boundary**

As proposed under Alternative B, the alignment of the ring road would be in close proximity to eight apartment buildings located on Morley Street, in the area north of Arbor Vitae Street between Airport and Aviation Boulevards. Plans for Alternative B show little to no landscaped buffer between these residential uses and proposed roadway facilities that would be well illuminated by street lighting. Under current conditions, a number of these apartment buildings are screened from light sources to the south by the walls of two large industrial buildings, while other apartment buildings are exposed to lighting from a rental car parking lot and dock areas associated with a warehouse. With acquisition of the warehouse and properties to the south, the lack of a landscaped buffer, and the potential for substantial street lighting in close proximity to these residential uses, it is likely that lighting intensity would increase by more than 2 *fc*. Master Plan Commitment LI-1, Ring Road Landscaping, has been developed by LAWA to address this potential impact and aesthetic concerns. With the implementation of this commitment, impacts from the ring road would be avoided.

Although the potential significant lighting impact associated with the ring road under Alternative B would be avoided, the potential for the impact would not occur under the No Action/No Project Alternative, as this alternative would not include the ring road improvements.

### **Proposed LAX Expressway Routes**

The proposed LAX Expressway in Alternative B extends from Howard Hughes Parkway paralleling the 405 Freeway to the railroad right-of-way along Florence Avenue until it reaches the proposed LAX ring road. This alignment would abut single- and multi-family residential uses east of the I-405 Freeway along Thornburn Street, 74<sup>th</sup> Street, and Midfield Avenue. The remaining portions of the Expressway would be adjacent to commercial and industrial uses. In the Thornburn Street residential neighborhood, the LAX Expressway would potentially result in light spillover. This is considered to be a significant impact.

Under Alternative B, the alignment at Florence Avenue would bridge over the I-405 and be elevated within the Metropolitan Transit Authority (MTA) (railroad) right-of-way along Florence Avenue. In this area where the alignment crossed over the I-405, light sources associated with the Expressway would have the potential for spill over on the single- family homes on west side of Midfield Avenue near the intersection of Midfield Avenue and 82<sup>nd</sup> Street. At present, the densely landscaped setback and the higher elevation of the homes eliminate the potential for light spillover from the freeway. Although final design plans for this facility are not available, the closeness and elevation of this proposed roadway could result in direct light spillover on sensitive uses. This is considered to be a significant impact.

Under Alternative B, other areas along the MTA (railroad) right-of-way along Florence Avenue are completely industrialized, and light spillover onto sensitive uses would not occur.

The potential significant lighting impact associated with the LAX Expressway under Alternative B would not occur under the No Action/No Project Alternative, as this alternative would not include an expressway.

### **Proposed Off-Site Fuel Farm Sites**

One of the two optional off-site fuel farm sites would be completed in 2015 under Alternative B. One site is proposed for a portion of the Scattergood Generating Station and the other for the oil refinery located south of the airport.

The proposed fuel farm for the Scattergood site would add sources of nighttime illumination to portions that are currently unlit or dimly lit. The Scattergood site currently contains the LADWP steam-generating plant, an aboveground fuel storage tank, two water storage tanks behind the power plant, and four aboveground fuel storage tanks (50-foot-high, approximately 180-foot wide) on the south side of Grand Avenue. Under Alternative B, the existing four tanks south of Grand Avenue would be removed and replaced by ten smaller jet fuel tanks for the Scattergood Fuel Farm. The proposed tanks would be 70

feet high and 120 feet in diameter. They would be recessed ten feet and resulting in a height 10 feet higher than the 50-foot height of the existing tanks to be removed. The existing berm surrounding the four larger tanks would be removed and the new tanks would be placed closer to the Grand Avenue Roadway, behind a six-foot high masonry wall. The ground coverage of the ten jet-fuel tanks would be approximately 10 percent greater than that of the 4 larger tanks to be replaced. In addition to the 12 fuel tanks, the Scattergood Fuel Farm would include a pipeline receipt facility, hydrant pumps, tank truck loading, a 6,000-square-foot office building and associated 36,000 square-foot parking lot, an expanded firehouse incorporating the needs of the generating station and the fuel farm, and an additional water tank, 80 feet in diameter. The Scattergood Fuel Farm would increase on-site illumination with security, access, and operational lighting and office and firehouse lighting.

The lights associated with the Scattergood Fuel Farm would be visible from Grand Avenue and Vista del Mar, Dockweiler State Beach, and possibly from the multi-family and single-family homes along the west side of Loma Vista Street south of Grand Avenue. These homes are directly adjacent to the east boundary of the proposed Scattergood Fuel Farm site that is currently unlit or dimly lit and incorporates a landscape buffer. Proposed plans show that the firehouse, water tank, office, and parking lot would be separated from these residential uses by an approximately 20-foot landscaped setback. Plans also specify that lighting on the site will be shielded, directed down, and located to avoid light spillover or direct glare that would affect these residential uses.

As shown in **Table 4.18-1**, ambient lighting conditions are expected to increase by 0.8 *fc*, and there are no estimated occurrences of ambient conditions increasing by the threshold of 2 *fc* or more. Considering these measurements, the proposed landscape buffer, and the approach to lighting design and placement, no adverse lighting effects are expected for these residential properties.

The alternative to the Scattergood Fuel Farm site is a portion of the 1,000-acre oil refinery property located south of the airport bounded by Vista del Mar, El Segundo Boulevard, Sepulveda Boulevard, and Rosecrans Avenue. The off-site fuel farm site is located along the south side of El Segundo Boulevard in the north central portion of the oil refinery property. On El Segundo Boulevard, the property is partially visible through a mature growth of eucalyptus trees. This area is located across from primarily industrial land uses. Typical of oil-refining facilities, this property contains large numbers of fuel storage tanks, pipeways, roads, stacks, and towers. The off-site fuel farm's nighttime illumination would be similar to the existing facilities at the oil refinery site, including security, access, operational lighting, and office and firehouse lighting. As with similar existing light sources, those for the oil refinery located south of the airport fuel farm are expected to be shielded, directed down, and would not spillover beyond the site. And as the site is largely obscured from public view and is adjacent to industrial development, no spillover onto sensitive uses is expected.

Although the increase in ambient lighting conditions associated with the off-site fuel farm sites under Alternative B would not result in significant impacts, there would be greater levels of ambient lighting than under the No Action/No Project Alternative, as Alternative B would not include the development of off-site fuel farm sites.

### **Construction Impacts**

Construction impacts associated with Alternative B would be less than significant, as described for Alternative A.

Although the increase in ambient lighting conditions associated with construction activities under Alternative B would not result in significant impacts, there would be greater levels of ambient lighting than under the No Action/No Project Alternative.

#### **4.18.6.4 Alternative C - No Additional Runway**

Alternative C (described in Section 3.2.7, *Alternative C – No Additional Runway*) contains various features that are especially pertinent to the analysis of light emission impacts. These features include runway and taxiway improvements, parking facilities, cargo, and roadway development.

Impacts associated with lighting for Alternative C would be similar to those described under Alternatives A and B for 2005 and 2015. Alternative C does not involve new runways, and the proposed fuel farm would be expanded on-site. Changes in ambient lighting conditions for all the boundary areas would be similar to those under Alternatives A and B with no significant impacts to sensitive receptors expected. As with Alternative B, this alternative does not propose a northern runway that would add navigational aid lighting

## **4.18 Light Emissions**

---

within the Habitat Restoration Area. Potentially significant lighting impacts on residential uses would be similar to those described under Alternative A with LAX Expressway lighting in close proximity to residential uses as described in Appendix K, *Supplemental Environmental Evaluation for Expressway and State Route 1 Improvements*. As with Alternatives A and B, no significant construction lighting impacts are expected to occur with Alternative C.

Although the increase in ambient lighting conditions along the airport boundaries and the Century Boulevard corridor would not result in significant impacts, there would be greater levels of ambient lighting than under the No Action/No Project Alternative, as well as potentially significant impacts associated with the LAX Expressway.

### **4.18.7 Cumulative Impacts**

As discussed under Affected Environment/Environmental Baseline, LAX and its surrounding environment generate light emissions common to highly urbanized areas. Certain airport facilities visible from the airport periphery emit intensities of light that are noticeably above average ambient light conditions.

#### **4.18.7.1 No Action/No Project Alternative**

Under the No Action/No Project Alternative, taxiway improvements and new parking and cargo facilities would add new sources of nighttime illumination. These new facilities would incrementally increase ambient light levels. However, the relatively small increase in illumination combined with the distance to the nearest sensitive receptors would avoid impacts. Development of the LAX Northside and Continental City projects would also introduce new sources of nighttime illumination. The Continental City project light sources are expected to be similar in type and operational hours to those in surrounding commercial and industrial land uses, with no light-sensitive receptors in the vicinity. Ambient lighting conditions along the LAX Northside residential interface would not exceed the 2-footcandle threshold established in the City of Los Angeles Municipal Code. Acquisition within the Manchester Square and Belford areas would reduce ambient lighting conditions in these areas.

The most sizeable independent project in the immediate vicinity of the airport is the Playa Vista Project, which, combined with development of LAX Northside could result in an increase in ambient lighting conditions in areas between the two projects. However, conditions placed on the LAX Northside project and the distance and existing development found between the two projects would avoid potential cumulative impacts associated with these projects. Other projects in the vicinity would also increase ambient lighting conditions. However, this increase in light sources would occur in the context of infill development within a lit urban environment. Therefore, independent projects in association with the No Action/No Project Alternative are not expected to result in adverse cumulative effects from light emissions.

#### **4.18.7.2 Alternatives A, B and C**

As previously discussed under Environmental Consequences, development of the Draft LAX Master Plan alternatives would contribute to increased artificial light emissions. Overall, changes in lighting sources with airport uses under the build alternatives would not, with a few exceptions, result in an increase in illumination sufficient to create a significant impact on sensitive receptors adjacent to the study area. Potentially significant impacts have been identified with the build alternatives on residential uses located along the proposed right-of-way for the LAX Expressway. Impacts could also occur with Alternative B, where a section of the proposed ring road, and associated lighting would be located in close proximity to residential uses. These impacts would however, be avoided through compliance with regulatory requirements, Master Plan Commitments, and mitigation to ensure that lighting intensity does not increase by more than 2 footcandles over existing levels at the property lines of adjacent residential uses. In considering impacts associated with independent project development in the nearby vicinity, the proposed Playa Vista development would be constructed within an area that is currently vacant and would, in combination with the proposed Master Plan, directly increase cumulative ambient lighting conditions north of LAX. However, the combined increase in light emissions associated with these two projects would be ambient in nature and the distance between the sites would not result in cumulatively significant impacts on sensitive receptors. With the project's potential for impacts on sensitive receptors avoided or reduced to less than significant levels through Master Plan design features and commitments, regulatory compliance, and mitigation measures, and recognizing that ambient increases in lighting would occur in the context of infill development within a lit urban environment, cumulative impacts are considered to be less than significant.

### **4.18.8 Mitigation Measures**

With the implementation of the Master Plan Commitments LI-1, LI-2, LI-3, LU-1, and LU4, Alternatives A, B, and C would not have any significant impacts relative to light emissions with the exception of potential impacts from the LAX Expressway.

The following Mitigation Measure is recommended to reduce light emission impacts from the LAX Expressway:

◆ **MM-LI-1. LAX Expressway Lighting Assessment.**

As part of final design for the LAX Expressway LAWA shall undertake an assessment of potential adverse lighting effects based on detailed plans. The documentation shall include baseline ambient lighting measurements along the portions of the LAX Expressway adjacent to sensitive uses. The baseline data shall be used to estimate potential change in ambient lighting conditions with development of the Expressway. If it is determined that adverse effects would occur on residential uses, then landscaped buffer areas, setbacks, lighting specifications and placement, or other techniques shall be required to ensure that lighting intensity over baseline conditions for residential uses does not increase by more than 2 footcandles.

### **4.18.9 Level of Significance After Mitigation**

With implementation of Mitigation Measure MM-LI-1, lighting impacts to sensitive receptors would be reduced to less than significant levels.

#### **4.18 Light Emissions**

---

This Page Intentionally Left Blank.